

CHAPTER 7

COMPETITIVE ADVANTAGE AND VALUE CREATION

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This chapter examines how companies create value in the market and how they capture it to increase the value of the firm. After completing the chapter, you will have an understanding of the connection between value creation and competitive advantage. Also, you will know the basic components of value and how value created is shared with customers and suppliers.

The *value created* by the firm equals the benefits the firm's customers receive minus the costs the firm's suppliers incur and minus the costs of using the firm's own assets. To increase value created, the company increases benefits to its customers, lowers costs of its suppliers, uses its resources more effectively, or combines suppliers and customers in new or more efficient ways.

The firm's ability to create and capture value depends on the strength of competition and the characteristics of the firm. In markets where customer demand outruns industry capacity, many firms can add value. In markets where industry capacity outruns customer demand, a firm must have a competitive advantage to survive.

The firm must share the value that it creates with its customers and suppliers. The share of the value that the firm is able to capture is the *value of the firm*. Value-driven strategy involves three basic rules. To attract customers away from competitors, the company must provide sufficient customer value as compared to rival firms. To attract key suppliers away from competitors, the company must offer sufficient supplier value. To attract investment capital in competition with other market investment opportunities, the company must increase

the value of the firm for its investors. Understanding these three important rules provides managers with a consistent framework for designing and applying strategy.

To obtain a competitive advantage, the company must create greater total value than its competitors and capture the incremental value that it brings to the market. The *competitive advantage* of a firm equals the difference between the overall value created by the industry when the firm is in the market and the overall value that would be created by the industry when the firm is not in the market. Thus, competitive advantage is the extra value created by the firm.¹

Chapter 7: Take-Away Points

The manager chooses strategies to carry out the company's goals and to gain competitive advantage:

- To attract customers away from competitors, the company must provide sufficient customer value.
- To attract key suppliers away from competitors, the company must offer sufficient supplier value.
- To attract investment capital in competition with other market investment opportunities, the company must increase the value of the firm for its investors.
- Total value created is the sum of customer value, supplier value, and the value of the firm.
- To obtain a competitive advantage, the company must create greater total value than its competitors.
- Competitive advantage often requires product innovation, process innovation, or transaction innovation.

7.1 *Creating Value*

Managers must pay close attention to value creation because it is the source of the company's potential profits. The company creates value by coordinating its purchases and sales transactions. The company generates value by providing products to customers, which it produces both by purchasing inputs from suppliers and supplying some of its own. The value the company creates is equal to the difference between the benefits the company's customers receive and the cost to the company's input suppliers, including the cost of the company's self-supplied inputs.

All value creation begins with the company's final customer. The customer receives some *benefits* from consuming a product provided by a company. The dollar measure of those benefits is the customer's

willingness to pay, which is defined as the *maximum amount that the customer would pay for that product*. Accordingly, the customer's benefit is also referred to as the customer's willingness to pay. For example, if a customer is willing to pay at most \$200 for a particular product, then that is the customer's benefit from consuming that product. The value created by the firm is necessarily limited by its customers' willingness to pay.

There is no free lunch. Providing a product that benefits customers necessarily requires costly inputs. The firm obtains various inputs from suppliers. The firm also supplies some of its own inputs, including information assets such as business methods, inventions, and market knowledge. For most productive inputs provided by the firm itself, the most accurate measure of cost is the *market value* of that input, which is simply the current market price of the input. For those inputs provided by the firm for which there is no readily available market price, it is necessary to estimate the market value.

The best estimate of the market value of an input is based on the opportunity cost of the input. Recall that opportunity costs are what the inputs would earn in the best opportunity forgone; that is, the return from the best alternative employment of that input. For example, if a company owns a plot of land that it could sell to another company, that is the opportunity cost of using the land. The cost of the entrepreneur's time and effort in starting a firm is what the entrepreneur could have earned in his or her best alternative occupation.

The costs incurred by the firm's suppliers are the purchase costs of all inputs including labor, natural resources, manufactured parts and components, technology, and capital equipment. Supplier costs further include the costs of all services obtained by the firm, including the costs associated with completing transactions, such as legal, accounting, marketing, and sales costs. The costs of the supplier also include the cost of capital whether that capital is obtained through debt or sale of equity.

Therefore, the *value created* by the firm equals the benefits obtained by the firm's customers minus the total costs of inputs provided by the firm and its suppliers. The principles of value creation can be illustrated with a basic example. A single customer representing a specific market segment is willing to pay a maximum of \$200. Therefore, the most value that the company could create is \$200. In serving the customer, the company employs some of its own assets that are valued at \$80. The company also purchases inputs from a supplier which cost \$50. The value created by the company's buy-and-sell transaction is the customer's net benefit net of the cost of using the firm's assets and the supplier's costs: $\$200 - \$80 - \$50 = \70 .

When Michael Dell started his company, he observed that IBM sold a personal computer for \$3,000 even though it contained \$600 worth of parts.² He knew that the difference was too high, which suggested that

IBM's other costs were too high and that IBM's markups were too high due to lack of competition. Michael Dell realized that the costs of assembly and delivery could be lowered considerably, thus increasing the value created. Later, by operating online, Dell Computer dramatically lowered its transaction costs still further. By lowering markups, Dell Computer was able to share the increased value with its consumers and suppliers. For a \$2,000 computer, Dell Computer's cost of goods sold was approximately \$1,600 and its overheads (selling, general, and administrative costs) was about \$220, so that the markup was about \$180.³

Example 7.1 Value Created and Captured by a Computer Company

A computer company serves a customer who is willing to pay \$2,500 for a computer. The computer company charges its customer a price of \$2,200 per computer. The computer company purchases parts and services from suppliers (the box, monitor, speakers, hard-disk drive, memory, software, and assembly services). The cost to the computer company's suppliers of providing all these parts equals \$1,200. The computer company pays its suppliers \$1,750. The computer company also has overhead costs (selling, general and administrative) of \$200. How much value is created by the computer company? How much of that value is captured by the computer company? The total value created by the computer company is $\$2,500 - \$1,200 - \$200 = \$1,100$. The total value captured by the computer company is the company's revenue minus its overhead costs and the payment to its suppliers, $\$2,200 - \$1,750 - \$200 = \250 .

Value creation provides an important linkage between the steps of the strategy process. The manager's external analysis yields information about the company's customers and their willingness to pay for the company's products. The external analysis also gives the manager information about the company's suppliers and their costs. This information enters directly into the manager's consideration of what value the company creates.

The manager's external analysis also provides information about the company's competitors: their costs, their prices, and the products that they provide. This information is very useful in determining whether the company's transactions with its customers and suppliers create value in competition with other firms in the industry. Do the company's customers derive greater or lesser benefits from purchasing the products of competitors? Do the company's suppliers incur greater

or lesser costs in serving competitors? These considerations will be important to the manager in evaluating what value the company adds to the market.

The manager's internal analysis is useful in determining what assets the firm has to offer the market place. He or she uses the combination of internal and external analysis to determine the benefits the company's assets add in serving customers and the opportunity costs of using those assets. The internal analysis yields information about what types of products the firm can provide to its customers. In addition, the manager determines what activities should be performed within the organization and what types of inputs will be procured from suppliers. Together, this information helps the manager determine the potential value that the company's products will create.

The concept of value extending from suppliers through the firm and on to its customers is related to but distinct from Michael Porter's concept of the value chain. The value chain refers to the firm's internal processes. As Porter observes, "Every firm is a collection of activities that are performed to design, produce, market, deliver and support its product." Porter emphasizes that each firm's value chain is embedded in a value system of activities composed of supplier value chains upstream and channel and buyer value chains downstream.⁴ These external value chains complete the picture by including buyer benefits and supplier costs.

As part of the manager's external analysis, it is useful to understand the manner in which customers derive benefits from their products. This will help managers tailor their product accordingly. Although it is difficult to measure precisely what an individual customer is willing to pay for a good or service, some inferences are possible. Customers reveal something about their willingness to pay by their purchasing decisions. If customers pay \$150 for a product, their willingness to pay is *at least* that amount, but it might be \$175 or it might be \$300.

Statistical techniques for estimating total market demand also provide information about the total willingness to pay of customers in the market. When market prices fluctuate and total customer purchases change, companies get some indication of price sensitivity and can estimate how much customers are willing to pay. Brokerage fees fell substantially after deregulation. Customers were willing to pay hundreds of dollars per trade before deregulation of brokerage fees in 1975, so it can be inferred that those customers viewed a trade as providing a benefit of at least that amount (at least when they made that trade). After deregulation, brokerage fees fell below that level but earlier rates provide some guide to customer benefits per trade. With the advent of Internet securities trading, many customers were willing to pay about \$30 per trade. As competition intensified, Internet brokers began to charge \$5 per trade or less. Those customers who traded online when

fees were over \$30 had benefits of at least that amount per trade. Customers attracted to online trading by the lower prices were likely to have benefits less than \$30 and greater than \$5.

