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Strategy Execution Module 5: Building a Profit Plan

What You Will Learn in this Module: This module demonstrates how to build a profit plan—the primary tool that managers use to describe their business strategy in economic terms. First, you will be introduced to the three wheels of profit planning: the cash wheel, the profit wheel, and the ROE wheel. For each of these, you will learn how a manager develops the variables on each wheel and how they are used to set goals, track performance, and to make decisions. Finally, you will learn how the profit wheels can be used to test the viability of a company's strategy.

Profit plans are the principal tools that managers use to price their business and operating plans, make trade-offs between different courses of action, set performance and accountability goals, and evaluate the extent to which business performance is likely to meet the expectations of different constituents.

The term budget and profit plan are often used interchangeably. A **budget** refers to the resource plans of any organizational unit that either generates or consumes resources. The term profit plan is reserved for units that generate profits—stand-alone business units that generate and are held accountable for both revenues and expenses. Thus, managers might refer to the budget of the maintenance department (which generates expenses, but no revenues), or to the budget of the sales-order department (which generates revenues without full accountability for expenses), or to the profit plan of a financial services business (which has full accountability for sales, operating expenses, and profit).

Regardless of terminology, the preparation of profit plans and budgets follows a consistent pattern in most organizations. Several months before the beginning of each fiscal year (the normal twelve month operating cycle of the business), managers develop their profit plans or budgets. The objectives of this planning process are threefold:

- *To translate the strategy of the business into a detailed plan to create value.* This process requires managers to agree on assumptions, evaluate strategic alternatives, and arrive at a consensus regarding business strategy and its ability to satisfy the demands of different constituents.

This module was prepared by Professor Robert Simons with the assistance of Research Associate Jennifer Packard. Parts of this module are adapted from Robert Simons, *Performance Measurement & Control Systems for Implementing Strategy*, Prentice Hall, 2000.

- *To evaluate whether sufficient resources are available to implement the intended strategy.* Companies need resources to finance their current operations (operating cash) and to invest in new assets for future growth (investment cash).
- *To create a foundation to link economic goals with leading indicators of strategy implementation.* To implement strategy successfully, financial goals must be linked with key business input, process, and output measures.

To build a profit plan, managers need to answer three different questions relating to the economics of their business.

Boston Retail Company

Throughout the fifteen modules that comprise the Strategy Execution series, Boston Retail Company is used as an example to illustrate key concepts. Boston Retail, introduced in *Module 1: Managing Organizational Tensions,* is a clothing chain based in a suburb of Boston. The founders began with one store and a novel idea: to offer cheap but fashionable clothing to students who attend Boston's many colleges and universities. Their customers are young, enjoy wearing the latest fashions, but have limited income. With early success, Boston Retail began expanding, quickly increasing the number of stores and employees.

Boston Retail examples can be found in the following modules of the Strategy Execution series. These modules are available from HBS Publishing at www.hbsp.harvard.edu.

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First, managers must ask, does the organization's strategy create economic value? Strategies may sound attractive when described by proponents in bright words and colorful phrases, but strategies need to be translated into accounting numbers to evaluate how they actually create value. Does it pay to invest in a new strategic opportunity? How attractive are different strategic alternatives? Boston Retail has been successful with its line of clothing for women college students. However, the fashion market continually evolves, creating new opportunities and eliminating ideas that move out of fashion. The strategy has to adapt to these changes if the firm is to continue to create economic value and survive.

Second, managers must ask, does the organization have enough cash to remain solvent throughout the year? All companies need cash to pay their suppliers, but cash may be in short supply if there is a lag between the sale of goods or services and the collection of cash from customers. In some industries, supermarkets for example, companies collect cash from customers before they need to pay their suppliers; however, this is the exception. Most companies need to plan cash flow carefully to estimate cash reserves and potential borrowing requirements.

Finally, managers must ask, does the organization create enough value to attract the financial resources that it needs to fund long-term investment in new assets? Growth requires productive assets, and acquiring those assets requires investors who are willing to lend resources in a company. Investors will only commit their money to a company if they are likely to receive an adequate return. Boston Retail is expanding and it needs to attract additional financial resources to grow. Before it can convince investors to provide capital to the company, Boston Retail needs to show an attractive return on investment.

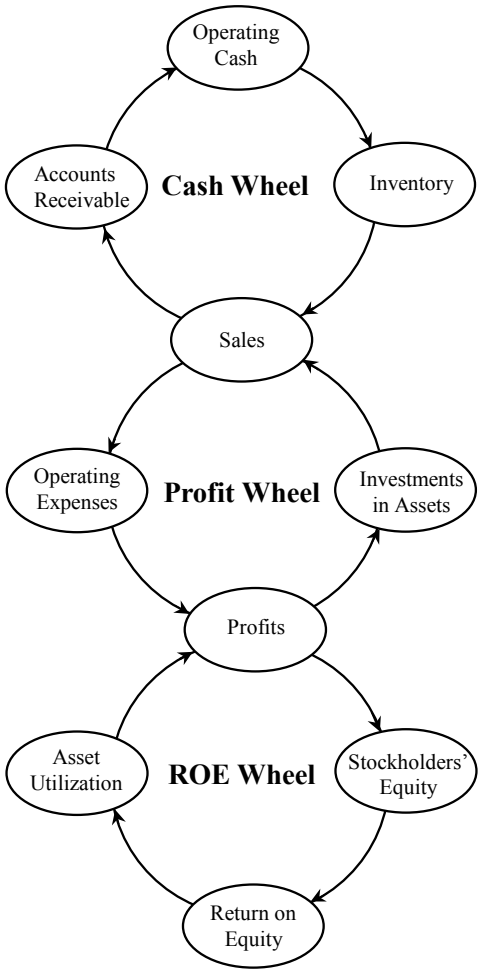
Three Wheels of Profit Planning

To answer the above questions and design a profit plan, three distinct analyses must be performed. **Figure 5-1** shows the three cycles that managers must analyze to build a profit plan: the **profit wheel**, the **cash wheel**, and the **ROE wheel**. In the following sections we look in detail at each of these "wheels". Although we introduce each wheel separately, Figure 5-1 illustrates that these wheels are interlocking like a set of mechanical gears—all three wheels turn simultaneously. Adjusting or changing any assumption or number on any of the wheels causes a change in all the other variables. The wheels move in lockstep like the gears of a mechanical clock.

The foundation of profit planning is built upon **assumptions** about how the future will look. Will the market grow over the next year? How will customers respond to our new product offering? What will competitors do to try to capture market share? Will we be able to expand our manufacturing capabilities to support new growth opportunities? What if we increase our level of advertising? Managers need to agree on assumptions such as these to create a profit plan.

Sometimes, top managers already possess most of the relevant information needed to prepare a profit plan. If so, assumptions can be established at the top and communicated down the organization. However, information is usually dispersed more widely throughout the organization: Sales people often know best what specific customers desire; production managers have information on how to reduce costs and increase quality; the purchasing department is in the best position to understand suppliers' relationships; top management has the organizational and industry perspective to assess opportunities and threats. Accordingly, to incorporate all this information, the *profit planning process* must span the whole organization and involve frequent interactions among different hierarchical levels and departments.

Figure 5-1 Three Wheels of Profit Planning



Source: Author.

The profit plan provides information on the economic resources available to the company and helps managers evaluate the trade-offs facing them. Different strategies require different investments. For Boston Retail, the investment plan for opening new clothing stores in New York is not the same plan needed to add furniture to the product line. Perhaps managers would like to invest in all of these alternatives, but resources are limited and managers are forced to make trade-offs. It is not easy to choose: some managers at Boston Retail may favor geographical expansion, whereas others may prefer to diversify into furniture.

By the end of the profit planning process, people throughout the organization have agreed on the direction of the company. Knowing where the company is going facilitates coordination among the various departments. For example, if the profit plan reflects the introduction of a new product line, employees know that they must include the necessary resources in their own plans to support the success of the new initiative.

In many instances, the profit plan is also used to set performance goals. Managers are held accountable for the achievement of targets defined in the profit plan. As discussed at the end of *Module 3: Using Information for Performance Measurement and Control*, when the profit plan is later used for performance evaluation a tension emerges. If the manager knows that the information disclosed as part of the profit planning process will be used for ex post evaluation, he or she may attempt to build slack into profit plan targets to increase the probability of a favorable evaluation. The undesirable side effect of this biasing behavior is distorted information that may impede strategy implementation. Because of the inherent conflict between information sharing and performance evaluation, some companies tend to downplay the role of the profit plan as a performance evaluation tool, especially when lower-level managers possess important market and competitive information that must be shared to allow the business to adapt to changing conditions.

The Profit Wheel

As all students of accounting know, value creation is measured by profit.[1] Without building a profit plan, managers cannot evaluate whether their intended strategy will generate value for shareholders. Moreover, without a profit plan, managers cannot estimate the economic impact of different strategic alternatives and, as a result, lack adequate information to decide among different courses of action.

