Gaining and Sustaining
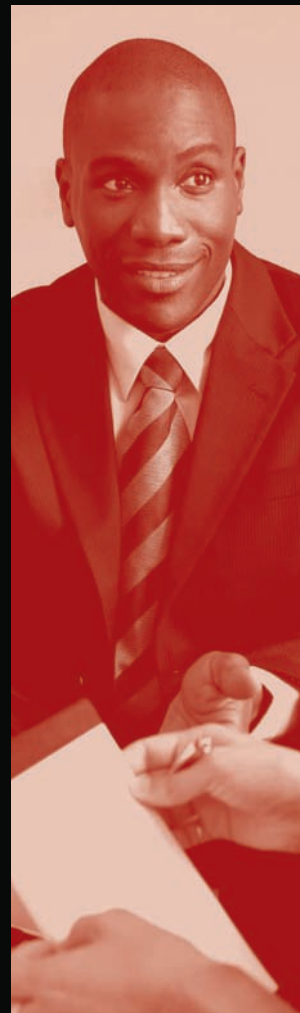# Competitive Advantage
Jay Barney
Fourth Edition

Pearson New International Edition

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Competitive Advantage
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PEARSON

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INTRODUCTION: WHAT IS STRATEGY?

Most people know the simple card game of blackjack—sometimes known as "twenty-one." As played in casinos around the world, the objective of this game is remarkably simple: Players draw cards in an attempt to have the cards reach a sum closer to 21 than the dealer's cards, without going over 21. In blackjack, face cards are equal to 10, aces are equal to 1 or 11, and the remaining cards in the deck are equal to their number (the two of diamonds equals 2, the nine of spades equals 9, and so forth). The game begins with the dealer passing out two cards to each player. The dealer also gets two cards, but one of the dealer's cards is facing up. All the players play before the dealer plays. Setting aside complications created by different ways players can bet (doubling down, buying insurance, and so forth), playing blackjack requires only one decision: Should you take another card?

There are a variety of theories about when a player should and should not take a card. Some players rely on their intuition and good luck. These players take a card when it "feels like the right thing to do." Sometimes these "intuition players" take a card when their hand sums to 18—and get a 3! Other players have very simple theories of when to take a card: When their cards sum to 16 or more, they stay; 15 or less, they take a card. Simple theories of winning at blackjack are easy to learn and apply. They sometimes even produce wins. Still other players have somewhat more sophisticated theories about how to win this game. For example, some players take a card when their cards sum to 16, but only when the card showing in the dealer's hand is a 10. If the dealer is not showing a 10, these players take a card when their cards sum to 14. These somewhat "contingent theories" of winning blackjack are a bit more complicated than the simple theories and are based on a partial understanding of the probability theory that underlies a game such as blackjack.

Of course, it is possible to derive a quite complicated theory of how to win at blackjack by rigorously applying probability theory to the game. The rules of play for such a theory are summarized in Table 1. These rules are based on two definitions: a player's stiff (when a player's cards sum to 12, 13, 14, 15, or 16) and a dealer's stiff (when the card showing in the dealer's hand is a 2, 3, 4, 5, or 6). In this approach to playing the game, players assume that the card not showing in the dealer's hand is a 10—because that is the most common value in

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TABLE 1 Rules for Playing Blackjack Derived from the Application of Probability Theory

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Definitions

Player's stiff—when a player's hand sums to 12, 13, 14, 15, or 16

Dealer's stiff—when the card showing in a dealer's hand is 2, 3, 4, 5, or 6

Rules of Play

Always take a card if you have a stiff (16) and the dealer doesn't (10).

Never take a card if both you (14) and the dealer (5) have stiffs.

Never take a card when your cards sum to 17 and you don't have an ace.

Never take a card if you have three cards that sum to 16 and the dealer shows a 10.

Never take a card if you hold two 7s and the dealer shows a 10.

Taking cards when you hold an ace:

- Ace, 9 and Ace, 8: Never.
- Ace, 7: Only if the dealer shows a 9, 10, or ace.
- Ace, 6: Always.

Derived from: J. Schaffel (2006). *The Pocket Guide to Winning Blackjack*. Summarized at: www.winningblackjack.ca.

the deck. If a dealer has a 10 plus a 2, 3, 4, 5, or 6, the odds are very high that the dealer will go over 21 when it is his or her turn to draw cards. Because dealers are likely to go over 21—the casino term is to "bust"—when they are showing a 2, 3, 4, 5, or 6, players should proceed cautiously in asking for more cards. On the other hand, if a dealer is showing an ace, 7, 8, 9, or 10, then players have to be more aggressive, because the most likely outcome is that the dealer will have 16, 17, 18, 19, 20, or 21.

