Chapter 1

Managerial Economics: Taking Care of Business

In This Chapter

- Placing managerial economics in a broader context
- Understanding business management
- Recognizing opportunity cost
- Developing goals while recognizing constraints
- Knowing the competition
- Determining the time value of money

American humorist Frank McKinney Hubbard said, "Lots of folks confuse bad management with destiny." Managerial economics ensures a destiny that includes success for your business. And success has to be earned given that businesses compete for scarce resources.

The basic economic problem — scarcity of resources versus virtually unlimited human wants and desires — requires all societies to determine how to allocate scarce resources among competing uses. However, different methods are used to determine this resource allocation with the most common methods involving markets, government, or some combination of both. In a market economy, the production and distribution of goods is undertaken by firms. And because firms are economic entities, they're best analyzed with economic theory.

Managerial economics is a special subdivision within economics that applies economic theory to business decision-making. In general, economic theory describes how things work. But in managerial economics, economic theory provides tools managers use to make decisions. As a subdivision within economics, managerial economics moves away from mere description. Managerial economics focuses on the decisions managers should make, addressing the question of what action would be best for the firm's owners. For example, economic theory may describe how markets work, whereas managerial economics develops criteria that enable you to determine

what price your company should charge in order to reach its objectives. Therefore, while economic theory is descriptive, managerial economics is prescriptive.

In this chapter, I place managerial economics in the broader context of general economic theory. Given this context, I examine business's role in a market economy and your role as a business manager. The concept of opportunity cost provides a fundamental element for business decision-making as does the explicit identification of the business's and manager's goals. I also introduce competition and risk and conclude by examining the time value of money or present value.

Managing Economics

Managerial economics combines economy theory and the decision sciences to develop methods for business and administrative decision-making. It provides a conceptual framework that bridges the gap between economic theory and practice.

Economics consists of two major subdivisions — macroeconomics and microeconomics. *Macroeconomics* is the area of economics that studies the behavior of the national economy, while *microeconomics* is the area that studies the behavior of individual economic agents, such as the firm or a consumer. To a large extent, *managerial economics* applies microeconomic theory to business decision-making. However, business decision-making doesn't take place within a vacuum. National economic conditions, international competition, financial markets, interest rates, and future economic conditions substantially influence individual businesses. Therefore, macroeconomic issues also have substantial impact on the firm and managerial decision-making.

The *decision sciences* provide methods for analyzing the impact of alternative decisions. These sciences include the optimization techniques associated with calculus and statistical techniques. Managerial economics integrates the decision sciences' analytical tools with economics in order to provide a framework for business decision-making.

Resource scarcity requires society to make choices in order to achieve specific goals. In *The Wealth of Nations,* the book published in 1776 that establishes the foundation for modern economics, Adam Smith states that individuals are motivated by self interest. Smith emphasizes that self-interest isn't bad; indeed, the pursuit of self interest generally leads to the best allocation of resources for society. Of course, there are exceptions, but that's the point — there are exceptions, not general problems with pursuing self interest. For business managers this statement means that trying to maximize profit isn't a bad thing. Indeed, by maximizing profit, business owners and

managers effectively coordinate markets. That is, their decisions lead to the production of the best or most valuable goods and services.

But it would be a mistake to think that managerial economics applies only to profit-maximizing businesses. The techniques embodied in managerial economics are also of use to nonprofit organizations and governmental agencies. These organizations must also deal with scarce resources, so cost minimization and price determination for specific goals are crucial to their success.

Considering business's role

Firms are the primary instrument used to allocate scarce resources among competing activities in a market economy. Firms direct the transformation of resources into the goods and services that consumers desire. In the course of this transformation, the firm becomes an important agent in answering the three basic economic questions:

- What commodities should be produced?
- How should those commodities be produced?
- For whom are those commodities produced?

Thus, in a market economy, business owners and managers are heroes. As Adam Smith points out, it's through the efforts of business owners — the butcher, the brewer, and the baker — that you and I get our dinner. Their pursuit of profit provides everyone the food they eat. And the same goes for the farmer, the auto industry executive, Bill Gates, and anyone else connected to business. The business owner produces the stuff everyone consumes, employs resources to produce that stuff, and pays for the resources — especially the wages for labor. So, businesses produce the stuff I want and pay me the income that I need to buy that stuff.

Profit then becomes the business scorecard. It's important to use the resources as efficiently as possible — remember, they're scarce. Businesses that use those resources efficiently to produce the stuff that's highly valued get profit. Lots of profit generally means the business is doing a good job with the scarce resources. On the other hand, losses indicate that the business isn't doing well. These businesses are wasting scarce resources either by using them inefficiently or by producing stuff that consumers don't want.