The profit plan *summarizes the future revenue inflows and expense outflows for a specified future accounting period* (typically one year). The outcome of this planning process is a financial document that uses the familiar format of an income statement. To build a profit plan, managers must analyze the profit wheel for the upcoming operating period. Usually, managers go back and forth, iteratively projecting sales, operating expenses, profits, and required investment in assets before the profit plan is acceptable (**Figure 5-2**). Then, they work on the cash wheel and the ROE wheel to ensure that sufficient resources will be available to implement the profit plan. If there are not enough resources, they must go back to the profit wheel and reiterate the planning process all over again.

Foundations of a Profit Plan

The starting point for any profit plan is a set of *assumptions* about the future. These assumptions describe the consensus among managers about how various markets—customer, supplier, and financial—will evolve in the future. The profit plan also reflects managers' beliefs about *cause and effect relationships*. For example, managers may decide to increase the level of advertising if they believe that it will cause a significant increase in the level of sales. Similarly, they may invest in training for their employees if they believe that this expenditure will improve customer service or increase quality. Finally, the profit plan captures the commitment of managers to an intended strategy. For example, the 2015 merger between H.J. Heinz and Kraft reflected the belief of managers in these two businesses that the food and beverage industry had untapped economies of scale that the merged company could capture.

Arriving at consensus often requires intensive interaction among managers. Different perspectives on market competition require sharing information and building a common view about the future of the company. **Table 5-1** shows the foundations for building Boston Retail's profit plan for 20X2: actual results of 20X1 with key assumptions for 20X2.

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[1] We defer to *Module 8: Linking Performance to Markets* a discussion of the relationship between economic value added and accounting income. For the purposes of this module, we consider accounting income as a measure of economic value created by the firm.

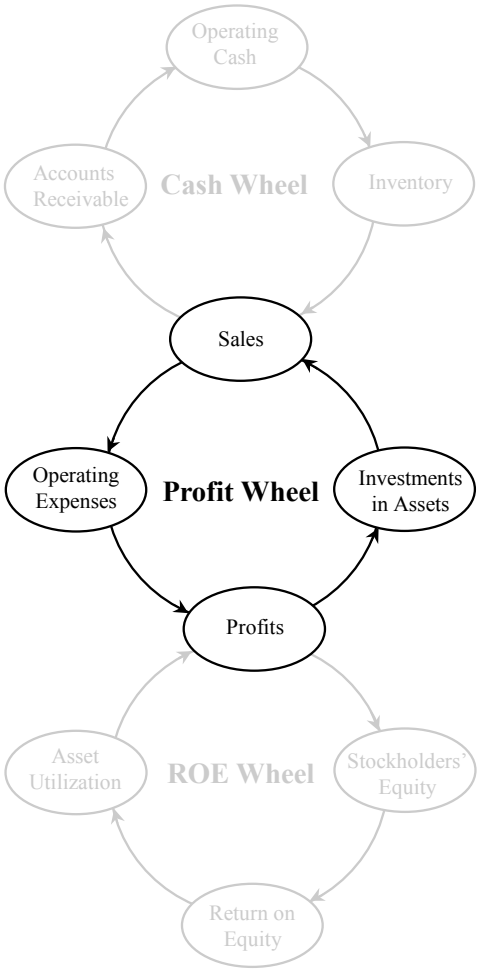
Table 5-1 Boston Retail 20X1 Operating Results with Key Assumptions for 20X2

	20X1 ACTUAL (IN THOUSANDS OF DOLLARS)	KEY ASSUMPTIONS FOR 20X2
Income Statement		
Sales	$ 9,200	10% sales growth
Costs of goods sold	4,780	same % of sales as 20X1
Gross margin	4,420	
Wages and salaries	1,530	4% growth
Rent and facilities	840	5% growth
Advertising	585	same % of sales as 20X1
Administrative expenses	435	same % of sales as 20X1
Interest	72	estimated at 65
Depreciation	57	add depreciation of new assets
Training	38	2.5% of wages and salaries
Other	54	4% growth
Profit before taxes	809	
Income tax	283	35 % of profit
Net profit	$ 526	
KEY BALANCE SHEET FIGURES	DECEMBER 31, 20X1	KEY ASSUMPTIONS FOR 20X2
Assets		
Cash	$ 208	Cash will stay at same % level of cash expenses
Accounts Receivable	255	Accounts receivable at same % level of sales
Inventory	985	Inventory at same % as cost of good sold
Property, plant, and equipment	1,854	Property, plant, and equipment increases by new investment
Other assets	325	Other assets will stay the same
Total assets	$ 3,627	
Liabilities		
Accounts payable	$ 209	Accounts payable at same % of cost of goods sold
Bank loan	1,180	Pay back debt of $300,000
Stockholders´equity	2,238	
Total liabilities and stockholders´equity	$ 3,627	

Source: Author.

We next review the five steps in creating a profit plan using the profit wheel as illustrated in **Figure 5-2**.

Figure 5-2 The Profit Wheel



Source: Author.

Step 1: Estimate the Level of Sales

Most companies start building their profit plan by estimating the level of future sales. This is a logical starting point for two reasons: revenue growth is a major determinant of profit, and the level of operating expenses is often a function of sales volume. Projecting sales is a mixture of art and science; estimating sales volume accurately requires predictions about the impact of external factors and estimates of the effect of internal decisions, such as R&D spending, advertising, and investment in new assets. Sales forecasts are typically generated from sales force estimates, customer surveys, industry experts, and analysis of business patterns and trends. For both external and internal factors, a great deal of judgement is required.

To predict sales accurately, companies need to consider many of the external variables that we reviewed in *Module 2: Building a Successful Strategy* as part of the analysis of competitive market dynamics, including:

- Macroeconomic factors
- Government regulation
- Competitor moves
- Customer demand

External factors are often outside management's control, but estimating their impact is critical to all companies. For example, estimated car sales depends on predicted prospects for the economy. If potential car buyers are confident about their future income, they are more likely to purchase a new car. Similarly, projected sales for highly-regulated European gas and electric utilities depend very much on the prices that are likely to be allowed by the government. The significant influence of macroeconomic factors and political decisions on the level of sales explains why managers pay so much attention to this information.

Competitors' actions and changes in customers' needs are also largely outside managers' control. However, understanding both factors are critical to defining the strategy of the company and designing the profit plan. Managers spend a lot of time evaluating competitors' actions, predicting changes in customers' demands, and judging how the company can capitalize on these events to gain competitive advantage in the market place.

In addition to the external factors, internal decisions also have a major impact on the expected level of sales. This is why we illustrate a circular **profit wheel**: sales generate profits that are reinvested in assets to generate more sales. Over time, almost every decision in a company impacts the level of sales. However, managers consider most carefully those decisions that have direct influence on sales during the current planning period, such as:

- Mix and pricing of product categories
- Marketing programs
- New-product introductions and product deletions
- Changes in product quality and features
- Manufacturing and distribution capacity
- Customer service levels

Managers have discretion—indeed the responsibility—to set these variables to reflect the agreed strategy. In fact, strategy provides the criteria for consistency in all these decisions.

Based on their analysis of the above factors, managers at Boston Retail estimate that sales volume will grow by 10% in the next year. Table 5-1 illustrates that they are estimating 20X2 sales to be $10,120,000 ($9,200,000 × 110%).

Step 2: Forecast Operating Expenses

After the expected level of sales is determined, the next task for managers is to estimate operating expenses. To make this estimate, various categories of operating expenses must be analyzed differently.

Cleaning Up the Forecast at Seventh Generation

Seventh Generation is a leading producer of household and personal care products with a mission to protect human health and the environment. The privately-held company was established in 1988 in Burlington, Vermont. Their products include laundry detergent, hand soap, baby care products, and cleaning products.

At Seventh Generation, the finance team was responsible for demand forecasts. However, they struggled with inaccuracies that led to lost revenue opportunities and excessive supply chain costs. When the actual demand was higher than estimated, Seventh Generation ran out of stock leading to missed revenue opportunities. When the actual demand was lower than estimated, the company had too much inventory on hand leading to high storage costs. Management knew they needed a better demand forecasting process.

The first step was to improve the inputs to ensure all available information was being considered. Instead of being led by finance, the process became a joint effort with sales, marketing, demand planning, finance and the supply chain teams. Rather than basing the forecast on past performance, they began to use key inputs such as timing and expected lifts from customer promotions and trade events, planned strategy changes, and new product launches.

The new system improved forecast accuracy by 10%, allowing Seventh Generation to decrease inventory by 15%. Ultimately, the improved forecasts resulted in decreased costs of warehousing and distribution, better customer service levels, and higher profit margins.

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Source: Clarkston Consulting, (2014), "Seventh Generation: Cutting Costs with S&OP without Cutting Corners," http://clarkstonconsulting.com/wp-content/uploads/2014/12/CASEstudy_CuttingCosts_SOP.pdf, accessed February 24, 2016.

The first category of operating expense is **variable costs**. As the name suggests, *variable costs vary proportionally with the level of sales or production outputs*. Variable costs are typically estimated as a percentage of sales. To do so, managers must assume that cause and effect relationships between inputs and outputs are constant over the relevant range of sales. That is, an increase in sales volume is assumed to lead to a proportional increase in the usage of inputs. Raw materials is an example of a variable cost in a manufacturing firm. If sales volume of a particular product increases by 10%, we can expect the level of raw material inputs to increase by 10%. Interest expense to cover short-term loans in a bank is another example of a variable cost. The more short-term loans that the bank makes to its customers, the more interest it earns (revenue), but also the more interest it pays to borrow that money (variable costs).