This simple intuition is rigorously implemented in the rules of play presented in Table 1.

Of course, there is more to this game than just applying the rules presented in Table 1. Setting aside the betting (which can be quite complicated), the way that these rules are implemented can be important. In particular, although applying the rules in Table 1, strictly speaking, is not "cheating," casinos can "ask"—often in pretty forceful ways—those who apply these rules to no longer play in their casino. So, if you are going to play these rules, you need to conceal that you are doing so. This has an impact on numerous aspects of playing the game, everything from the clothes you wear (not too fancy or sloppy—you don't want to stand out), to the beverages you order (water and fruit juices are better than alcoholic beverages), to how you implement the rules (once in an hour you should violate the rules in Table 1 to throw off casino operators), to how long you should practice before you go into a casino (most experts recommend playing twenty-four hours straight before you begin playing in a casino).

So, four theories of how to win at blackjack have been described: a theory based on intuition and good luck, a simple theory, a somewhat contingent theory, and a more sophisticated theory based on the application of probability theory to the game along with an understanding of how casinos actually operate. If you were to invest in someone playing blackjack for you, and if your goal was to maximize your income from this investment, in which of these theories would you invest?[1]

Most potential investors would pick the theory based on probability theory and an understanding of how casinos work. In the long run, this theory of how to win at blackjack is most likely to generate a positive return—in fact, application of this theory does enable a player to have a slight advantage over the house. Of course, applying the other theories to the game will also generate positive returns, at least some of the time, but the last of these four theories has the greatest expected value in the long run.

This is a simple version of blackjack. In addition, the theory of how to win this game—the strategy players can adopt—is actually relatively easy to describe and use. Of course, business is a much more complicated game than blackjack. For example, the rules of blackjack remain unchanged, while the "rules" of the game of business can change dramatically, as technology, industry structure, and consumer demands change. However, business is still just a game, and different firms have different theories about how to win their competitive game.

Some firms seem to have a very intuitive approach to business. They choose a course of action because it "feels right." Sometimes these firms get lucky and do well. Other times they don't. Other firms have very simple, easy-to-understand theories: "If a business is not number one or two in a growing industry, we divest it." Simple theories have the huge advantage that everyone in a firm is likely to understand them. And, if these theories happen to be consistent with the underlying economics in an industry, they can generate positive economic returns. If this isn't the case, simple theories can lead to economic failure. Still other firms have somewhat contingent theories, adjusting their strategies based on how their industry is evolving over time. Again, these more complicated theories can sometimes be successful.

Of course, the best theories of how to win a competitive game—like the best theories of how to win at blackjack—are based on a complete understanding of the game, both how it is best played and how the rules of play should be implemented in real life. In business, a complete understanding of how a competitive game is best played does not depend on the application of probability theory. Rather, the best we can do is apply economic theory to understand the structure of the competitive game a firm is in and thereby derive the "rules of play" for this game. The application of these rules requires managers to understand how they can organize, lead, and motivate the people who work in and with a firm to implement these rules efficiently. And although this type of theory of how to win the "game of business" cannot guarantee that a firm will always have a high level of performance, in the long run, investors in firms with these strategies are more likely to maximize their wealth than investors in firms with other kinds of strategies.

1 WHAT IS STRATEGY?

If business is like a game—albeit a very complicated one—then a firm's strategy is its theory of how to excel in the game it is playing. More precisely, a firm's **strategy** is its theory of how to achieve high levels of performance in the markets and industries within which it is operating.[2] Evaluating and choosing a strategy require an understanding of both the economic logic from which a strategy is derived and an understanding of the organizational logic through which a strategy is implemented. A failure in either of these areas—in understanding the economics of strategic choice or the organizational elements of strategy implementation—make it less likely that a firm's strategy will generate high levels of performance, although even firms with horrible strategies can sometimes get lucky.[3]

Sometimes a firm's understanding of the critical economic processes in an industry or market and how it can exploit those processes for its own advantage are simply wrong. For example, when Honda Motorcycle Company entered the U.S. motorcycle market in the early 1960s, it believed that the best way to compete against Harley-Davidson, Triumph, and other established motorcycle firms—in other words, Honda's theory of how to perform well in the U.S. motorcycle market—was to sell large and powerful motorcycles. Unfortunately, U.S. consumers did not want to purchase large motorcycles from Honda—after all, they could already purchase large motorcycles from established firms. What U.S. consumers wanted to buy were Honda's smaller motor scooters. Once Honda discovered what customers in the United States really wanted, the company changed its strategy and began selling motor scooters. With this niche in smaller motor scooters

established, Honda was then able to introduce larger and more powerful motorcycles. This new theory about how Honda could perform well in the U.S. motorcycle market was so successful that Honda, along with several other Japanese motorcycle firms, virtually destroyed all other motorcycle manufacturing firms operating in the United States. Of those firms that competed with Honda in the early 1960s, only Harley-Davidson continues to compete in this industry.[4]