More complicated inferences can be made by comparing bundles of products. Some customers trade with full-service brokerages at up to \$150 per trade rather than with discount brokerages at \$50 per trade. Those customers must perceive that they obtain benefits of at least \$100 from the services, over and above trade execution. In the same way, customers who trade with a discount broker at \$50, rather than going online at \$5, obtain benefits from personal interaction at least equal to \$45.

Also as part of the manager's external analysis, it is useful to understand the costs of the company's suppliers. This understanding will help managers to determine the types of products they should obtain from suppliers and the types of activities that the company will perform itself. Managers are able to obtain information about the costs of their suppliers, especially if suppliers are willing to share cost information. Industry cost estimates may be available if the suppliers employ standard production techniques. In addition, market prices for the products suppliers use allow inferences about supplier costs. Managers can combine data on prices and standard industry markups to make informed estimates of supplier costs. Customer benefits and the costs of the firm and its suppliers are the building blocks of value.

7.2 Growth and Value Creation

The company's ability to create value depends critically on industry conditions. The potential for value creation depends on how the growth of market demand compares with the growth of industry capacity. There are two main scenarios: If market demand outruns industry capacity, practically all companies can operate profitably and add value to the market. If, on the other hand, industry capacity outruns market demand, some companies may not be profitable, and companies must have a competitive advantage to survive. These two scenarios are illustrated in Figure 7.1.

Industry capacity refers to the total capacity of the companies operating in the industry. Market demand varies, of course, depending on price. To compare market demand with industry capacity, it is necessary to determine the price at which market demand equals industry capacity. That price is a critical determinant of the state of the industry. If the price at which market demand equals industry capacity is greater than the unit cost of the highest-cost company in the industry, then market demand is said to outrun industry capacity. If the price at which market demand equals industry capacity is less than the unit

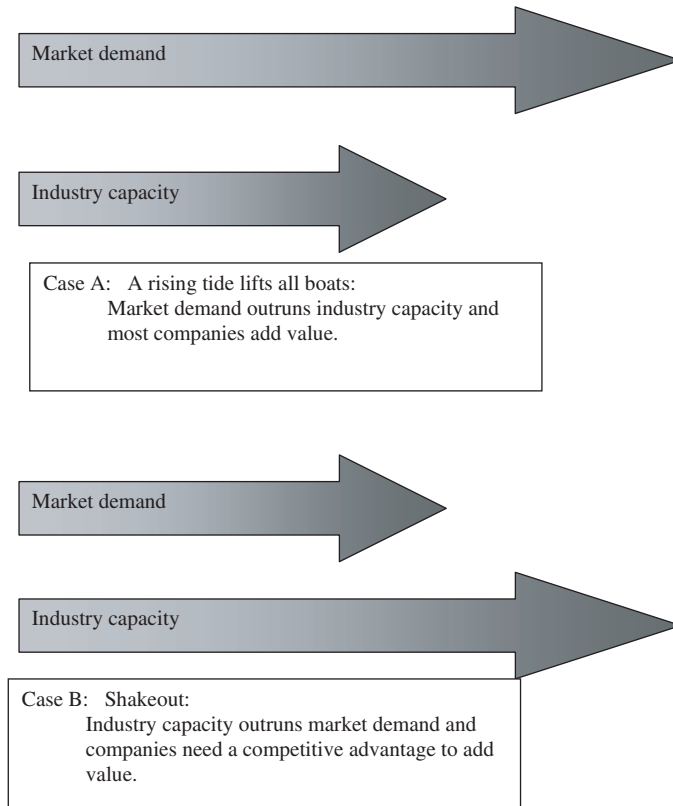


Figure 7.1: Growth and value creation: the two main scenarios.

cost of the highest-cost company in the industry, then industry capacity is said to outrun market demand.

Industry Demand Outruns Capacity

As President John F. Kennedy remarked: “A rising tide lifts all boats.” A period of rapidly rising demand offers significant opportunities for value creation. When total market demand outruns industry capacity, it means that individual firms have encountered short-run capacity constraints and cannot serve the entire market. In consequence, industry capacity is scarce relative to market demand, so many companies in the industry can be profitable. This has the important strategic implication that individual firms can create value even without a competitive advantage.

Management strategy must adjust to take into account the relationship between market demand and industry capacity. With demand outrunning capacity, competition exerts less downward pressure on prices. The lowest-cost firms cannot use prices to expand market share beyond the limits of their productive capacity. Because capacity is scarce, even the highest-cost firms are able to operate. This means that

the capacity offered by even the highest-cost firms adds value to the market.

Because companies with different cost levels can operate profitably, the market offers room for firms with a cost disadvantage. Firms can be profitable with differing levels of productive efficiency and different types of productive technology. Companies with obsolete plants might operate side-by-side with companies with modern facilities. The market can be served by many different types of firms, including larger established companies with scale economies and new entrants with the high costs that start-ups often encounter.

When demand outruns capacity, firms with products of differing quality can serve the market, so that even firms with lower-quality products are profitable. Also, multiple firms with similar or generic products can compete effectively. Moreover, firms that offer different prices for similar products can serve the market simultaneously. The firms offering price discounts cannot capture the market as long as they face capacity limitations.

Demand can outrun capacity for many reasons. The industry can experience relative high demand growth due to economy-wide growth. Increased consumer income, higher employment, and even tax cuts can stimulate the overall economy and lead to growth of demand in individual industries. Demand growth that individual industries experience may be simply the result of business cycle effects on the overall economy as felt in specific industries. Industry demand growth can occur due to shifts in population; for example, a housing demand boom occurred in the southwestern United States as more people moved there. Demographic changes such as the baby boom after World War II spurred economic growth that stimulated specific industries, such as education and housing. An aging population can stimulate demand for health care or retirement resorts.

Many types of factors stimulate demand growth in specific industries. A simple shift in customer tastes may favor a specific type of product. For example, changing lifestyles of working families led to increased demand for restaurant meals and prepared foods. The success of complementary products creates demand shifts. For instance, the increased use of personal computers stimulated demand for software applications such as spreadsheets and word-processing programs. The growth of the automobile industry spawned a wide range of other industries, including petroleum refining, automobile repair and service stations, motels, and companies producing parts such as tires and batteries.

Reducing barriers to international trade can induce a demand boom as companies take advantage of import and export opportunities. Companies discover new markets for their products abroad. Reductions in trade barriers often stimulate demand for imports of foreign music, movies, food, clothing, and electronics. Changes in

government regulation also lead to demand booms, as happened when deregulation of telecommunications led to an explosion in the demand for phones, fax machines and other communication devices.

The introduction of new technologies has often led to demand booms as customers discover new products. Consider the opportunities created by the introduction of new modes of transportation from the railroad to the automobile to the jet airplane. New methods of communication including the telegraph, the telephone, the Internet, and the wireless phone have led to significant demand booms as customers adopt the new product. New technologies such as advances in information and communication can stimulate demand by changing the organizational structure of companies and the organization of markets. With less vertical integration and increased outsourcing, companies have increased demand for information processing and communications equipment.

Technology effects are often closely associated with new product introductions and help to explain the growth phase at the start of a product life cycle. Typically, the product life cycle involves four stages: introduction, growth, maturity and decline. Sales and profit rise during the introduction and growth stages and fall during the latter part of the maturity stage and the decline stage. The product life cycle has limited predictive powers because the turning point is difficult to observe and to predict. However, the product cycle does reflect an underlying pattern of firms' demand changes and capacity investments.⁵

Firms still have incentives to be efficient during a demand boom. Companies still earn greater profits by lowering their costs. Moreover, companies can stimulate sales through greater product quality. However, because competitive pressures are substantially reduced or eliminated during booms, it may be useful for companies to delay investments that have little short-run benefits, focusing their efforts on taking advantage of current sales growth. Managers may use the boom to prepare for future investment to reduce operating costs or enhance product features.

Scarcity of supply relative to demand can take many forms. Companies that supply natural resources, such as metals or energy resources, experience booms during periods of economic growth. Real estate demand booms result in sales or rental of all available space, rising prices, and new construction. Manufacturing industry booms lead to shortages of production capacity for manufactured inputs, components and final goods. The manufacture of computer notebooks has been hindered at various times by shortages in liquid crystal display (LCD) screens. Companies may benefit from industry-level scarcity of distribution capacity or shortages of sales personnel. Finally, there may be limits on all kinds of competencies, from technological knowledge to management skills.

Demand growth attracts inputs to the growing industry as demand for final products leads companies to expand production. Thus, demand booms attract funds from venture capitalists, banks and securities investors. Entrepreneurs are drawn to the opportunities a booming industry provides. Booms lead to higher wages and increased hiring, which in turn attracts managers and employees to the industry. Suppliers of parts, components, and services are attracted by the opportunity to serve companies in a booming market.

Why does demand outrun capacity? Part of the problem for companies responding to a demand boom results from lags in establishing capacity. The demand boom may come as a surprise so it takes the industry time to respond. When energy prices rise, it takes time to increase exploration and drilling for new petroleum and natural gas resources. When the demand for computers increases, it can take several years to build a new plant for manufacturing semiconductors. When the need for particular skills such as surgeons or computer programmers grows, long training times lead to delays in obtaining qualified personnel.

