

Measuring Short-Run Organizational Performance



LEARNING OBJECTIVES

After completing this chapter, you should be able to answer the following questions:

- 1 How are performance measures tied to organizational missions and strategies?
- 2 What roles do performance measurement serve in organizations?
- 3 What guidelines or criteria apply to the design of performance measures?
- 4 What are traditional short-term financial performance measures of profit and investment centers?
- 5 How might the Statement of Cash Flows be useful for performance measurement?
- 6 How are return on investment and residual income similar? How do they differ?
- 7 How is economic value added used to measure performance?
- 8 Why might the use of ROI create suboptimization in investment decisions?

The environment in which banks will compete in the next decade may force them to perform much more like retailers than like the financial institutions our parents knew. This means that whether bank managers and employees are in the service or sales arena, operations, product management, or channel management, they will need the skills and behavior of the “best in class” retailers. Banks must harness the power of information to create a banking experience that is customized to their target customers. Successful banking in this new millennium will require focusing on the customer.

Wachovia is a \$68.8-billion-asset bank that believes it has found the formula for success in the new banking environment. At Wachovia, information drives the development and retention of profitable relationships. With dual headquarters in Winston-Salem and Atlanta, the bank serves customers in five states: Florida, Georgia, North Carolina, South Carolina, and Virginia. Overall, the bank operates 700 “stores” that are complemented by a robust ATM network.

Wachovia has developed a process called continuous relationship management (CRM) as a crucial tool in differ-

entiating its services from those of competitors. CRM is built around the idea that the bank must maintain the very best intelligence information about its customers. By wielding this information effectively, Wachovia’s managers believe they can deliver superior service to their customers and generate higher profits than their competitors.

The ability to attract the right new customer is the next horizon in revenue and earnings growth for banks. Wachovia has recognized that the key to achieving high profits is serving the right mix of products to the right customers. Accordingly, the company has also developed sophisticated information systems to evaluate customer profitability, which, in turn, have led to the development of systems to profile and target new customers.

Raw information provides no advantage. The way financial service companies distinguish themselves is to competently process, distribute, and use information to serve customers. At Wachovia, the goal of employees is to know and understand customers and their cares and concerns better than any other financial institution.

SOURCES: Wachovia 1998 Annual Report; Beverly B. Wells, “At Wachovia, Customer Focus Means Information-Driven Continuous Relationship Management,” *Journal of Retail Banking Services* (Summer 1999), pp. 33–36.

The information systems of Wachovia demonstrate the latest generation of tools for managing information and feedback. The two characteristics that differentiate this generation from preceding generations of systems are the focus on the customer rather than the bottom line, and the integration of information feeder systems.

The switch in focus from profitability to the customer is somewhat illusory. Managers of today are no less concerned with profits than managers of other eras; however, to achieve profitability in the face of global competition, managers recognize that the single most important variable is to attract and satisfy customers. Hence, there is high correlation between achieving profitability and effectively serving the marketplace.

Exhibit 19–1 provides the links between customer types and profitability effects. Common reasons why some customers are unprofitable are given and the exhibit demonstrates why customer targeting and screening are so essential to profitably operating businesses.

The ability to integrate information from a set of information systems allows managers to gain new insights about the value chains in which they are participants. Like Wachovia, firms are striving to integrate all available information to identify innovative ways of serving existing customers and attracting new customers. The overriding goal is to find ways to serve customers that generate acceptable profits for the investors.

EXHIBIT 19-1*Common Causes of Unprofitable Customers*

Common Cause	Examples
1. Large customers demanding low prices and high levels of service	Customer negotiates low price, purchases lower margin goods and causes high selling, administration, and delivery costs.
2. Undifferentiated service with low-sales-value customers receiving the same high-cost service as large, high-volume customers	Customer is serviced through costly weekly sales visits and deliveries. Such customers will never generate sufficient net margins to cover these costs.
3. Providing high service levels as a competitive advantage	Management considers its ability to deliver goods overnight to be a competitive advantage. Unfortunately the high cost of delivery makes every order unprofitable.
4. Overall high-cost sales, administration, and delivery processes	A company's sales process is relying on costly sales visits for all transactions and customers. There is no use of lower cost channels, such as call centers or EDI.
5. Providing highly customized products/services	Highly customized products are produced for a small number of small customers.
6. High customer turnover	The cost of obtaining and setting up customers is high and/or customers profitability increases over time, e.g., insurance and telecommunications.

SOURCE: Mark Pickering, "Using Customer Profitability Information to Drive the Bottom Line," *Charter* (March 1999), pp. 32–34.

One type of information system that is crucial to effectively compete today is the performance measurement system. This chapter and the next two cover general concepts of performance measurement. The focus of this chapter is traditional, shorter term performance measures; Chapter 20 covers performance measurement over the longer term and nonfinancial performance measures. Chapter 21 discusses how and why managerial rewards are linked to organizational performance measures. The discussion in the following section explains how performance measures are used in organizations.

ORGANIZATIONAL ROLES OF PERFORMANCE MEASURES

1

How are performance measures tied to organizational missions and strategies?

Organizations have reasons or missions for which they exist. In fulfilling organizational missions, managers design and implement strategies that apply organizational resources to activities. The activities are intended to execute management's strategies. Management talent and time are dedicated to planning, decision making, controlling, and evaluating performance with respect to these activities. The intent in these managerial processes is for management to take actions that maximize the efficiency and effectiveness of resources used. For an organization to be successful in its missions, managers must devise appropriate information systems to track resource applications.

Gauging effective and efficient management of resources is possible only if (1) the terms *effective* and *efficient* can be defined, and (2) measures that are consistent with the definitions can be formulated. Definitions of *effective* and *efficient* could be relative to historical performance, competitors, or expectations. Once defined, effectiveness and efficiency of performance can be assessed by comparing measures of actual performance with defined performance goals.

Ultimately, performance is assessed to be effective and efficient if shareholders receive an adequate return on their investment. This places pressure on top management to achieve returns that are attractive to shareholders. Failing to satisfy shareholders has severe consequences financially and for the reputations of management teams¹:

Those companies that are not taking good care of the precious capital they manage are finding themselves coming under tremendous pressure from powerful institutional investors. If they don't find a way to generate appropriate returns for investors, they are often forced to sell out to someone that may do a better job. . . . As we all know investors will cease to provide capital to management teams that destroy value.

Thus, the need for managers to generate a satisfactory return to shareholders is the key driver of performance measurement²:

Nobody ever said it was easy to track down shareholder value. . . . [but] shareholder return [is] the single most important measure. . . . the measure most relevant to the shareholders and most relevant to managers trying to manage for shareholder value.

Performance measurement provides a foundation for³

- judging organizational performance,
- relating organizational missions and goals to managerial performance,
- fostering the growth of subordinate managers,
- stimulating managerial motivation,
- enhancing organizational communication,
- making judgments about promotion, and
- implementing organizational control.

By linking performance measures to managerial rewards, managers are given incentives to concentrate on improving specific performance areas. As the measured dimensions of performance are improved, managerial rewards are increased. The linking of management rewards to organizational performance measures creates the incentive that drives managers to take desired actions.

Performance measures should be devised for all critical resources consumed by operations. Additionally, the performance measurements should lead to insights about how to improve resource use and how to achieve organizational changes that allow firms to remain competitive. The following subsections provide details of performance measurement information in areas that are critical to survival in the global market.

Information for Evaluating Capital Market Performance

A traditional area of performance measurement relates to the effective and efficient use of capital resources. This area is the domain of financial accounting. Generally accepted accounting principles (GAAP) are formulated for providing information that is comparable across firms to capital markets and other external users. This comparability facilitates investor/creditor judgments about which firms are worthy of capital investments. On the other side of the capital equation, to obtain needed capital at competitive rates, managers must demonstrate to investors that the managers' firms offer excellent returns relative to the risks assumed. Absent an ability to acquire capital at reasonable rates, a firm will stagnate for want of funds to capitalize on growth opportunities.

¹ Vincent J. Calabrese, "Economic Value Added: Finance 101 on Steroids," *The Journal of Bank Cost & Management Accounting* (1999), pp. 3–34.

² C. Frederic Wiegold, "Quest for Shareholder Value, Ranking America's Best & Worst Companies," *The Wall Street Journal* (February 26, 1998), p. R1.

³ Adapted from Harry Levinson, "Management by Whose Objectives?" *Harvard Business Review* (July–August 1970), pp. 125–134.

2

What roles do performance measurement serve in organizations?

Another consideration that makes managers focus on capital management is stockholder influence. Stockholders, acting through their boards of directors, have the right to determine who will manage their businesses. Naturally, stockholders are interested in hiring a management team that will maximize the return on the stockholders' investment in the firm. Managers are in constant competition to obtain and maintain their positions. Only if managers satisfy the demands of shareholders will these managers be allowed to maintain their positions, be promoted, and enhance their personal human capital.

Stockholders achieve returns on their investments through dividends and appreciation in stock prices. Both types of returns depend on the ability of the firm to generate future earnings. Accordingly, stockholders and other capital providers are most intensely interested in measures of performance that indicate the ability of the firm to generate profits⁴:

Part of the battle is fought by trying to prove whose metric best correlates with changes in stock prices. . . . What matters most is that companies are focusing on creating shareholder value by rationalizing their businesses, setting financial hurdles that have to be met before investing in new ventures and attempting to drive the incentives deep into their organizations.

Information for Evaluating Organizational Learning and Change

The emerging global market has created a pronounced trend in designing performance measures. The quality and quantity of firms competing in markets have placed the consumer at the center of attention, and success in a market depends on the ability of a firm to satisfy some segment of the market better than can any rival firm. In recent years, managers, like those at Wachovia, have focused more attention on assessment of their firms' performance in serving customers.

Exhibit 19–2 provides an outline of Wachovia's profitable relationship optimization system. This is one of the key systems used to exploit customer data in targeting and delivering services to customers. Steps five and six measure the results of sales efforts and provide feedback to the participants in the process.

Although the level of profit achieved may be the arbiter's ultimate measure of success in serving customers, profit is a very aggregated measure. Other measures can be developed that give indications of relative success in specific areas of market performance.

For example, under the forces of global competition, markets are always evolving as firms constantly search for ways to be innovative in providing customers with more value at less cost. To compete in this environment, a firm must develop an organizational culture that fosters learning and innovation. Measures can be used to track a firm's performance against customer expectations. Other measures can be designed to identify waste and assess relative efficiency in resource consumption.

With appropriate measures in place, the focus of managers and workers is on the success of the firm in serving its customers. As the organization strives to improve its performance, a climate embracing change and organizational evolution is created. Such a culture is necessary for a firm to be opportunistic and aggressive as it confronts world-class competition. The measures may also provide the incentive that is necessary to foster cooperation across functional specialties in an organization. The accompanying News Note describes how Sears has developed performance measures that managers use to control the company.

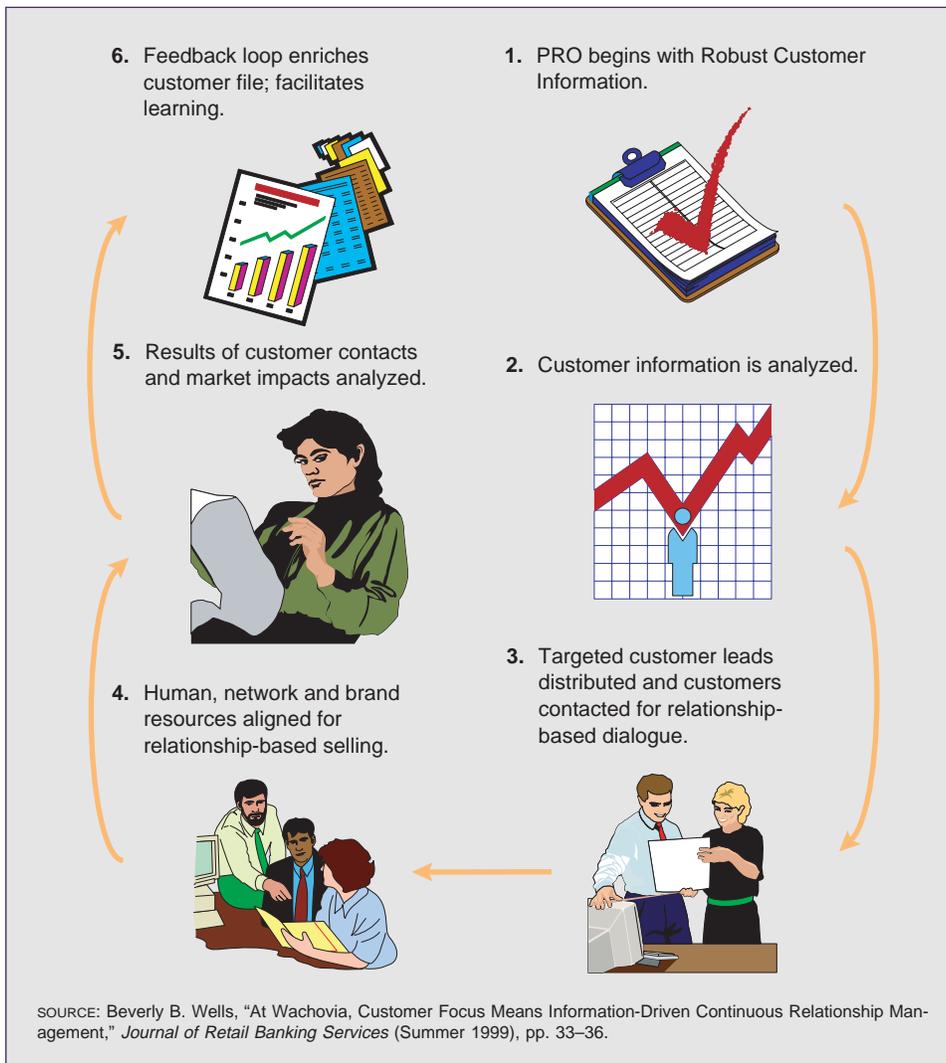
Managers develop products and organizational structures to support strategies that have been devised to serve a firm's customers. Once these strategies are deployed, measures must be developed to assess the performance of the products and organizational structure.

<http://www.sears.com>

⁴ Vincent J. Calabrese, "Economic Value Added: Finance 101 on Steroids," *The Journal of Bank Cost & Management Accounting* (1999), pp. 3–34.