In forecasting variable costs, managers must determine the actual percentage number that relates each category of variable costs to sales. For example, managers may determine that material costs can be set at 24% of sales, labor costs at 18%, energy costs at 4% of sales, and so on. In most cases, a lower

cost percentage is preferred (unless reducing variable costs forces higher fixed costs). There are several ways in which variable costs can be reduced as a percent of sales:

- Taking advantage of economies of scale (e.g., installing one large machine in place of three smaller, less efficient machines), and economies of scope (such as combining distribution channels for different products to eliminate underutilized resources)
- Improving operating efficiencies (for example, re-engineering or streamlining work flows to do the same work with fewer resources)
- Bargaining with suppliers to negotiate lower prices
- Redesigning products to lower their cost of production
- Increasing prices[2]

The second category of operating expenses is **non-variable costs**. As the name implies, *non-variable costs do not vary directly with the level of sales*. However, it would be a mistake to think that they do not vary at all (thus, we avoid calling them fixed costs). These costs are typically large and have become a higher percentage of the operating expenses of companies over time. Non-variable costs are of three types:

- ***Committed (or engineered) costs***. Some expenses are determined by previous management decisions and, therefore, are not subject to discretion during the current profit planning period. Depreciation is usually a committed cost because it depends on past investment decisions and company accounting policies. The salaries of managers, engineers, and long-term employees are also committed costs, as is the cost of a long-term lease.
- ***Discretionary costs***. In contrast to committed costs, the planned level of discretionary expenditures is open to significant debate during the planning process—and subsequent adjustment during the operating period. These are expenses that can be increased or decreased at will, almost without constraints. Advertising, employee training, and research programs are examples of discretionary expenses. Managers can invest as much as they wish if sufficient cash is available. However, managers usually use some guiding criteria to estimate the level for these expenses. Some companies choose to set the level of discretionary expenditures by treating them as variable costs. For example, advertising expense is often set as a percentage of sales. Alternatively, managers may set expenditure levels based on industry practice or their assessment about the resource requirements needed to support the intended strategy or specific strategic initiatives. For example, if a business is differentiating its products based on exceptional service, it needs to invest more on employee training than a competitor that competes on low prices and minimal services.
- ***Activity-based indirect costs***. The final set of operating expenses are *indirect costs*. Indirect costs cannot be traced directly to a product or service, but change with the level of specific support activities. Examples of activity-based indirect costs include supervision, material handling, and billing costs. Traditionally, these types of cost have been described as "fixed." However, recent developments in cost accounting show that these expenses are not constant, as the word "fixed" implies. They may look fixed, especially if part of the expenses are committed, but their consumption varies with the level of some underlying activity. Most overhead costs, including

[2] This alternative reduces variable costs in percentage terms because sales revenue—the denominator—goes up.

administrative expenses, fall into this category. To estimate them, managers must identify indirect **cost drivers**—those activities that consume indirect resources. Increases in these cost drivers (for example, increases in customer order complexity or material handling) can be traced to growth in indirect expense levels, such as increased handling, set-up, and shipping costs. If cost driver activities can be decreased, then managers can plan to save some money by using fewer resources to perform this activity. Using this approach—known as activity-based budgeting—managers authorize the supply of resources based on anticipated demand for cost driver activities.[3]

Step 3: Calculate Expected Profit

The difference between expected sales and expected operating expenses determines the amount of economic value that the company is expected to generate in the profit planning period. To assess this value, managers often estimate **NOPAT**, which stands for Net Operating Profit After Taxes, or **EBIAT**, which represents Earnings Before Interest and After Taxes.

These accounting estimates reveal the amount of resources generated during the accounting period that are potentially available for distribution to lenders and owners. Lenders, like banks, have a fixed claim on the profits of the business. They receive interest payments proportional to the amount of financial resources that they lend to the company. Given the expected levels of debt, managers can forecast the expected interest cost by multiplying the expected amount of debt on their balance sheet by the interest rates negotiated with the debt holders (adjusted for income tax effects).

Profit, also called **earnings** or **net income**, is the residual economic value *after* interest expense and income taxes (both of which are nondiscretionary payments). Profit is the financial measure of the economic value that is available for distribution to the residual claimants—equity holders—or for reinvestment in the business. Profit is the most important number in evaluating the financial performance of any company.

Step 4: Price the Investment in New Assets

When managers have agreed on expected sales, operating expenses, and profit numbers, they have created the most important part of a profit plan: the expected income statement. However, the process of translating strategy into economic value does not end there. To finish the profit plan, managers must look at the required level of investment in new assets including working capital such as inventory and accounts receivable.

As the recursive profit wheel shows, the predicted level of sales is itself determined by the level of assets available to generate those sales. Therefore, managers must decide the levels and types of investments that are required to support desired sales (and strategies). At this point in the process, assumptions about the levels and types of productive assets needed to support the profit plan must be backed up by an **asset investment plan**. The investment plan is another important tool to implement strategy.

There are two main types of assets for which managers must consider investment: **operating assets** and **long term assets**. (The cash wheel that we study in the next section is used to determine the investment in operating assets needed by the company.) The proposed investment in long term assets

[3] Activity-based costing is a topic covered in management accounting courses. It is outside the topic coverage of this series. For more information on activity-based budgeting, see Robin Cooper and Robert S. Kaplan, *Cost & Effect* (Boston: Harvard Business School Press, 1998), Chapter 15.

is called the **capital investment plan**. A capital investment plan must reflect and support the intended strategy because it often commits the company to a limited set of strategic alternatives. For example, in 2015, Sony decided to invest resources in their most profitable business areas, including camera sensors, video games, and entertainment products, while decreasing its focus on smartphones and televisions. Sony's capital investment plan included additional resources to develop sensor technology and to build manufacturing facilities. The plan reflected management's new strategy, and ensured that sufficient resources would be in place to make that strategy a reality.

Table 5-2 presents the 20X2 asset investment plan for Boston Retail, assuming no major changes in strategy. Anticipated growth in the business will require larger balances in accounts receivable ($26,000) and inventory ($98,000), although these requirements will be partially financed by the increase in accounts payable ($21,000). Some store displays must be replaced and updated. Two capital initiatives are also planned: (1) a new computerized accounting system that will integrate purchasing, inventory record keeping, and SKU (stock keeping unit) management; and (2) an expansion of the warehouse to accommodate the anticipated increase in business.

Table 5-2 Asset Investment Plan for Boston Retail

	NEW ASSETS NEEDED FOR 20X2 (THOUSANDS OF DOLLARS)
Working Capital	
Increase in Accounts Receivable	$ 26
Increase in Inventory	98
Increase in Accounts Payable	(21)
*Long-Term (Depreciable) Assets**	
New computerized management system	60
Store displays	80
Warehouse expansion	120
Total investment in new assets during 20X2	$ 363

* For simplicity, assume that long-term assets have an average life of 5 years; all investments in long-term assets are made in January.

Source: Author.

Before we finish our brief introduction to the asset investment plan, we must mention how companies assess whether any single capital investment proposal is financially attractive. The most common investment evaluation technique is net present value. Finance books discuss this technique in depth because it is a basic tool in the finance toolbox. Any investment proposal that is included in the capital investment plan should meet these financial criteria or be included for compelling strategic reasons. We will have more to say about this in *Module 7: Designing Asset Allocation Systems*, when we discuss in detail how to create a capital investment plan.

Step 5: Close the Profit Wheel and Test Key Assumptions

The feedback loop among all the components of the profit wheel suggest that the profit planning process in not linear. Managers must go back and forth among the variables in the profit plan to ensure that it reflects the strategy and is attractive from an economic point of view. Of course, an electronic spreadsheet such as Excel can be used to link and integrate this process.

When managers have arrived at an acceptable expected profit, they usually perform a **sensitivity analysis** based on changes in sales or other key profit plan variables. The objective of a sensitivity analysis is to estimate how profit might change when underlying assumptions about the competitive environment or other predictions embedded in the base profit plan prove to be under- or overstated. Managers often develop three different scenarios: worst-case scenario, most likely scenario, and best-case scenario. Sales, operating expenditures, and capital acquisition plans are estimated for each scenario. For example, utility companies usually project at least three scenarios. The most likely scenario is an average winter based on typical temperatures for the region. The other two scenarios are based on the effects of an unusually mild winter and an unusually cold winter. For each scenario, utility companies build a profit plan, test its viability, and prepare actions based on predicted outcomes of that scenario.

Table 5-3 on the next page shows the profit plan for Boston Retail. Boston Retail managers have performed a sensitivity analysis by constructing two additional profit plans: one for a better-than-expected market growth rate of 15% (sales = $10,580,000), and another with a worse-than-expected market with no growth (sales = 20X1 sales = $9,200,000). These sales alternatives are illustrated at the top of the table.

Cash Wheel

Before a profit plan can be accepted as feasible, managers must forecast whether the company will have enough cash to operate (cash wheel) and whether the return to investors is sufficiently attractive (ROE wheel). If either of these critical constraints is not met, then managers have to go back to the drawing board and adjust the profit plan.