Honda's original theory of how to perform well in the U.S. motorcycle market was wrong. However, this company was able to learn that its theory was wrong and change it quickly enough to be successful. Other firms have had what turned out to be incorrect theories of how to perform well in a particular industry or market but have been either unable or unwilling to change that theory. For example, Yugo entered the U.S. automobile market in the mid-1980s. Yugo's theory about how to compete in this market was simple: It would underprice all of its competition. Following this strategy, Yugo felt that it could dominate the low-price automobile segment. What this theory failed to recognize was that performance and safety are concerns for most U.S. car buyers, even those seeking to buy inexpensive automobiles. Yugo's price was certainly lower than that of any other new car in the U.S. market. But its performance and safety were widely perceived to be unacceptable. Moreover, although Yugos cost less than any other new car, they did not cost less than many used cars in the U.S. market—cars with higher levels of performance and safety. Needless to say, Yugo no longer sells cars in the U.S. market and once was voted as the worst new car ever sold in the United States.[5]

Honda and Yugo had incorrect theories about how to perform well in the U.S. marketplace. On the other hand, other firms have developed very sophisticated and successful strategies. Consider, for example, Wal-Mart.[6]

By 1962, Sam Walton and his brother, Bud, owned and operated sixteen Ben Franklin "five and dime" stores in rural Arkansas. Early on, Sam Walton recognized the economic potential of locating discount retail outlets in relatively rural cities but was unable to convince the owners of the Ben Franklin chain to pursue this opportunity. In response, he created his own company and called it Wal-Mart Stores.

Wal-Mart began operations in the fiercely competitive discount retail business. Through the late 1960s, several discount retailers—including King's, Korvette's, Two Guys, and Woolco—were forced out of business. Profit margins in the surviving firms were paper thin—often averaging only 2 percent or 3 percent of sales. Despite this challenging industry, Wal-Mart began to prosper and grow. By the mid-1980s, while more established retailers, including Kmart and Zayre's, had a return on equity averaging about 14 percent, Wal-Mart's return on equity averaged about 33 percent. Despite the fact that Wal-Mart was 4.6 times larger than Kmart, Wal-Mart's market value was more than forty-eight times Kmart's market value. By 2009, Wal-Mart's stores had sales of $401 billion and operating income of $13.4 billion.

Walton's theory of how to perform well in the discount retail market depended on three factors. First, by locating many of its stores in relatively rural cities, Wal-Mart provided a much-needed service to customers who lived in or near these cities. Moreover, these cities were large enough to support only one large discount retail operation. Thus, the Wal-Marts that operated in these rural locations were able to charge prices that were as much as 6 percent higher than the prices at Wal-Marts that operated in more urban areas—all without attracting additional retail companies into these markets.

Second, Wal-Mart was able to develop one of the most effective and cost-efficient distribution networks in the retail industry. Built around several large distribution facilities, Wal-Mart's system began with detailed inventory information gathered at each store. This information was used to order just enough product to ensure that inventory would be on hand, but not so much that large amounts of inventory would have to be warehoused. By operating its own fleet of

trucks and by cooperating with its suppliers, Wal-Mart was able to obtain a 6 percent or 7 percent cost advantage over its competition, including Kmart.

Third, Sam Walton himself helped to create an organizational culture and a way of doing business that motivated and inspired his employees. To emphasize the importance of low costs, Walton built a headquarters building that looked a great deal like a warehouse. Sam rode around in a beat-up old truck—even though at the time of his death he was the richest person in the United States. Employees responded to Sam's way of doing business and generated higher-than-industry-average levels of productivity and lower-than-industry-average levels of shrinkage.