EXHIBIT 19-2

Wachovia's Profitable Relationship Optimization (PRO) System



GENERAL BUSINESS

NEWS NOTE

The Bottom Side of Sears



In many businesses, it is difficult to measure even relatively hard behaviors like customer retention, and the inevitable result is that many companies are unwilling to expend the time, energy, and resources to do it effectively. Not surprisingly, many companies do not have a realistic grasp of what their customers and employees actually think and do.

Sears does. By means of an ongoing process of data collection, analysis, modeling, and experimentation, we have developed and continue to refine what we call our Total Performance Indicators, or TPI—a set of measures that shows us how well we are doing with customers, employees, and investors. We understand the several layers of factors that drive employee attitudes, and we know how employee attitudes affect employee retention, how

employee retention affects the drivers of customer satisfaction, how customer satisfaction affects financials, and a great deal more. We have also calculated the lag time between a change in any of those metrics and a corresponding change in financial performance, so that when we see a shift in, say, employee attitudes, we know not only how but also when it will affect results. Our TPI makes the employee–customer–profit chain operational because we manage the company on the basis of these indicators, with remarkably positive results.

SOURCE: Anthony J. Rucci, Steven P. Kim, and Richard T. Quinn, "The Employee–Customer–Profit Chain at Sears," *Harvard Business Review* (January–February 1998), p. 84.

Information for Evaluating Product/Subunit Performance

A company may place its products in a market to compete on the dimensions of price, quality, and/or functionality (or product features).⁵ Superior performance in any of these three areas can provide the competitive advantage needed for a firm to be successful. By developing specific performance measures for each competitive dimension, alternative ways can be identified to leverage the firm's competencies.

The organizational structure reflects the manner in which a firm assigns and coordinates its people in deploying strategies. By subdividing the overall firm, subunits can be created and charged with making specific contributions to the business. Managers of each subunit can then concentrate on developing the skills and competencies necessary to satisfy their organizational roles. The extent to which each subunit succeeds in its mission can be assessed using carefully designed performance measures. Such measures must be tailored to capture the important performance dimensions of each subunit.

DESIGNING A SYSTEM OF PERFORMANCE MEASUREMENT

3

What guidelines or criteria apply to the design of performance measures?

Through the linking of performance measures to a reward structure, managers are given an incentive to improve their segment's performance. Once this incentive is created, it will work to advance the organization toward its established missions, or it will cause managers to act in manners contrary to the missions. The outcome depends largely on how well performance measures have been designed to capture the performance dimensions that are critical to accomplishing the organization's missions. Exhibit 19-3 identifies warning signs of performance measures that are flawed.

Each manager in a firm is expected to make a particular contribution to the organization. This concept was introduced in Chapter 18 in discussions of responsibility centers and responsibility accounting. The performance measurements selected must be appropriate for the type of responsibility assigned and the type of behavior desired. The point that performance measures are created to cause managers to act cannot be overemphasized. The critical question to address in evaluating a performance evaluation measure is: What managerial actions will this performance measure encourage? This section discusses important issues to be considered in designing a system of performance measurement.

Selecting Performance Measures

To evaluate performance benchmarks must be established against which accomplishments can be measured. A benchmark can be a monetary one (such as a standard cost or a budget appropriation) or a nonmonetary one (such as zero defects

EXHIBIT 19-3

Seven Warning Signs of Problems with Performance Measures

- Performance is acceptable in all dimensions except profit.
- Customers don't buy even when prices are competitive.
- No one notices when performance measurement reports aren't produced.
- Managers spend significant time debating the meaning of the measures.
- Share price is lethargic despite solid financial performance.
- You haven't changed your measures in a long time.
- You've recently changed your corporate strategy.

SOURCE: Michael R. Vitale and Sarah C. Mavrinac, "How Effective Is Your Performance Measurement System?" *Management Accounting* (August 1995), pp. 43-47. Reprinted from *Management Accounting*. Copyright by Institute of Management Accountants, Montvale, N.J.

⁵ For more details, see Robin Cooper, *When Lean Enterprises Collide* (Boston: Harvard Business School Press, 1995).

or the market share of another organization). Regardless of the specific measures used (whether monetary or nonmonetary), four general criteria should be considered in designing a performance measurement system:

1. The measures should be established to assess progress toward organizational goals and objectives.
2. The persons being evaluated should be aware of the measurements to be used and have had some input in developing them.
3. The persons being evaluated should have the appropriate skills, equipment, information, and authority to be successful under the measurement system.
4. Feedback of accomplishment should be provided in a timely and useful manner.

One key to designing an effective system of performance measurement is to recognize that no single performance measure is capable of capturing all of the important dimensions of performance.

Multiple Performance Measures

The first criterion establishes the reason for using multiple performance measures rather than a single measure or measures of only a single type. Organizations have a variety of operational objectives. A primary objective is to be financially viable. If the organization is a profit-oriented one, this objective is satisfied by generating a net income considered by the owners to be satisfactory relative to the assets invested. That level of “satisfactory” earnings may change over time or differ based on the type of business or subunit mission. Therefore, financial performance measures must be relevant for the type of company or organizational subunit being evaluated. Also, any financial measures chosen must reflect an understanding of accounting information and its potential for manipulation.

In addition to financial success, many companies are now establishing operational targets of total customer satisfaction, zero defects, minimal lead time to market, and social responsibility for the environment. These goals cannot be defined directly using traditional, financial terms. Even though poor or excellent performance in these areas will eventually be reflected in financial measures, alternative short-term performance measures are needed to capture the nonfinancial dimensions of performance. Nonfinancial performance measures can be developed that indicate progress—or lack thereof—toward the achievement of these important critical success factors of a world-class company.

The current trend is to apply the concept of the balanced scorecard to performance measurement.⁶ A **balanced scorecard** is an approach to performance measurement that weighs performance measures from four perspectives. The first is the traditional perspective: financial performance. The other three include an internal business perspective, a customer perspective, and innovation and learning. Managers choosing to apply the balanced scorecard are demonstrating a belief that traditional financial performance measures alone are insufficient to assess how the firm is doing and what specific actions must be taken to improve performance. A balanced scorecard is illustrated in Exhibit 19–4 for a company in the semiconductor business.

balanced scorecard

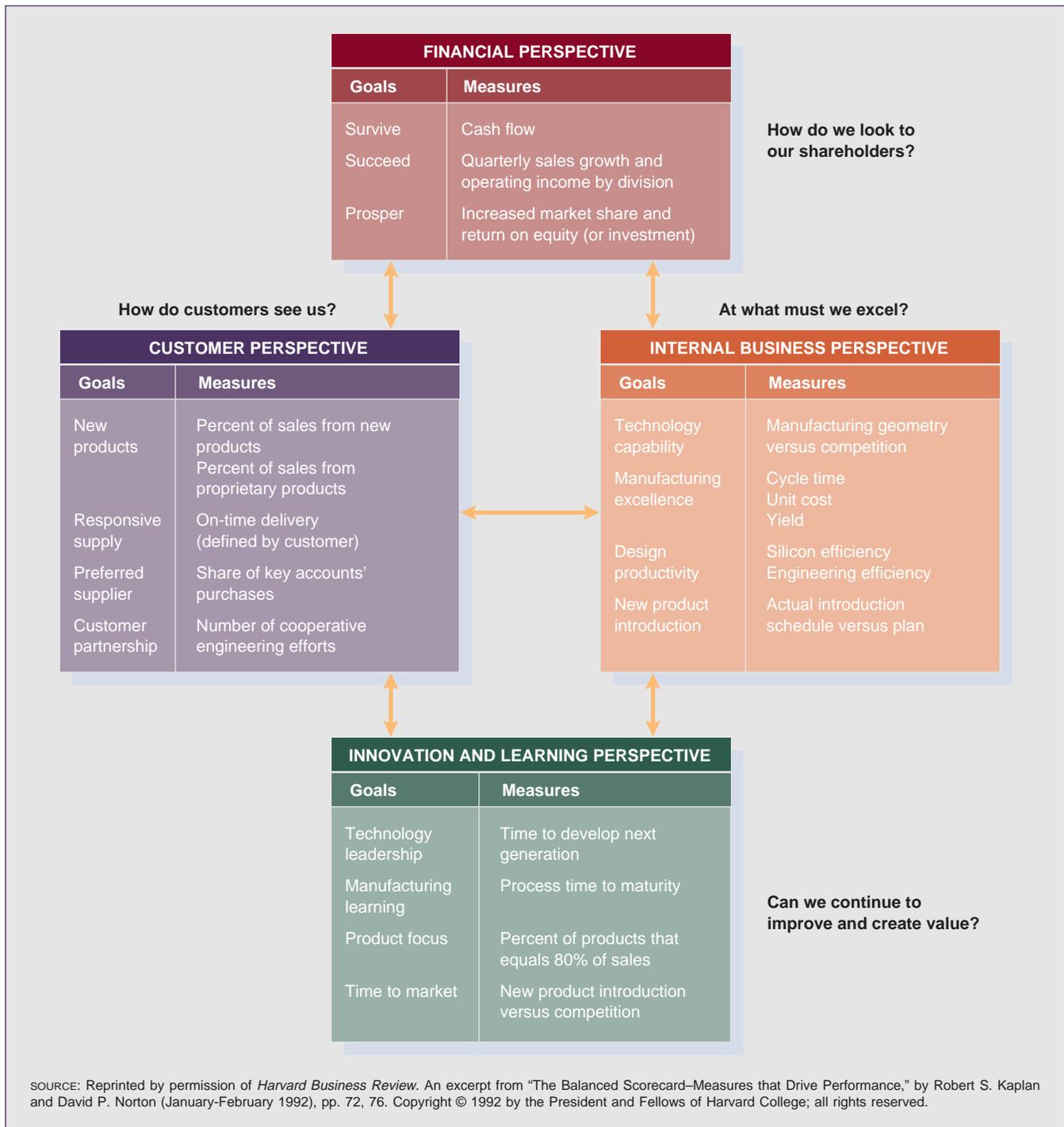
As discussed in the News Note on page 865, the keys to successfully implementing a balanced scorecard in a technology company are to know what to measure and to not measure everything.

<http://www.att.com>

Awareness of and Participation in Performance Measures

Regardless of the number or types of measures chosen, top management must set high performance standards and communicate them to lower-level managers and

⁶ The balanced scorecard was created by Robert Kaplan, Harvard University, and David Norton, Renaissance Strategy Group.

**EXHIBIT 19-4**

The Balanced Scorecard for a Semiconductor Firm

employees. Additionally, the measures should promote harmonious operations among organizational units. This factor is important to minimize the effects of suboptimization (as discussed in Chapter 18) that might occur in a decentralized company.

People will normally act specifically in accordance with how they are to be measured. Thus, the individuals must know of and understand the performance measures used, so that managers can make decisions in light of the effects of alternative decisions on the performance measures. Withholding information about

GENERAL BUSINESS

NEWS NOTE



Putting Balance into the Scorecard

The balanced scorecard divides business strategy into four perspectives: Financial, Customer, Internal and Learning. Each perspective breaks down into tactics and measures, although you must take care to link tactics and measure across all four perspectives. The result is a simple set of metrics describing how well information technology (IT) accomplishments are supporting the business strategy.

Clearly, some effort is necessary to create, fine-tune and execute a balanced scorecard. It is especially important to avoid the impulse to measure everything. Only a small number of metrics is necessary. Informing your

business managers isn't the only benefit of using a balanced scorecard. For example, according to John Hendrick, industry benchmarking director for AT&T, the company's \$5 billion IT organization uses about 50 distinct metrics, only five of which are regularly reviewed at the executive level. More important, all AT&T business units use the same five top-level metrics, making easier comparisons of how each unit, including IT, is contributing to the business.

SOURCE: Phillip Gordon, "What Is the Balanced Scorecard?" *InformationWeek* (October 18, 1999), p. 76.

measures will not allow employees to perform at their highest level, which is frustrating for them and does not foster feelings of mutual respect and cooperation.

To illustrate, assume your teacher said, "Turn in the answer to Problem 7 and it will be graded." You work the problem and turn in only the answer, as requested. Your homework is returned and you receive two points out of a possible ten because the teacher's grading key assigned points to supporting computations of the final answer. Do you believe your performance has been properly measured? Had you known that supporting computations were to be counted, and you chose not to turn them in, would your performance have been properly measured? Thus, proper measurement is influenced by proper information about what is expected.

If actual-to-standard or actual-to-budget comparisons are to be used as performance measures, people are more likely to be committed to the process if they participated in setting the standards or the budget. Participation captures the interest and attention of those persons involved and results in a "social contract" between participants and evaluators. This allows individuals to demonstrate a mutual respect for each other's ability to contribute effectively to the development process. The participants who will be evaluated understand and accept the reasonableness of the standards or budget and generally attempt to achieve the results to affirm that the plans were well founded. Employee involvement in a performance measurement system is so important that "management attempts to bolster productivity will plateau without employee support, which is the key to achieving maximum productivity."⁷

Appropriate Tools for Performance

Anyone who has accepted a job understands that there will be a performance measurement and evaluation process. For performance measures to be fair, placement personnel must first put the right individuals in the available jobs. If candidates placed in jobs do not have the appropriate skills, they are usually destined to fail. Thus, the organization is responsible for making certain that either job skills exist or can be obtained through available training.

⁷ Dan J. Seidner and Glenn Kieckhafer, "Using Performance Measurement Systems to Create Gainsharing Programs," (*Grant Thornton*) *Manufacturing Issues* (Summer 1990), p. 8.

Given job competence, people must then be given the necessary tools (equipment, information, and authority) to perform their jobs in a manner consistent with the measurement process. No matter where an employee is in the organizational hierarchy, each job has certain requirements. A carpenter must have a saw and a drawing or idea of the product to be made; an accountant must have transaction information and/or source documents and a manual or electronic means by which to capture monetary changes; the company president must have the authority to obtain the needed resources to accomplish organizational objectives. Competent individuals having the necessary job “tools” can be held responsible for their performance. If the appropriate tools are unavailable, people cannot be presumed to be able to accomplish their tasks.

In decentralized firms, upper-level managers have little opportunity to observe the actions of subordinates. These managers are able to observe the outcomes as captured by performance measures. This fact makes it imperative that the performance measures selected be (1) highly correlated with the subunit mission, (2) fair and complete reflections of the subunit manager’s performance, and (3) measuring performance that is under the subunit manager’s control.

