CAPITAL BUDGETING

Learning Objectives
1. Define and understand the importance of capital budgeting.
2. Explain the types of capital budgets.
3. List, in order, and explain each step in the capital budgeting process.
4. Describe the methods used to finance capital expenditures.
5. Discuss the methods used to evaluate the capital budgeting process.

Introduction
Capital costs are a relatively small percentage of total organization costs—in hospitals, they are 6 to 10 percent. However, their importance in terms of rising healthcare costs and dictating current trends in acquisitions, mergers, joint ventures, and closings cannot be overstated. Under cost-based reimbursement from 1966 to 1983 (cost-based reimbursement continued for capital costs until 1990), capital costs for new equipment (38 to 40 percent of capital costs) and plants exploded with very little resistance from regulation or the market.

Certificate-of-need legislation passed by the federal government (P.L. 93-641 as the National Health Planning and Resources Development Act of 1974) and Section 1122 of the Social Security Amendments of 1974 did little to slow capital growth (Eastaugh 1987).

The Social Security Amendments of 1983, which introduced Medicare prospective payment, did little to slow growth because capital costs were reimbursed based on cost until the Omnibus Budget Reconciliation Act (OBRA) of 1990 moved capital costs to prospective payment over a ten-year implementation period. The Tax Reform Act of 1986 lowered the tax deductibility for charitable gifts and restricted or increased the cost of acquiring capital through tax-exempt bond markets. The Tax Reform Act and OBRA of 1990 slowed capital growth markedly, causing one investment banker to comment:

Starting in 1988 [1990] the typical hospital should be viewed as a more risky venture, and will pay higher interest rates unless they can demonstrate DRG [diagnosis-related group] profitability. Hospitals shall no longer have government as a “Sugar Daddy” paying the interest on their debt coupon by coupon. One thousand hospitals may close. We view such hospitals as “cross-eyed javelin throwers” in that
they will not win any rewards, but they will keep the attention of their fearful audience. (Eastaugh 1987, 600)

The Balanced Budget Act of 1997 also had a stifling effect on the access to capital, as many hospitals were forced to use funds earmarked for capital projects to subsidize operations because of reduced reimbursements from Medicare. Reflecting this effect, bond downgrades outnumbered bond upgrades by rating agencies during this time until 2005. This effect inspired a series of studies published by the Healthcare Financial Management Association (see www.financingthefuture.org), beginning in 2003 and ending in 2006. In the studies, the following characteristics were associated with hospitals that had broad access to capital: hospitals that belonged to systems; hospitals that were larger; and hospitals that were newer. The following strategies were recommended to compete for capital (HFMA 2004):

- Be distinctive.
- Hold on to physicians.
- Focus on core service lines.
- Improve quality of care.
- Protect profits.
- Integrate strategic and financial plans.
- Establish/fine-tune policies regarding charity care.

The studies went on to predict that the major trends to affect capital in healthcare organizations in the future would be competition, payment, and technology. To afford technology in the future, hospitals must have operating margins that exceed 2 percent.

**Definition of Capital Expenditures**

Capital expenditures are defined by an organization in the capital expenditures policy, and as a result, the definitions vary. Generally speaking, capital expenditures are purchases of land, buildings, and equipment for operations; are not for resale; and have a useful life of more than one year, a cost of $500 or more, and are subject to depreciation. Capital expenditures are classified into the following categories (Herkimer 1988; Person 1997):

- Land, including all costs associated with acquiring land and making it ready for use (the cost of the land itself cannot be depreciated)
- Land improvements, including all costs associated with sidewalks, parking lots, driveways, and fencing
- Buildings, including all costs associated with constructing or buying buildings
• Fixed equipment, including all costs associated with equipment that is permanently attached to the building, such as the plumbing system, furnace, and air conditioners
• Major movable equipment, including equipment that can be easily moved, has a useful life of three years or more, and has a unit cost of $500 or more
• Major repairs that benefit future periods and/or extend the useful life of the building or equipment (ordinary repairs are expensed)