Because capacity is costly to establish, companies cannot adjust it to match demand fluctuations perfectly, so the market naturally experiences periods of capacity shortfall. Moreover, established companies experience *adjustment costs*, that is, increased costs associated with installing new capacity and integrating that capacity with existing operations. Competitive advantage is not essential to profitability when there are delays in new entry or expansion of firm capacity.

In some cases, the situation in which demand exceeds capacity can be sustained for a long time. Many industries have undergone long periods in which the number of firms grew steadily, including, for example, computers, lasers, automobile tires, gas turbines, and heat pumps.⁶ However, the shortage of capacity creates incentives for established companies to expand their capacity and for companies to enter the market with new capacity, and competition intensifies.

Example 7.2 The Piano Boom

Consider a market for pianos in which there are three customers, each of whom can purchase at most one piano and each of whom has a willingness to pay of \$200. There are two manufacturing firms, each of whom has the capacity to produce at most one piano. One firm has a cost of \$50 and the other has a cost of \$75. Do both firms supply pianos? How much value is created? Because there is excess demand relative to capacity, there is a boom in pianos. The consumers bid against each other for the scarce pianos so that the

(Continued)

Example 7.2 (Continued)

price of pianos is equal to \$200. Both firms supply pianos and capture all of the value in the market so that they earn profits of \$150 and \$125 respectively. The total value created is equal to $\$150 + \$125 = \$275$. Notice that even though one firm has a cost advantage, both of the firms in the industry are able to operate profitably due to limited capacity and relatively high demand.

Example 7.3 The Piano Boom with Diverse Customers

Consider a market for pianos in which there are three customers, each of whom can purchase at most one piano. The customers are willing to pay \$200, \$175, and \$140 respectively. As in the previous example, there are two manufacturing firms, each of whom has the capacity to produce at most one piano. One firm has a cost of \$50 and the other has a cost of \$75. Since the industry has a total capacity of two, the customer with the lowest willingness to pay does not obtain a piano. Consumers bid against each other for the scarce pianos so that the price of pianos is just enough to exclude the third consumer, that is, just above the willingness to pay of the excluded consumer of \$140. Both firms supply pianos and earn profits of $\$140 - \$50 = \$90$ and $\$140 - \$75 = \$65$ respectively. The total value created is equal to $\$200 + \$175 - \$50 - \$75 = \$250$.

Industry Capacity Outruns Demand

When industry capacity outruns market demand, the strategic situation changes considerably. The industry must shed its excess capacity because it is usually very costly for companies to carry excess capacity. As a result, individual companies need to reduce their productive capacity or exit the market altogether. Some companies may merge as a means of lowering costs as well as retiring duplicative parts of their capacity. The main strategic implication is that companies need a competitive advantage to be profitable and survive. Therefore, it is often the case that when industry capacity outruns market demand, companies must have a competitive advantage to create value in the market.

Industry capacity can outrun market demand for many reasons. Economy-wide forces discussed previously, such as changes in income, employment, or other business cycle effects, can slow the growth of demand or produce a decline in demand for a given industry.

During the Great Depression, half of the plants and more than half of the firms in the U.S. auto industry closed between 1929 and 1933. Companies with larger plants and larger organizations benefited from mass production economies and were most likely to survive the shake-out.⁷ Excessive global capacity in the automobile industry at the start of the 21st century led to mergers and consolidation such as Daimler Benz's acquisition of Chrysler and Mitsubishi.

Even if industry demand continues to grow, an unexpected slowdown in demand combined with continued growth in industry capacity can cause companies' building capacity to overshoot. Industry-specific effects, such as changes in customer tastes, also can reduce industry demand below industry capacity. Industries that produce outmoded products experience declining demand. The industry in a specific country can experience declining demand as it competes with lower-cost or higher-quality imports.

Even with substantial demand growth, capacity can outrun demand as a result of discovering economies of scale and scope. If technological change allows individual companies to expand their capacity while realizing economies of scale, then a smaller number of companies can meet market demand. As companies expand their potential scale, competition will drive companies out of the market. Companies with a smaller, inefficient scale will be driven out by more efficient companies with greater scale economies. Companies that realize scale economies will compete on cost efficiencies.

In some industries, economies of scale are so significant that there is only room in the market for a small number of companies. For example, in large jets, the global market apparently can only support two companies, Boeing and Airbus. Their scale economies result from the complexity of designing, manufacturing and assembling large aircraft. In computer operating systems, the high fixed costs of writing software and the minimal costs of producing an additional copy of the software give Microsoft the scale economies to easily supply software to run 90 percent of personal computers. In retailing, large companies such as Wal-Mart and Target take advantage of scale economies in distribution networks, but the retail sector also includes many small specialized stores that offer convenience and service.

In some markets, including computer operating systems, the benefits customers derive from standardization create winner-take-all industries. However, in other markets, the benefits of variety create opportunities for many companies. Although there are benefits from standard formats for computer games, such as those offered by Nintendo and Sony, the need for many diverse games creates opportunities for a host of game designers.

When an industry is newly established, capacity tends to outrun demand. Joseph A. Schumpeter observed "the appearance of entrepreneurs in clusters"; that is, innovative start-up companies tend to enter

the market at around the same time.⁸ He attributes this clustering in part to the elimination of obstacles to entry by pioneers who show the way. Pioneers may inspire entrepreneurs to enter into a specific industry. Sometimes pioneers in one industry can encourage entrepreneurs to enter into many other industries if they demonstrate how to overcome general types of obstacles.

Entrepreneurs often enter an industry simultaneously in search of the potential rewards of establishing a successful business. It has long been debated whether entrepreneurs are rational profit maximizers taking a calculated risk or irrationally exuberant gamblers who overestimate the chances of success or who simply enjoy creating a new business. The end result is the same; when excess capacity enters a market, some businesses will succeed and others will fail and exit the market. The growth of market demand and the entry decisions of firms determine whether the rewards of the winners outweigh the costs to the losers. Bringing innovation to market requires risk taking.

Capacity is likely to outrun demand in new industries due to technological uncertainty. If production technologies are not well understood, each entrant will try out a different production process. More capacity enters the market than required to satisfy demand because each entrant believes that its variant of the production technology has a chance of being the best. As production begins, companies discover the cost and efficiencies of their technology, and competition weeds out the inefficient processes.

Similarly, when new types of products are introduced, each entrant will test a different type of product. Excess capacity enters the market because each entrant believes that their product has a chance of proving to be superior to those of its competitors. As customers try the products, companies discover how customers view various product features, and competition drives out inferior products.

When capacity outruns demand, a shakeout results. A *shakeout* refers to a substantial reduction in the market share of some firms in an industry or the exit of some of the firms in an industry as a result of competition, leading to an overall reduction in the number of firms. The pattern of growth, rapid decline and leveling off has been observed in many new industries.⁹ Shakeouts have characterized the early history of a wide range of industries. Hundreds of car companies entered the market at the beginning of the 20th century, but a combination of cost differences and product differentiation weeded out most of them.

The link between technological change and market structure is illustrated by the U.S. tire industry. In the tire industry, innovations in both production methods and product features led to a shakeout. The tire industry experienced steady growth in the number of firms for its first 25 years, reaching 274 firms, and then went through a significant shakeout with the number of firms declining by over 80 percent over a period of 14 years.¹⁰

Industries need not experience such life cycles. Steven Klepper suggests that shakeouts need not occur in industries with certain critical features. First, shakeouts need not occur where there is a separation between those firms that develop and sell process technologies, and those firms that apply the technologies to the design and manufacture of final products. An example of this situation is the chemical industry, in which independent companies that were process specialists entered the market by the end of World War II.¹¹ Second, shakeouts are less likely in those industries where there is a separation between firms that develop product innovations and license them, and firms that produce the final products. Finally, shakeouts are less likely in industries where final demand is heterogeneous and fragmented so that smaller companies serve market niches.¹² In the turbo-prop engine industry from 1948 to 1997, the market structure remained relatively stable with generalist companies coexisting with specialist companies. In the turbo-prop engine industry market, demand segmentation combined with a lack of significant increasing returns to scale in R&D and manufacturing helped to prevent the shakeout.¹³

The effects of industry excess capacity can be mitigated by transaction costs. In markets that are subject to imperfect information about prices and products, customers must search among companies to find the best deal. Because search is costly, companies have localized market power that allows them to remain profitable. Customers may pay a higher price or settle for a lower-quality product because of the costs of continuing to search. Even if a company does not provide the best deal in the market, it creates value by offering customers product availability or immediacy, so that its customers can avoid the costs of additional search. Firms with high costs or less attractive products thus provide value to their customers by reducing their search costs. Accordingly, imperfect information allows value creation even without competitive advantage.

The advantages conferred by imperfect information need not be sustainable. Companies can find ways to improve customer information. Through marketing and sales techniques, companies can communicate with customers about better deals or reduce consumer search costs. As customers are better able to find the companies offering the best deal, companies again need to have a competitive advantage to remain profitable.