Need for Feedback

Managerial performance should be monitored (though not evaluated) on a continuous basis, and feedback should be provided to the appropriate individuals. Thus, performance monitoring and feedback should be ongoing activities, whereas performance evaluation should be scheduled for specified points in time. Positive feedback serves to motivate employees to future success by encouraging continuation of favorable behaviors. Employees receiving negative feedback are made aware of problems and can attempt to change behaviors. Waiting to provide feedback on performance until some “measurement date” is reached allows employees no opportunity for early adjustment. As indicated by the survey data presented in Exhibit 19–5, some employees do not believe that the feedback they are receiving is of the highest quality.

Performance measurement has typically relied on information generated from the cost management system during the management control process. Exhibit 19–6 provides a diagram of the basic management control process and indicates the point at which performance has traditionally been evaluated. Although this type of measurement system was easy to implement, it often focused on performance traits that were not the most conducive to sound, competitive positions. Because of this, traditional performance measures are being supplemented with additional ones.

TRADITIONAL SHORT-TERM FINANCIAL PERFORMANCE MEASURES

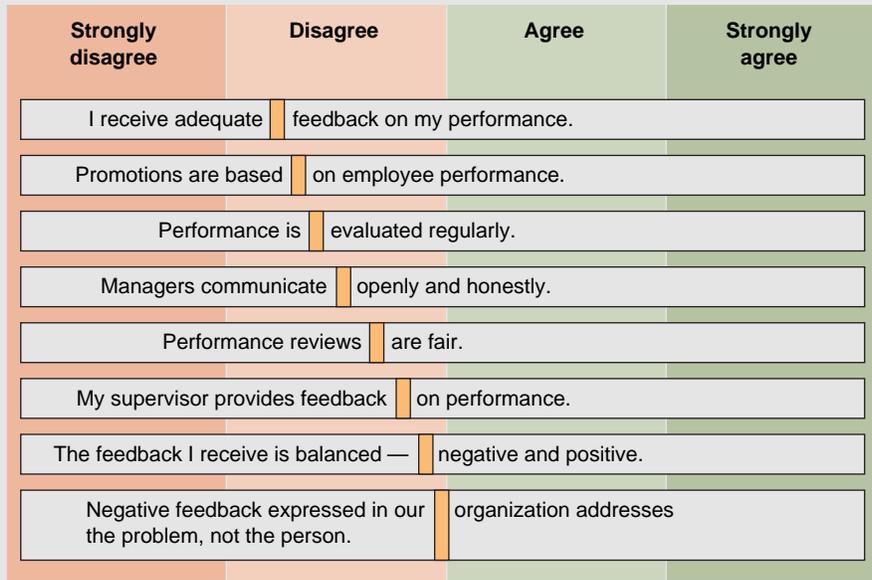
4

What are traditional short-term financial performance measures of profit and investment centers?

The traditional focus of performance evaluation at the managerial level is on the financial aspects of operations and concentrates on monetary measures such as divisional profits, achievement of budget objectives, individual and total variances from budget or standard, and cash flow. Each of these measures provides different information that can be used to analyze the effectiveness and efficiency of managerial performances.

The type of responsibility center being evaluated affects the performance measure(s) used because managers should be evaluated using only performance measures relating to their authority and responsibility. In a cost center, the primary financial performance measure is the materiality of the variances from budgeted or standard costs. Performance in a pure revenue center can be primarily judged by comparing budgeted revenues with actual revenues. These two responsibility centers are accountable for only one type of monetary object: costs and revenues, respectively. When a manager is responsible for only one monetary item, the financial

Regular feedback is the ultimate tool for shaping workers' performance, yet few employees feel their managers give it. Nor do workers really believe that performance leads to promotion, according to a survey of more than 1,000 employees in 15 small, midwestern companies. None of the following statements managed to earn a full "agree" rating—a dismal comment on the quality of employee feedback. (The shaded area represents the average response.)



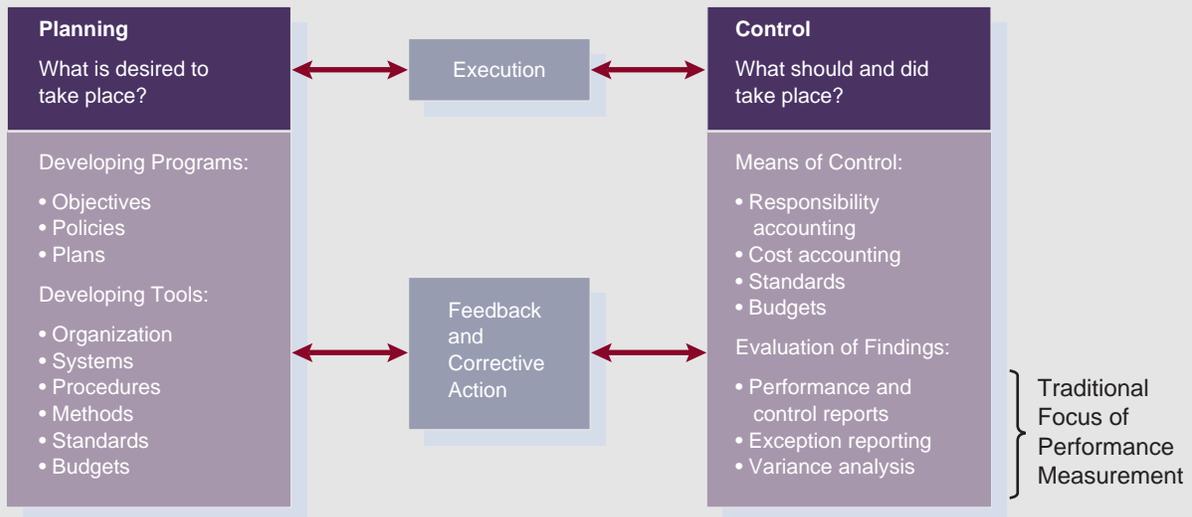
SOURCE: Ross Culbert Lavery and Russman Inc. (New York), compiled from company organizational audits, Perz Inc., Maumee, Ohio, 1992; presented in *Inc.* (September 1992), p. 32. Reprinted with permission of *Inc.* magazine. © 1992 by Goldhirsh Group, Inc.

EXHIBIT 19-5

Feedback and Performance Measurement

EXHIBIT 19-6

Diagram of Management Control Process



SOURCE: Patrick L. Romano, "Performance Measurement and Planning—Revisited," *Management Accounting* (January 1989), p. 62. Reprinted from *Management Accounting*. Copyright by Institute of Management Accountants, Montvale, N.J. Permission conveyed through the Copyright Clearance Center.

measurements appropriate for performance evaluations are limited to those relevant to that single monetary item. However, nonmonetary performance measures are now being coupled with monetary measures in balanced scorecards to provide multidimensional views of responsibility center performance.

Profit and investment center managers are responsible for both the revenues and expenses of those centers. Given this greater accountability, more financial performance measures can be used for these responsibility centers than the rather simplistic ones used by cost and revenue centers.

Divisional Profits

The segment margin of a profit or investment center is a frequently used measure of divisional performance.⁸ This amount is compared with the center's budgeted income objective, and variances are computed to determine where objectives were exceeded or were not achieved.

One problem with the use of segment margin for measuring performance is that the individual components used to derive it (like any other accounting income-based amount) are subject to manipulation. Segment margin manipulation can take many forms, for example:

- If the center is using a cost flow method other than FIFO, inventory purchases can be accelerated or deferred at the end of the period to change the Cost of Goods Sold amount for the period.
- Replacement of workers who have resigned or been terminated can be deferred to minimize salary expense for the period.
- Routine maintenance can be delayed or eliminated to reduce expenses.
- If actual overhead is being allocated to inventory, production can be increased so that cost per unit declines.
- Sales recognition can be shifted between periods.
- Advertising expenses or other discretionary costs can be delayed or accelerated.
- Depreciation methods may be changed.

These tactics can be used to “cause” reported segment margin to conform to budget expectations, but such manipulations are normally not in the center's long-run best interest.

Divisional segment margin (or profit) represents a short-term, rather than a long-term, objective. Most reward systems (promotions, pay raises, bonuses) are based on short-term performance. Although short-run efficiency is important, companies should not use the quarterly or annual segment margin as the only performance measure of a profit or investment center's manager. A year is often too short a time over which to judge managerial performance. The performance measurement period should coincide with the time it takes to evaluate the quality of the center manager's decisions.⁹ Similarly, the performance measures should be matched to the subunit's mission. Short-term measures are more appropriate for hold and harvest missions and less appropriate for build missions.

5

How might the Statement of Cash Flows be useful for performance measurement?

Cash Flow

Managers who have authority over operating, investing, and financing activities know that for their entities to succeed, two requirements must be met: (1) long-run

⁸ The term *segment margin* is defined in Chapter 12 as segment sales minus (direct variable expenses and avoidable fixed expenses). Thus, the margin would not include allocated common costs.

⁹ Quality and financial benefits to the organization should be measured concurrently. The accounting system should be designed to capture both types of information (qualitative and quantitative) that can be used as valid predictors of long-term profitability. See Sue Y. Whitt and Jerry D. Whitt, “What Professional Services Firms Can Learn from Manufacturing,” *Management Accounting* (November 1988), pp. 39–42.

profitability and (2) continuous liquidity. Because external financial statements use accrual-based figures, management's attention can become diverted from the size and direction of cash inflows and outflows. The Statement of Cash Flows (SCF) helps to correct this situation by providing information about the cash impacts of the three major categories of business activities (operating, investing, and financing). The SCF explains the change in the cash balance by reflecting the entity's sources and uses of cash. Such knowledge can assist in judging the entity's ability to meet current fixed cash outflow commitments, to adapt to adverse changes in business conditions, and to undertake new commitments. Further, because the cash flow statement identifies the relationships between segment margin (or net income) and net cash flow from operations, the SCF assists managers in judging the quality of the entity's earnings.

Although the cash budget presented in Chapter 13 is essential to current cash management, the budgeted SCF gives managers a more global view of cash flows by arranging them by major activity. Such an arrangement permits management to judge whether the anticipated flows are consistent with the entity's strategic plans and, thus, provides an opportunity to evaluate performance. In addition, the cash budget disregards significant noncash transactions that are incorporated into a schedule or narrative on a Statement of Cash Flows. Because most noncash transactions will ultimately result in cash flows, disclosure of noncash transactions provides a more complete picture of future operations and their potential effect on cash availability. Analysis of the SCF in conjunction with budgets and other financial reports provides information on cost reductions, collection policies, dividend payout, impact of capital projects on total cash flows, and liquidity position.

Like segment margins and income, cash flow can be manipulated and relates to the short run rather than the long run. As a measure of performance, cash flow suffers from some of the same problems as divisional profits because managers can defer purchases of inventory and equipment or misassign collections to a period to enhance the appearance of cash flow. But adequate cash flow is a necessity for conducting business activities. Inadequate cash flow may reflect poor judgment and decision making on the part of the profit or investment center manager. Many useful financial ratios (such as the current ratio, quick ratio, and number of days' collections in accounts receivable) involve cash flow available to assist managers in the effective conduct of their functions. Three other financial measures often used to evaluate divisional performance in an investment center are return on investment, residual income, and economic value added.

Return on Investment

The difference between a profit center and an investment center is that the investment center manager also has responsibility for assets under the center's control. Giving the manager responsibility for acquisition, use, and disposal of assets increases the number of financial performance measures available because another dimension of accountability is added. **Return on investment** (ROI) is a ratio relating income generated by the investment center to the resources (or the asset base) used to produce that income. The return on investment formula is

$$\text{ROI} = \text{Income} \div \text{Assets Invested}$$

Before ROI can be used effectively, both terms in the formula must be specifically defined. To do this, Exhibit 19-7 asks and answers several definitional questions about this ratio. Once definitions have been assigned to the terms, ROI can be used to evaluate individual investment centers as well as to make intracompany, intercompany, and multinational comparisons. However, managers making these comparisons must consider differences in the entities' characteristics and accounting methods.

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How are return on investment and residual income similar? How do they differ?

return on investment

EXHIBIT 19-7*ROI Definitional Questions and Answers*

Question	Preferable Answer
Is income defined as segment or operating income?	Segment income
Is income on a before- or after-tax basis?	Before-tax
Should assets be defined as <ul style="list-style-type: none"> ■ total assets utilized; ■ total assets available for use; or ■ net assets (equity)? 	Total assets available for use
Should plant assets be included at <ul style="list-style-type: none"> ■ original cost; ■ depreciated book value; or ■ current value? 	Current value
Should beginning, ending, or average assets be used?	Average assets

Using segment margin rather than operating income is preferred in the ROI calculation because the investment center manager does not have control in the short run over unavoidable fixed expenses and allocated corporate costs. Therefore, unavoidable fixed expenses and allocated corporate costs should not be a part of the performance evaluation criteria.¹⁰ The same logic applies to the exclusion of taxes (or corporate interest) in determining investment center income. Company tax rates are determined based on total company income. Investment centers might pay higher or lower rates if they were separate taxable entities.

Investment center managers may have a substantial number of assets that are not being used. Eliminating these assets from the ROI denominator provides no encouragement for the manager to dispose of duplicate or unnecessary assets. Thus, total assets available for use is preferable to total assets utilized. Disposition of idle assets will provide the manager with additional cash flow that could be used for alternative projects. In contrast, if the objective is to measure how well the segment is performing, given the funds stockholders have provided for that segment, then net assets should be used to measure return on equity funds.

Use of the original cost of plant assets is more appropriate than net book value when determining the amount of assets invested. As assets age and net book value declines, an investment center earning the same income each year would show a continuously increasing return on investment solely because of the diminishing asset base. Such false impressions of increasing returns could cause erroneous assessments of a manager's performance. The use of current plant asset values is, however, preferable to original costs. Current values measure the opportunity cost of using the assets. Such values, though, are more difficult to obtain and may be determined only by very subjective methods.

Regardless of which plant asset base is chosen for the ROI denominator, that value should be a periodic average. Because income is earned over a period rather than at a specific point in time, the averaging period for the denominator should be the same as that used to determine the ROI numerator.

Data for Southwest Real Estate (Exhibit 19-8) are used to illustrate return on investment computations. The company has divisions in Dallas, Houston, and San Antonio. All are operated as separate investment centers. All three divisions operate in the same industry and offer the same types of services to their customers.