The cash wheel (**Figure 5-3**) illustrates the operating cash flow cycle of a business: Sales of products and services to customers generate accounts receivable, which are eventually turned into cash; this cash is used to produce inventory, which in turn can be used to generate more sales. However, depending on the nature of the business, considerable time can elapse between the moment that the company disburses cash to purchase inventory and pay operating expenses until it receives cash from customers for goods and services received. During this period of time, the company may have to borrow from lenders for covering its ongoing operating and capital expenses.

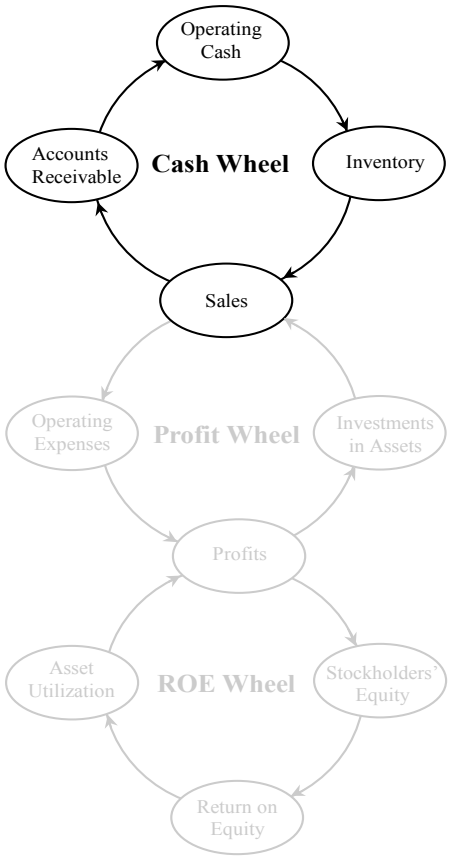
Looking at the cash wheel, we can understand why a company may need more or less operating cash, depending on its industry and its strategy. High levels of inventory require more operating cash to finance this inventory. Similarly, if credit terms to customers are 60 days instead of 30 days, the company needs to borrow more from the bank to cover its cash outflows during these additional 30 days. Conversely, a company can reduce its operating cash by delaying payments to its suppliers, usually by negotiating better credit terms.

Table 5-3 Boston Retail Profit Plan for 20X2 Based on Existing Six Stores (in thousands of dollars)

	20X1 ACTUAL	KEY ASSUMPTIONS FOR 20X2	20X2 PROFIT PLAN	20X2 PROFIT PLAN (OPTIMISTIC SCENARIO 15% GROWTH)	20X2 PROFIT PLAN (PESSIMISTIC SCENARIO NO GROWTH)
Sales	$ 9,200	10% sales growth	$ 10,120	$ 10,580	$ 9,200
Costs of goods sold	4,780	same % of sales as 20X1	5,258	5,497	4,780
Gross margin	4,420		4,862	5,083	4,420
Wages and salaries	1,530	4% growth	1,591	1,591	1,591
Rent and facilities	840	5% growth	882	882	882
Advertising	585	same % of sales as 20X1	644	673	585
Administrative expenses	435	same % of sales as 20X1	478	500	435
Interest	72	estimated at 65	65	65	65
Depreciation	57	add depreciation of new assets	109	109	109
Training	38	2.5% of wages and salaries	40	40	40
Other	54	4% growth	56	56	56
Profit before taxes	809		997	1,167	657
Income tax	283	35 % of profit	349	408	230
Net profit	$ 526		$ 648	$ 759	$ 427
KEY BALANCE SHEET FIGURES	DECEMBER 31, 20X1	KEY ASSUMPTIONS FOR 20X2	DECEMBER 31, 20X2		
Assets					
Cash	$ 208	Operating cash not less than 150	$ 302	$ 361	$ 184
Accounts Receivable	255	Accounts receivable at same % level of sales	281	293	255
Inventory	985	Inventory at same % of COGS	1,083	1,133	985
Property, plant, and equipment	1,854	Property, plant, and equipment increases by new investment	2,005	2,005	2,005
Other assets	325	Other assets same	325	325	325
Total assets	$ 3,627		$ 3,996	$ 4,117	$ 3,754
Liabilities					
Accounts payable	$ 209	Accounts payable at same % of COGS	$ 230	$ 240	$ 209
Bank loan	1,180	Pay back debt of $300,000	880	880	880
Stockholders´equity	2,238		2,886	2,997	2,665
Total liabilities and stockholders´equity	$ 3,627		$ 3,996	$ 4,117	$ 3,754

Source: Author.

Figure 5-3 The Cash Wheel



Source: Author.

Forecasting cash needs is important for all businesses because companies have limited cash reserves and borrowing capacity. If managers project that the cash needed to operate the business exceeds cash reserves and maximum borrowing capacity, then the profit plan is not feasible and must be reworked. For example, fast growing companies need a lot of cash to finance increases in working capital (inventory and accounts receivable) and the purchase of new productive assets such as machinery and equipment. However, existing debt may limit their borrowing capacity. If a company's borrowing capacity is limited to $500,000 and its profit plan requires $700,000 investment in new assets, then the profit plan is not feasible. To overcome this constraint, managers must choose to either revise their profit plan by reducing growth or, alternatively, they can consider issuing new equity to increase their cash reserves.[4]

[4] The sustainable growth rate of any business is defined as

$$\text{Sustainable growth rate} = \text{ROE} \times (1 - \text{Dividend payout ratio})$$

$$\text{Where the dividend payout ratio} = \frac{\text{Cash Dividends Paid}}{\text{Net Income}}$$

Interested readers can refer to any standard finance textbook for a full discussion of the implications and use of this formula.

The basic technique for computing the cash wheel is quite simple. The most intuitive way to estimate cash requirements is to forecast cash inflows and cash outflows for each specific time period. To estimate the operating cash required during a period of time, managers project the cash that they will receive—in most cases, from customers—and the cash that they will disburse—in paying suppliers, operating expenses, and for committed costs such as interest and lease payments. The basic formula is the following:

$$\begin{array}{c}\text{Operating cash}\\ \text{Needed in a period}\end{array} = \begin{array}{c}\text{Cash received}\\ \text{from customers}\end{array} - \begin{array}{c}\text{Cash paid to suppliers}\\ \text{and operating expenses}\end{array}$$

This is the method that most of us employ when budgeting our personal finances to determine whether we have sufficient cash flow to support our rent and car payments.

(Snow) Blowing Cash at Ariens Company

As the U.S. economy hit a slump in 2008, managers at Wisconsin-based Ariens Company, a privately-held maker of snow-blowers and lawn tractors, found themselves in a cash crunch that also affected their suppliers and customers.

Ariens was told by their engine supplier that production would be halted in sixty days in an effort to preserve cash. This left Ariens in search of an alternate supplier for engines. Another supplier, a small metal fabricator, informed Ariens that they had run out of cash and would only ship parts to the company if paid in advance. A maker of plastic parts asked Ariens to make payments thirty days after delivery rather than their customary sixty days.

At the same time, Ariens searched for ways to insulate their own cash flow. They reviewed each of their suppliers and customers to ensure their future financial viability and lined up back-up suppliers. Ariens also combed through their business processes to see where they could cut costs and free up cash. The company decreased their on-hand inventory levels, risking customer service issues. They also bought parts in smaller batches to reduce their investment in working capital. In an effort to minimize cash flow related to wages and minimize layoffs, they used temporary workers for peak seasons. Finally, to ensure the company would have enough cash to finance a new product launch, they worked with their bankers to increase their credit line by 30%.

These efforts allowed Ariens to weather the storm of the 2008 economic downturn. Today, both Ariens and their suppliers have returned to a better cash flow position, allowing for continued business growth.

Source: Timothy Aeppel, "A Snowblower Maker Braces for Slump's Blizzard of Woe," *Wall Street Journal*, New York, November 7, 2008, p. A1.

You may remember, from your financial accounting course, the name of this cash flow method: it is the **direct method**. Companies often use the direct method to estimate cash requirements for short periods of time—a day, a week, or a month. For each period, managers estimate cash that will be collected (cash inflows) and cash that will be paid out (cash outflows). If cash inflows are larger than cash outflows, then the cash on hand increases. However, if the opposite holds—cash outflows exceed inflows—the company's cash position gets worse. Sometimes, companies must make very detailed cash forecasts—even daily—if managers project that they may hit or exceed their borrowing limit.

Table 5-4 shows Boston Retail's cash plan for 20X2 broken down by the four quarters of the year. The analysis indicates a small cash shortfall in quarter one, which must be covered by bank borrowing.

Table 5-4 Boston Retail Quarterly Cash Plan for 20X2 (Prepared by estimating cash inflows and outflows)

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	TOTAL
Cash at the beginning of the quarter (cash balance at least $200)	$ 208	$ 200	$ 200	$ 200	$ 208
Cash inflows					
Cash received from customers	1,470	2,631	2,400	3,594	10,095
Borrowing required	288	(58)	(100)	(130)	-
Total cash inflows	$ 1,758	$ 2,573	$ 2,300	$ 3,464	$ 10,095
Cash outflows					
Cash paid to suppliers	818	1,359	1,274	1,885	5,336
Cash expenses	526	1,052	864	1,315	3,756
Investment in new assets	260	-	-	-	260
Tax payments	87	87	87	87	349
Pay back debt	75	75	75	75	300
Total cash outflows	$ 1,766	$ 2,573	$ 2,300	$ 3,362	$ 10,001
Total cash flows	$ (8)	$ -	$ -	$ 102	$ 93
Cash at the end of the quarter	$ 200	$ 200	$ 200	$ 302	$ 302

Source: Author.