As total industry capacity outruns demand, the least efficient firms or the firms with the least attractive products are generally forced to exit the market. However, there is still room for a diverse set of firms to operate. The capacity limits of firms operating in the market continue to allow less efficient firms or firms with less attractive products to operate profitably. This explains in part the great diversity of firms within any given industry. Limits on individual firm capacity imply that supplying products to the market creates value.

When industry capacity outruns customer demand, a shakeout of industry capacity follows. Some firms will exit the industry by closing capacity. Other firms will merge to consolidate their capacity and close down inefficient capacity. The second-largest disk-drive manufacturer Maxtor bought Quantum, and Hitachi bought IBM's disk-drive manufacturing business, for example. Companies need to have a competitive advantage to continue operating in the industry and survive the shakeout. Those companies with a competitive advantage are sometimes able to grow their capacity at the same time that the industry is shedding its less efficient capacity. Moreover, having a competitive advantage enables the company to pursue its strategy through the ups and downs of business cycles.

Example 7.4 Dot-Com Shakeout

Suppose that there are four firms with competing websites offering to provide a particular product. Suppose that each of the firms has a capacity of 100 units, so that total industry capacity equals 400 units. The four firms have unit costs of \$20, \$30, \$40, and \$50 respectively. At a price of \$32, market demand equals industry capacity of 400 units. At a price of \$45, market demand equals 300 units. What happens next?

Clearly a shakeout must occur, since the industry cannot support the highest-cost firm with cost of \$50. Industry capacity has outrun market demand and the highest-cost firm must exit the market. After a shakeout, three firms will be operating in the industry and total industry capacity will be 300 units. Now, market demand has outrun capacity and all three firms in the industry can operate profitably, each selling 100 units at a price of \$45.

Next consider what would happen if each of the firms were able to expand their capacity to 200 units without any change to its unit costs. Then, all but the two lowest-cost firms would exit the industry. Each would sell 200 units at the price of \$32.

7.3 Competitive Advantage and Value Creation

In markets where capacity exceeds demand, value creation generally requires competitive advantage. A company with a competitive advantage consistently outperforms competitors, that is, it earns greater economic profits. To achieve competitive advantage, companies seek the best match between organizational abilities and market opportunities. Few, if any, competitive advantages can be sustained indefinitely, so the company must continually seek opportunities to create the most value.

Companies tend to differ in terms of production methods, product features, brand names, locations, and many other aspects. The critical differences that determine success or failure are the sources of competitive advantage. The company's earnings are limited by its competitive advantage. It can obtain no more than the additional value it creates over and above that of its competitors. The earnings realized by the firm depend on the share of additional value that the firm is able to capture. Therefore, competitive strategy requires both value creation relative to competitors and capturing a portion of that value through relationships with suppliers and customers.

Managers must monitor the overall state of the industry, comparing industry capacity to market demand. They must also closely examine their company in comparison with competitors to distinguish those features that are critical to success. *To outbid competitors for customers, suppliers, and shareholders, the firm must create total value at least as great as its competitors.*

The notion of creating value provides insight into the sources of competitive advantage. Value creation has three aspects: the benefits received by customers, the costs incurred by the company and its suppliers, and the particular combination of customers and suppliers. Since the total value created by the firm also equals customer willingness to pay minus the costs of using the firm's assets and the costs incurred by suppliers, achieving a competitive advantage means that the firm must either increase customer benefits, lower supplier costs, or discover innovative transactions.

Accordingly, there are three sources of competitive advantage: (1) *Cost efficiencies* that make more efficient use of the firm's assets and supplier inputs or that lower supplier cost; (2) *Product differentiation* to raise customer benefits; and (3) *Transaction innovations* that lower the costs of transactions or that create new combinations of customers and suppliers. The three types of competitive advantage are

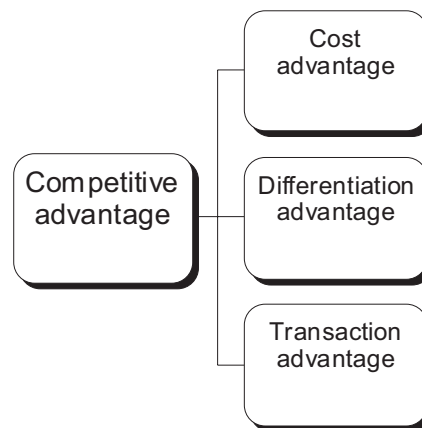


Figure 7.2: The three sources of competitive advantage.

called cost advantage, differentiation advantage, and transaction advantage as seen in Figure 7.2. Alternative strategies for creating value are associated with each of these alternatives.

Competitive advantage equals the difference between the value created by the company and the potential value created by its competitors. When market demand outruns industry capacity, competitive advantage increases the value added by the company and also increases its potential profits. When industry capacity outruns market demand, competitive advantage also ensures that the firm will survive.

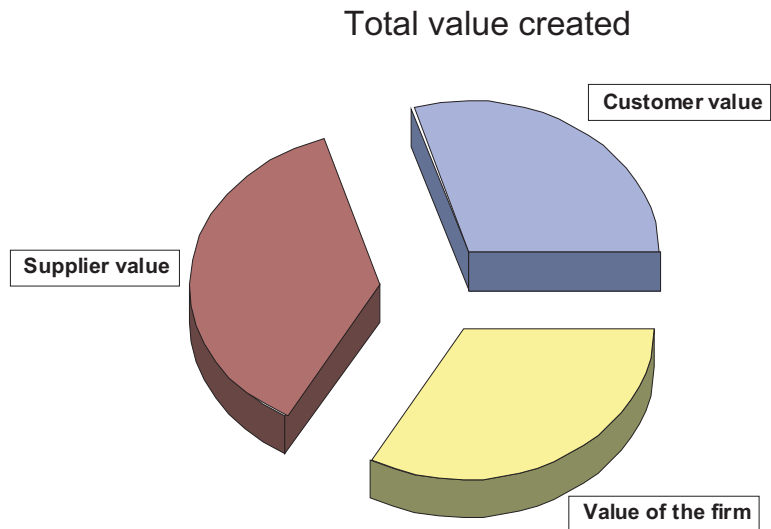
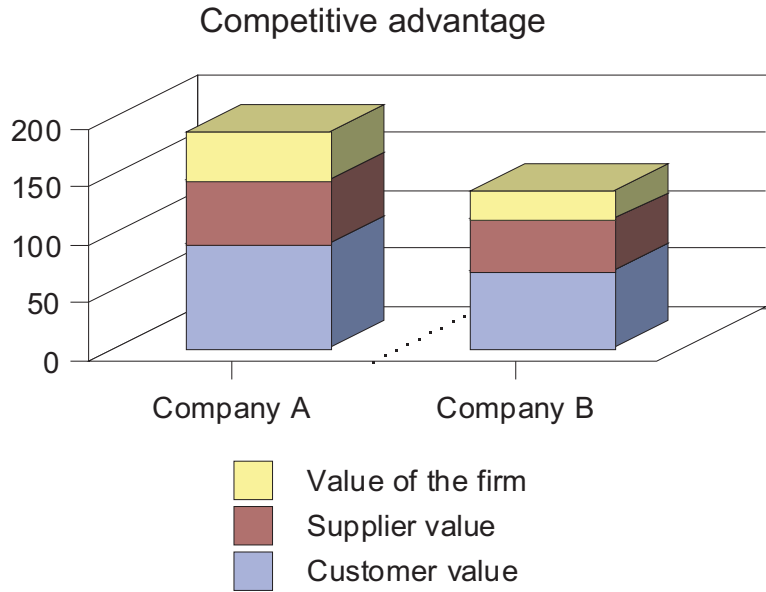
Example 7.5 Competitive Advantage

Consider a market with two suppliers, one customer, and two firms each offering a pair of jeans. Each supplier provides the fabric to make one pair of jeans and has a cost of \$10. Each firm has costs of \$20 to make the fabric into jeans, including the opportunity costs of its designers and tailors. The customer will only buy one pair of jeans. The customer has a willingness to pay of \$120 for the first firm's product and a willingness to pay of \$170 for the second firm's product. The customer will transact with the second firm and the second firm will transact with one of the suppliers. The total pie is $\$170 - \$10 - \$20 = \140 . Without the second firm, the players would have a pie of $\$120 - \$10 - \$20 = \90 . So, the second firm's competitive advantage is $\$140 - \$90 = \$50$, which is just the additional amount the customer is willing to pay for that firm's product.

Given this information, it is possible to calculate the value captured by the second firm. Since there are two identical suppliers, they will bid against each other until they receive a breakeven payment of \$10 and supplier value equals zero. The second firm can charge the customer no more than \$80. Otherwise, the first firm would be able to attract the customer at a price of \$30, enough to cover its payment to the supplier of \$10 and its additional cost of \$20, and still offer a customer value of \$90. So, the value captured by the second firm is $\$80 - \$10 - \$20 = \50 , which exactly equals its competitive advantage.¹⁴

7.4 The Components of Value

There are three components of value: customer value, supplier value, and the value of the firm. Customer value is the customer's benefit net of the expenditure to purchase the product. Supplier value is the supplier's revenue net of cost. The value of the firm is the share of value created that is captured by the firm (see Figure 7.3).