Types of Capital Expenditure Budgets

Healthcare organizations typically divide capital expenditure budgets into two broad categories: replacement and new. Budgets for replacement capital expenditures include requests to replace existing buildings and equipment that are made for a number of reasons:

• Scheduled replacement at the end of the useful life or when fully depreciated
• Improved productivity
• Improved quality or because it is required by regulation

Budgets for new capital expenditures include requests to add buildings and equipment for a number of reasons (Herkimer 1988):

• Expanded services
• Improved safety conditions
• Reduced operating expenses
• Improved patient care

Steps in the Capital Budgeting Process

The capital budgeting process is an extension of the budgeting process discussed in Chapter 12. The budgeting process must be concluded to determine funds available for capital expenditures.

Step 18: Identify and Prioritize Requests

The eighteenth step in the corporate planning process and the first step in the capital budgeting process is for the budget committee to identify and prioritize all capital requests. Typically, the budget committee asks department managers, including the chief of medical staff services (included with department managers in this chapter discussion), to list the capital equipment and buildings needed and to justify why the resources are needed. After the department managers have provided a list, the budget committee prioritizes
the list using community need and compliance with the strategic plan as initial criteria.³

**Step 19: Project Cash Flows**

The nineteenth step in the planning process and the second step in the capital budgeting process is for the department managers to project, and the budget committee to confirm, cash flows for each capital expenditure request. In cases of replacement equipment, this is a relatively easy step in that revenues (Volumes × Charge per procedure), and expenses (Volumes × Expense per procedure), and resulting cash flow (Revenues − Expenses) already exist.⁴ However, the department manager must indicate any changes in revenue or expenses that will occur with the replacement equipment.

For new equipment, or equipment that the organization has never had before, revenues and expenses may be difficult to project. The department manager can obtain volumes in a number of ways. First, if the organization is currently using an outside service that will be replaced by the new equipment, the department manager can obtain volumes from accounts payable. If the organization is not currently using an outside service, the department manager can administer a questionnaire to potential users or complete a medical record review to determine how many patients would have used the new equipment if it had been available. For expensive equipment like computed tomographic scanners, manufacturers will assist in the medical record review; however, the department manager should review manufacturer projections carefully, because manufacturers have a vested interest and may over-project volumes. The department manager can obtain charge information from neighboring facilities or insurance companies. The department manager can also obtain expense information from neighboring facilities or the manufacturer. If he or she obtains the information from the manufacturer, it is a good idea to confirm the information with other organizations that use the same equipment—manufacturers should be willing to provide client lists.

For equipment that does not generate revenue, department managers can still project cash flow by using salary savings, utility savings, and so on. Previously incurred costs, or sunk costs, and costs that would be incurred regardless of the budget outcome should not be included in cash-flow projections (Berman, Kukla, and Weeks 1994).

**Step 20: Perform Financial Analysis**

The twentieth step in the planning process and the third step in the capital budgeting process is for the budget committee or the chief financial officer (CFO) to perform financial analysis on the requests. Before Medicare stopped reimbursing capital at cost, very few healthcare organizations performed any significant financial analyses on equipment because in the risk-free environment of cost-based reimbursement, healthcare organizations and their lenders were guaranteed a return on capital expenditures, whether they used the
equipment or not. In a 1973 study of large hospitals, only 8 percent of the hospitals calculated the net present value of a capital expenditure before purchasing it (William and Rakich 1973). Some hospitals literally had two of everything in case the first one broke (organizations preferred capital expense to labor and repair expenses).

As the Medicare reimbursement for capital costs was folded into the DRG formula during the 1990s as a result of OBRA of 1990, healthcare organizations found themselves competing with other industries for limited capital funds. Healthcare organizations no longer had cost-based reimbursement to put up as collateral, and as a result, lending institutions required financial analysis to ensure that the capital expenditure would generate sufficient revenue to repay the loan.

The typical financial analyses for capital expenditures are payback period analysis, net present value (NPV) analysis, and internal rate of return (IRR) analysis.