To estimate cash needs over longer periods of time—to tie in with the monthly, quarterly, or yearly profit plan projections—companies generally use the **indirect method** (this method should also be familiar from your financial accounting class). To use the indirect method, managers start with their projected income as shown on the profit plan and follow four steps to estimate their cash needs.

Step 1: Estimate Net Cash Flows from Operations

A simple technique to estimate *operating cash flow* is to use a measure known as **EBITDA** which stands for Earnings Before Interest, Taxes, Depreciation, and Amortization. It is a rough calculation of nonaccrual—or cash-based—operating earnings that can be computed readily from an income statement. The calculation starts with accrual based profit—taken directly from the profit plan—and adds back (1) depreciation, which does not require an outlay of cash, and (2) interest and tax expenses, which represent non-operating expenditures.

Step 2: Estimate Cash Needed to Fund Growth in Operating Assets

EBITDA is a rough measure that ignores any changes in working capital needed to operate the business. For example, cash may be used up (or provided) by changes in inventory levels and accounts receivable balances. These changes in working capital will either reduce (or increase) cash balances on hand.

Experience in any business will provide good data on the level of working capital needed to fund a business. From past experience, Boston Retail managers know that they must invest approximately $165,000 in inventory, $40,000 in accounts receivable, and $25,000 in store displays for each store. They also know that suppliers will finance approximately $35,000 of this amount through accounts payable. Therefore, adding a new store will require an investment in working capital of almost $200,000, which will require cash either from cash reserves on hand or from borrowing.

For 20X2, managers anticipate that the increasing scale of operations will require an additional $103,000 of working capital. This amount must be subtracted from operating cash flow calculated as EBITDA. At Boston Retail, the calculation of operating cash flow using EBITDA for 20X2 is shown in **Table 5-5**.

We can see that managers expect to have approximately $1,068,000 of operating cash flow available to fund growth, repay debt, pay financing costs and taxes, and distribute any dividends to shareholders. If opening a new store requires approximately $200,000 in working capital, the business will have enough free cash from operations (after tax payments and interest) to open three new stores, only if it does not use its cash for debt repayment, dividends, or other types of investment. If it repays debt as planned, additional borrowing will be necessary.

Step 3: Price the Acquisition and Divestiture of Long-term Assets

Different strategies and initiatives will require different levels of investment and cash. At Boston Retail, the investment plan for 20X2 (**Table 4-2**) suggests that the new computer system, warehouse expansion, and store displays will require $260,000. This anticipated need for cash will reduce the increase in cash on hand from $1,068,000 to $808,000.

Step 4: Estimate Financing Needs and Interest Payments

The final step in the calculation of cash flow by the indirect method is to subtract the amount of cash needed for (or generated by) financing and income tax. Financing demands on cash flow include dividends, interest expense, and repayment of debt principal. In 20X2, managers at Boston Retail plan to repay $300,000 of their debt and anticipate paying $349,000 in estimated tax payments. In addition, they will pay $65,000 in interest costs. These deductions reduce estimated cash flow as follows:

Operating cash flow (from Table 5-5)	$1,068
Asset purchases	(260)
Tax payments	(349)
Debt repayment	(300)
Interest payments	(65)
Increase in cash	94
Cash on hand - beginning of year	208
Cash on hand - end of year	$302

Table 5-5 Boston Retail Cash Plan for 20X2 (Prepared using EBITDA)

	20X2
Cash at the beginning of the year	$ 208
Cash from Operating Activities	
Profit after taxes	648
Tax payments	349
Interest payments	65
Add : depreciation and other noncash expenses	109
EBITDA	1,171
Changes in Working Capital	
Decrease (increase) in accounts receivable	(26)
Decrease (increase) in inventory	(98)
Increase (decrease) in accounts payable	21
Cash flow from operating activities	1,068
Cash from Investment Activities	
Investment in new assets	(260)
Cash from Financing Activities	
Pay back debt	(300)
Additional borrowing required	–
Tax payments	(349)
Interest payments	(65)
Total cash flows	94
Cash at the end of the year	$ 302

Source: Author.

When all is said and done, the indirect method yields exactly the same result as the direct method (compare Tables 5-4 and 5-5 as a quick check). The primary difference lies in the fact that the indirect method can be calculated quickly from existing monthly, quarterly, or yearly financial-statement estimates. The direct method requires a detailed, and often laborious, estimate of cash inflows and outflows.

Cash flow analysis often will indicate the need for external funds in the form of either debt or equity to support the proposed profit plan. Managers must choose among available sources of external financing (equity, short-term debt, long-term debt or some combination of these instruments) and choose funding sources that match financial risk with business risk.

Ensuring Adequate Cash Flow

In contrast to the profit plan, in which the time horizon is typically one year, cash flow projections often focus on much shorter time periods. The difference between cash inflows and cash outflows during the operating cycle is estimated for most businesses at least monthly. For highly seasonal industries such as ski manufacturing or boat building, cash flow balances must be calculated weekly or even daily during critical periods when available cash may not be sufficient to keep the business solvent. In these industries, a bank may be willing to lend the *average* cash requirements for a business, but the important question is whether the bank will advance the *maximum* cash shortfall that the company needs over the business cycle.

For example, ski manufacturers receive most of their cash from customers—retail ski stores—during the winter ski season when retail customers are purchasing new equipment, however, manufacturers disburse most of their operating cash for the production and distribution of skis at least five months earlier. As a result, these businesses need the most borrowing at the beginning of the season when they have used up all their cash to manufacture inventory, but have not yet received any cash from customers. Estimating the *aggregate* or average difference between cash inflows and cash outflows over the entire year will not reveal the shortfall that occurs before the ski season begins. Managers in these companies may pay a lot of attention to weekly cash requirements during the few critical months before the start of the season.

The cash wheel highlights the fact that all businesses have a significant amount of resources tied up in accounts receivable, inventory, and other working capital accounts. As a result, managers must work diligently to accelerate the flows around the cash wheel, thereby freeing up cash for investment, financing, or operations growth.

CFO Magazine conducted a survey of large public companies in 27 industries to learn how effectively managers were able to turn working capital into cash. In their sample, the average company had cash on hand of 8% of revenues. On average these companies collected from customers every 42 days, paid suppliers every 40 days, and turned inventory 7 times per year. Of course, results varied by industry. Service companies typically have little or no inventory. Outside forces, such as the economy, or changes in the industry that impact payment terms, such as consolidation of customers or suppliers, can affect working capital performance. Even weather can affect cash flow, as in the case of construction or engineering firms which may need to delay work, and thus collections, due to a harsh winter.[5]

Although all companies can benefit from managing the cash wheel more efficiently, the savings for large companies can be truly significant. For example, Alcoa recovered $1.4 billion by decreasing its working capital cycle by 23 days.[6] For larger companies, additional cash can be reinvested to help drive growth. For small or distressed companies, having enough cash on hand may be the vital link they need to stay afloat.

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[5] Edward Teach, "Barely Working," *CFO Magazine*, June 11, 2015, http://ww2.cfo.com/cash-flow/2014/07/ uncovering-cash-insights-working-capital/, accessed February 11, 2016.

[6] Ryan Davies and David Merin, "Uncovering Cash and Insights from Working Capital," *CFO Magazine*, June 24, 2014, http://ww2.cfo.com/cash-flow/2014/07/uncovering-cash-insights-working-capital/, accessed February 11, 2016.

ROE Wheel

Businesses that earn the most profit will be better off: they will have more resources to invest in future opportunities; they will be able to pay higher dividends to investors; their stock price will be higher; and their cost of debt will be lower. Thus, profit can be considered both a constraint and a goal: A minimum level of profit is necessary for survival (a constraint), but more is always better than less (a goal).

Both stock price and dividend payments depend on a business's ability to generate profits from the investments that stockholders make in the business. In the most basic sense, when a stockholder invests $100 in a firm, the managers of the firm use the $100 to purchase assets, which are then deployed to earn profit for the benefit of the stockholder. The critical measure, therefore, is the amount of profit that managers are able to generate from the $100 investment entrusted to them. If the business generates $20, profit can be measured in two ways. First, the business could report a $20 profit—an absolute measure of success. Alternatively, managers could calculate the return on shareholders' investment by comparing the profit output ($20) with the investment input ($100). In this case, the return on the stockholder investment of $100 would be 20%—a ratio.