	Company A	Company B
Value of the firm	40	25
Supplier value	55	45
Customer value	90	65
Total	185	135
	Competitive advantage of company A: $185 - 135 = 50$	

Figure 7.3: Total value created by the firm is the sum of customer value, supplier value and the value of the firm.

Example 7.6 A Guide to Value Creation

Customer willingness to pay for the firm's product or service:	\$200
Asking price of the firm's product or service:	\$110
Customer value:	$\$200 - \$110 = \$90$
Supplier costs:	\$15
Bid price offered to the firm's supplier:	\$70
Supplier value:	$\$70 - \$15 = \$55$
Cost of using the firm's assets	\$10
Value of the firm:	$\$110 - \$70 - \$10 = \30
Asking price – bid price	
– cost of the firm's assets:	
Value created by the firm:	
Customer value + supplier value	$\$90 + \$55 + \$30 = \175
+ value of the firm:	
Customer willingness to pay	$\$200 - \$15 - \$10 = \175
– supplier costs – cost of the firm's assets:	

These two methods of calculating value creation are equivalent.

Exhibit 7.1 Global Manufacturing: "My First Tea Party Barbie"¹⁵**Mattel captures value of approximately \$1 per doll:**

Retail price	\$10.00
Shipping, ground transportation, marketing, wholesale margin, retail margin	\$ 7.00
Overhead and management (Hong Kong)	\$ 1.00
Materials (Taiwan, Japan, U.S., Saudi Arabia, China)	\$ 0.65
Labor (Asia)	\$ 0.35
Mattel earnings per doll:	\$ 1.00

Key locations for production of Barbie Doll:

El Segundo: Mattel Inc.

U.S.: Cardboard packaging, paint pigments, molds.

(Continued)

Exhibit 7.1 (Continued)

China: Factory space, labor, electricity.

Saudi Arabia: Petroleum.

Hong Kong: Management, shipping.

Taiwan: Refines petroleum into ethylene for plastic pellets for Barbie's body.

Japan: Nylon hair.

Customer Value

IBM states that its goal is to “strive to lead in the creation, development and manufacture of the industry’s most advanced information technologies, including computer systems, software, networking systems, storage devices, and microelectronics. We translate these advanced technologies into value for our customers through our professional solutions and services businesses worldwide.” How do companies create value for their customers?

The customer derives *net benefits* known as customer value or consumers’ surplus from purchasing the good. *Customer value* is equal to the customer benefits minus the price the customer pays for the good. Both price and benefits are elements of customer value.

For example, a customer buys a toaster and receives benefits equal to \$120, so the customer has a willingness to pay that amount for the toaster. If the customer pays only \$90 for the toaster, then the customer receives a net benefit. The *customer value* is \$30, which is willingness to pay of \$120 minus the purchase price of \$90. Another way to look at this is to observe that the customer would have been willing to pay \$30 more than the purchase price, so the company’s price and product delivers a customer value equal to that amount.

To attract customers, *the firm must create customer value that is at least as great as that offered by competitors*. A competitor’s product or service may provide the customer with a different combination of price and product features. To bid away the customer from competitors, the firm must offer a better deal.

There are exceptions to the rule. Market frictions may permit firms to deliver less value than competitors and still attract customers. If competitors face capacity constraints and entry barriers, the firm will be able to attract customers without necessarily outperforming competitors. If customers are not well informed about alternatives or face costs of switching to another firm’s products, a firm may continue serving customers while delivering lower value. However, such advantages are temporary and likely to be quickly eroded by competition.

To raise customer value relative to its competitors, the firm has three options that correspond to Michael Porter's well-known generic strategies: product differentiation, cost leadership, and focus.¹⁶ Consider each of these strategies in turn.

The *product differentiation* strategy involves raising customer willingness to pay by enhancing the quality and other features of the company's product relative to competitors. Some customers are willing to pay relatively more for the firm's product than they would for those of competitors. The firm creates greater customer value than its competitors by offering a good that generates additional benefits that are sufficient to outweigh price increases.

There are many product differentiation strategies. The benefits consumers obtain from using a firm's product or service can be increased by offering enhanced features such as quality or durability. Customer value can be enhanced by convenience in purchasing and by complementary services such as warranties or maintenance. Customer value can be increased by subjective features such as brand image, advertising, and aesthetic design.

Example 7.7 You Get What You Pay For

Suppose that there are two firms and one consumer. The consumer has a willingness to pay of \$120 for the first firm's product. The first firm charges a price of \$90. The consumer would obtain a surplus of $\$120 - \$90 = \$30$ from buying the first firm's product. A second firm employs a product differentiation strategy, offering the customer a product that the consumer values at \$150. Whether or not the second firm incurs some additional costs of producing a higher-value product, the second firm charges the customer a price of \$110. Suppose that this price is sufficient to cover the second firm's costs of producing a higher-value product so that the second firm would be profitable. Which good would the customer choose? The consumer would obtain a surplus of $\$150 - \$110 = \$40$ from buying the second firm's product. Accordingly, the consumer buys the second firm's product because the customer value created is greater. The second firm captures the customer by the higher-value product differentiation strategy.

Cost leadership means offering a lower price to customers relative to that offered by competitors for a similar product or service. Companies pursue low costs not just to operate efficiently, but to become effective price leaders, undercutting competitors' prices. If the firm's costs are lower than its competitors, then the firm can offer lower prices, higher quality, or both. When products are generic and rivals do not face

capacity constraints, a successful low-cost strategy requires that the company have costs below all other firms in its industry.

Cost reductions are achieved through innovative best-practice organizational processes, with careful monitoring of purchasing expenditures, application of computer and communications technology in a cost-effective way, trimming of overhead costs, and efficient operations. Costs are lowered by investment in cost-reducing capital equipment when the reduction in operating costs outweighs the capital equipment costs. Cost economies can be realized from large-scale operations. Alternatively, cost reductions can sometimes be accomplished through outsourcing manufacturing and services when outside providers offer lower-cost alternatives. By lowering cost for the same quality level, the low-cost firm is able to undercut the price of competing firms. Cost advantage is considered in Chapter 9.

Another strategy is to lower costs by offering lower quality. Consumer value is increased if the price reductions outweigh quality reductions. By providing a basic product with cost savings, firms can offer consumers a better deal. An example of a basic service that some consumers perceive to be a better deal is the full range of generic in-house products offered by supermarkets. Generic pharmaceuticals are also better deals for some consumers who perceive the lower cost of the generic as outweighing the possible difference in characteristics with branded pharmaceuticals.

Example 7.8 A Better Deal

Suppose that there are two firms and one consumer. The consumer has a willingness to pay of \$120 for the first firm's product. The first firm charges a price of \$90. The consumer would obtain a surplus of $\$120 - \$90 = \$30$ from buying the first firm's product. A second firm employs a cost leadership strategy, offering the customer a product that the consumer values at \$100. The second firm charges a price of \$55. Suppose that this price is sufficient to cover the second firm's costs of producing the lower-value product so that the second firm would be profitable. The consumer would obtain a surplus of $\$100 - \$55 = \$45$ from buying the second firm's product. Accordingly, the consumer buys the second firm's product since the surplus is greater than if the consumer bought the first firm's product. The second firm captures the customer by the cost leadership strategy.

Michael Porter defines *focus* as achieving low cost or product differentiation for a particular buyer group, segment of the product line, or geographic market rather than for the industry as a whole.

Southwest Airlines focused on a geographic region and short point-to-point flights as a means of reducing costs. Even though it offered no-frills service and was based in secondary airports, Southwest Airlines enhanced quality relative to the limited set of competing alternatives by offering direct flights rather than flights requiring changing planes at large hub airports. The airline also offered better on-time performance and friendly service.

Example 7.9 A Tale of Two Cities

Suppose that there are two airlines providing service between two cities and one business passenger. The first airline is a major carrier and the second airline is a regional carrier. The major airline provides service between the two cities that requires the passenger to change planes whereas the regional airline provides direct service. Because of the business passenger's opportunity cost of time, the passenger values the major airline's service at \$500 and the regional airline's service at \$600. The major airline charges an airfare of \$450 and the regional airline charges an airfare of \$300. Since the regional airline offers better service at a lower price, the business passenger chooses the regional airline. To compete, the major airline must offer better service or a substantially lower airfare.

Example 7.9 illustrates a focused strategy of a regional carrier that both improves quality and lowers the price for a targeted segment. The problem of the regional carrier is extending the strategy that is effective for a market segment to multiple city pairs. The problem of the major airline is how to fend off many regional carriers that target specific city pairs. The major airline established its hub-and-spoke system as the least-cost way to serve a complex route structure. In the example, the major airline is vulnerable to competition in specific market segments. The major airline's predicament in the example illustrates the problem of being stuck in the middle.¹⁷ To remedy this type of problem, a firm must undertake strategies designed to improve its product quality, to reduce its cost dramatically, or to focus on specific market segments.