**Payback Period Analysis**

Payback period analysis is the number of years necessary for cash flows to recover the original investment. Payback period analysis is easy to calculate (see Problem 13.1), but it is the least sophisticated of the three analyses because it does not take into account the effects of time on money.

### PROBLEM 13.1

**Payback Period**

ABC Day Surgery Center wants to buy equipment for $10,000 with projected cash flows (net revenues minus expenses) of $3,000 per year during the equipment’s five-year useful life. What is the payback period?

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash Flow ($)</th>
<th>Cumulative Cash Flow ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$c_f_0$</td>
<td>(10,000)</td>
<td>($10,000)</td>
</tr>
<tr>
<td>$c_f_1$</td>
<td>3,000</td>
<td>(7,000)</td>
</tr>
<tr>
<td>$c_f_2$</td>
<td>3,000</td>
<td>(4,000)</td>
</tr>
<tr>
<td>$c_f_3$</td>
<td>3,000</td>
<td>(1,000)</td>
</tr>
<tr>
<td>$c_f_4$</td>
<td>3,000</td>
<td>2,000</td>
</tr>
<tr>
<td>$c_f_5$</td>
<td>3,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

Initial investment represented by $c_f_0$; $c_f$ = cash flow.
The primary disadvantage of payback period analysis is that it does not take into account the effects of time on money. Discounting is used to compare capital expenditures that will generate future cash flows. Discounting is a way of looking at a future amount of money, called future value (FV), and calculating the present value (PV) of the money using the following formula:

\[ PV = \frac{FV}{(1 + i)^n} \]

where \( i \) is the discount rate (the annual cost of capital to an organization), and \( n \) is the number of years the money is discounted. Problem 13.2 shows how this formula is used.

**PROBLEM 13.2**
Calculating the Present Value

What is the PV of $100,000, discounted at 5 percent annually for five years?

\[
PV = \frac{FV}{(1 + i)^n} = \frac{100,000}{(1 + .05)^5} = \frac{100,000}{1.2763} = \$78,351
\]

Note: This answer is formula driven. Use of a calculator or spreadsheet may alter the answer slightly because of rounding or how interest is calculated (at the end of the period versus during the period).
After managers understand the concept of discounting, they can apply discounting to payback period analysis, NPV analysis, and IRR analysis. Discounted payback period is similar to payback period except that the manager discounts the projected cash flows by discount factors for the expenditure’s discount rate (see Problem 13.3). Managers can find discount factors on a PV table (see Table 13.1).

### PROBLEM 13.3
Discounted Payback Period

ABC Day Surgery Center wants to buy equipment for $10,000 with projected cash flows (net revenues minus expenses) of $3,000 per year during the equipment’s five-year useful life. What is the discounted payback period at 10 percent?

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash Flow</th>
<th>The Discount Factor</th>
<th>Discounted Cash Flow</th>
<th>Cumulative Discounted Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF₀</td>
<td>(10,000)</td>
<td>1.000</td>
<td>($10,000)</td>
<td>($10,000)</td>
</tr>
<tr>
<td>CF₁</td>
<td>3,000</td>
<td>0.909</td>
<td>2,727</td>
<td>(7,273)</td>
</tr>
<tr>
<td>CF₂</td>
<td>3,000</td>
<td>0.826</td>
<td>2,478</td>
<td>(4,795)</td>
</tr>
<tr>
<td>CF₃</td>
<td>3,000</td>
<td>0.751</td>
<td>2,253</td>
<td>(2,542)</td>
</tr>
<tr>
<td>CF₄</td>
<td>3,000</td>
<td>0.683</td>
<td>2,049</td>
<td>(493)</td>
</tr>
<tr>
<td>CF₅</td>
<td>3,000</td>
<td>0.621</td>
<td>1,863</td>
<td>1,370</td>
</tr>
</tbody>
</table>

* Initial investment represented by CF₀
The day surgery center will recover the cost of the equipment sometime during year 5. Sometimes when comparing capital equipment requests it might be necessary to use a value more exact than whole years. The following cycle can be used to determine exactly when during year 5 the equipment will break even (assuming an even distribution of cash flow during the year):

\[
\text{Payback period} = \text{Year before recovery} + \frac{\text{Unrecovered cost at beginning of year}}{\text{Cash flow during year}}
\]

\[
= 4 + \frac{493}{1,863} = 4.265 \text{ years}
\]

Note: This answer is formula driven. Use of a calculator or spreadsheet may alter the answer slightly because of rounding or how interest is calculated (at the end of the period versus during the period).