Identifying the manager's role

Business owners and managers make and implement decisions that directly answer two of the major economic questions: "What commodities should be

produced?" and "How should those commodities be produced?" They must decide what commodity or combination of commodities their firms should produce. They must decide what combination of inputs should be used in the commodity's production. They must also determine the commodity's price and how much they're willing to pay for various inputs. Profit is their scorecard and is used to evaluate the success or failure of their decisions in these areas.

The manager's tasks are grouped into three major areas:

- First, managers help develop the firm's goals.
- After the goals are established, managers must establish strategies for achieving those goals.
- Finally, managers must acquire and direct the resources necessary for achieving the firm's goals.

While attempting to promote the firm's objectives, managers confront numerous alternative actions. These alternatives are often complex; they may embody contradictions, and they may be subject to a variety of constraints. Because managers have incomplete information upon which to base a decision, uncertainty exists. Therefore, the complexity and uncertainty of the decision-making process require that managers possess a diverse set of skills.

Nothing Is Free: Opportunity Cost

The first thing managers must recognize is that nothing is free. A favorite saying in economics is "There's no such thing as a free lunch." This idea is crucial. If your boss takes you to lunch and offers to pay, it's still not a free lunch to you. You still have a cost. Perhaps the cost is spending time with your boss. Perhaps it's not getting something else done that you wanted to do. Perhaps it's going to a restaurant you don't especially like. No matter what, you made some sacrifice in going to lunch with your boss. You gave up some alternative.

Opportunity cost is the cost of an action or decision as measured by the best alternative you give up. Right now you're incurring an opportunity cost by reading this book. What's the next best alternative you're giving up? Perhaps it's watching television or taking a nap. Maybe you'd rather be bike riding — I would. Whatever the best alternative you're giving up — that's your opportunity cost.

But note that opportunity cost is just the best alternative you give up — it's not every alternative. If my best alternative to reading this book is riding a bike, that's my opportunity cost. Watching television doesn't count because I can't ride a bike and watch television at the same time.

Opportunity cost is the best alternative you give up when making a decision.

Defining Goals

The decision-making process has five major steps:

1. **Establish objectives.**
2. **Identify the problem or problems that prevent the fulfillment of the objectives.**
3. **Specify and evaluate possible solutions to the problem(s).**
4. **Select the best possible solution based upon the information available.**
5. **Implement the solution and subject it to ongoing evaluation.**

The crucial first step in this process is the identification of goals. As English mathematician Lewis Carroll once said, "If you don't know where you are going, any road will get you there." Or American baseball player Yogi Berra has another view, "You've got to be very careful if you don't know where you're going, because you might not get there." The point of both of these quotes is essentially the same — managerial decision-making requires a clear set of objectives.

You can't make a good decision if you don't know what you're trying to accomplish.

The owner's goal in a market economy is generally to maximize profits. Indeed, relative to the rest of the world, U.S. business owners emphasize short-run profits as indicated by publication of firm profits on a quarterly, semiannual, and annual basis.

However, alternative goals to profit maximization can also exist. For example, at times firms might maximize sales revenue or *market share,* where market share is the percentage of an industry's total sales that are held by a single firm. Or a business owner might focus on growth rather than profits as an objective. Other goals may include maximization of value added, or managers pursuing objectives that promote their interests rather than the interests of the firm's owners. In many of these cases, however, the purpose of these goals, which appear to contradict profit maximization, is, rather, a sacrifice of immediate profits in order to increase future profits.

Keeping your job: First things first

As a business manager your goals may differ from the owner's goals. Usually, your first goal is to keep your job. This is important to recognize because this

goal may lead to conservative decision-making. Managers often don't pursue high risk–high reward strategies for fear of failure — failure that may lead to the manager being fired. This leads to the principal–agent problem that I discuss in Chapter 17.

Maximizing profit by recognizing all costs

To maximize profit, you must recognize all costs. This recognition takes you back to opportunity cost. But be careful, opportunity cost must consider all aspects of the best alternative.

In the previous section, I mention that managers may not take risks in order to protect their jobs. As a result, new products and new innovations may not be embraced as quickly as they should. But innovation is crucial to business survival. Successful new technologies make existing products and production techniques obsolete. Thus, the manager who avoids taking risks isn't protecting the business; indeed, a manger who avoids risk is probably making the business more vulnerable to its rivals. The business landscape is littered with companies that failed to adopt new technologies. Polaroid and instant developing film were made obsolete by the digital revolution, as were Eastman Kodak and cameras. The development of air transportation and interstate highways all but eliminated passenger rail travel. And many retailers — think of Borders bookstores — are suffering with the development of online marketing.