United Airlines was stuck in the middle in competing with such regional carriers as Southwest. United established its Shuttle by United in 1994 as an "airline within an airline". The shuttle would operate low-cost flights on the West Coast in the United States operating as a short-haul carrier with flights of under 750 miles serving over 200 destinations. By the year 2000, United's shuttle service would be one of the largest regional carriers if it were split off from the parent

company. The shuttle service attempted to avoid the problem of being stuck in the middle by mimicking the low-cost, direct-route focus of the regional carriers while retaining some of the benefits of a major airline. Among those benefits, the shuttle service originated and terminated travel to the major airline's routes and participated in its strategic alliances. Moreover, the shuttle benefited from the advertising, brand name, reservation systems, and frequent flyer programs of the major carrier.¹⁸ Although United Airlines created the shuttle service to provide both a lower-priced and higher-quality service to its regional markets, it could not sustain the separate company. United ended the shuttle brand and folded the flights back into the parent company's offerings.

Supplier Value

Companies also create value for their suppliers. Suppliers provide essential parts, components, resources, technology, and services, and companies' success depends, to a great extent, on the quality of those goods. A company can reduce its procurement costs through long-term relationships with its suppliers. If suppliers have lower costs of serving a particular company because that company is easy to work with, the company can share in these cost savings. Companies have an interest in the profitability of their suppliers to assure continued reliability of service.

The company's suppliers include parts and components manufacturers; manufacturers of capital equipment; wholesale product sellers; service providers (accounting, legal, consulting, information technology); and technology licensing and R&D. The firm's employees and managers supply labor services to the firm.

Supplier value equals the difference between the payment the firm makes to the supplier and the supplier's cost. Supplier value is also referred to as *producers' surplus* or *operating profit*. Firms bid against each other for the products and services of their suppliers.

The problem of finding suppliers is different from that of attracting customers. Suppliers can serve multiple customers. Suppliers are also competing against each other to sell their products and services. Established suppliers can expand their capacity and new suppliers can enter the market if a need for additional products and services develops. For example, computer makers benefit from advertising that their computers feature Intel microprocessors. Intel can expand production capacity to meet the demand from computer makers. Competing suppliers such as AMD can supply substitute processors.

To attract key suppliers, *the firm must create supplier value that is at least as great as competing alternatives.* Generally, companies must

offer value to their suppliers that is at least as great as the market alternative. However, when key suppliers have scarce capacity and offer unique products and services, companies compete more intensively to outbid each other for supplier products and services. To bid away the supplier from competing buyers, the firm must offer a better deal. To achieve greater supplier value, the firm must offer the supplier a higher price in comparison with competing buyers or it must purchase products and services that entail lower supplier costs.

Companies often compete for the best suppliers, particularly if suppliers differ in terms of their abilities, product quality, reliability, or access to resources. Companies bid for scarce supplies in markets for specialized parts and specialty chemicals and plastics. Even when supplier products and services are generic, such as industrial materials or standardized parts, companies must offer the going rate. Competition for supplies is evident in commodity futures exchanges, such as the Chicago Board of Trade, that are double auction markets in which both buyers and sellers bid competitively.

The fact that companies bid competitively for products and services became more evident with the advent of business-to-business electronic commerce. Transactions between businesses in the United States exceed \$14 trillion per year with a small but quickly growing fraction of transactions taking place on the Internet.¹⁹ On some of the new Internet exchanges, businesses bid competitively to purchase and to sell such diverse items as steel, auto parts and office supplies. Supplier margins depend in part on the extent of competition between buyers and the extent of competition between sellers.

There are exceptions to the rule, however. In some markets, suppliers with market power may price-discriminate across their customers by charging premiums to some companies and offering discounts to others. Conversely, customers with market power may extract concessions from their suppliers. Also, when market frictions are present, companies may end up paying different prices for productive inputs simply due to imperfect information and the costs of shopping for inputs.

One strategy for attracting suppliers is *cooperation*. The company gets better service and price by lowering the cost to the input supplier. There are several ways to lower supplier cost. First, the company can request a product or service from the supplier that is less costly to produce than products or services purchased by competitors. By designing parts and components that are easier to make, a manufacturer can obtain price concessions from its parts supplier. Also, the company can be easy to work with by limiting the number and frequency of design changes and service demands. Second, the company can share information with suppliers about its demand through electronic data interchange, thus allowing suppliers to hold lower inventories of finished goods and tailor their own parts orders and manufacturing to

meet demand fluctuations more closely. Third, the company can automate its billing and invoicing with suppliers to lower their transaction costs. For example, Cisco lowered its procurement costs by linking to its many suppliers over the Internet, despite coordination problems, whereas Lucent was slower in moving its supplier contacts online.²⁰ Fourth, the company can share its technological knowledge, management, and technical personnel, and other resources with suppliers. Finally, buying in bulk can also lower supplier costs by reducing the number of orders and allowing the supplier to achieve economies of scale.

By lowering the costs to suppliers of meeting its needs, the company creates greater value even if it pays its suppliers less than competitors.

Example 7.10 Being a Good Partner

Suppose that there are two firms and one supplier. The supplier's cost of providing an input to the first firm is \$50. The first firm offers the supplier a bid price of \$110. The supplier obtains profit of $\$110 - \$50 = \$60$ from supplying an input to the first firm. A second firm employs an input differentiation strategy by asking the supplier to manufacture an input that costs the supplier only \$30 to produce. Whether or not the second firm incurs some additional costs in helping the supplier to lower its costs, the second firm offers the supplier a bid price of \$100. If the supplier has a capacity constraint that only permits it to serve one firm, which firm would the supplier serve? The supplier would earn a profit of $\$100 - \$30 = \$70$ from serving the second firm. Accordingly, the supplier would serve the second firm and earn a higher profit. The second firm captures the supplier by an input differentiation strategy. Notice that the strategy is profitable if the supplier's cost savings are less than the second firm's internal costs of being a good partner.

Another strategy for attracting a key supplier is *value leadership*. The company must use its critical inputs to create a product of higher value. Since the company values certain inputs highly, it is willing to pay more to attract those key suppliers. If suppliers have similar costs of serving a company and its competitors, they will be attracted by a higher bid price. By paying more to its suppliers, the company can also ask suppliers to provide higher-quality products and services. By offering above-market payments to suppliers, companies have higher expenditures than competitors but in some cases obtain greater benefits in terms of supplier loyalty and incentives to perform reliably.

The value-leadership strategy on the supplier side corresponds to the cost-leadership strategy on the customer side. The company should follow this strategy only if the benefits of offering customers a higher value product outweigh the costs. In such cases, it may be worthwhile pursuing long-term contracts or acquiring the suppliers outright.

Companies bid for suppliers only if the suppliers' inputs are perceived to confer a competitive advantage. To be able to outbid competitors for supplier products, a company must value the supplier's products more than competitors do. This requires the company buying the inputs to deliver greater value to its own customers or to have lower internal costs than competitors. Thus, paying more to suppliers must be accompanied by a product differentiation or price leadership strategy on the final output side. A firm that provides products that its customers value highly or that operates efficiently can then attract good suppliers by sharing with them some of the additional value it creates.

Example 7.11 Paying the Piper

Suppose that there are two firms and one supplier. The supplier has a cost of \$50 to supply an input to the first firm's product. The first firm offers the supplier a price of \$80. The supplier earns profit of $\$80 - \$50 = \$30$ from serving the first firm. A second firm employs a value leadership strategy, offering the supplier a bid price of \$100 and asking the supplier to provide an input that costs the supplier \$60 to produce. Suppose that the additional value of the input to the second firm justifies the additional cost it pays. If the supplier only has the capacity to serve one firm, which firm would the supplier choose to serve? The supplier would earn a profit of $\$100 - \$60 = \$40$ from serving the second firm. Accordingly, the supplier serves the second firm since it obtains a higher profit by doing so. The second firm attracts the supplier by the value leadership strategy.

Jordan D. Lewis suggests that General Motors' aggressive campaign to reduce payments to suppliers in 1992 discouraged many of the company's best suppliers and may have raised costs.²¹ To retain important suppliers, companies must provide them with value at least as great as alternatives, either by lowering their costs or by paying enough to retain them.

Value of the Firm

The *value of the firm* is total value created net of customer value and supplier value. The value of the firm is the present value of customer

revenues minus the present value of payments to suppliers and the costs of using the firm's assets. The firm attempts to *capture* a greater share of value by raising prices to customers or by lowering payments to suppliers or by using its assets more efficiently. Capturing a larger piece of the value pie depends on the strength of competition for customers and suppliers and the company's abilities.

The firm also tries to *create* greater value which increases the size of the pie. Creating greater value is accomplished in three ways: (1) operating more efficiently by providing customer benefits at a lower cost or by lowering supplier costs, (2) providing greater benefits to customers by improving products and services, and (3) developing innovative transactions that offer new value to the market. The three strategies for creating greater value correspond to the three types of competitive advantage: cost advantage, differentiation advantage, and transaction advantage.

