Chapter 11

Lecture Notes

Chapter theme: Managers in large organizations have to delegate some decisions to those who are at lower levels in the organization. This chapter explains how **responsibility accounting systems**, **return on investment (ROI),** **residual income, operating performance measures, and the balanced scorecard** are used to help control decentralized organizations.

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1. **Decentralization in organizations**
   1. A **decentralized organization** does not confine decision-making authority to a few top executives; rather, **decision-making authority is spread throughout the organization**. The advantages and disadvantages of decentralization are as follows:
      1. **Advantages of decentralization**
         1. It enables top management to **concentrate** on strategy, higher-level decision making, and coordinating activities.

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* + - 1. It acknowledges that lower-level managers have more detailed information about local conditions that enable them to make **better operational decisions**.
      2. It enables lower-level managers to **quickly respond to customers**.
      3. It provides lower-level managers with the **decision-making experience** they will need when promoted to higher level positions.
      4. It often **increases motivation**, resulting in increased job satisfaction and retention, as well as improved performance.

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* + 1. **Disadvantages of decentralization**
       1. Lower-level managers may make decisions without fully understanding the **“big picture.”**
       2. There may be a **lack of coordination** among autonomous managers.

a. The **balanced scorecard** can help reduce this problem by communicating a company’s strategy throughout the organization.

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* + - 1. Lower-level managers may have **objectives that differ** from those of the entire organization.
         1. This problem can be reduced by **designing performance evaluation systems** that motivate managers to make decisions that are in the best interests of the company.

4. It may be difficult to effectively **spread innovative ideas** in a strongly decentralized organization.

II. **Responsibility accounting**

A. **Responsibility accounting systems** link lower-level managers’ decision-making authority with accountability for the outcomes of those decisions. The term **responsibility center** is used for any part of an organization whose manager has control over, and is accountable for cost, profit, or investments. The **three primary types** of responsibility centers are cost centers, profit centers, and investment centers.

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1. **Cost center**
2. The manager of a cost center has **control over costs**, but not over revenue or investment funds.
3. **Service departments** such as accounting, general administration, legal, and personnel are usually classified as cost centers, as are **manufacturing facilities**.

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1. **Standard cost variances and flexible budget variances**, such as those discussed in Chapters 10 and 11, are often used to evaluate cost center performance.
2. **Profit center**
3. The manager of a profit center has control over **both costs and revenue**.

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1. Profit center managers are often evaluated by comparing actual profit to targeted or budgeted profit.
2. **Investment center**
3. The manager of an investment center has control over **cost, revenue, and investments in operating assets**.

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1. Investment center managers are usually evaluated using return on investment (ROI) or residual income, as discussed later in this chapter.

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III. **Evaluating investment center performance – return on investment**

*Learning Objective 1: Compute return on investment (ROI) and show how changes in sales, expenses, and assets affect ROI.*

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A. **Key concepts/definitions**

i. Investment center performance is often evaluated using a measure called **return on investment (ROI)**, which is defined as follows:



ii. **Net operating income** is income before taxes and is sometimes referred to as EBIT (earnings before interest and taxes). **Operating assets** include cash, accounts receivable, inventory, plant and equipment, and all other assets held for operating purposes.

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1. Net **operating** income is used in the numerator because the denominator consists only of **operating assets**.

2. The operating asset base used in the formula is typically computed as the average of the assets between the **beginning** and the **end** of the year.

iii. **Net book value versus gross cost**

1. Most companies use the **net book value** (i.e., acquisition cost less accumulated depreciation) of depreciable assets to calculate average operating assets.

a. With this approach, **ROI mechanically increases over time** as the accumulated depreciation increases. Replacing a fully-depreciated asset with a new asset will decrease ROI.

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2. An alternative to net book value is the **gross cost** of the asset, which **ignores accumulated depreciation**.

a. With this approach, ROI does not grow automatically over time, rather **it stays constant**. Replacing a fully-depreciated asset does not adversely affect ROI.