Investors in a firm monitor their investment returns carefully—and hold top managers accountable for these returns—so it is not surprising that the single most important measure for investors is **return on investment** (or **ROI**). ROI is a *ratio measure* of the profit output of the business as a percentage of financial investment inputs. This accounting measure is one of the single best surrogates for overall financial performance.[7]

If we adopt the perspective of managers—those entrusted by shareholders to generate profit—then the appropriate internal measure for return on investment is **return on equity (ROE)**. The shareholders' equity portion of the balance sheet shows the total original investment by stockholders, plus accumulated business profits that accrue to stockholders' benefit (less, of course, any dividends paid out). Thus, the objective for any manager is to use the equity investment of the firm wisely—for the benefit of stockholders.

As with the profit wheel and the cash wheel, we can work systematically around the ROE wheel to determine if the profit plan is adequate to meet expectations (see **Figure 5-4**).

Step 1: Calculate Overall Return on Equity

Return on equity (ROE) is calculated as follows:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

If we assume that senior managers wish to maximize this measure (which is a safe assumption since top managers' performance bonuses are often tied either directly or indirectly to this measure), we must ask ourselves how senior managers cascade this measure down to the organization hierarchy so that lower level employees will also work to increase ROE.

To answer this question, we can decompose ROE into its component parts. The basic arithmetic decomposition of this measure was devised by Donaldson Brown, who developed his techniques as

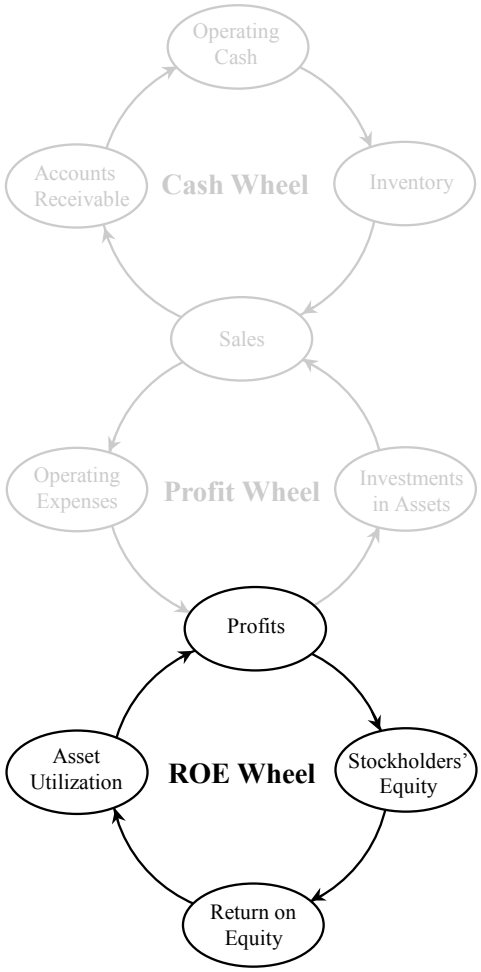
[7] We introduce alternative measures, such as EVA, in *Module 8: Linking Performance to Markets*.

chief financial officer at DuPont around 1915 and later introduced the techniques to General Motors.[8] ROE can be broken as follows:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

$$= \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Shareholders' Equity}}$$

Figure 5-4 The ROE Wheel



Source: Author.

The first term (net income ÷ sales) is a ratio measure of **profitability**. It answers the question, How much profit will we generate for each dollar of sales? This information comes directly from the profit wheel. The second term (sales ÷ stockholder's equity) is a ratio measure as well, but one that is useful

[8] H. T. Johnson and R. S. Kaplan, *Relevance Lost: The Rise and Fall of Management Accounting* (Boston: Harvard Business School Press, 1987): 86, 101.

only for senior managers because middle- and lower-level managers do not manage stockholders' equity per se. Rather, managers lower in the business are allocated funds to acquire *assets* which are in turn used to generate sales and profits. Thus, it is helpful to further expand the second term of the equation one step further as follows:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholders' Equity}}$$

$$= \underset{\text{Ratio}}{\text{Profitability}} \times \underset{\text{Ratio}}{\text{Asset Turnover}} \times \underset{\text{Ratio}}{\text{Financial Leverage}}$$

The first term (net income ÷ sales) remains the same—a profitability measure. The second term (sales ÷ assets) is now a ratio measure of *asset turnover*. This ratio answers the question, How many sales dollars will we generate for each dollar that is invested in assets of the business? The objective for any manager is to maximize the sales created by the firm's asset base (assuming, of course, that incremental sales generate profits—not losses). The final term (assets ÷ shareholders' equity) focuses on **financial leverage** by asking, What percentage of total assets employed are to be funded by stockholders and what percentage by debt? To the extent that the asset to equity ratio is greater than 1, assets will be funded by debt extended by bondholders, banks, and other creditors of the business. A **leveraged business** is one that relies on a high percentage of debt to fund the productive assets employed in the business.

For Boston Retail, we can plug profit plan numbers from Table 5-3 into the formula to assess projected profitability, asset turnover, and leverage.

$$\text{ROE} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholders' Equity}}$$

$$= \frac{648}{10{,}120} \times \frac{10{,}120}{3{,}996} \times \frac{3{,}996}{2{,}886}$$

$$= .064 \times 2.5 \times 1.4 = .225^*$$

$$= \underset{\text{Ratio}}{\text{Profitability}} \times \underset{\text{Ratio}}{\text{Asset Turnover}} \times \underset{\text{Ratio}}{\text{Financial Leverage}}$$

(*difference due to rounding)

We can see that the business is projected to earn 6.4% net income on sales with asset turnover of 2.5 and a leverage ratio of 1.4. The combination of these three indicators yields ROE of 22.5%.

Step 2: Estimate Asset Utilization

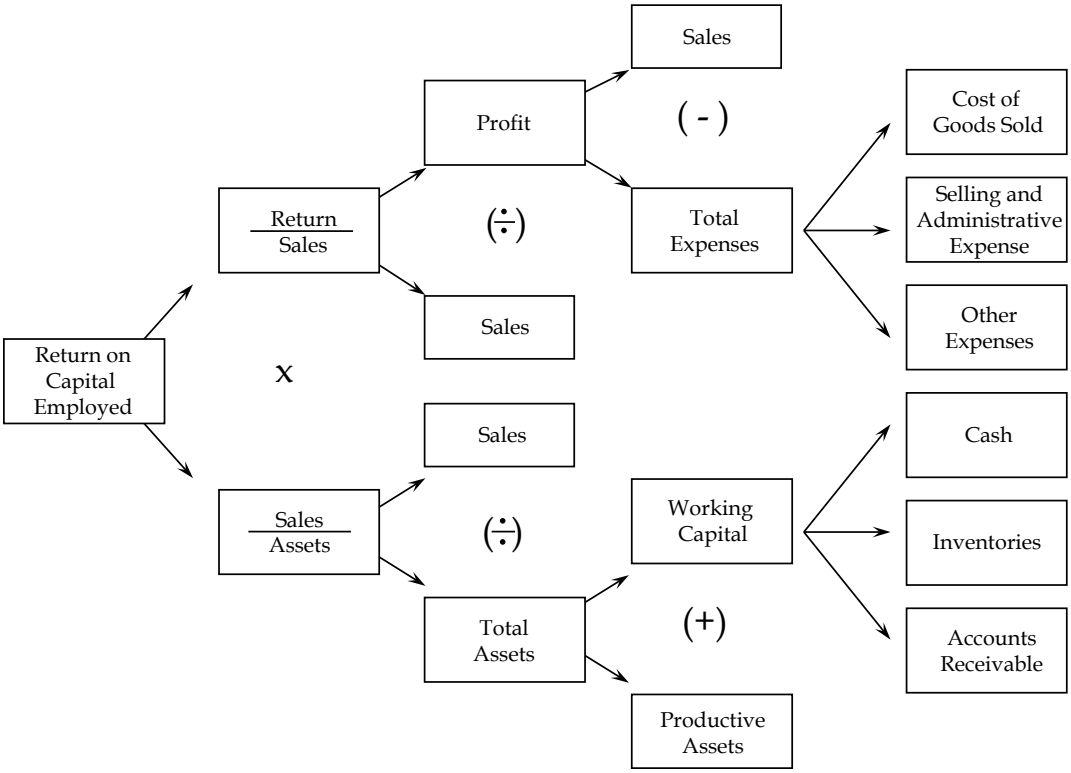
Within a business, unit managers (division or profit center managers) are often accountable for a variant of ROE known as **ROCE**, which stands for **return on capital employed**. The breakdown of ROCE follows the same pattern as above:

$$\text{ROCE} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital Employed}}$$

In the ROCE ratio, **capital employed** refers to the assets within a manager's direct span of control. Some companies define capital employed as total assets controlled by a manager minus noninterest-bearing liabilities (for example, accounts payable). These assets typically include accounts receivable, inventory, and plant and equipment. In other cases, some corporate-level assets, such as goodwill, are also allocated to profit centers to be included in the "capital" that is employed to generate revenue and profit. Different businesses define ROCE in different ways, so care must be taken in using this ratio to understand precisely what managers are including in the denominator.

The detailed decomposition of ROCE provides important additional information about the effective utilization of capital and assets. We can decompose ROCE into a systematic view of many parts of the business's operations. **Figure 5-5** depicts this decomposition. Like branches of a tree, we can pursue each component of the ratio to obtain greater detail and potential insight.

Figure 5-5 ROCE Tree



Source: Author.