The *value of the firm* equals the net present value of expected cash flows. It determines the value of the firm's debt and the value of owner's equity. Investors have many alternative opportunities for capital investment, so the company's owners and lenders must be compensated for the cost of capital. To attract investment capital, *the firm must provide sufficient value to investors so that they earn a rate of return at least as great as comparable investment alternatives*. Thus, to attract investment capital, managers try to maximize the value of the firm. Maximizing the firm's present value of expected cash flows assures that the firm is maximizing the owner's equity because the shares represent ownership of the firm's future stream of expected cash flows net of debt costs.

For publicly-traded companies, *shareholder value* is the market value of owner's equity. Since shareholders claim the residual earnings of the company, shareholder value is the net present value of expected cash flows minus debt costs. When managers make investment decisions, there is always an alternative of returning funds to the company's shareholders. Thus, the cost of capital represents the opportunity costs of capital to the firm's shareholders. Companies deliver value to shareholders in two ways, through dividend payments and through increases in the company's stock price. Increases in the company's stock price reflect investors' perceptions about the company's future prospects. Managers that fail to deliver shareholder value will find that the stock market will penalize the company's stock price. The lower the company's stock price, the greater the cost to the company of raising capital. Managers' performance is also monitored by the directors serving on the corporate board, who represent shareholder interests.

Because it is difficult to judge whether or not a firm is earning the highest possible profit, investors often evaluate the performance of the company in comparison to its competitors. In addition, investors

examine the rate of return on invested capital in comparison with all other investment opportunities, adjusting for risk. Managers strive to achieve the greatest attainable shareholder value given market opportunities and the abilities of the firm.

The principles of management strategy are necessarily consistent with the principles of finance. The value of the firm reflects the market's evaluation of the long-term effectiveness of management strategy and the degree to which the company's competitive advantages can be sustained. Effective management strategy means only choosing projects with a positive net present value and, when choosing between projects, choosing those that have the greatest net present value. Managers should expect that capital markets will favor only those investment projects or mergers that add value. They should not expect investors to be misled for long by cosmetic actions that do not create value, such as shifting expenditures over time or across divisions of the company.

Mergers and acquisitions should only be pursued if combining the companies increases their total value. There are no financial benefits from combining two companies simply for size or for portfolio diversification. Investors could add the two companies to their portfolios at a lower cost than merging the two organizations. The combined companies must achieve greater net present value of expected cash flows by operating together than they could achieve separately. This requires sharing of assets or combining activities in a way that increases revenues or lowers costs.

Some management strategy recommendations place considerable emphasis on the firm's current earnings, the earnings per share of stock, the ratio of the company's stock price to earnings per share (P/E ratio), or the growth rate of earnings. Such accounting measures do not provide an accurate picture of the economic value created by the company.²² Current earnings or earnings per share are only short-term indicators. Earnings may be useful in a very limited way as an indicator of past performance and as a possible predictor of future performance. Earnings growth, however, need not imply an increase in the value of the firm since it is also necessary to take into account the cost of investments and rate of return to the company's investments. Managers that invest in projects below market rates of return may increase earnings but they are destroying shareholder value. Shareholders would prefer that management not make such investments since shareholders could earn greater returns investing the money elsewhere and earning market rates. Moreover, earnings do not take into account the company's dividend policies and the riskiness of investments. Investments that are expected to yield below-market rates of return adjusted for risk will lower the value of the firm and result in a lower market price for the company's stock.²³

Companies often use accounting measures such as return on investment (ROI) for strategic analysis, where ROI is measured as the ratio of net income to book value of assets. Such measures fail to capture fully the company's economic value. Net income is a short-term measure and strategies often play out over a longer period of time. Also, the ratio is highly sensitive to the company's depreciation and investment capitalization policies, which affect the book value of assets. The company's book value of assets is likely to depart from the market value of those assets. Thus, ROI does not provide a good indicator of the effects of strategy on the long-run value of the firm.

Managers should apply net present value (NPV) analysis to generate a more accurate long-term picture of how strategic decisions affect the company's value. Such analysis includes the opportunity cost of capital in strategic decisions, as discussed previously in Chapter 5. The manager should focus on the present value of expected cash flows in examining strategies. Using NPV analysis means that the manager considers the trade-off between current and future cash flows in comparison with the firm's cost of capital. In addition, the choice of the discount rate in NPV analysis is based on the risk involved, with a greater discount rate applied to riskier projects. The manager should incorporate market uncertainty into the NPV analysis in making estimates of revenues and costs.

Example 7.12 NPV Analysis Under Uncertainty

The manager has an investment project that costs \$160 for the initial investment. The project only pays off in its second year. Due to market uncertainty the project can have two possible payoffs, either \$330 or \$110. The company's appropriate discount rate is 10 percent so that the present value of the project payoff in the favorable case is $330/(1 + .10) = 300$, and the present value of the project payoff in the less favorable case is $110/(1 + .10) = 100$. If the two outcomes are equally likely, that is, each occurs with likelihood of $1/2$, the project's NPV is the expected present value of payoffs net of the initial investment cost: $-160 + 1/2 \times 300 + 1/2 \times 100 = 40$. Since the project has a positive NPV, the manager should go ahead with the project, at least if there is not the possibility of delaying the project.

Because managers face uncertainty, they must be able to respond flexibly to changes in customer preferences, supplier technologies, and competitor actions. Strategic flexibility is essential because it provides options to decision makers. Traditional analysis of net present value of lines of business should include attention to the value of such options.

Option value should be taken into account to avoid the pitfalls of traditional NPV analysis.²⁴

Option analysis of the information presented in the preceding example suggests a different conclusion when the manager is able to delay the project and gather more information. The value of the project with the option to continue is greater than the value of going ahead right away because the manager waits to observe market conditions before investing and thus avoids the cost of investment in the less favorable state. This benefit outweighs the forgone benefits due to delay. This does not mean that waiting is always best; it means that, under some conditions involving significant uncertainty, a wait-and-see approach may be better than jumping the gun. What is more important is that the manager would be willing to pay for the flexibility to decide later.

Example 7.13 Wait and See

Consider the choice of the manager in Example 7.12 and suppose that the manager has the option of waiting. Delaying the project would allow resolution of the uncertainty. The cost of waiting is further delay of the benefits, but this cost is partly offset by delaying the investment cost as well. Is delay worthwhile in this case? By waiting until the uncertainty is resolved, the manager can decide whether or not the project is worthwhile. The manager would undertake the project in the favorable case since it has positive net present value equal to $300 - 160 = 140$. The manager would not undertake the project in the unfavorable case since it has negative net present value equal to $100 - 160 = -60$. Since the favorable and less favorable states are equally likely, the manager expects to carry out the project with a likelihood of $1/2$, so the expected value of waiting to evaluate the project is calculated as $1/2$ of its value in the favorable case, $1/2 \times 140 = 70$. Discounting the expected value of waiting gives the net present value of the project when the manager can learn about the state of the world and has the option to change: $70/(1 + .10) = 64$, rounded to the nearest dollar amount. This is greater than the NPV of the project without the option of waiting, so in this case a delay is worthwhile.

The value of an option to delay is significant when additional information can be gathered. The value of the option in the preceding example is the difference between the two project values, $\$64 - \$40 = \$24$. Put differently, the manager would be willing to wait and invest later, even if the initial cost of investment was higher in the case of the delayed project. It turns out that the investment could be substantially

higher and still allow the manager to prefer waiting. If the investment cost after delay were as high as \$212, that is, \$52 higher than the \$160 without delay, the manager would still prefer to wait.²⁵

The option value of waiting has some organizational implications. Suppose that the organization is not good at monitoring market conditions and makes decisions very slowly. The result of these bureaucratic inefficiencies is that the company will proceed along the lines of the traditional NPV analysis. To get the project up and running, the company will need to start its decision process early, and it will necessarily rely on projections of future market conditions. Since the company is not skilled at observing market change, it will base its decisions on these projections rather than gathering information just in time. In contrast, a company that monitors market conditions and reacts flexibly would choose to wait and act after market uncertainty is resolved.

Monitoring market conditions and organizational flexibility has its own costs, however. The higher returns realized by waiting in some cases imply that the manager would be willing to pay more for organizational systems that would allow monitoring of market conditions and improve decision-making. In the example, the manager would be willing to pay \$24 for such organizational enhancements. The company might be willing to restructure company decision-making procedures or hire additional managers to carry out decision-making roles. Other costs could include investments in information technology and communications systems.

Alternatively, recall that the manager would be willing to incur greater investment costs for the purpose of waiting to observe market conditions. In the example, this additional investment equaled \$52. Such additional costs might take the form of flexible manufacturing equipment, just-in-time inventory systems, and automated delivery systems that allow faster and more accurate responses to market conditions. Achieving flexibility requires investment in the necessary production facilities and information technology.

7.5 Overview

The firm's *total value created* is equal to the sum of customer value, supplier value, and the value of the firm. Thus to compete effectively, the firm must deliver greater customer value, supplier value and value of the firm than its competitors. To achieve this means that the firm must create greater total value, which is the difference between customer willingness to pay and the cost of inputs obtained from suppliers or supplied by the firm itself. Managers must consider these three components of value jointly, not separately. The difference between the value created by the company and its competitors is the firm's competitive advantage.