**Net Present Value**

NPV is a commonly used financial analysis for capital expenditures that relies on discounting cash flows. Where discounted payback period gives the manager an answer in years, NPV gives the manager an answer in dollars. An NPV of zero means that the capital expenditure is generating discounted cash flows just sufficient to repay the original investment. If the NPV is

<table>
<thead>
<tr>
<th>TABLE 13.1 Present Value Table</th>
<th>Discount Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Year 1</td>
<td>0.909</td>
</tr>
<tr>
<td>Year 2</td>
<td>0.826</td>
</tr>
<tr>
<td>Year 3</td>
<td>0.751</td>
</tr>
<tr>
<td>Year 4</td>
<td>0.683</td>
</tr>
<tr>
<td>Year 5</td>
<td>0.621</td>
</tr>
<tr>
<td>Year 6</td>
<td>0.564</td>
</tr>
<tr>
<td>Year 7</td>
<td>0.513</td>
</tr>
<tr>
<td>Year 8</td>
<td>0.467</td>
</tr>
<tr>
<td>Year 9</td>
<td>0.424</td>
</tr>
<tr>
<td>Year 10</td>
<td>0.385</td>
</tr>
</tbody>
</table>
positive, the expenditure is generating discounted cash flows in excess of the amount necessary to repay the original investment. If the NPV is negative, the expenditure is generating discounted cash flows insufficient to repay the original investment. NPV can be expressed in the following equation (Brigham 1992):

$$\text{NPV} = cf_0 + \frac{cf_1}{(1 + k)^1} + \frac{cf_2}{(1 + k)^2} + \cdots + \frac{cf_n}{(1 + k)^n}$$

where $k$ is the capital expenditures discount rate; $cf$ is cash flow; and $n$ is the number of years the money is discounted.

NPV has some flaws (see Zelman, McCue, and Millikan 1998)—the principle flaw seems to be determining the discount rate. Most theorists agree that NPV is superior to IRR as a method of evaluating capital expenditures (Brigham 1992). However, because IRR is a common method of evaluating capital expenditures in the real world, managers should be prepared to calculate both NPV and IRR.

**Internal Rate of Return**

IRR analysis is the discount rate of a capital expenditure where the discounted cash flows equal the expenditure’s original investment, or the discount rate where the NPV is zero. Discounted payback period analysis gives the manager an answer in years, and NPV analysis gives the manager an answer in dollars. IRR analysis gives the manager an answer in a percentage. Solving the NPV equation by hand is relatively simple, but solving the IRR is difficult without a calculator. Solving the IRR by hand using the equation necessitates a trial-and-error methodology—inserting discount factors representing different discount rates until the sum equals zero (Brigham 1992):

$$cf_0 + \frac{cf_1}{(1 + IRR)^1} + \frac{cf_2}{(1 + IRR)^2} + \cdots + \frac{cf_n}{(1 + IRR)^n} = 0$$

Problem 13.4 shows how the manager can use the calculations from NPV analysis to calculate the IRR using interpolation.

**PROBLEM 13.4**

NPV/IRR Calculation

ABC Day Surgery Center wants to buy equipment for $10,000 with projected cash flows of $3,000 per year during the equipment’s five-year useful life. What is the NPV of the equipment at 10 percent? What is the IRR?
Step 21: Identify Nonfinancial Benefits

The twenty-first step in the planning process and the fourth step in the capital budgeting process is for the department manager requesting the capital expenditure to identify nonfinancial benefits for the request. Examples of nonfinancial benefits could include community need or medical staff politics. Even if the organization is buying equipment to please a valuable physician, the organization should still complete a financial analysis to determine the equipment’s loss that will need to be subsidized elsewhere.