At Boston Retail, managers can take the asset-utilization ratios shown and break them down into more detailed projections relating to individual parts of the business.

Some of the more popular asset utilization measures that are derived from the ROCE Tree in Figure 5-5 are:

$$\text{Working Capital Turnover} = \frac{\text{Sales}}{\text{Current Assets - Current Liabilities}}$$

$$\text{Accounts Receivable Turnover} = \frac{\text{Net Sales on Credit}}{\text{Average Net Receivables}}$$

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Fixed Asset Turnover} = \frac{\text{Sales}}{\text{Property, Plant, and Equipment}}$$

CSX: Riding the Rails to Better Asset Utilization

In business for nearly 200 years, the CSX Corporation is a leading railway transportation company. CSX owns 4,500 locomotives delivering a wide portfolio of goods such as agricultural products, oil, and building materials over 27,000 miles of track, generating $12 billion in revenue annually. Between trains, tracks, and terminals, CSX is a particularly asset-intensive business.

In 2013, Chief Operations Officer, Oscar Munoz, implemented the "CSX Enterprise Asset Management Initiative" focused on improving the railroad's capital by increasing asset utilization. Munoz explained, "The more we can use the assets we have, the fewer new ones we need to buy…consistent, reliable service reduces the number of assets needed, and thus capital demands, of running the railroad."

The initiative included a new system to better anticipate potential train maintenance issues that caused over-the-road service failures and slowed down the entire line. The team also installed a new planning tool to better monitor loading/unloading times and identify bottlenecks in an effort to increase the speed of slow-moving trains and keeping them moving through work zones. Finally, CSX invested in higher-capacity, faster rail cars to move more tonnage with the same number of trains.

"Consistent investment in our infrastructure and regular, planned maintenance all are important factors in keeping slow orders to a minimum. Our goal is to continue to drive down slow orders, which improves asset utilization and customer satisfaction," said Munoz. The new program resulted in efficiency savings of over $15 million and ROE improved from 15% in 2013 to 17% in 2015.

Source: "Infrastructure and Asset Utilization", *Railway Age*, February 13, 2013; 25; CSX, Form 10-K, 2015.

These turnover ratios show how efficiently managers have used each category of asset (working capital, accounts receivable, inventory, and fixed assets) to generate sales and, ultimately, profit. Generally, a higher number is preferred, indicating that managers have used the assets entrusted to them to maximum advantage. Once ROCE and detailed asset-utilization ratios have been estimated, managers assess the use of the resources under their stewardship.

Step 3: Compare Projected ROE with Industry Benchmarks and Investor Expectations

Once overall expected ROE is calculated, managers must compare it to some benchmark or standard to see how it stacks up against competitors and investor expectations. Managers are sensitive to the ROE expected by investors, analysts, and others who monitor the financial performance of their firm. High returns on investment lead to high stock prices and to the willingness of investors to commit additional financial resources to support the growth of the firm. Low returns cause the opposite result. Therefore, managers typically know—through discussion with analysts and company directors—the ROE that is anticipated from the performance of their business. The returns generated by other similar businesses provide an easily calibrated yardstick.

For Boston Retail, managers might compare their ROE with other publicly traded fashion retailers such as GAP, Nike, and American Eagle whose comparative figures for 2015 are as follows:

	ROE	PROFITABILITY	ASSET TURNOVER	FINANCIAL LEVERAGE
The Gap, Inc.	42.0%	7.7%	2.1	2.6
Nike	25.5%	10.7%	1.4	1.7
American Eagle Outfitters	20.3%	6.0%	2.2	1.5
Boston Retail	22.5%	6.4%	2.5	1.4

As with the cash wheel, if the expected ROE is not sufficiently high to meet expectations, it is back to the drawing board to find ways to increase profit or make better use of existing assets.

Key Financial Measures

Based on our analysis of the principal components of the profit, cash, and ROE wheels, we can summarize the primary financial measures for any business:

- sales
- profit or net income
- cash flow
- investment in new assets
- return on equity (or ROCE)
- net income ÷ sales = profitability
- sales ÷ assets = asset turnover

For Boston Retail, we can recap the profit plan calculations for 20X2 as follows:

- *sales* = $10,120,000
- profit or net income = $648,000
- *cash flow* = $1,068,000 operating; $94,000 net (after interests, taxes, new investment, and debt repayment)
- *investment in new assets* = $260,000
- *return on equity* = 22.5%
- *profitability* = 6.4%
- *asset turnover* = 2.5

Using the Profit Wheels to Test Strategy

Boston Retail is contemplating two different strategies for the future. One strategy is to expand into New York State. The increase in sales volume needed to support this strategy will force the company to move to mass production. The other strategy is to limit geographical expansion but diversify into furniture. The profit plan will change depending on which of these strategies is followed because each strategy has different underlying economics. **Table 5-6** shows the assumptions underlying both strategies.

Managers must use the three wheels to evaluate the economics and internal consistency of each of these strategies. Implementing either strategy requires the allocation of scarce resources among the various business opportunities open to a company. Resources allocation decisions commit the long-term future of an organization, so they are important decisions to determine the competitive position of the organization. Therefore, resource allocation decisions are often hotly debated inside companies. If a company invests in a certain product line, it is simultaneously deciding not to invest in alternative product lines. This is always difficult for managers who believe in the prospects of the alternatives that are turned down.

The first step is to use the profit wheel to prepare a profit plan for each of the alternatives, based on the assumptions in Table 5-6. Each alternative generates different levels of profit.

The next step is to use the cash wheel analysis to ensure that cash will be adequate to fund these initiatives. In this case, both strategies generate cash over a one-year period. However, the expected cash inflow from sales may lag the cash outflows linked to the increase in operating and long term assets. Therefore, Boston Retail managers should estimate cash requirements for periods shorter than a year. For geographical expansion, if most of the investment in new assets were to happen early in the year, Boston Retail may need to borrow money from the bank.

Tables 5-7, **5-8** and **5-9** present the profit plans and cash flow analyses for each of the competing strategies.

The final step is to compare the ROE for each of the alternatives. For Boston Retail, ROE (using average equity) is 27% for the geographical expansion ($701 ÷ $2,588) and 29.5% ($774 ÷ $2,625) for the product-line expansion strategy.

Table 5-6 Boston Retail Assumptions Underlying Alternative Strategies

ALTERNATIVE 1: GEOGRAPHICAL EXPANSION INTO NEW YORK STATE
Description of intended strategy
Open three stores in New York State at the beginning of the year
Additional investment in new assets
$120,000 in fixed assets per new store (5 years straight line depreciation schedule)
Same investment in working capital as existing stores
$20,000 in advertising per new store
Operating results
Sales per store expected to be the existing average
Cost structure as in existing stores (% of sales)
ALTERNATIVE 2: ADDING A NEW PRODUCT LINE
Description of intended strategy
Introduce premium outdoor furniture product line in Boston Retail´s three biggest stores
Additional investment in new assets
$25,000 per store (5 years straight line depreciation schedule)
Same investment in working capital as existing product line
$10,000 in advertising per store carrying furniture
Operating results
Expected increase in sales per store with furniture of 20%
Expected gross margin as clothing line
Administrative costs up by 15%
Wages and salaries up by 10%
Additional cost structure as existing business (% of sales)

Source: Author.

However, economic criteria alone are not enough to fully assess each strategic alternative. Recall our discussion in *Module 2: Building a Successful Strategy*. Profit plans may look attractive, but actually deplete the core competencies of the firm, or be at odds with the current market position of the company. During the early 2000s, for example, Starbucks showed impressive economic performance and strong growth as they opened many new stores in poorly-chosen locations. But this short-term growth hid the fact that the company was using up the brand equity built over the previous years without creating new competitive advantage. The result was economic troubles in the late 2000s leading to the closure of hundreds of Starbucks outlets. For Boston Retail we could ask ourselves: Are both of these strategic alternatives consistent with Boston Retail's competencies? (We cover performance measurement and control systems related to this question in *Module 11: Using Diagnostic and Interactive Control Systems.)*

Table 5-7 Boston Retail Profit Plan for 20X2 Based on Alternative Strategies (in thousands of dollars)

	20X1 ACTUAL	20X2 PROFIT PLAN	20X2 PROFIT PLAN (GEOGRAPHICAL EXPANSION)	20X2 PROFIT PLAN (PRODUCT-LINE EXPANSION)
Sales	$ 9,200	$ 10,120	$ 13,800	$ 11,132
Costs of goods sold	4,780	5,258	7,170	5,784
Gross margin	4,420	4,862	6,630	5,348
Wages and salaries	1,530	1,591	2,387	1,750
Rent and facilities	840	882	1,322	882
Advertising	585	644	704	673
Administrative expenses	435	478	718	550
Interest	72	65	97	72
Depreciation	57	109	181	124
Training	38	40	59	43
Other	54	56	84	62
Profit before taxes	809	997	1,078	1,192
Income tax	283	349	377	417
Net profit	$ 526	$ 648	$ 701	$ 775
Key Balance Sheet Figures				
	12/31/20X1		12/31/20X2	
Assets				
Cash	$ 208	$ 302	$ 200	$ 255
Accounts Receivable	255	281	382	309
Inventory	985	1,083	1,478	1,192
Property, plant, and equipment	1,854	2,005	2,293	2,065
Other assets	325	325	325	325
Total assets	$ 3,627	$ 3,996	$ 4,678	$ 4,146
Liabilities				
Accounts payable	$ 209	$ 230	313	$ 253
Bank loan	1,180	880	880	880
Additional borrowing			546	
Stockholders´equity	2,238	2,886	2,939	3,013
Total liabilities and stockholders´equity	$ 3,627	$ 3,996	$ 4,678	$ 4,146

Source: Author.