¹⁰ When assets and costs cannot be directly traced and must be allocated to an investment center, ROI calculations may not carry the same credibility as when allocations are not necessary. ROI calculations for an entire company or its autonomous, free-standing divisions are easier to make and are more meaningful than ROI calculations for units requiring such allocations. Criticism of ROI comparisons may also arise when such comparisons are made among divisions of very unequal sizes or at different stages of growth and product development.

EXHIBIT 19-8

Data for Southwest Real Estate

	IN THOUSANDS			
	Dallas	Houston	San Antonio	Total
Revenues	\$1,600,000	\$ 337,500	\$215,000	\$2,152,500
Direct costs:				
Variable	(560,000)	(155,250)	(86,000)	(801,250)
Fixed (avoidable)	(275,000)	(58,750)	(30,000)	(363,750)
Segment margin	\$ 765,000	\$ 123,500	\$ 99,000	\$ 987,500
Unavoidable fixed and allocated costs	(186,000)	(39,000)	(25,000)	(250,000)
Operating income	\$ 579,000	\$ 84,500	\$ 74,000	\$ 737,500
Taxes (34%)	(196,860)	(28,730)	(25,160)	(250,750)
Net income	<u>\$ 382,140</u>	<u>\$ 55,770</u>	<u>\$ 48,840</u>	<u>\$ 486,750</u>
Current assets	\$ 24,250	\$ 16,560	\$ 10,000	
Fixed assets	3,089,500	2,305,000	450,000	
Total asset cost	\$3,113,750	\$2,321,560	\$460,000	
Accumulated depreciation	(616,250)	(635,000)	(31,250)	
Asset book value	\$2,497,500	\$1,686,560	\$428,750	
Liabilities	(1,065,000)	(300,000)	(81,250)	
Net assets	<u>\$1,432,500</u>	<u>\$1,386,560</u>	<u>\$347,500</u>	
Proportion of total assets utilized	100%	93%	85%	
Current value of fixed assets	\$2,750,000	\$1,200,000	\$390,000	

NOTE: A summarized corporate balance sheet would not balance with the investment center balance sheets because of the existence of general corporate assets and liabilities.

Also, each division is charged with a hold mission. The similarity in mission and business line allows comparisons to be made among the three investment centers.

Return on investment computations (using a variety of bases) for Southwest Real Estate divisions are shown in Exhibit 19-9. This exhibit illustrates that ROI figures differ dramatically depending on the definitions used for the formula terms. Therefore, how the numerator and denominator in the ROI computation are to be determined must be precisely specified before making computations or comparisons.

The ROI formula can be restated to provide useful information about individual factors that compose the rate of return. This restatement indicates that ROI is affected by both profit margin and asset turnover. **Profit margin** is the ratio of income to sales and indicates what proportion of each sales dollar is not used for expenses and, thus, becomes profit. **Asset turnover** measures asset productivity and shows the number of sales dollars generated by each dollar of assets. The restatement of the ROI formula is referred to as the **Du Pont model** and is

$$\begin{aligned} \text{ROI} &= \text{Profit Margin} \times \text{Asset Turnover} \\ &= (\text{Income} \div \text{Sales}) \times (\text{Sales} \div \text{Assets}) \end{aligned}$$

As with the original ROI formula, terms in the restated formula must be specifically defined before the formula is usable for comparative or evaluative purposes. The Du Pont model provides refined information about an investment center's opportunities for improvement. Profit margin can be used to judge the center's operating leverage by indicating management's efficiency with regard to the relationship between sales and expenses. Asset turnover can be used to

profit margin**asset turnover****Du Pont model**

EXHIBIT 19-9

ROI Computations

	Dallas	Houston	San Antonio
Operating Income	\$579,000	\$84,500	\$74,000
Assets Utilized	\$2,497,500	\$1,568,501	\$364,438
ROI	23.2%	5.4%	20.3%
Operating Income	\$579,000	\$84,500	\$74,000
Asset Current Value	\$2,750,000	\$1,200,000	\$390,000
ROI	21.1%	7.0%	19.0%
Segment Margin	\$765,000	\$123,500	\$99,000
Total Asset Cost	\$3,113,750	\$2,321,560	\$460,000
ROI	24.6%	5.3%	21.5%
Segment Margin	\$765,000	\$123,500	\$99,000
Asset Book Value	\$2,497,500	\$1,686,560	\$428,750
ROI	30.6%	7.3%	23.1%
Segment Margin	\$765,000	\$123,500	\$99,000
Asset Current Value	\$2,750,000	\$1,200,000	\$390,000
ROI	27.8%	10.3%	25.4%
Segment Margin	\$765,000	\$123,500	\$99,000
Net Assets	\$1,432,500	\$1,386,560	\$347,500
ROI	53.4%	8.9%	28.5%

judge marketing leverage with regard to the effectiveness of asset use relative to revenue production.

Calculations showing the ROI components using the Southwest Real Estate information are given in Exhibit 19-10 and use segment margin and total historical cost asset valuation as the income and asset base definitions. Thus, these computations provide the same answers as those given in the third calculation of Exhibit 19-9.

The calculations indicate that the Houston investment center is performing very poorly relative to the other two divisions. Its performance trails for both profit margin and asset turnover measures. Based on the amount of accumulated depreciation, the Houston investment center appears to be the oldest, which may be related to its

EXHIBIT 19-10

ROI Components

Dallas Investment Center:

$$\begin{aligned} \text{ROI} &= (\text{Income} \div \text{Sales}) \times (\text{Sales} \div \text{Assets}) \\ &= (\$765,000 \div \$1,600,000) \times (\$1,600,000 \div \$3,113,750) \\ &= 0.478 \times 0.514 = 24.6\% \end{aligned}$$

Houston Investment Center:

$$\begin{aligned} \text{ROI} &= (\text{Income} \div \text{Sales}) \times (\text{Sales} \div \text{Assets}) \\ &= (\$123,500 \div \$337,500) \times (\$337,500 \div \$2,321,560) \\ &= 0.366 \times 0.145 = 5.3\% \end{aligned}$$

San Antonio Investment Center:

$$\begin{aligned} \text{ROI} &= (\text{Income} \div \text{Sales}) \times (\text{Sales} \div \text{Assets}) \\ &= (\$99,000 \div \$215,000) \times (\$215,000 \div \$460,000) \\ &= 0.460 \times 0.467 = 21.5\% \end{aligned}$$

NOTE: For purposes of these computations, income is defined as segment margin and assets are defined as total asset cost.

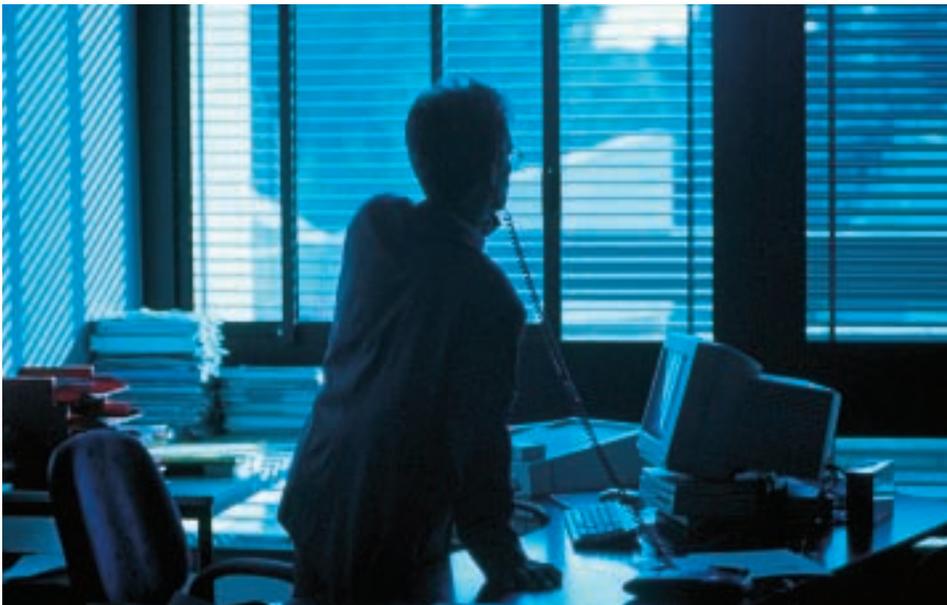
poor performance. For age-related reasons or others that cannot be identified from the data shown, the Houston investment center is generating too little revenue relative to both the expenses it is incurring and the assets it is employing. Houston's manager might consider purchasing more modern facilities to generate more sales dollars and greater profits. Such an investment could, however, cause ROI to decline, because the asset base would be increased. Rate of return computations can encourage managers to retain and use old plant assets (especially when accumulated depreciation is excluded from the asset base) to keep ROIs high as long as those assets are effective in keeping revenues up and expenses down.

Dallas enjoys both the highest profit margin and the highest turnover. It appears that Dallas may be benefiting from economies of scale relative to the other divisions, which could partially account for its superior performance. Additionally, Dallas is better leveraging its assets because they are 100 percent utilized.

The San Antonio investment center appears to be the youngest of the three. It has a lower level of accumulated depreciation relative to its investment, and it has a lower level of asset utilization. Even so, it is generating an ROI that is close to that generated by Dallas. With greater utilization of its assets, the San Antonio investment center should be able to generate a higher asset turnover and raise its ROI.

ROI is affected by decisions involving sales prices, volume and mix of products sold, expenses, and capital asset acquisitions and dispositions. Return on investment can be increased through various management actions including (1) improving profit margins by raising sales prices if doing so will not impair demand, (2) decreasing expenses, and (3) decreasing dollars invested in assets, especially if those assets are no longer productive. Action should be taken only after considering all the interrelationships that determine ROI. A change in one of the component elements can affect others. For instance, an increase in price could reduce sales volume if demand is elastic with respect to price.

Assessments about whether profit margin, asset turnover, and return on investment are favorable or unfavorable can be made only by comparing actual results for each component with some valid benchmark. Bases of comparison include expected results, prior results, or results of other similar entities. Many companies establish target rates of return either for the company or, alternatively, for the division based on the industry or market in which that division operates. Favorable results should generate rewards for investment center managers.



When managers are responsible for their asset investment base, ROI is often used as a financial measure of performance. But, because of its reliance on income, this metric can be manipulated and may not be comparable across divisions.

Unfavorable rates of return should be viewed as managerial opportunities for improvement. Factors used in the computation should be analyzed for more detailed information. For example, if asset turnover is low, additional calculations can be made for inventory turnover, accounts receivable turnover, machine capacity level experienced, and other rate-of-utilization measures. This investigation should help to indicate to the manager the direction of any problem(s) involved, so that causes can be determined and adjustments made.

Residual Income

residual income

An investment center's **residual income** (RI) is the profit earned that exceeds an amount "charged" for funds committed to the center. The amount charged for funds is equal to a specified rate of return multiplied by the asset base. Top management establishes a target minimum rate of return against which the investment center's ROI can be judged.¹¹ This target rate is comparable to an imputed rate of interest on the assets used by the division. The rate can be changed from period to period consistent with market rate fluctuations or to compensate for risk. The residual income computation is as follows:

$$\text{Residual Income} = \text{Income} - (\text{Target Rate} \times \text{Asset Base})$$

The advantage of residual income over return on investment is that residual income yields a dollar figure rather than a percentage. It would always be to a company's advantage to obtain new assets if they would earn a dollar amount of return greater than the dollar amount charged for the additional investment. Expansion (or additional investments in assets) could occur in an investment center as long as positive residual income is expected on the additional investment.

Continuing the Southwest Real Estate example, residual income is calculated for each investment center. Southwest has established 15 percent as the target rate of return on total assets and has defined income as segment margin. The calculations are shown in Exhibit 19–11. The Dallas and San Antonio investment centers show positive residual income, which means that these responsibility centers are earning above what top management considers a reasonable charge for funds. The residual income computation for the Houston investment center indicates that income is being significantly underproduced relative to the asset investment. The division manager should be apprised of the situation so that he or she can take steps to discover the cause of and correct this unsatisfactory result.

EXHIBIT 19-11

Southwest Real Estate Residual Income Calculations

$$\text{Residual Income} = \text{Income} - (\text{Target Rate} \times \text{Asset Base})$$

Dallas:

$$\$765,000 - (0.15 \times \$3,113,750) = \$765,000 - \$467,062 = \underline{\underline{\$297,938}}$$

Houston:

$$\$123,500 - (0.15 \times \$2,321,560) = \$123,500 - \$348,234 = \underline{\underline{\$(224,734)}}$$

San Antonio:

$$\$99,000 - (0.15 \times \$460,000) = \$99,000 - \$69,000 = \underline{\underline{\$30,000}}$$

NOTE: For purposes of these computations, income is defined as segment margin and assets are defined as total asset cost.

¹¹ The target rate established for measuring residual income is similar to the discount rate used in capital budgeting (discussed in Chapter 14). For management to invest in a capital project, that project must earn at least a minimum specified rate of return. In the same manner, ROI of an investment center must be equal or higher than the target rate used to compute residual income.

Top management must interpret the performance measures in light of the organizational mission of each investment center. In the case of Southwest, all divisions have the same organizational mission and products that facilitate direct comparisons.

Economic Value Added

Perhaps the most popular trend in performance measurement is the development of measures intended to more directly align the interests of common shareholders and managers. Leading this trend is corporate adoption of the measure **economic value added** (EVA).¹² Conceptually similar to RI, EVA is a measure of the profit produced above the cost of capital. The major distinction between RI and EVA is that the target rate of return for EVA is applied to the capital invested in the division or firm as opposed to the market value or book value of booked assets, which is the measure used for RI. Furthermore, because only after-tax profits are available to stockholders, EVA is calculated based on after-tax profits:

$$\text{EVA} = \text{After-Tax Profits} - (\text{Capital Invested} \times \text{Cost of Capital } \%)$$

Capital invested is defined as the market value of total equity and interest-bearing debt. The market value of invested capital can differ considerably from the book or market value of recorded assets. As this difference increases, so do the relative benefits of using EVA rather than RI as a performance measure. It is not uncommon today for the market value of a firm to be as high as five or six times the book value of the firm. Accordingly, RI, which is based on a target rate of return applied to the book value of assets, is likely to indicate much better performance than EVA. This point is illustrated in Exhibit 19–12. The exhibit builds on data taken from Exhibit 19–8 pertaining to Southwest Real Estate.