B. **Understanding ROI**

i. Du Pont pioneered the use of ROI and recognized the importance of looking at the components of ROI, namely margin and turnover.

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1. **Margin** is computed as shown and is improved by increasing unit sales, increasing selling prices, or reducing operating expenses. The lower the operating expenses per dollar of sales, the higher the margin earned.

2. **Turnover** is computed as shown. It incorporates a crucial area of a manager’s responsibility – the investment in operating assets. Excessive funds tied up in operating assets depress turnover and lower ROI.

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*Helpful Hint: Emphasize that both margin and turnover affect profitability. As an example, ask students to compare the margins and turnovers of grocery stores to jewelry stores. In equilibrium, every industry should have roughly the same ROI. Groceries, because of their short shelf life, have high turnovers relative to fine jewelry. If the ROIs are to be comparable in grocery stores and in jewelry stores, the margins would have to be higher in jewelry stores.*

ii. To illustrate how to increase ROI, assume that Regal Company reports the results shown:

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1. Given this information, its current ROI is **15%**.

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2. Suppose that Regal’s manager invests in a **$30,000** piece of equipment that increases sales by **$35,000** while increasing operating expenses by **$15,000**.

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a. In this case, the ROI increases from **15% to 21.8%**.

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C. **Criticisms of ROI**

i. Just telling managers to increase ROI may not be enough. **Managers may not know how to increase ROI** in a manner that is consistent with the company’s strategy.

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1. This is why ROI is best used as part of a balanced scorecard.

ii. A manager who takes over a business segment typically **inherits** **many committed costs** over which the manager has no control. This may make it difficult to assess this manager relative to other managers.

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iii. A manager who is evaluated based on ROI may **reject investment opportunities** that are profitable for the whole company but that would have a negative impact on the manager’s performance evaluation.

*Helpful Hint: When discussing the criticisms of ROI and other measures of profitability, ask students to play the role of a manager who anticipates a short tenure. This manager will want to increase ROI as quickly as possible. Ask students to list the activities that could be undertaken to increase ROI that, in reality, would hurt the company as a whole.*

IV. **Residual income**

*Learning Objective 2: Compute residual income and understand its strengths and weaknesses.*

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A. **Defining** residual income

i. **Residual income** is the net operating income that an investment center earns **above the minimum required return on its assets**.

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1. **Economic Value Added** (EVA®) is an adaptation of residual income. We will not distinguish between these two terms.

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B. **Calculating** residual income

i. The equation for computing residual income is as shown. Notice:

* + - 1. This computation **differs** from ROI. ROI measures net operating income earned relative to the investment in average operating assets. Residual income measures net operating income earned less the minimum required return on average operating assets.

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ii. **Zepher, Inc. - an example**

1. Assume the information as given for a division of Zepher, Inc.

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2. The residual income (**$10,000**) is computed by subtracting the minimum required return (**$20,000**) from the actual income (**$30,000**).

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C. **Motivation and residual income**

i. The residual income approach encourages managers to **make** investments that are profitable for the entire company but that would be **rejected** by managers who are evaluated using the ROI formula. More specifically:

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1. It motivates managers to pursue investments where the ROI associated with those investments **exceeds** the company’s minimum required return but is **less than** the ROI being earned by the managers.

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*Quick Check – ROI versus residual income*

D. **Divisional comparison and residual income**

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i. The residual income approach has **one major disadvantage**. It cannot be used to compare the performance of divisions of different sizes.

ii. **Zepher, Inc. – continued**

1. Recall that the Retail Division of Zepher had average operating assets of **$100,000**, a minimum required rate of return of **20%**, net operating income of **$30,000**, and residual income of **$10,000**.

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2. Assume that the Wholesale Division of Zepher had average operating assets of **$1,000,000**, a minimum required rate of return of **20%**, net operating income of **$220,000**, and residual income of **$20,000**.