Staying with the tried and true has its own costs and is likely to threaten a business's survival.

Taking it to the limit with constraints

As a manager, you face numerous constraints when making decisions. These constraints affect your ability to achieve organizational objectives. Broadly defined, constraints fall into the following three categories:

- **Resource constraints** are often the result of limitations in the availability of certain inputs. These limitations may include shortages of critical raw materials, the inability to obtain labor that possesses the necessary skills, restrictions imposed by existing production facilities, intermediate inputs provided by auxiliary firms, or labor contracts that limit your ability to lay-off workers. In addition, you're constrained by the technical relationship that exists between inputs and the quantity of output produced.

- **Constraints on output quantity and quality** are typically the result of contractual obligations the firm has. Contracts that the firm has may specify a certain number of units of output. Delivery contracts may specify deadlines for fulfilling the order. Or, contracts may specify minimum standards for quality. These contracts represent obligations the firm must satisfy.
- **Legal constraints** take a variety of forms. Working conditions, health and safety concerns, child-labor laws, and minimum-wage legislation impose constraints on the firm. Environmental legislation limits your choice of production techniques. Antitrust legislation constrains the firm's relationship with competitors, as well as pricing and marketing strategies.

As a result of constraints, the goal of managerial decision-making is often called constrained optimization.

Taking Sides: Demand and Supply in the Decision-Making Process

Consumers and producers have exactly the opposite view regarding price. Consumers want low prices so they can buy more stuff — this is called *demand.* Producers what high prices so they can earn more profit — this is called *supply*. The great thing about markets is at any given price consumers are free to determine whether or not to buy the good and producers are free to decide whether or not to sell the good. When both consumers and producers simultaneously decide the price is "right," they engage in a mutually beneficial exchange. In other words, the exchange is a win-win situation called *equilibrium.* Consumers purchase the good at a price they're willing to pay, and producers sell the good at a price they're willing to receive. As long as consumers and producers are free to choose, the result of a market transaction benefits all participants.

Looking at Market Structures and the Decision-Making Environment

You don't make decisions in a vacuum. As you try to satisfy customer wants and desires, rival firms are trying to do the same thing. Therefore, it's critical to recognize your competition, including global competition, and what

they're doing. Before making any decision, you must carefully note the level of competition you have and thus what market structure you're operating in.

Economists describe the level of competition through the use of market structures. *Market structures* simply reflect differing characteristics related to the number of rival firms and product characteristics. There are four major market structures, ranging from perfect competition, which has the highest degree of competition, to monopoly, which has the lowest degree of competition. Here are the four market structures, starting with the most competitive and moving to the least competitive:

- **Perfect competition** is the market structure with the highest degree of competition. Perfectly competitive markets have a large number of firms producing identical products. In perfect competition, price is determined by supply and demand in the market, and the individual firm has no influence on that price. The firm's managers must determine what quantity of output to produce given the price. Farmers growing corn, soybeans, and other agricultural commodities generally operate in perfectly competitive markets.
- **Monopolistic competition** also has a large number of firms but the good produced by the firms isn't identical — there are differences between firms. Because of the differences in the good produced by each firm, customers develop preferences for one firm's product over another firm's product. Differing customer preferences mean that the managers of monopolistically competitive firms can choose both the profit-maximizing quantity and price. Pizza restaurants operate in monopolistically competitive markets.
- **Oligopoly** is characterized by a small number of large firms. Because there are a small number of firms, you know who your rivals are. The close interaction among rivals leads to mutual interdependence — your actions affect every other firm. Thus, decision-making in oligopoly requires you to take into account how your rivals respond to those decisions.
- **Monopoly** has a single firm producing a commodity for which there are no close substitutes. Thus, monopolies don't have to consider direct competition. Nevertheless, monopolies are still constrained by consumer demand — if you think the monopoly's price is too high, you won't buy its product.

It should be noted that both perfectly competitive and monopolistically competitive markets are also characterized by easy entry and exit. It's easy for new firms to enter these markets and easy for existing firms to leave. Because of easy entry and exit, over time profit tends toward zero in these markets. Both oligopoly and monopoly have barriers to entry — it's difficult for new firms to enter these markets. Thus, it's easier for oligopolies and monopolies to maintain profit over an extended period of time.