The data in Exhibit 19–12 show substantial differences between the market and book values of all investment centers. The differences are positive for the Dallas center and negative for the other two. Calculations of EVA for each investment center are given in Exhibit 19–13. The after-tax cost of capital is assumed to be 13 percent.

The results given in Exhibit 19–13 show a completely different portrayal of performance than the results of the ROI and RI calculations. The ROI and RI calculations failed to capture the extraordinarily large difference between the market and book values of the Dallas investment center. Accordingly, the ROI and RI measures overstate by a large margin the performance of the Dallas investment center. The Houston investment center still appears to be performing poorly, although

economic value added

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How is economic value added used to measure performance?

(IN THOUSANDS)				
	Dallas	Houston	San Antonio	Total
Operating income	\$ 579,000	\$ 84,500	\$ 74,000	\$737,500
Taxes (34%)	(196,860)	(28,730)	(25,160)	(250,750)
Net income	<u>\$ 382,140</u>	<u>\$ 55,770</u>	<u>\$ 48,840</u>	<u>\$486,750</u>
Current assets	\$ 24,250	\$ 16,560	\$ 10,000	
Fixed assets	<u>3,089,500</u>	<u>2,305,000</u>	<u>450,000</u>	
Total asset cost	\$3,113,750	\$2,321,560	\$460,000	
Total market value	\$9,125,000	\$1,200,000	\$250,000	

EXHIBIT 19-12

Data for Southwest Real Estate's Economic Value Added Calculations

¹² EVA is a registered trademark of Stern Stewart & Co. It was first discussed by Alfred Marshall, an English economist in about 1890.

EXHIBIT 19-13

Southwest Real Estate's
Economic Value Added
Calculations

$$\text{EVA} = \text{After-Tax Profits} - (\text{Market Value of Capital Invested} \times \text{Cost of Capital \%})$$

Dallas:

$$\$382,140 - (\$9,125,000 \times 0.13) = \$382,140 - \$1,186,250 = \underline{\underline{\$(804,110)}}$$

Houston:

$$\$55,750 - (\$1,200,000 \times 0.13) = \$55,750 - \$156,000 = \underline{\underline{\$(100,250)}}$$

San Antonio:

$$\$48,480 - (\$250,000 \times 0.13) = \$48,480 - \$32,500 = \underline{\underline{\$15,980}}$$

better than the Dallas center. The San Antonio center is shown to be the stellar performer.

Despite the growing popularity of the EVA measure, it cannot measure all dimensions of performance and it is a short-term measure of performance. Accordingly, the EVA measure can discourage investment in long-term projects because such investments drive up the amount of invested capital immediately but increase after-tax profits only at some point in the future. The result is a near-term decrease in EVA. Thus, EVA should be supplemented with longer term financial performance measures (especially for growth-oriented organizational subunits) and with nonfinancial performance measures.

When used to measure investment center performance, each of the financial measures of performance discussed has certain limitations. For example, the limitations of divisional profit and cash flow are their potential for income and cash flow manipulation.

Limitations of Return on Investment, Residual Income and Economic Value Added

ROI, RI, and EVA have three primary limitations. The first limitation is a triple dimension problem related to income. Income can be manipulated on a short-run basis. Income also depends on the methods selected to account for items such as inventory cost flow or depreciation. Secondly, for perfectly valid comparisons to be made among investment centers, all centers must use the same accounting methods. Finally, income is based on accrual accounting, which does not consider the pattern of cash flows or the time value of money and, therefore, may not always provide the best basis for evaluating investment center performance. This problem is illustrated in the accompanying News Note.

The second limitation is also a triple dimension problem related to the asset investment base on which ROI, RI, and EVA measures rely. Asset investment is difficult to properly measure and assign to center managers. Some expenditures have residual values beyond the accounting period, but are not capitalized (for example, research and development costs) and, therefore, create an understated asset base.¹³ Also, assets included in the asset base might be the result of decisions made by previous investment center managers. Thus, current managers can potentially be judged on investment decisions over which they had no control. Third, “[w]hen fixed assets and inventory are not restated for [rising] price level changes after acquisition, net income is overstated and investment is understated. Thus managers who retain older, mostly depreciated assets [often] report much

¹³ Life-cycle accounting can help to eliminate this problem.

GENERAL BUSINESS



NEWS NOTE

But, If the Bird's Not in the Hand . . .

While EVA may be the best single-period measure of performance currently known, it is not the universal answer to the search for the perfect performance measure, according to Michael C. Jensen of the Harvard Business School and William H. Meckling of the University of Rochester. Like all flow measures, EVA fails to solve what they call the “capital value” problem.

This problem arises for projects where early years' EVA is negative, but the future annual EVA of a project

is sufficiently large to justify an investment. Perfect measures of capitalized value will never be found, the authors conclude, because value cannot be known with certainty until after a project has run its course to completion and shutdown.

SOURCE: Anonymous, “EVA Bandwagon,” *Journal of Commerce* (October 21, 1999), p. 7. Reprinted with permission from the *Journal of Commerce*.

higher ROIs than managers who invest in new assets.”¹⁴ This is much less of a problem for the EVA measure, at least for measurement of assets. It is no less of a problem for EVA's income measure.

The third limitation of these measures is a single, potentially critical problem. Each of these measures focuses attention on how well an investment center performs in isolation, rather than how well that center performs relative to company-wide objectives. Such a focus can result in suboptimization of resources, meaning that the firm is not maximizing its operational effectiveness and efficiency.

The San Antonio Division of Southwest Real Estate is used to illustrate the effects of suboptimization. As indicated in Exhibit 19–8, the San Antonio investment center has revenues of \$215,000, direct costs of \$116,000, and an asset base of \$460,000. ROI for the center is 21.5 percent ($\$99,000 \div \$460,000$). Assume that the San Antonio center has an opportunity to increase income by \$20,000 by installing a new computer network. This venture requires an additional capital investment of \$100,000. Considered separately, this venture would result in a return on investment of 20 percent ($\$20,000 \div \$100,000$). If the San Antonio manager accepts this opportunity, the center's return on investment will fall:

$$\begin{aligned} \text{ROI} &= (\text{Original Income} + \text{New Income}) \div (\text{Original Assets} + \text{New Assets}) \\ &= (\$99,000 + \$20,000) \div (\$460,000 + \$100,000) \\ &= \$119,000 \div \$560,000 \\ &= \underline{21.25\%} \end{aligned}$$

If Southwest Real Estate evaluates investment center managers based only on ROI, the San Antonio center manager will not accept this investment opportunity because it would cause the center's ROI to drop.

Assume, however, that Southwest Real Estate has established a target rate of return of 16 percent on investment dollars. The decision by the San Antonio manager to reject the new opportunity suboptimizes the companywide returns. This venture should be accepted because it provides a return higher than the firm's target rate. Top management should be informed of such opportunities, made aware of the effects acceptance will have on divisional performance measurements, and be willing to reward such acceptance based on the impact on company performance.

7

Why might the use of ROI create suboptimization in investment decisions?

¹⁴ Robert S. Kaplan, “Yesterday's Accounting Undermines Production,” *Harvard Business Review* (July–August 1984), p. 99.

REVISITING

Wachovia

<http://www.wachovia.com>

Wachovia's managers are fundamental believers in the idea that technology is changing the world and changing the way firms compete to attract consumers. As captured by this passage from their annual report, Wachovia's managers also believe that information has allowed consumers to become much more savvy consumers.

In history, major changes in products, processes and technology have evolved through gradual periods of development. For decades, computers and communication systems processed information for select audiences. Information was controlled by large entities such as governments, universities and large corporations. Now, useful technology and inexpensive information are available to everyone. Information is diffused throughout society and across the globe. For almost every purpose, large and small organizations and individuals have economical access to vast storehouses of knowledge. The lower cost and greater availability of information make it a trump card for innovators and, in the future, this incredible capability will destroy artificial, inefficient structures at all levels of society. This revolution threatens the existence of traditional distribution systems.

Wachovia perceives both threats and opportunities in this age of technology and information diffusion. Threats

come from an endless onslaught of products and services from large and small firms including those that have developed new technology-based strategies.

Wachovia's opportunities arise from the endless ways that technology and information can be used to better serve its markets and to manage risks. Wachovia has invested heavily to develop the information systems and technology necessary to monitor and measure performance including customer scoring. The results of these investments are encouraging. For example, in 1997 21 percent of loan applications were converted to loans. In 1998, 32 percent of applications resulted in loans.

One of Wachovia's latest investments is Prime Capture and Archive. This system economically creates, indexes, stores, and retrieves every paid or deposited check and all related paper documents Wachovia receives. Speedy retrieval of these images keeps a tight rein on Wachovia's costs and offers customers easy access to essential information as they collect returns, monitor credit, field inquiries, and reduce document storage expense.

Wachovia's basic equation for success is simple— attract the right customers, sell them multiple services important to their lives, do the right things to keep their business, deliver as efficiently as possible, and let them know that they have a friend to trust.

SOURCES: Wachovia 1998 annual report; Beverly B. Wells, "At Wachovia, Customer Focus Means Information-Driven Continuous Relationship Management," *Journal of Retail Banking Services* (Summer 1999), pp. 33–36.

CHAPTER SUMMARY

Organizations exist to achieve specific missions. In fulfilling an organizational mission, managers design and implement strategies that apply organizational resources to activities. If the organization is to be successful, managers must apply resources with the objective of maximizing effectiveness and efficiency. Only if a properly designed performance measurement system exists can managers gauge their success. Performance measures should be designed for all critical resources consumed by operations. Also, the measurement system should lead to insights about how resource usage can be improved and create a climate for desired organizational changes to be implemented. By linking performance measures to rewards, managers are provided incentives to concentrate on improving specific performance areas. Some of the most critical performance areas for businesses today include capital market performance, organizational learning, and product and subunit evaluation.

Standard design considerations are used when developing performance measurement systems. Performance measures must be appropriate for the type of responsibility center under review and can be either financial or nonfinancial. The measures selected should be sensitive to the strategies and missions of the organizations and their subunits. These measures should assess progress toward goals and objectives and should be accepted by persons being evaluated. Persons to be evaluated should have the appropriate skills, equipment, information, and authority for meeting their organizational responsibilities. Moreover, feedback on accomplishment should be provided in a timely and useful manner. Using multiple measures regarding the firm's critical success factors is more effective than using single measures. Those persons to be evaluated should participate in the development of the measures by which their performance will be evaluated. The performance measurements should lead to insights about how to improve resource use and how to achieve organizational changes that allow firms to remain competitive.

Of the short-term financial performance measures, divisional profits and cash flow are frequently used performance measures. Care must be taken that these measures are not manipulated. Two additional major financial measures of performance for investment centers are return on investment and residual income. Return on investment is income divided by assets. Residual income is the amount of income in excess of income calculated by using an imputed interest charge on the asset base.

Two of the most popular, evolving performance measure tools are the balanced scorecard (BSC) and economic value added (EVA). A BSC links multiple perspectives of performance. EVA is the difference between after-tax profits for a period and the cost of invested capital for that period. EVA is superior to other short-term performance measures in its close linkage to stockholders' interests.

Although financial measures provide important information about the efficiency and effectiveness of managers, they should not be used alone or used without recognizing the limitations inherent in each measure. Financial measures should be coupled with nonfinancial measures to provide a more complete and useful picture of performance, and long-term measures should be coupled with short-term measures.

KEY TERMS

asset turnover (p. 871)

balanced scorecard (p. 863)

Du Pont model (p. 871)

economic value added (p. 875)

profit margin (p. 871)

residual income (p. 874)

return on investment (p. 869)

SOLUTION STRATEGIES

Performance Measures for Responsibility Centers

- **Cost Center**
 - Budgeted costs
 - Actual costs
 - Variances (consider materiality)

- **Revenue Center**
 - Budgeted revenues
 - Actual revenues
 - Variances (consider materiality)

- **Profit Center**
 - Budgeted profits
 - Actual divisional profits
 - Variances (consider materiality)
 - Cash inflows
 - Cash outflows
 - Net cash flow (adequate to operations?)

- **Investment Center**
 - Budgeted profits
 - Actual profits
 - Variances (consider materiality)
 - Cash inflows
 - Cash outflows
 - Net cash flow (adequate to operations?)

Return on Investment = $\text{Income} \div \text{Assets}$ (high enough rate?)

Du Pont Model = Profit Margin \times Asset Turnover
 = $(\text{Income} \div \text{Sales}) \times (\text{Sales} \div \text{Assets})$ (high enough rate?)

Residual Income = $\text{Income} - (\text{Target Rate} \times \text{Asset Base})$ (positive or negative? amount?)

Economic Value Added = $\text{Income} - (\text{Market Value of Capital Invested} \times \text{Cost of Capital \%})$ (positive or negative? amount?)

DEMONSTRATION PROBLEM

L.A. Solutions, a division of Global Office Technologies, manufactures and installs modular office components. For the most recent year, the division had the following performance targets:

Asset turnover	2.2
Profit margin	7%
Target rate of return on investments for RI	13%
Cost of capital	10%
Income tax rate	30%

Actual information concerning the company's performance for last year follows:

Total assets at beginning of year	\$ 7,200,000
Total assets at end of year	10,600,000
Total invested capital (annual average)	16,000,000
Sales	18,000,000
Variable operating costs	7,300,000
Direct fixed costs	9,540,000
Allocated fixed costs	1,350,000

Required:

- a. For L.A. Solutions, compute the segment margin and average assets for the year.
- b. Based on segment margin and average assets, compute the profit margin, asset turnover, and ROI.
- c. Evaluate the ROI performance of L.A. Solutions.
- d. Using your answers from part (b), compute L.A. Solutions' residual income.
- e. Compute the EVA of L.A. Solutions. Why are the EVA and RI levels different?
- f. Based on the data given in the problem, discuss why ROI, EVA, and RI may be inappropriate measures of performance for L.A. Solutions.