3. The residual income numbers suggest that the Wholesale Division **outperformed** the Retail Division because its residual income is $10,000 higher. However:

a. The Retail Division earned an ROI of **30%** compared to an ROI of **22%** for the Wholesale Division. The Wholesale Division’s residual income is larger than the Retail Division **simply because it is a bigger division**.

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1. **Operating performance measures**

*Learning Objective 3: Compute delivery cycle time, throughput time, and manufacturing cycle efficiency (MCE).*

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#### Key definitions/concepts

1. **Delivery cycle time** is the elapsed time from when a customer order is received to when the completed order is shipped.
2. **Throughput (manufacturing cycle) time** is the amount of time required to turn raw materials into completed products.

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1. This includes **process time, inspection time, move time, and queue time**. Process time is the only **value-added** activity of the four mentioned.
2. **Manufacturing cycle efficiency (MCE)** is computed by dividing value-added time by throughput time.

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An MCE **less than 1.0** indicates that non-value-added time is present in the production process.

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*Quick Check – internal business process measures*

VI. **Balanced scorecard**

*Learning Objective 4: Understand how to construct and use a balanced scorecard.*

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#### Key concepts

1. A **balanced scorecard** consists of an integrated set of performance measures that are derived from and support a company’s strategy. Importantly, the measures included in a company’s balanced scorecard are **unique** **to its specific strategy**.

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1. The balanced scorecard enables top management to translate its strategy into four groups of performance measures – **financial, customer, internal business process, and learning and growth** − that employees can understand and influence.
   * + 1. The premise of these four groups of measures is that learning is necessary to **improve** internal business processes, which in turn **improves** the level of customer satisfaction, which in turn **improves** financial results.

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1. Note the emphasis on **improvement**, not just attaining some specific objective.
2. The balance scorecard relies on **non-financial measures** in addition to financial measures for **two reasons**:

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1. Financial measures are **lag indicators** that summarize the results of past actions. Non-financial measures are **leading indicators** of future financial performance.

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* + - 1. Top managers are ordinarily responsible for financial performance measures – not lower level managers. Non-financial measures are more likely to be **understood** and **controlled** by lower level managers.

1. While the entire organization has an overall balanced scorecard, each responsible individual should have his or her own **personal scorecard** as well.

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* + - 1. A personal scorecard should contain measures that can be **influenced** by the individual being evaluated and that **support** the measures in the overall balanced scorecard.

1. A balanced scorecard, whether for an individual or the company as a whole, should have measures that are linked together on a **cause-and-effect basis**.
2. Each link can be read as a hypothesis in the form “**If** we improve this performance measure, **then** this other performance measure should also improve.”

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1. In essence, the balanced scorecard lays out a **theory** of how a company can take concrete actions to attain desired outcomes. If the theory proves false or the company alters its strategy, the measures within the scorecard are **subject to change**.
2. **Incentive compensation for employees probably should be linked to balanced scorecard performance measures**.
3. However, this should only be done after the organization has been successfully managed with the scorecard for some time – **perhaps a year or more**. Managers must be confident that the measures are reliable, not easily manipulated, and understandable by those being evaluated with them.

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#### The balanced scorecard – an example

1. Assume that **Jaguar** pursues a strategy as shown on this slide. Examples of measures that Jaguar might select with their corresponding cause-and-effect linkages include:

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* + - 1. If “**employee skills in installing options**” increases, then the “**number of options available**” should increase and the “**time to install an option**” should decrease.

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* + - 1. If the “**number of options available**” increases and the “**time to install an option”** decreases, then **“customer surveys: satisfaction with options available”** should increase.
      2. If the “**customer surveys: satisfaction with options available**” increases, then the “**number of cars sold**” should increase.

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* + - 1. If the “**time to install an option**” decreases and the “**customer surveys: satisfaction with options available**” increases, then the “**contribution margin per car**” should increase.

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* + - 1. If the “**number of cars sold**” and the “**contribution margin per car**” increase, then the “**profit**” should increase.

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