Taking Chances: Recognizing Risk and Uncertainty

There is always risk. Taking chances is part of managerial decision-making. But it's a mistake to rely on blind luck when taking risks. Managerial economics develops criteria for evaluating risk. In addition, the techniques of managerial economics help you to determine the value of additional information. More information reduces risk, but it comes with a cost. Managerial economics provides you techniques to determine whether the information's expected value is worth its cost.

It's also important to recognize that business innovation rewards everyone through economic growth. As businesses produce new products, they enable consumers to satisfy even more wants and desires. Think about what life would be like without computers and cellphones, not to mention electricity and automobiles.

Knowing the Time Value of Money: Present Value

I've read articles that say a dollar today is worth only 25 cents. I want to meet the author of any article that says this, because I can get lots of quarters and trade them one-for-one for any dollars the author has. In fact, because I'm a generous guy, I'll throw in an extra nickel on every trade.

This idea sounds somewhat absurd, and it is. But it's really important to recognize what happens to money over time. A dollar today is worth — surprise — a dollar. However, a dollar today doesn't buy as much stuff as a dollar did 30 years ago because of inflation. Given inflation, I would rather have a dollar right now, rather than a dollar ten years in the future.

Even more important than inflation is the role interest plays in the value of money. If I have a dollar today, I can use it to buy a bond and earn interest. Thus, the dollar I have today will be $1.10 one year from now if the interest rate is 10 percent. Because of interest, you prefer receiving money now instead of in the future.

In making business decisions, it's important that you include the time value of money — the fact that money you hold today can earn interest. Thus, if you spend money today to build a new factory, you're giving up the opportunity to earn interest. In the future, your factory generates profits — at least you believe it will — but you need to know whether or not those

profits are large enough to offset the interest you lost by not buying a bond. This is determined by calculating the present value.

The *present value* of money is the value of a future stream of revenue or costs in terms of their current value. Future revenues and costs are adjusted by a *discount rate* that reflects the individual's time and risk preference. Often, the discount rate is some interest rate that represents the individual's best alternative use for money today.

The formula for calculating the present value of a future stream of *net revenue* — future revenues minus future costs — is

$$PV = \sum_{i=1}^{t} \frac{R_t - C_t}{(1+r)^t}$$

where *PV* represents present value, $R_t - C_t$ represents net revenue (revenue minus cost) in year *t*, *r* is the interest rate, and *t* is the year.

Your company accepts a contract that has an anticipated net revenue of $100,000 at the end of each of the next three years. The interest rate is 6 percent. To determine the present value of this future stream of net revenue you take the following steps:

1. **Determine the present value of year one's net revenue.**

   Divide 100,000 by 1.06.

   $$\frac{R_t - C_t}{(1+r)^t} = \frac{100{,}000}{(1+0.06)^1} = 94{,}339.62$$

2. **Determine the present value of year two's net revenue.** Divide 100,000 by $(1.06)^2$.

   $$\frac{R_t - C_t}{(1+r)^t} = \frac{100{,}000}{(1+0.06)^2} = 88{,}999.64$$

3. **Determine the present value of year three's net revenue.**

   Divide 100,000 by $(1.06)^3$.

   $$\frac{R_t - C_t}{(1+r)^t} = \frac{100{,}000}{(1+0.06)^3} = 83{,}961.92$$

4. **Add the present value of net revenue for years one, two, and three.**

   $$PV = \sum_{i=1}^{t} \frac{R_t - C_t}{(1+r)^t} = 94{,}339.62 + 88{,}999.64 + 83{,}961.92 = 267{,}301.18$$

Thus, the present value of $100,000 net revenue for each of the next three years given an interest rate of 6 percent is $267,301.18.

As an alternative to short-run profit maximization, managerial efforts can maximize the firm's value. Focusing on maximizing the firm's value can resolve the apparent conflict between the goal of immediate profit maximization and other goals, such as sales or growth maximization, that may increase the firm's future profits.

A firm's value is defined as the present value of the firm's expected future profit, π. Therefore,

$$\text{Firm's Value} = \text{PV}(\text{future profit}) = \sum_{i=1}^{n} \frac{\pi_t}{(1+r)^t}$$

where π_t represents the profit in year *t*, and *r* is the interest rate. This is simply a present value calculation that discounts profit earned in the future by the interest rate.

A number of factors influence the firm's value. The firm's marketing department can increase profits through various marketing strategies. Costs are frequently reduced through the firm's engineering or production department. Although research and development expenditures increase current costs and diminish current profits, they may result in higher future profits that more than offset those costs. Thus, maximizing the firm's value encompasses a broad variety of strategies that you may employ as a manager.

Your ultimate goal as manager is to maximize your firm's value. That ensures that your destiny is a good one.