Solution to Demonstration Problem

a. Sales	\$18,000,000
Variable costs	(7,300,000)
Direct fixed costs	(9,540,000)
Segment margin	<u>\$ 1,160,000</u>

$$\begin{aligned} \text{Average assets} &= (\$7,200,000 + \$10,600,000) \div 2 \\ &= \underline{\underline{\$8,900,000}} \end{aligned}$$

b. Profit margin = $\$1,160,000 \div \$18,000,000 = 6\%$
 Asset turnover = $\$18,000,000 \div \$8,900,000 = 2.02$
 ROI = $6\% \times 2.02 = \underline{\underline{12.12\%}}$

c. The target ROI for the division was $7\% \times 2.2 = 15.4\%$. The division generated a ROI of only 12.12%. Thus, the division did not achieve its target rate of return. The poor performance resulted from the division's failure to achieve the target profit margin. The asset turnover target was not met, but the ROI fell short of the target level primarily because the profit margin was below its target level.

d. $RI = \$1,160,000 - (0.13 \times \$8,900,000)$
 $= \$1,160,000 - \$1,157,000 = \underline{\underline{\$3,000}}$

e. After-Tax Profits = Pretax Income – Taxes
 $= \$1,160,000 - (\$1,160,000 \times 0.30) = \$812,000$
 EVA = $\$812,000 - (\$16,000,000 \times 0.10) = \underline{\underline{\$(788,000)}}$

EVA and RI differ for three reasons. First, RI is based on pretax, rather than after-tax, income; RI is based on the book value of investment, whereas EVA is based on the market value of investment; and the target rates of return differ between the methods.

f. ROI, RI, and EVA are measures of short-term performance. These measures may be particularly inappropriate for divisions that have long-term missions (such as high growth). In this case, the relatively large growth in assets of L.A. Solutions from the beginning to the end of the period may indicate that this division is oriented to growth. If so, the ROI, RI, and EVA measures will provide an incentive contrary to the growth mission.

QUESTIONS

1. Why is performance measurement important to the success of businesses today?
2. How are organizational missions and strategies related to performance measures?
3. Why is it necessary to establish benchmarks for performance measurements to be meaningful?
4. What roles does performance measurement serve in the management of an organization?
5. Why do firms need to track measures regarding capital market performance?
6. In today's environment of world-class competition, why do organizations need to develop a culture that is accepting of change?
7. How do managers use information regarding performance of specific product groups and specific subunits?
8. In designing a performance measurement system, why should managerial rewards be linked to the performance measures?

9. How should one decide on a basis for measuring the performance of a responsibility center?
10. Should performance measures be qualitative, quantitative, or both? Justify your answer.
11. Can the same quantitative measures of performance be used for all types of responsibility centers? If so, why? If not, why not?
12. What is the balanced scorecard? What perspectives are considered in selecting performance measures for the balanced scorecard?
13. What benefits can be gained by allowing a manager to participate in developing the performance measures that will be used to assess that manager's performance?
14. How can feedback, both positive and negative, be used to improve managerial performance?
15. What is the traditional financial performance measure for a cost center? A revenue center?
16. Why is managerial manipulation of reported results an important concern when designing performance evaluation measures? Are internal or external measures more susceptible to manipulation? Explain.
17. How can cash flow be used as a performance measure? In what ways is cash flow a relatively stronger or weaker performance measure than accrual measures such as segment income?
18. Do the Statement of Cash Flows and the cash budget provide identical information on performance? Explain.
19. The president of Toys for Boys evaluates the performance of Annie and Andy, the divisional managers, on the basis of a variety of net income measures. Drew, the controller, informs the president that such measures could be misleading. What are the major concerns in defining the "income" measures?
20. What is the major difference between a profit center and an investment center? How does this difference create the need for a different financial performance measure in an investment center relative to a profit center?
21. What is the Du Pont model? What are its component ratios?
22. The senior managers of Jambino's Bakery Inc. were gathering for their monthly breakfast meeting when Mr. Jambino came in. Norm Henry, the cost accountant, was overheard to say, ". . . turnover looks good." Mr. Jambino, in a rather unpleasant mood that morning, turned to Norm and hollered, "Of course, the turnovers are good, but what does that have to do with the return this company should be making on its investment?" Norm calmly explained that he was discussing ROI. What kind of turnover was Norm discussing and how does it relate to ROI?
23. What is residual income and how is it used to measure divisional performance? How is it similar to, and different from, the return on investment measure? How is residual income similar to, and different from, economic value added?
24. Identify and discuss the major weaknesses associated with the use of ROI and RI as performance measures.
25. How is economic value added superior to residual income as a performance measure?
26. Describe the circumstances in which use of ROI would be likely to create a suboptimization problem. Under what circumstances would use of this measure be less likely to create a suboptimization problem?

EXERCISES

27. (*ROI*) Lansing Industries has three autonomous divisions. Data for each division for the year 2000 follow:

	Division 1	Division 2	Division 3
Segment income	\$ 25,000	\$ 75,000	\$ 200,000
Asset investment	100,000	500,000	2,000,000

Compute the return on investment for each division.

28. (ROI) Wisconsin Industrial has asked you to help its managers determine the ROI for the year just ended. You gather the following information: average assets invested, \$3,600,000; revenues, \$13,200,000; and expenses, \$12,300,000.
- Calculate return on investment.
 - Calculate profit margin.
 - Calculate asset turnover.
 - Using parts (b) and (c), prove your answer to part (a).
29. (ROI) Your cost accounting class has been assigned a case, but the teacher provides only partial information. You have been told that a division of California Plastics has an ROI of 20 percent, average total assets of \$8,000,000, and total direct expenses of \$7,200,000. You have been asked to
- determine segment income.
 - determine revenues.
 - determine asset turnover.
 - determine profit margin.
 - prove that ROI is 20 percent from the amounts calculated in parts (a) to (d).
30. (ROI) Carol Janicek, a division manager of Southwood Corp., provides you with the following information regarding her division:

Beginning of the year assets	\$150,000
End of the year assets	\$194,000
Revenues for year	\$150,500
Expenses for year	\$122,500

Variable expenses, 30 percent of total revenues; remaining expenses, fixed.

- Compute the profit margin for the year.
 - Compute average assets for the year.
 - Compute asset turnover for the year.
 - Compute return on investment for the year.
 - If Ms. Janicek could increase revenues next year by 25 percent with an increase in advertising of \$15,000 and no changes in asset investment, what would be her new rate of return?
31. (ROI) For the most recent fiscal year, the Nebraska Division of Sandhill Wholesaling generated an asset turnover ratio of 3 and a profit margin (as measured by the segment margin) ratio of 8 percent on sales of \$1,200,000.
- Compute the average assets employed.
 - Compute the segment margin.
 - Compute the ROI.
32. (RI) The French Division of Weston Electrical accepted a 15 percent target ROI for 2000. The following data have been gathered for the division's operations for 2000: average total assets, \$11,200,000; revenues, \$30,000,000; and expenses, \$28,000,000. What is the division's residual income? Did the division successfully meet the target ROI?
33. (RI) Cal Engineering has two divisions that are operated as investment centers. Information about these divisions is shown below.

	Division 1	Division 2
Sales	\$600,000	\$1,050,000
Total variable costs	150,000	717,500
Total fixed costs	350,000	125,000
Average assets invested	550,000	1,525,000





- a. What is the residual income of each division if the “charge” on invested assets is 10 percent? Which division is doing a better job?
- b. If the only change expected for next year is a sales increase of 15 percent, what will be the residual income of each division? Which division will be doing a better job financially?
- c. Why did the answers to the second questions in parts (a) and (b) differ?
34. (*ROI, RI*) Jersey Environmental Services has a target rate of return of 14 percent for its Residential Division. For 2001, the Residential Division generated gross fees of \$10,000,000 on average assets of \$5,000,000. The Residential Division’s variable costs were 35 percent of sales, and fixed costs were \$3,750,000. For 2001, compute the following for the Residential Division:
- ROI
 - Residual income
 - Profit margin
 - Asset turnover
35. (*EVA*) Dallas Catapult Systems relies on the EVA measure to evaluate the performance of segment managers. The cost of capital is 16 percent. One subsidiary, Hydraulic Systems, generated after-tax income of \$900,000 for the year just ended. For the same period, the invested capital in the subsidiary was \$6,000,000. Compute the subsidiary’s EVA.
36. (*EVA*) Alabama Technology has a cost of capital of 12 percent on invested capital. The firm’s chip division generated an EVA of \$2,000,000 last year. The value of capital invested in the chip division was \$19,000,000 last year.
- How much after-tax income was generated by the chip division last year?
 - As the controller of Alabama Technology, how could you determine the level of capital investment for a particular division?
37. (*Missing data*) Phil Banderas is preparing a case for his cost accounting class for which he has only partial information. He knows that a company has an ROI of 25 percent, average total assets of \$8,000,000, and total expenses of \$10,000,000. He needs to know the income, revenues, asset turnover, and profit margin.
- Find each of the amounts needed by Phil.
 - Prove that ROI is 25 percent from the amounts computed in part (a).
38. (*Missing data*) Green Manufacturing relies on residual income measure to evaluate the performance of certain segment managers. The target rate of return for all segments is 14 percent. One segment, Lawn Furniture, generated net income of \$800,000 for the year just ended. For the same period, the segment’s residual income was \$240,000.
- Compute the amount of average assets employed by the Lawn Furniture segment.
 - Compute the ROI for the Lawn Furniture segment.
39. (*Investment acquisition*) ABC Corporation has a target rate of return of 12 percent. C Division is analyzing a new investment that promises to generate an ROI of 20 percent, and a residual income of \$40,000.
- What is the acquisition cost of the investment C Division is considering?
 - What is the estimated net income from the new project?
40. (*Performance measures and suboptimization*) Sarah Birch is a division manager of Georgia Pine Inc. She is presently evaluating a potential revenue-generating investment that has an initial cost of \$8,000,000 and the following characteristics:
- Net annual increase in divisional income before consideration of depreciation:

Year 1	\$ 800,000
Year 2	1,200,000
Year 3	1,520,000
Year 4	6,400,000
Year 5	6,400,000

The project would have a 5-year life with no salvage value. All assets are depreciated according to the straight-line method. Sarah is evaluated and compensated based on the amount of pretax profit her division generates. More precisely, she receives an annual salary of \$150,000 plus a bonus equal to 8 percent of divisional segment income. Before consideration of the above project, Sarah anticipates that her division will generate \$9,200,000 in pretax profit.

- a. Compute the effect of the new investment on the level of divisional pretax profits for years 1 through 5.
- b. Determine the effect of the new project on Sarah's compensation for each of the five years.
- c. Based on your computations in part (b), will Sarah be hesitant to invest in the new project? Explain.
- d. Would upper management likely view the new investment favorably? Explain.

41. (*Internet exercise*) Many governmental units, such as the City of Grand Prairie, Alberta, have revised the methods they use to evaluate the performance of employees and managers. Search the Internet for discussions of performance evaluation in government and read articles discussing recent revisions made to systems of performance evaluation. Then, write an article that discusses the changes that have been made and the change in operational results that is expected because of the changes.



42. (*Internet exercise*) Search the Internet using the term *economic value added*. Read articles you find that discuss how firms, such as Quaker Oats Company, are using the economic value added concept to measure performance. Write a summary of your findings.



43. (*Selecting performance measures*) Houston Property Management provides management services for a variety of commercial real estate development projects. The firm has recently created a new division to market video game services to the company's existing clients. The new division will purchase and maintain the video equipment that is placed in client buildings. Clients will be paid 20 percent of gross video equipment revenues.

Assume that you have been hired as a management consultant by Houston Property Management. You have been charged with the task of preparing a written report recommending performance measures to be used to monitor and evaluate the success of the new division and its manager. Begin your report with a discussion of your perception of the strategic mission of the new division.

44. (*Choosing performance standards*) Oklahoma Pipeline Services (OPS) is a division of Ardmore Petroleum. Prior to the current year, the manager of OPS and corporate managers agreed to a target ROI for OPS of 13 percent. Subsequently, an incentive pay contract was executed between Gerome Green, the manager of OPS, and corporate management. The contract stipulated that in the event OPS achieved an ROI of 13 percent, certain bonus payments would be made to Mr. Green. Any achieved ROI below 13 percent would result in no bonus payments. At year-end, the measured ROI of OPS was 5 percent.

Mr. Green has approached corporate management with the following information as the basis of arguing that he deserves a bonus payment for the year, despite the fact that his division failed to meet the stipulated 13 percent ROI.

ROI of top competitor for the year	2.7%
Average ROI in the industry for the year	-2.9%

You have been selected to be an arbitrator between Mr. Green and Ardmore Petroleum's top managers. Prepare a brief oral report in which you interpret the meaning of the additional information provided by Mr. Green.

45. (*Comparing performance of divisions*) Training Services Ltd. has two divisions operating in the management training field. One division, Domestic, operates strictly in the United States; the other division, Foreign, operates exclusively in the Pacific Rim countries. Both divisions are evaluated, in part, based on a measure of ROI. For the most recent year, Domestic's ROI was 14 percent and Foreign's ROI was 8 percent. One of the tasks of upper management is to evaluate the relative performance of the divisions so that an appropriate performance pay bonus can be determined for each manager. In evaluating relative performance, provide arguments as to why the determination of relative performance should

- a. include a comparison of the ROI measures of the two divisions.
- b. not include a comparison of ROI measures of the two divisions.

46. (*Performance measurement manipulation*) A number of transactions follow that affect a specific division within a multiple-division company. For each transaction described, indicate whether the transaction would increase (IN), decrease (D), have no effect (N), or have an indeterminate (I) effect on the following measures: asset turnover, profit margin, ROI, and RI for the present fiscal year. Each transaction is independent.

- a. The division writes down an inventory of obsolete finished goods. The journal entry is

Cost of Goods Sold	80,000	
Finished Goods Inventory		80,000

- b. A special overseas order is accepted. The sales price for this order is well below the sales price on normal business but is sufficient to cover all costs traceable to this order.
- c. A piece of equipment is sold for \$150,000. The equipment's original cost was \$900,000. At the time of sale, the book value of the equipment is \$180,000. The sale of the equipment has no effect on product sales.
- d. The division fires its R&D manager. The manager will not be replaced during the current fiscal year.
- e. The company raises its target rate of return for this division from 10 to 12 percent.
- f. At midyear, the divisional manager decides to increase scheduled annual production by 1,000 units. This decision has no effect on scheduled sales.
- g. During the year, the division manager spends an additional \$250,000 on advertising. Sales immediately increase thereafter.
- h. The divisional manager replaces a labor-intensive operation with machine technology. This action has no effect on sales, but total annual expenses of the operation are expected to decline by 10 percent.