Of course, Wal-Mart faced challenges as well. First, by the early 1990s, most of the rural markets that had allowed Wal-Mart to charge relatively higher prices were already exploited. To continue its growth, Wal-Mart had to begin to expand its operations in much more competitive urban settings. Second, in response to developments in the warehouse segment of the retail industry, Wal-Mart introduced Sam's Discount Warehouses. Although discount warehouses have several attractive features, they work on even narrower margins than discount retail stores. Also, Wal-Mart began to experience resistance to its growth efforts. Local merchants and community leaders in several New England states, for example, worked together to keep Wal-Mart from destroying the existing retail distribution network—and the lifestyles associated with it. In addition, several of Wal-Mart's efforts to expand outside of the United States have taken longer to turn profitable than had been anticipated. After almost a decade of struggle, Wal-Mart finally began to turn a profit on its operations in Mexico, and acquisitions in Canada did not generate profits for many years. Acquisitions in Germany were so unprofitable that they were divested in 2006. Finally, some observers had concluded that with the death of Sam Walton the special employee spirit that was so important to Wal-Mart's success was beginning to dissipate.

2 THE STRATEGIC MANAGEMENT PROCESS

Often a firm develops its strategy—its theory of how to compete successfully—by implementing the strategic management process. The **strategic management process** is a sequential set of analyses and choices that can increase the likelihood that a firm will choose a strategy that enables it to perform well. An example of the strategic management process is presented in Figure 1.

A Firm's Mission

The strategic management process begins when a firm defines its mission. A firm's **mission** is its long-term purpose. Missions define both what a firm aspires to be in the long run and what it wants to avoid in the meantime. Missions are often written down in the form of **mission statements**. Table 2 shows examples of the mission statements of several well-known firms.
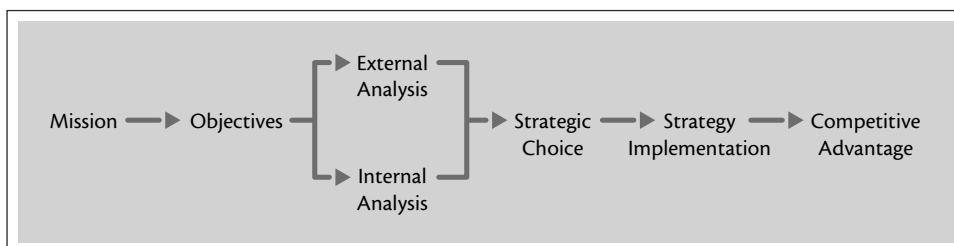

FIGURE 1 The Strategic Management Process

TABLE 2   Mission Statements of Some Well-Known Firms

Anheuser-Busch

Mission and Strategy

WINNING WITH CONSUMERS VIA OUR WINNING BRAND PORTFOLIO

Consumers come first at Anheuser-Busch InBev. Our promise is to create enduring bonds with consumers so that they enjoy our brands time and again. One way we will realize this is through our superior brand portfolio.&#x2592. With well over 200 brands, we are prioritizing a small group of focus brands—the brands we believe will most effectively build deep connections with consumers.

WINNING AT THE POINT OF CONNECTION

This is the moment when consumers ultimately choose to purchase or consume our brands. By utilizing capabilities in sales, merchandising and distribution we will win over the consumer at the point of connection. This entails building sales and merchandising capabilities, achieving preferred supplier partnerships with customers, and consistently building the equity of our brands.

WORLD-CLASS EFFICIENCY

World-class efficiency drives every part of our business, wherever we do business, and whatever the wider economic circumstances. We are focusing on a range of initiatives including our Voyager Plant Optimization program, which is bringing about a real step-change in brewery performance. It also entails raising the status of our procurement processes to maximize purchasing power, helping us gain the best results when we are purchasing a range of goods and services. We are also optimizing our network of breweries and sharing best practices, to leverage our learnings and drive continuous improvements.

Zero-Based Budgeting is a crucial element of World-class efficiency, and one of the tools which helps us prioritize and control costs. It has been implemented in all Zones and has reached a high level of maturity in most. The concept is simple; implementing it is much more difficult, but for Anheuser-Busch InBev employees, Zero-Based Budgeting has become a way of life.

TARGETED EXTERNAL GROWTH

The goal of targeted external growth is to strengthen our positions in developed markets, and continue to maximize opportunities in high-growth markets. Our recent acquisitions are very much in line with this strategy, for example, the acquisition of Fujian Sedrin in China and Lakeport in Canada.

Critical Enablers

ENABLED BY INNOVATION

Underpinning these four pillars is innovation. We seek to combine technological know-how, with unparalleled market understanding, to develop a healthy innovation pipeline. A good example of our innovation delivering exciting choices for consumers is PerfectDraft®: a system which combines a high-quality appliance and consumer-preferred beer brands in light metal kegs, delivering the great taste and experience of draught beer in the comfort of one's own home.