Step 22: Evaluate Benefits and Make Decisions

The twenty-second and last step in the planning process and the fifth and final step in the capital budgeting process is for the budget committee to evaluate the financial and nonfinancial benefits for each request and make decisions. The budget committee can use a decision matrix with weighted criteria similar to that shown in Table 13.2. Implicit in the decision-making process is an
evaluation of the decision. Many healthcare organizations use their internal audit departments to review capital expenditure decisions and the justifications of the department managers to determine their accuracy. Internal auditors can review the actual volumes, revenues, and expenses to determine whether the projections used to support the decisions were accurate.

### Financing Capital Expenditures

Healthcare organizations can use cash generated from philanthropy, funded depreciation, operating surpluses, and debt to finance capital expenditures. Generally speaking, the organization should use funded depreciation to finance replacement equipment and philanthropy, operating surpluses, or debt to finance new equipment.

The Tax Reform Act of 1986 limited the tax deduction individuals were able to take for donations; as a result, philanthropy to healthcare organizations has declined from 21 percent of tax-exempt hospital capital financing in 1968 to less than 6 percent since 1984.

The decline in philanthropy parallels an increase in debt financing because of two federal government policies. First, Medicare reduced the risk associated with debt financing by reimbursing 100 percent of the interest on debt (which ended in 1992 when capital and interest associated with capital became part of the DRG formula). Second, the Nixon administration encouraged debt financing by allowing local governments to create taxing authorities that issued tax-exempt bonds. As a result of these two policies, hospitals and many other healthcare organizations have relied on debt financing significantly more than other industries have. Private industries finance 40 to 50 percent of their capital needs with debt, and public utilities finance about 60 percent of their capital needs with debt. However, hospitals finance about 80 to 90 percent of their capital needs with debt (Eastaugh 1987).

Facing rising demand for capital caused by aging facilities, the needs for expansion, and the introduction of new technologies, many healthcare organizations may not have access to the capital they need. Between 2001...
and 2002, the percentage of hospitals having broad access to capital declined from 42 percent to 36 percent, while hospitals having limited access to capital increased from 11 percent to 19 percent according to a study conducted by HFMA and PricewaterhouseCoopers LLP (2003). During the same time period, the total amount of capital accessed from traditional sources—tax-exempt and taxable bonds, equity, bank loans, philanthropy, and equipment leases—dropped 29 percent from $51.4 billion to $36.5 billion (HFMA/PricewaterhouseCoopers LLP 2003).

One of the most significant factors affecting any organization’s ability to access the capital markets is the organization’s creditworthiness. The healthcare industry relies on rating agencies like Standard & Poor’s (S&P) to measure creditworthiness using both objective criteria and subjective assessments of organizations and the markets in which they operate.

When issuing bond ratings, rating agencies review the following five factors (HFMA 1998):

1. Legal provisions of the organization, including corporate charters, bylaws, and so on
2. Institutional characteristics and market position, including the organization’s ability to adapt to changing market conditions
3. Medical staff characteristics, including the number and age relative to the organization’s size

FIGURE 13.1
Healthcare Ratings
Upgrades to Downgrades

* first six months only
4. Management capability, including the depth, education, and experience of management in dealing with medical staff, in providing leadership, in managing budgets, in maintaining financial and human resources, and in defining and striving for the organization’s mission and vision.

5. Financial indicators, including indicators of past performance and indicators of the ability to forecast capacity to pay debt service.

Ratings upgrades to downgrades is one of the industry’s most important ratios for determining creditworthiness. Standard and Poor’s reported an increase in upgrade to downgrades in the first half of 2006 based largely on improved operating margins and excess margins based on favorable Medicare reimbursements and a strong national economy (Becker 2006).

With philanthropy declining and many healthcare organizations at debt capacity, future capital expenditures must be financed through operating surpluses (or joint ventures or acquisitions), which makes the planning and budgeting functions all the more important. Sometimes, leasing might be considered as another method of financing a capital expenditure. In fact, leasing accounts for 20 to 25 percent of all healthcare provider equipment financing (Zelman, McCue, and Millikan 1998).