Table 5-8 Boston Retail Quarterly Cash Plan for 20X2 for Alternative Strategies (Prepared by estimating cash inflows and outflows)

STRATEGIC ALTERNATIVE 1 **GEOGRAPHICAL EXPANSION INTO NEW YORK**	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	TOTAL
Cash at the beginning of the quarter (cash balance at least 200)	$ 208	$ 200	$ 200	$ 200	$ 208
Cash inflows					
Cash received from customers	1,911	3,588	3,273	4,901	13,673
Borrowing required	758	15	(24)	(203)	546
Total cash inflows	2,669	3,603	3,249	4,698	14,219
Cash outflows					
Cash paid to suppliers	1,136	1,930	1,844	2,649	7,558
Cash expenses	752	1,504	1,236	1,880	5,372
Investment in new assets	620	-	-	-	620
Tax payments	94	94	94	94	376
Pay back debt	75	75	75	75	300
Total cash outflows	2,677	3,603	3,249	4,698	14,227
Total cash flows	(8)	-	-	-	(8)
Cash at the end of the quarter	$ 200	$ 200	$ 200	$ 200	$ 200

STRATEGIC ALTERNATIVE 2 **PRODUCT-LINE EXPANSION INTO FURNITURE**	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	TOTAL
Cash at the beginning of the quarter (cash balance at least 200)	$ 208	$ 200	$ 200	$ 200	$ 208
Cash inflows					
Cash received from customers	1,591	2,894	2,640	3,954	11,079
Borrowing required	388	(77)	(93)	(218)	-
Total cash inflows	1,979	2,817	2,547	3,736	11,079
Cash outflows					
Cash paid to suppliers	908	1,509	1,440	2,091	5,948
Cash expenses	565	1,129	928	1,411	4,033
Investment in new assets	335	-	-	-	335
Tax payments	104	104	104	104	416
Pay back debt	75	75	75	75	300
Total cash outflows	1,987	2,817	2,547	3,681	11,032
Total cash flows	(8)	-	-	55	47
Cash at the end of the quarter	$ 200	$ 200	$ 200	$ 255	$ 255

Source: Author.

Table 5-9 Boston Retail Cash Plan for 20X2 (Prepared using EBITDA)

	STRATEGIC ALTERNATIVE 1 **GEOGRAPHICAL EXPANSION INTO NEW YORK** 20X2	STRATEGIC ALTERNATIVE 2 **PRODUCT-LINE EXPANSION INTO FURNITURE** 20X2
Cash at the beginning of the year	$ 208	$ 208
Cash from operating activities		
Projected income after taxes	701	775
Tax payments	377	417
Interest payments	97	72
Add : depreciation and other non-cash expenses	181	124
EBITDA	1,356	1,388
Changes in working capital		
Decrease (increase) in accounts receivable	(127)	(54)
Decrease (increase) in inventory	(493)	(207)
Increase (decrease) in accounts payable	104	44
Cash flow from operating activities	841	1,171
Cash from investment activities		
Investment in new assets	(620)	(335)
Cash from financing activities		
Pay back debt	(300)	(300)
Additional borrowing required	546	–
Tax payments	(377)	(417)
Interest payments	(97)	(72)
Total cash flows	(8)	47
Cash at the end of the year	$ 200	$ 255

Source: Author.

Module Summary

The profit plan describes business strategy in economic terms. Because of the importance of the profit plan as a management tool to *test* and *communicate* strategy, managers typically invest substantial time and effort to develop, negotiate, and design the profit plan for the coming year. Managers use the profit plan to assess the ability of different strategies to generate value, and to estimate whether sufficient resources will be available to implement the chosen strategy. Managers at Boston Retail are considering two alternative strategies. The first alternative is to diversify geographically into New York State. Alternatively, the company may move into furniture. The profit plan depicts the economic implications of these alternatives and allows managers to assess the merits of each strategy.

The process of building a profit plan allows managers to share information about competitive market dynamics and internal strengths and weaknesses. Each person in the company may have different information about what is happening in the market and, accordingly, different beliefs about what is the best future direction for the company. By sharing information, managers *learn* from the experience of others and generate valuable additional insights.

Every profit plan is subject to the constraints imposed by the profit wheel, the cash wheel, and the ROE wheel. Within these constraints, managers still have freedom to design profit plans as they see fit. Building a profit plan is an exercise in creativity—testing ideas, testing assumptions, testing strategy. Yet, even if everyone in the organization accepts the stated strategy, each person may understand it differently. The profit plan forces managers to make explicit their assumptions about what the company's strategy means. As we will see in the modules to follow, the profit plan plays other critical roles in every business: in setting performance goals for employees, in communicating expectations to the investment community, and in allowing the evaluation of the performance of individual businesses and managers. A profit plan may look like a simple document, but it is an essential foundation for driving any high performing business forward.

Terms Defined in Previous Modules

Accountability the outputs that a work unit is expected to produce and the performance standards that managers and employees of that unit are expected to meet. (*Module 4: Organizing for Performance*)

Asset a resource, owned or controlled by the entity, that will yield future economic benefits. Examples include plant, equipment, cash on hand, and inventory. (*Module 2: Building a Successful Strategy)*

Benchmark a formal representation of performance expectations based on the demonstrated performance of an exemplary work unit or business. (*Module 3: Using Information for Performance Measurement and Control*)

Business goals the measurable aspirations that managers set for a business. Goals are determined by reference to business strategy. Goals may be financial—for example, to achieve 14% return on sales—or nonfinancial—such as to increase market share from 6% to 9%. (*Module 1: Managing Organizational Tensions*)

Business strategy how a company creates value for customers and differentiates itself from competitors in a defined product market (*Module 1: Managing Organizational Tensions*)

Control the process of using information to ensure that inputs, processes, and outputs are aligned to achieve organizational goals. (*Module 3: Using Information for Performance Measurement and Control*)

Economies of scale reduction in unit costs due to utilization of efficient, large-scale resources and high-volume processing. (*Module 4: Organizing for Performance*)

Economies of scope reduction in unit costs due to utilization of the same resources (e.g., distribution channels) across multiple products or activities to increase the throughput for a given fixed amount of that resource. (*Module 4: Organizing for Performance*)

Feedback return of variance information from the output of a process to the input or process stages so that adjustments can be made to maintain desired levels of performance or control the stability of a system. (*Module 3: Using Information for Performance Measurement and Control*)

Goal a formal aspiration that defines purpose or expected levels of achievement in implementing the business strategy. (*Module 2: Building a Successful Strategy*)

Information the communication or reception of intelligence or knowledge. It is the critical vehicle for profit planning, performance measurement, and management control. (*Module 3: Using Information for Performance Measurement and Control*)

Intended strategy planned strategy that managers attempt to implement in a specific product market based on analysis of competitive dynamics and current capabilities. (*Module 2: Building a Successful Strategy*)

Performance measurement and control systems the formal information-based routines and procedures managers use to maintain or alter patterns in organizational activities. (*Module 1: Managing Organizational Tensions*)

Product market a defined competitive market for a specific product or category of products. (*Module 2: Building a Successful Strategy*)

Productive assets assets used to produce goods and services for customers. These assets are usually recorded on a balance sheet. (*Module 2: Building a Successful Strategy*)

Profit plan a summary of future financial inflows and outflows for a specified future accounting period. It is usually prepared in the familiar form of an income statement. (*Module 1: Managing Organizational Tensions*)

Resource a strength of the business embodied in the tangible or intangible assets that are tied semi-permanently to the firm. (*Module 2: Building a Successful Strategy*)

Span of control how many (and which) subordinates and functions report to a manager. Span of control describes the resources—in terms of people and work units—directly under a manager's control. (*Module 4: Organizing for Performance*)

SWOT an acronym for strengths, weaknesses, opportunities, and threats. A SWOT analysis determines the potential for effective strategy based on an assessment of competitive dynamics and the resources and capabilities of a business. (*Module 2: Building a Successful Strategy*)

Suggested Study Cases

To enhance your understanding of the ideas covered in this module, we recommend that you study one or more of the following Harvard Business School Cases. These cases are available from Harvard Business School Publishing at www.hbsp.harvard.edu.

- Jackson Automotive Systems (HBS Brief Case No. 914-505)
- Cafes Monte Bianco: Building a Profit Plan (HBS No. 198-088)
- Walker and Company: Profit Plan Decisions (HBS No. 197-084)
- Chemalite, Inc. (B): Cash Flow Analysis (HBS No. 195-130)
- Statements of Cash Flows: Three Examples (HBS No. 193-103)
- Hanson Ski Products (HBS No. 187-038)
- Neck & Neck: Leveraging the Club Neck Information (HBS No. 109-070)