47. (*Selecting performance criteria*) The Chicago Trading and Production Company is a large, divisionalized manufacturing company. Each division is viewed as an investment center and has virtually complete autonomy for product development, marketing, and production.

Performance of division managers is evaluated periodically by senior management. Divisional economic value added (EVA) is the sole criterion used in performance evaluation under current corporate policy. Corporate management believes EVA is an adequate measure because it incorporates quantitative information from the divisional income statement and balance sheet in the analysis.

Some division managers complained that a single criterion for performance evaluation is insufficient and ineffective. These managers have compiled a list of criteria that they believe should be used in evaluating a division manager's performance. The criteria include profitability, market position, productivity,

product leadership, personnel development, employee attitudes, public responsibility, and balance between short-range and long-range goals.

- a. Discuss the shortcomings or possible inconsistencies of using economic value added as the sole criterion to evaluate divisional management performance.
- b. Discuss the advantages of using multiple criteria such as a balanced scorecard versus a single criterion to evaluate divisional management performance.
- c. Discuss some ways in which each of the multiple criteria listed by the managers could be evaluated.
- d. Describe the problems or disadvantages that can be associated with the implementation of the multiple performance criteria measurement system suggested to the Chicago Trading and Production Company by its division managers. *(CMA adapted)*

PROBLEMS

48. (*Divisional profit*) The Management Consulting Division (MCD) of Total Financial Services is evaluated by corporate management based on the profits it generates. Budgeted pretax income is the benchmark performance measure. For 2001, the budgeted income statement for MCD was as follows:

Sales	\$6,000,000
Variable costs	<u>(4,200,000)</u>
Contribution margin	\$1,800,000
Fixed costs	<u>(1,200,000)</u>
Pretax income	<u>\$ 600,000</u>

At the end of 2001, the actual results for MCD were determined. Those results follow:

Sales	\$6,500,000
Variable costs	<u>(4,875,000)</u>
Contribution margin	\$1,625,000
Fixed costs	<u>(1,205,000)</u>
Pretax income	<u>\$ 420,000</u>

- a. Based on the preceding information, evaluate the performance of MCD. What was the principal reason for the poor profit performance?
 - b. Why do complete income statements provide a more complete basis for evaluating the profit performance of a manager than mere comparisons of the bottom lines of the budgeted and actual income statements?
49. (*Cash flow*) Lois Harvak, the controller of California Mining Co., has become increasingly disillusioned with the company's system of evaluating the performance of profit centers and their managers. The present system focuses on a comparison of budgeted to actual income from operations. Ms. Harvak's major concern with the current system is the ease with which the measure "income from operations" can be manipulated by profit center managers. Most corporate sales are made on credit and most purchases are made on account. The profit centers are organized according to product line. Below is a typical quarterly income statement for a profit center, Mine #107, that appears in the responsibility report for the profit center:

Sales	\$11,000,000
Cost of goods sold	<u>(9,000,000)</u>
Gross profit	\$ 2,000,000
Selling and administrative expenses	<u>(1,500,000)</u>
Income from operations	<u>\$ 500,000</u>

Ms. Harvak has suggested to top management that the company replace the accrual income evaluation measure, “income from operations,” with a measure called “cash flow from operations.” Ms. Harvak suggests that this measure will be less susceptible to manipulation by profit center managers. To defend her position, she compiles a cash flow income statement for the same profit center:

Cash receipts from customers	\$8,800,000
Cash payments for production labor, materials, and overhead	(7,200,000)
Cash payments for selling and administrative activities	(1,400,000)
Cash flow from operations	<u>\$ 200,000</u>

- a. If Ms. Harvak is correct about profit center managers manipulating the income measure, where are manipulations likely taking place?
 - b. Is the proposed cash flow measure less subject to manipulation than the income measure?
 - c. Could manipulation be reduced if both the cash flow and income measures were utilized? Explain.
 - d. Do the cash and income measures reveal different information about profit center performance?
 - e. Could the existing income statement be used more effectively in evaluating performance? Explain.
50. (*Statement of Cash Flows*) Mechanical System’s controller prepared the following Statements of Cash Flows (in thousands of dollars) for the past two years, the current year and the upcoming year (2001):

	BUDGET			
	1998	1999	2000	2001
Net cash flows from operating activities				
Net income	\$41,700	\$39,200	\$43,700	\$45,100
Add net reconciling items	2,200	4,300	3,000	4,000
Total	<u>\$43,900</u>	<u>\$43,500</u>	<u>\$46,700</u>	<u>\$49,100</u>
Net cash flows from investing activities				
Purchase of plant and equipment	\$(18,700)		\$(12,200)	\$ (4,600)
Sale (purchase) of investments	8,700	\$ (3,600)	(12,600)	(15,800)
Other investing inflows	1,200	800	600	2,400
Total	<u>\$ (8,800)</u>	<u>\$ (2,800)</u>	<u>\$ (24,200)</u>	<u>\$ (18,000)</u>
Net cash flows from financing activities				
Payment of notes payable	\$(12,000)	\$(24,000)	\$(15,000)	\$ (7,000)
Payment of dividends	(20,000)	(7,000)	(13,300)	(20,000)
Total	<u>\$(32,000)</u>	<u>\$(31,000)</u>	<u>\$(28,300)</u>	<u>\$(27,000)</u>
Net change in cash	<u>\$ 3,100</u>	<u>\$ 9,700</u>	<u>\$ (5,800)</u>	<u>\$ 4,100</u>

After preparation of the above budgeted SCF for 2001, Leslie Nelson, the company president, asked you to recompile it based on a separate set of facts. She is evaluating a proposal to purchase a local-area network (LAN) computer system for the company at a total cost of \$50,000. The proposal has been deemed to provide a satisfactory rate of return. However, she does not want to issue additional stock and she would prefer not to borrow any more money to finance the project.

Projecting the market value of the accumulated investments for the previous three years (\$3,600 and \$12,600) reveals an estimate that these investments could be liquidated for \$18,400. Ms. Nelson said the investments scheduled for 2001 did not need to be purchased and that dividends could be reduced to 40 percent of the budgeted amount. These are the only changes that can be made to the original forecast.

- a. Evaluate the cash trends for the company during the 1998–2000 period.
- b. Giving effect to the preceding changes, prepare a revised 2001 budgeted Statement of Cash Flows and present the original and revised in a comparative format.
- c. Based on the revised budgeted SCF, can the LAN computer system be purchased if Ms. Nelson desires an increase in cash of at least \$1,000?
- d. Comment on the usefulness of the report prepared in part (b) to Leslie Nelson.

51. (*ROI*) Hearne Hardware operates a chain of lumber and hardware stores. For 2001, corporate management examined industry-level data and determined the following performance targets for lumber retail stores:

Asset turnover	2.7
Profit margin	7%

The actual 2001 results for the lumber retail stores are summarized below:

Total assets at beginning of year	\$10,200,000
Total assets at end of year	12,300,000
Sales	26,250,000
Operating expenses	23,885,000

- a. For 2001, how did the lumber retail stores perform relative to their industry norms?
- b. Where, as indicated by the performance measures, are the most likely areas to improve performance in the retail lumber stores?
- c. What are the advantages and disadvantages of setting a performance target at the start of the year compared with one that is determined at the end of the year based on actual industry performance?

52. (*Adjusting income for ROI purposes*) Daunita White manages a division of Miami Chemical. She is evaluated on the basis of return on investment and residual income. Near the end of November 2001, Ms. White was at home reviewing the division's financial information as well as some activities projected for the remainder of the year. The information she was reviewing is given below.

1. Sales for the year are projected at 100,000 units. Each unit has a selling price of \$30. Ms. White has received a purchase order from a new customer for 5,000 units. The purchase order states that the units should be shipped on January 3, 2002, for arrival on January 5.
2. The division had a beginning inventory for the year of 500 units, each costing \$10. Purchases of 99,500 units have been made steadily throughout the year, and the cost per unit has been constant at \$10. Ms. White intends to make a purchase of 5,200 units before year-end. This purchase will leave her with a 200-unit balance in inventory after she makes the shipment to the new customer. Carrying costs for the units are quite high, but ordering costs are extremely low. The division uses a LIFO cost flow assumption for inventory.
3. Ms. White has just received a notice from her primary supplier that he is going out of business and is selling his remaining stock of 15,000 units for \$9.00 each. Ms. White makes a note to herself to place her final order for the year from this supplier.
4. Shipping expenses are \$0.50 per unit sold.
5. Advertising is \$5,000 per month. The advertising for the division is in newspapers and television spots. No advertising has been discussed for December; Ms. White intends to have the sales manager call the paper and TV station early next week.

6. Salaries are projected through the end of the year at \$700,000. This assumes that the position to be vacated by Ms. White's personnel manager is filled on December 1. The personnel manager's job pays \$66,000 per year. Ms. White has an interview on Monday with an individual who appears to be a good candidate for the position.
7. Other general and administrative costs for the full year are estimated to total \$590,000.
8. As Ms. White is preparing her pro forma income statement for the year, she receives a telephone call from the maintenance supervisor at the office. He informs Ms. White that electrical repairs to the office heating system are necessary, which will cost \$10,000. She asks if the repairs are essential, to which the supervisor replies, "No, the office won't burn down if you don't make them, but they are advisable for energy efficiency and long-term operation of the system." Ms. White tells the supervisor to see her on Monday at 8:00 a.m.

Ms. White was fairly pleased with her pro forma results. Although the results did provide the 13 percent rate of return on investment desired by corporate management, the results did not reach the 16 percent rate needed for Ms. White to receive a bonus. Ms. White has an asset investment base of \$4,500,000.

- a. Prepare a pro forma income statement for Ms. White's division. Determine the amount of residual income for the division.
- b. Ms. White's less-than-scrupulous friend, Ms. Green, walked into the house at this time. When she heard that Ms. White was not going to receive a bonus, Ms. Green said, "Here, let me take care of this for you." She proceeded to recompute the pro forma income statement and showed Ms. White that, based on her computation of \$723,000 in income, she would be receiving her bonus. Prepare Ms. Green's pro forma income statement.
- c. What future difficulties might arise if Ms. White acts in a manner that will make Ms. Green's pro forma income statement figures a reality?



53. (*ROI, RI*) Benchmark Clothing sells a broad line of clothing goods to specialty retail and department stores. For 2001, the company's South American Division had the following performance targets:

Asset turnover	1.8
Profit margin	8%

Actual information concerning the performance of the South American Division in 2001 follows:

Total assets at beginning of year	\$ 4,700,000
Total assets at end of year	7,300,000
Sales	12,000,000
Operating expenses	11,280,000

- a. For 2001, did the South American Division achieve its target objectives for ROI, asset turnover, and profit margin?
 - b. Where, as indicated by the performance measures, are the most likely areas to improve performance?
 - c. If the company has an overall target return of 13 percent, what was the South American Division's residual income for 2001?
54. (*Decisions based on ROI, RI*) Groverton Marine evaluates the performance of its two division managers using an ROI formula. For the forthcoming period, divisional estimates of relevant measures are

	Power Boats	Sailboats	Total Company
Sales	\$12,000,000	\$48,000,000	\$60,000,000
Expenses	10,800,000	42,000,000	52,800,000
Divisional assets	10,000,000	30,000,000	40,000,000

The managers of both operating divisions have the autonomy to make decisions regarding new investments. The manager of the Power Boats division is contemplating an investment in an additional asset that would generate an ROI of 14 percent, and the manager of the Sailboats division is considering an investment in an additional asset that would generate an ROI of 18 percent.

- Compute the projected ROI for each division disregarding the contemplated new investments.
 - Based on your answer in part (a), which of the managers is likely to actually invest in the additional assets under consideration?
 - Are the outcomes of the investment decisions in part (b) likely to be consistent with overall corporate goals? Explain.
 - If the company evaluated the division managers' performances using a residual income measure with a target return of 17 percent, would the outcomes of the investment decisions be different from those described in part (b)? Explain.
55. (EVA) You are the division manager of Flotex Engineering. Your performance as a division manager is evaluated primarily on one measure: after-tax divisional segment income less the cost of capital invested in divisional assets. For existing operations in your division, projections for 2001 follow:

Sales	\$20,000,000
Expenses	(17,500,000)
Segment income	\$ 2,500,000
Taxes	(750,000)
After-tax segment income	<u>\$ 1,750,000</u>

The value of invested capital of the division is \$12,500,000, the required return on capital is 12 percent, and the tax rate is 30 percent.

At this moment, you are evaluating an investment in a new product line that would, according to projections, increase 2001 pretax segment income by \$200,000. The cost of the investment has not yet been determined.

- Ignoring the new investment, what is your projected EVA for 2001?
- In light of your answer in part (a), what is the maximum amount that you would be willing to invest in the new product line?
- Assuming the new product line would require an investment of \$1,100,000, what would be the revised projected EVA for your division in 2001 if the investment were made?



CASES

56. (ROI, RI) Raddington Industries produces tool and die machinery for manufacturers. The company expanded vertically in 1993 by acquiring one of its suppliers of alloy steel plates, Reigis Steel Company. To manage the two separate businesses, the operations of Reigis are reported separately as an investment center.

Raddington monitors its divisions on the basis of both unit contribution and return on average investment (ROI), with investment defined as average operating assets employed. Management bonuses are determined based on

ROI. All investments in operating assets are expected to earn a minimum return of 11 percent before income taxes.

Reigis's cost of goods sold is considered to be entirely variable, whereas the division's administrative expenses are not dependent on volume. Selling expenses are a mixed cost with 40 percent attributed to sales volume. Reigis's ROI has ranged from 11.8 percent to 14.7 percent since 1993. During the fiscal year ended November 30, 2000, Reigis contemplated a capital acquisition with an estimated ROI of 11.5 percent; however, division management decided that the investment would decrease Reigis's overall ROI.

The 2000 income statement for Reigis follows. The division's operating assets employed were \$15,750,000 at November 30, 2000, a 5 percent increase over the 1999 year-end balance.