**Lease Versus Purchase Decisions**

Lease versus purchase decisions are made after the decision is made to acquire the equipment; therefore, the lease versus purchase decision is in fact a financing decision. Generally, there are two types of leases: operating leases and capital leases. Operating leases are for periods less than the equipment’s useful life and are common for copy machines, desktop computers, and cars. Capital leases are for the equipment’s approximate useful life and usually include provisions for the lessee to purchase the equipment at the end of the lease period.

Lease decisions have several advantages over purchase decisions and can provide the lessee with more flexibility, more financing options for other equipment, more protection from unexpected events like changes in technology, and more and better maintenance. In the case of for-profit healthcare organizations, capital leases can provide the same tax advantages as decisions to purchase the equipment.

Lease decisions have several disadvantages over purchase decisions and are generally more expensive than the purchase decision because lessors must make a profit and cover their risks of loss.

Problem 13.5 gives a simple way of analyzing the costs associated with a nonprofit facility purchasing or leasing a $1.3 million magnetic resonance imaging machine by applying a PV of 10 percent to both decisions (a for-profit facility would have tax shields, or reductions in the amount of income taxes paid, due to the tax deductibility of depreciation and interest expense).
**PROBLEM 13.5**  
Lease Versus Purchase Decision Exercise

<table>
<thead>
<tr>
<th>Purchase Considerations</th>
<th>Lease Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrow $1.3 million at 10 percent on declining balance</td>
<td>Lease payments of $26,000 per month for 60 months</td>
</tr>
<tr>
<td>Depreciate straight line over five years</td>
<td>(includes maintenance)</td>
</tr>
<tr>
<td>Trade-in value of $130,000 at end of useful life</td>
<td></td>
</tr>
<tr>
<td>Maintenance expense of $12,000 per year</td>
<td></td>
</tr>
</tbody>
</table>

(Revenues, as well as labor and supply expenses, are the same for both decisions, and therefore are not included in the analysis.)

### PURCHASE

<table>
<thead>
<tr>
<th>Year</th>
<th>Principal Payment</th>
<th>Interest Payment</th>
<th>Maintenance Expense</th>
<th>Total Expense</th>
<th>PV Factor at 10%</th>
<th>PV Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>260,000</td>
<td>130,000</td>
<td>12,000</td>
<td>402,000</td>
<td>0.909</td>
<td>365,418</td>
</tr>
<tr>
<td>2</td>
<td>260,000</td>
<td>104,000</td>
<td>12,000</td>
<td>376,000</td>
<td>0.826</td>
<td>310,576</td>
</tr>
<tr>
<td>3</td>
<td>260,000</td>
<td>78,000</td>
<td>12,000</td>
<td>350,000</td>
<td>0.751</td>
<td>262,850</td>
</tr>
<tr>
<td>4</td>
<td>260,000</td>
<td>52,000</td>
<td>12,000</td>
<td>324,000</td>
<td>0.683</td>
<td>221,292</td>
</tr>
<tr>
<td>5</td>
<td>260,000</td>
<td>26,000</td>
<td>12,000</td>
<td>298,000</td>
<td>0.621</td>
<td>185,058</td>
</tr>
<tr>
<td>Trade-in (130,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.621</td>
<td>(80,730)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,264,464</td>
</tr>
</tbody>
</table>

### LEASE

<table>
<thead>
<tr>
<th>Year</th>
<th>Lease Payment</th>
<th>PV Factor at 10%</th>
<th>PV Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>312,000</td>
<td>0.909</td>
<td>283,608</td>
</tr>
<tr>
<td>2</td>
<td>312,000</td>
<td>0.826</td>
<td>257,712</td>
</tr>
<tr>
<td>3</td>
<td>312,000</td>
<td>0.751</td>
<td>234,312</td>
</tr>
<tr>
<td>4</td>
<td>312,000</td>
<td>0.683</td>
<td>213,096</td>
</tr>
<tr>
<td>5</td>
<td>312,000</td>
<td>0.621</td>
<td>193,752</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,182,480</td>
</tr>
</tbody>
</table>

Because the PV expense of the lease decision is less than the PV expense of the purchase decision, the financial merit supports the lease decision. However, other criteria mentioned in the advantages and disadvantages of the lease decision already mentioned should also be considered before making a final decision.
Evaluating Capital Budgeting Performance

When evaluating capital budgeting performance, several ratios are used to determine how much debt an organization can incur.