There are three sources of competitive advantage: Differentiation advantage allows the firm to offer customers products and services with greater benefits. Cost advantage allows the firm to lower the costs of using its own assets and to reduce its payments to suppliers by reducing the costs of delivering a particular benefit to customers or by reducing supplier costs. Transaction advantage allows the firm to discover new combinations of customers and suppliers that create greater value. Chapters 9–12 explore these aspects of competitive advantage.

Questions for Discussion

1. Consider the strategy of a movie rental chain.
 - (i) What might be customers' willingness to pay for a movie rental? How would you go about estimating willingness to pay? What is the cost per movie of the movie studios who are the movie rental chain's suppliers? How would you go about estimating their cost? What are the costs per movie of the movie rental chain? What is the value created per movie by the movie rental chain?
 - (ii) Consider again the movie rental chain in (i). What are the retail and wholesale prices per movie? What factors affect those prices? What determines the consumers' surplus, producers' surplus, and value of the firm?
 - (iii) Given the example of the movie rental chain in (i) and (ii), how might the movie rental chain increase the value it creates? How might the movie rental chain increase the value that it captures?
 - (iv) The movie rental chain must decide between selling and renting digital video discs (DVDs). What factors should it take into consideration? Would the cost of capital affect this decision? How might competition affect this decision?
2. A company contemplating international expansion must choose between two target countries. The first target country offers revenues net of operating costs equal to 210 each year over two years. The second target country offers revenues net of operating costs equal to 300 the first year and 105 the second year. The firm's cost capital is 5 percent. Compare the net present values obtained from serving the two countries. Which target country should the manager choose? What does this example illustrate about the trade-off between current and future revenue?
3. The world steel industry faces substantial excess capacity. The world price of steel is about \$300 per ton. A major steel producer has operating costs that are about \$450 per ton; that is, about

\$150 above the world price of steel. What should the steel producer do? Some of the options are as follows: continue producing steel in the hopes that the world price will rise, shut down its facilities and exit the industry, invest funds to modernize its facilities so as to lower operating costs, buy steel at the world price for sale to its customers, relocate the company's facilities in another country. What are some of the considerations that enter into the strategic decisions of the managers of the steel producer?

4. An electronics manufacturer that makes computer components has costs that are below those of some of its competitors but above those of other competitors. Due to a boom in demand, the electronics manufacturer is able to operate profitably at full capacity. Should the electronics manufacturer invest in facilities to lower its operating costs? What factors should the company's managers consider in making their decision?
5. Ten companies in a segment of the pharmaceutical industry are contemplating competing research programs to develop a drug to treat a particular medical condition. Some of the research programs will be successful in developing a treatment and obtaining approval by government regulators. The resulting drugs are likely to differ in terms of their effectiveness and side effects. Only one or two of the drugs are likely to be successful in the medical marketplace. How would an individual pharmaceutical company make a decision about whether or not to enter into a research program? How should managers think about the uncertainties of the projects? Would there be situations in which managers might stop their research projects before they are completed?
6. A manager finds that he can boost the company's current earnings by counting some orders as revenues as soon as the order is received rather than when the revenues are received. Does this approach increase the value of the firm? Should this approach increase the value of the company's stock?
7. A company producing a wide range of manufactured goods diversifies by acquiring another company producing appliances. The two companies will be operated independently and will not share resources, production facilities, marketing, or purchasing. The managers of the company proposing the acquisition argue that since the two companies will form a larger company they will be able to raise capital at a lower cost. Will the merger increase the value of the two companies? Will this type of merger increase the stock price of the two companies in comparison with the initial stock prices? Should the acquiring company pay a premium above the market price of shares for the company it seeks to acquire?

Endnotes

1. See Adam M. Brandenburger and Harborne W. Stuart, Jr., "Value-based Business Strategy," *Journal of Economics & Management Strategy* 5 (Spring 1996), pp. 5–24. The notion that value is the additional contribution of a player to a coalition in a game is familiar to students of cooperative game theory. See, for example, Richard Aumann, "Game Theory," in J. Eatwell, M. Milgate and P. Neuman, eds. *The New Palgrave: A Dictionary of Economics* (London: Macmillan, 1987), pp. 460–482. See also the discussion in E. Davis and J. Kay, "Assessing Corporate Performance," *Business Strategy Review* 1 (1990), pp. 1–16.
2. Michael Dell, "Netspeed: The Supercharged Effect of the Internet," address to The Executives' Club of Chicago, October 23, 1998, <http://www.executivesclub.org/static/News98-99/Michael%20Dell.htm>
3. For the year 2000, it was estimated that Dell Computer had cost of goods sold equal to 78.8 percent of operating revenue, and selling, general, and administrative cost of goods sold of 10.9 percent. See Lori Calabro and Gunn Partners, "Cost Management Survey: Bend and Stretch, Why the Best Companies Remain Focused on Cost Cutting — Whatever the Business Cycle," *CFO Magazine*, February 26, 2002, cfo.com
4. Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York: Free Press, 1985).
5. See Gary Lilien, Philip Kotler and K. Sridhar Moorthy, *Marketing Models* (Englewood Cliffs, NJ: Prentice Hall, 1992), pp. 512–517.
6. Steven Klepper and Elizabeth Graddy, "The Evolution of New Industries and the Determinants of Market Structure," *Rand Journal of Economics* 21 (Spring 1990), pp. 27–44.
7. Timothy Bresnahan and Daniel F. G. Raff, "Intra-Industry Heterogeneity and the Great Depression: The American Motor Vehicles Industry, 1929–1935," *Journal of Economic History* 51 (June 1991), pp. 317–331.
8. Joseph A. Schumpeter, *The Theory of Economic Development* (New Brunswick, NJ: Transaction Publishers, 1997), p. 229.
9. Klepper and Graddy, "The Evolution of New Industries."
10. Steven Klepper and Kenneth L. Simons, "The Making of an Oligopoly: Firm Survival and Technological Change in the Evolution of the U.S. Tire Industry," *Journal of Political Economy* 108 (2000), pp. 728–760.
11. Ashish Arora, "Appropriating Rents from Innovation: Patents, Licensing and Market Structure in the Chemical Industry," *Research Policy* 26 (1997), pp. 391–403.
12. Steven Klepper, "Industry Life Cycles," *Industrial and Corporate Change* 6 (1997), pp. 145–181.
13. Andrea Bonaccorsi and Paola Giuri, "When Shakeout Doesn't Occur: The Evolution of the Turboprop Engine Industry," *Research Policy* 29 (2000), pp. 847–870.
14. This example is derived from Brandenburger and Stuart, who apply game theory to analyze the "added value" of any market participant. In particular,

a competitive firm's added value in the market is the value created by all the players in a market minus the value created by all the other players except the firm itself. If the firm in question has a competitive advantage over its rivals and if the rivals are displaced from the market by competing with the firm, then the firm's added value will equal its competitive advantage as I define the term. See Adam M. Brandenburger and Harborne W. Stuart, Jr., "Value-based Business Strategy," *Journal of Economics & Management Strategy* 5 (Spring 1996).

15. Sources of data: U.S. Commerce Dept., Chinese Ministry of Foreign Trade and Economic Cooperation, Mattel Inc., Hong Kong Toy Council. This example is presented in Rone Tempest, "Barbie and the World Economy," *Los Angeles Times*, Part A, p. 1, September 22, 1996, Home Edition. See also Robert C. Feenstra, "Integration of Trade and Disintegration of Production in the Global Economy," *Journal of Economic Perspectives* 12 (Fall 1998), pp. 31–50.
16. Michael E. Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (New York: Free Press, 1980).
17. *Ibid.*, pp. 41–44.
18. Information about Shuttle by United obtained from http://www.ual.com/airline/default.asp?section=shuttle.asp&SubCategory=Our_Services&destination_URL=/airline/Our_Services/shuttle.asp.
19. Transactions between businesses in 1999 in the U.S. were reported to equal approximately \$14 trillion, of which approximately \$90 billion were conducted over the Internet. See Louis Uchitelle, "It's Just the Beginning," *New York Times*, Special Section on E-Commerce, June 7, 2000, p. E1.
20. Steve Rosenbush, "Rosenbush Covers Telecommunications from New York, Commentary: How Lucent Lost Its Luster," *Business Week*, August 7, 2000.
21. Jordan D. Lewis, *The Connected Corporation: How Leading Companies Win Through Customer-Supplier Alliances* (New York: Free Press, 1995).
22. G. Bennett Stewart, III, *The Quest for Value* (New York: Harper Business, 1991).
23. Alfred Rappaport, *Creating Shareholder Value* (New York: Free Press, 1986).
24. The numerical example is due to Avinash K. Dixit and Robert S. Pindyck, *Investment Under Uncertainty* (Princeton: Princeton University Press, 1994).
25. The NPV of the project without delay is \$40. The net present value of the project with delay and investment level I is $NPV^* = 1/2 \times (300 - I)/(1 + .10)$. The highest investment level such that NPV^* falls to \$40 is $I = \$212$. This can be easily verified by plugging \$212 into the NPV^* equation.