REIGIS STEEL DIVISION
Income Statement
For the Year Ended November 30, 2000
(\$000 Omitted)

Sales revenue		\$25,000
Less expenses:		
Cost of goods sold	\$16,500	
Administrative expenses	3,955	
Selling expenses	<u>2,700</u>	(23,155)
Income from operations before income taxes		<u>\$ 1,845</u>

- a. Calculate the segment contribution for Reigis Steel Division if 1,484,000 units were produced and sold during the year ended November 30, 2000.
- b. Calculate the following performance measures for 2000 for the Reigis Steel Division:
 1. pretax return on average investment in operating assets employed (ROI), and
 2. residual income calculated on the basis of average operating assets employed.
- c. Explain why the management of the Reigis Steel Division would have been more likely to accept the contemplated capital acquisition if residual income rather than ROI were used as a performance measure.
- d. The Reigis Steel Division is a separate investment center within Raddington Industries. Identify several items that Reigis should control if it is to be evaluated fairly by either the ROI or residual income performance measures.

(CMA adapted)

57. *(ROI and management incentives)* The Notewon Corporation is a highly diversified company that grants its divisional executives a significant amount of authority in operating the divisions. Each division is responsible for its own sales, pricing, production, costs of operations, and the management of accounts receivable, inventories, accounts payable, and use of existing facilities. Cash is managed by corporate headquarters; all cash in excess of normal operating needs of the divisions is transferred periodically to corporate headquarters for redistribution or investment.

The divisional executives are responsible for presenting requests to corporate management for investment projects. The proposals are analyzed and documented at corporate headquarters. The final decision to commit funds to acquire equipment, to expand existing facilities, or for other investment purposes rests with corporate management.

The corporation evaluates the performance of division executives by the return on investment (ROI) measure. The asset base is composed of fixed assets employed plus working capital exclusive of cash.

The ROI performance of a divisional executive is the most important appraisal factor for salary changes. In addition, the annual performance bonus is

based on the ROI results with increases in ROI having a significant impact on the amount of the bonus.

The Notewon Corporation adopted the ROI performance measure and related compensation structure about 10 years ago. The corporation did so to increase the awareness of divisional management of the importance of the profit/asset relationship and to provide additional incentive to the divisional executives to seek investment opportunities.

The corporation seems to have benefited from the program. The ROI for the corporation as a whole increased during the first years of the program. Although ROI has continued to grow in each division, the corporate ROI has declined in recent years. The corporation has accumulated a large amount of cash and short-term marketable securities in the past three years.

Corporate management is concerned about the increase in the short-term marketable securities. A recent article in a financial publication suggested that the use of ROI was overemphasized by some companies with results similar to those experienced by Notewon.

- a. Describe the specific actions division managers might have taken to cause the ROI to grow in each division but decline for the corporation. Illustrate your explanations with appropriate examples.
- b. Explain, using the concepts of goal congruence and motivation of divisional executives, how Notewon Corporation's overemphasis on the ROI measure might result in the recent decline in the corporation's return on investment and the increase in cash and short-term marketable securities.
- c. Discuss how divisional statements of cash flows might provide some additional useful information to divisional executives and corporate management.
- d. What changes could be made in Notewon Corporation's compensation policy to avoid the current problems? Explain your answer. (*CMA adapted*)

58. (*Providing feedback on performance*) Terry Travers is the manufacturing supervisor of the Aurora Manufacturing Company, which produces a variety of plastic products. Some of these products are standard items that are listed in the company's catalog, whereas others are made to customer specifications. Each month, Travers receives a performance report displaying the budget for the month, the actual activity for the period, and the variance between budget and actual. Part of Travers' annual performance evaluation is based on his department's performance against budget. Aurora's purchasing manager, Bob Christensen, also receives monthly performance reports and is evaluated in part on the basis of these reports.

The most recent monthly reports had just been distributed, on the 21st of the month, when Travers met Christensen in the hallway outside their offices. Scowling, Travers began the conversation, "I see we have another set of monthly performance reports hand-delivered by that not very nice junior employee in the budget office. He seemed pleased to tell me that I was in trouble with my performance again."

Christensen: "I got the same treatment. All I ever hear about are the things I haven't done right. Now, I'll have to spend a lot of time reviewing the report and preparing explanations. The worst part is that the information is almost a month old, and we spend all this time on history."

Travers: "My biggest gripe is that our production activity varies a lot from month to month, but we're given an annual budget that's written in stone. Last month, we were shut down for three days when a strike delayed delivery of the basic ingredient used in our plastic formulation, and we had already exhausted our inventory. You know that, of course, since we had asked you to call all over the country to find an alternate source of supply. When we got what we needed on a rush basis, we had to pay more than we normally do."

Christensen: “I expect problems like that to pop up from time to time—that’s part of my job—but now we’ll both have to take a careful look at the report to see where charges are reflected for that rush order. Every month, I spend more time making sure I should be charged for each item reported than I do making plans for my department’s daily work. It’s really frustrating to see charges for things I have no control over.”

Travers: “The way we get information doesn’t help, either. I don’t get copies of the reports you get, yet a lot of what I do is affected by your department, and by most of the other departments we have. Why do the budget and accounting people assume that I should be told only about my operations even though the president regularly gives us pep talks about how we all need to work together as a team?”

Christensen: “I seem to get more reports than I need, and I am never getting asked to comment until top management calls me on the carpet about my department’s shortcomings. Do you ever hear comments when your department shines?”

Travers: “I guess they don’t have time to review the good news. One of my problems is that all the reports are in dollars and cents. I work with people, machines, and materials. I need information to help me solve this month’s problems—not another report of the dollars expended last month or the month before.”

- a. Based on the conversation between Terry Travers and Bob Christensen, describe the likely motivation and behavior of these two employees resulting from the Aurora Manufacturing Company’s performance reporting system.
- b. When properly implemented, both employees and companies should benefit from performance reporting systems.
 1. Describe the benefits that can be realized from using a performance reporting system.
 2. Based on the situation presented above, recommend ways for Aurora Manufacturing Company to improve its performance system so as to increase employee motivation. *(CMA adapted)*

59. *(ROI and suboptimization)* Northstar Offroad Company (NOC), a subsidiary of Allston Automotive, manufactures go-carts and other recreational vehicles. Family recreational centers that feature go-cart tracks, miniature golf, batting cages, and arcade games have increased in popularity. As a result, NOC has been receiving some pressure from Allston Automotive top management to diversify into some of these other recreational areas. Recreational Leasing Inc. (RLI), one of the largest firms that leases arcade games to family recreation centers, is looking for a friendly buyer. Allston Automotive management believes that RLI’s assets could be acquired for an investment of \$3.2 million and has strongly urged Bill Grieco, division manager of NOC, to consider acquiring RLI.

Grieco has reviewed RLI’s financial statements with his controller, Marie Donnelly, and they believe that the acquisition may not be in the best interest of NOC. “If we decide not to do this, the Allston Automotive people are not going to be happy,” said Grieco. “If we could convince them to base our bonuses on something other than return on investment, maybe this acquisition would look more attractive. How would we do if the bonuses were based on residual income using the company’s 15 percent cost of capital?”

Allston Automotive has traditionally evaluated all of its divisions on the basis of return on investment, which is defined as the ratio of operating income to total assets; the desired rate of return for each division is 20 percent. The management team of any division reporting an annual increase in the return on investment is automatically eligible for a bonus. The management of divisions reporting a decline in the return on investment must provide con-

vincing explanations for the decline to be eligible for a bonus, and this bonus is limited to 50 percent of the bonus paid to divisions reporting an increase.

Following are condensed financial statements for both NOC and RLI for the fiscal year ended May 31, 2000.

	NOC	RLI
Sales revenue	\$10,500,000	
Leasing revenue		\$2,800,000
Variable expenses	(7,000,000)	(1,000,000)
Fixed expenses	(1,500,000)	(1,200,000)
Operating income	<u>\$ 2,000,000</u>	<u>\$ 600,000</u>
Current assets	\$ 2,300,000	\$ 1,900,000
Long-term assets	5,700,000	1,100,000
Total assets	<u>\$ 8,000,000</u>	<u>\$ 3,000,000</u>
Current liabilities	\$ 1,400,000	\$ 850,000
Long-term liabilities	3,800,000	1,200,000
Shareholders' equity	2,800,000	950,000
Total liabilities and shareholders' equity	<u>\$ 8,000,000</u>	<u>\$ 3,000,000</u>

- a. Under the present bonus system, how would the acquisition of RLI affect Mr. Grieco's bonus expectations?
- b. If Mr. Grieco's suggestion to use residual income as the evaluation criterion is accepted, how would acquisition of RLI affect Mr. Grieco's bonus expectations?
- c. Given the present bonus arrangement, is it fair for Allston Automotive management to expect Mr. Grieco to acquire RLI? Explain.
- d. Is the present bonus system consistent with Allston Automotive's goal of expansion of NOC into new recreational products? Why or why not?

(CMA adapted)

60. *(Balanced scorecard)* International Glass manufactures a variety of glass products having both commercial and household applications. One of its newest divisions, Fiber Optic, manufactures fiber optic cable and other high-tech products. Recent annual operating results (in millions) for Fiber Optic and two older divisions follow:

	Fiber Optic	Industrial Glass	Flatware
Sales	\$250	\$900	\$750
Segment income	25	92	85

International Glass uses economic value added (EVA) as its only segment performance measure. Jim Wilson, CEO of International Glass, posed some serious questions in a memo to his controller, Janie Ware, after studying the operating results.

Dear Janie:

I'm concerned about Fiber Optic. Fiber Optic's key competitor's sales and market share are growing at about twice the pace of Fiber Optic. I am not comforted by the fact that Fiber Optic is generating substantially more profits than the competitor. The mission we have established for Fiber Optic is high growth. Do you think we should use EVA to measure the division's performance and as a basis to compensate Fiber Optic's divisional management? Do we need to change our performance criteria?

Jim Wilson

After pondering the memo and studying the operating results, Janie Ware passed the memo and operating results to you, her newest hire in the controller's office and asked you to respond to the following questions.

- a. Why would the use of EVA discourage a high-growth strategy?
- b. Could the concept of the balanced scorecard be used to encourage a higher rate of growth in Fiber Optics? Explain.

REALITY CHECK

61. *Could any philosophy or cast-of-mind be seen as more vile these days than that of being "antibusiness"? It is like being "soft-on-communism" back when there were communists to be soft on.*

And according to prominent corporate executives, an antibusiness view, disgraceful and opprobrious though it may be, has permeated an unlikely home—the Financial Accounting Standards Board. This seemingly banal organization, which sets the rules governing corporate accounting, reflects "an implicit antibusiness bias." It fails to recognize "business reality" and is unresponsive to business's "valid concerns."

This broadside has been leveled by the Financial Executives Institute, a 14,000-member corporate executives group, and it is only the latest in a series of attacks on FASB from business. . . . But what gives rise to the "antibusiness" rhetoric and the overall virulence of the FEI attack? P. Norman Roy, its president, said his members think FASB has become an accounting "policeman" (a role he would prefer to see played by individual auditors). FASB's thick encyclicals, he added, are too "prescriptive." Naturally, executives want flexibility over how they report earnings.

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- a. Why would corporate executives desire more flexibility in how they report earnings?
 - b. How would more managerial flexibility in the reporting of accounting data affect the quality of accounting information?
 - c. What are the ethical obligations of the FASB in setting rules for reporting financial information?
62. Bailey Manufacturing has just initiated a formula bonus plan whereby plant managers are rewarded for various achievements. One of the current criteria for bonuses is the improvement of asset turnover. The plant manager of the Carson City Plant told Horace Appleby, his young assistant, to meet him Saturday when the plant is closed. Without explanation, the plant manager specified that certain raw materials were to be loaded on one of the plant's dump trucks. When the truck was loaded, the plant manager and Horace drove to a secluded mountain road where, to Horace's astonishment, the plant manager flipped a switch and the truck dumped the raw materials down a steep ravine. The plant manager grinned and said that these were obsolete raw materials and the company would run more smoothly without them. For the next several weekends, Horace observed the plant manager do the same thing. The following month, the plant manager was officially congratulated for improving asset turnover.
- a. How did the dumping improve asset turnover?
 - b. What are the ethical problems in this case?
 - c. What are Horace's options? Which should he choose and why?

<http://www.fasb.org>

63. Manhattan Electronics Corporation produces a variety of computer products. Recently the firm has revealed plans to expand into new office automation products. To realize the expansion plans, the firm will need to go to the stock market for additional capital in October of this year. Present plans call for raising \$200,000,000 in new common equity.

Historically, the firm's small notebook computer has been a significant contributor to corporate profits. However, a competitor has recently introduced a notebook model that has rendered Manhattan Electronic's notebook computer obsolete. At some point, the controller has informed the president, the inventory of notebooks needs to be "written down" to realizable value. Because Manhattan Electronics has a large inventory of the notebooks on hand, the write-down will have a very detrimental effect on both the balance sheet and income statement.

The president, whose compensation is determined in part by corporate profits and in part by stock price, has suggested that the write-downs be deferred until the next fiscal year (next January). He argues that, by deferring the write-down, existing shareholders will realize more value from the shares to be sold in October because the stock market will not be informed of the pending write-downs.

- a. What effects are the performance evaluation measures of the president likely to have on his decision to defer the write-down of the obsolete inventory?
 - b. Is the president's decision to defer the write-down of the inventory an ethical treatment of existing shareholders? Of potential new shareholders?
 - c. If you were the controller of Manhattan Electronics, how would you respond to the president's decision to defer the write-down until after issuance of the new stock?
64. *A typical executive is in his mid-40's, frequently travels on business, says he values "self-respect," and is very likely to commit financial fraud.*

That, anyway, is the conclusion of four business school professors, whose study on fraud was published in the February issue of the Journal of Business Ethics.

After getting nearly 400 people (more than 85% of them men) over the past seven years to play the role of a fictional executive named Todd Folger, the professors found that 47% of the top executives, 41% of the controllers and 76% of the graduate-level business students they surveyed were willing to commit fraud by understating write-offs that cut into their companies' profits.

SOURCE: Dawn Blalock, "Study Shows Many Execs Are Quick to Write Off Ethics," *The Wall Street Journal* (March 16, 1996), pp. C1, C13. Reprinted by permission of *The Wall Street Journal*, © 1996 Dow Jones & Company, Inc. All Rights Reserved Worldwide. Permission conveyed through the Copyright Clearance Center.

- a. What creates the incentive for managers to understate write-offs?
- b. How does the use of accounting as a performance measurement system of managers affect the objectivity of accounting information?
- c. What are the ethical obligations of accountants in dealing with managers who desire to manipulate accounting information for their personal benefit?