- **Debt-to-Capitalization Ratio**

\[
\frac{\text{Long-term debt}}{(\text{Long-term debt} + \text{Net assets})}
\]

Debt-to-capitalization, or long-term debt to capitalization, is an indicator of the long-term debt divided by the long-term debt plus net assets. Higher values imply a greater reliance on debt financing as a percentage and may imply a reduced ability to carry additional debt. The debt-to-capitalization median for all hospitals reporting to Ingenix (2004) for 2002 audited financial statements was 27.4—S&P “A” rated hospitals reporting to Ingenix was 33.8.

- **Capital Expense Ratio**

\[
\frac{(\text{Interest expense} + \text{Depreciation expense})}{\text{Total expense} \times 100}
\]

Capital expense ratio provides an important indicator of operating leverage. Since both interest expense and depreciation expense are considered fixed, a high capital expense ratio as a percentage would imply greater sensitivity to changes in volume. The capital expense median for all hospitals reporting to Ingenix (2004) for 2002 audited financial statements was 6.6—S&P “A” rated hospitals reporting to Ingenix was 7.6.

- **Average Age of Plant**

\[
\frac{\text{Accumulated depreciation}}{\text{Depreciation expense}}
\]

Average age of plant provides an indicator in years of the healthcare organization’s fixed assets. Higher values reflect an older plant and equipment and indirectly may imply a difficulty in competing with “newer” healthcare organizations while lower values reflect a newer plant and equipment. The average age of plant median for all hospitals reporting to Ingenix (2004) for 2002 audited financial statements was 9.77—S&P “A” rated hospitals reporting to Ingenix was 9.08.

**Notes**

1. Useful life is part of the depreciation controversy between providers and insurers regarding allowable cost for reimbursement purposes. The issues include what the useful life should be; whether the amount to be
Resource Allocation

depreciated should be based on historic cost or replacement cost; and what method of computing depreciation (i.e., straight line, sum-of-the-years digits, or double declining balance—the latter two of which are accelerated) should be used (Berman, Kukla, and Weeks 1994).

2. In some cases, the budget committee may ask the medical staff or chief of the medical staff to prioritize the list of chief-of-service requests before submitting it to the budget committee. This avoids the problem of nonphysician department managers making decisions on physician-generated requests.

3. Most organizations prioritize replacement equipment that is fully depreciated ahead of new requests to avoid the snowball effect of not replacing assets on schedule. Doing so is easy to justify because the need for the equipment is supportable with procedure logs; if the organization funded the equipment’s depreciation properly, funds exist for the replacement. Some organizations prioritize new equipment ahead of replacement equipment to generate new streams of revenue. However, this strategy could result in long-term problems for the organization, especially if the organization uses funded depreciation to acquire the new equipment.

4. Usually the budget committee, CFO, or designee is responsible for converting gross revenue to net revenue by subtracting contractual adjustments, charity care adjustments, and bad debt adjustments. This can be accomplished in a fashion similar to that shown in Problem 4.1, Step 1, in Chapter 4.

5. Three common sources of discount rates include costs of a specific financing source such as debt; yield achievable from other investments; and the weighted cost of capital (Percent debt × Cost of debt) + (Percent equity × Cost of equity). The actual discount rate used is not of critical importance to most healthcare organizations because criteria in addition to discounted cash flow analyses will be used. If the same discount rate is used for all capital requests, relative rankings will not change (Cleverly 1997).

6. Health economists agree that organizations with this kind of excessive debt have great difficulty with cyclical recessions or downturns in the economy. This helps explain the growing trend of not-for-profit organizations joint-venturing or being acquired by for-profit organizations that have access to different capital markets.

References


Recommended Readings—Part IV