ENABLED BY PEOPLE/CULTURE

At Anheuser-Busch InBev, our people lead the way, representing our most important competitive advantage. Great people are behind everything we do, and we believe great people build great companies. Our culture is one of ownership, disciplined execution and focus on results. We believe our people will make better decisions if they think and act like owners, and our teams are focused on the basis of stretched but achievable targets. Our target setting and cascading system together with our compensation model are also built on the principles of ownership.

TABLE 2 (*continued*)

ENABLED BY FINANCIAL DISCIPLINE

Financial discipline underpins the SuperVoyager strategy, ensuring that we have the right metrics, with the right focus on tracking performance, whilst effectively managing the use of resources such as invested capital and capital structure.

3M

Who We Are

3M is fundamentally a science-based company. We produce thousands of imaginative products, and we're a leader in scores of markets—from health care and highway safety to office products and abrasives and adhesives. Our success begins with our ability to apply our technologies—often in combination—to an endless array of real-world customer needs. Of course, all of this is made possible by the people of 3M and their singular commitment to make life easier and better for people around the world.

Our Values

- Act with uncompromising honesty and integrity in everything we do.
- Satisfy our customers with innovative technology and superior quality, value and service.
- Provide our investors an attractive return through sustainable, global growth.
- Respect our social and physical environment around the world.
- Value and develop our employees' diverse talents, initiative and leadership.
- Earn the admiration of all those associated with 3M worldwide.

IBM

At IBM, we strive to lead in the invention, development, and manufacture of the industry's most advanced information technologies, including computer systems, software, storage systems, and microelectronics. We translate these advanced technologies into value for our customers through our professional solutions, services, and consulting businesses worldwide.

The Oakland Raiders

Just Win—Baby!

Sources: www.anheuser-busch.com, used with permission of Anheuser-Busch; http://solutions.3m.com/wps/portal/ 3M/en_US/about-3M/information/about/us/, used with permission of 3M; www.ibm.com, used with permission of IBM; www.oaklandraiders.com.

SOME MISSIONS MAY NOT AFFECT FIRM PERFORMANCE As shown in Table 2, mission statements often incorporate many common elements. For example, many define the businesses within which a firm will operate—building on science at 3M. Some define how a firm will compete in those businesses—just winning at the Oakland Raiders. Many even define the core values that a firm espouses—the values at 3M or Anheuser-Busch.

Indeed, mission statements often contain so many common elements that some have questioned whether having a mission statement actually creates value for a firm. Moreover, even if a mission statement does say something unique about a company, if that mission statement does not influence behavior throughout an organization, it is unlikely to have

TABLE 3 A Sample of Visionary Firms	
3M	Marriott
American Express	Merck
Boeing	Motorola
Citicor	Nordstrom
Ford	Philip Morris
General Electric	Procter & Gamble
Hewlett-Packard	Sony
IBM	Wal-Mart
Johnson & Johnson	Walt Disney

Source: Adapted from J. C. Collins and J. I. Porras. *Built to Last: Successful Habits of Visionary Companies.* New York: Harper Collins Publishers, Inc. © 1994 James C. Collins and Jerry I. Porras. Reprinted by permission.

much effect on a firm's actions. After all, Enron's 1999 annual report included the following statement of values:

> *Integrity:* We work with customers and prospects openly, honestly and sincerely. When we say we will do something, we will do it; when we say we cannot or will not do something, then we won't do it.[7]

This statement was published at exactly the same time that senior management at Enron was engaging in activities that ultimately defrauded investors, partners, and Enron's own employees—and has landed some Enron executives in jail.[8]

SOME MISSIONS CAN IMPROVE FIRM PERFORMANCE   Despite these caveats, research by Jim Collins and Jerry Porras in *Built to Last* has identified some firms whose sense of purpose and mission permeates all that they do. Some of these **visionary firms**, or firms whose mission is central to all they do, are listed in Table 3.[9] One interesting thing to note about visionary firms is their long-term profitability. From 1926 through 1995, an investment of $1 in one of these firms would have increased in value to $6,536. That same dollar invested in an average firm over this same period would have been worth $415 in 1995.

These visionary firms earned substantially higher returns than average firms even though many of their mission statements suggest that profit maximizing, while an important corporate objective, is not their primary reason for existence. Consider what Jim Burke, a former CEO at Johnson & Johnson (one of the visionary firms identified in Table 3), says about the relationship between profits and his firm's mission and mission statement:

> All our management is geared to profit on a day-to-day basis. That's part of the business of being in business. But too often, in this and other businesses, people are expected to think, "We'd better do this because if we don't, it's going to show up on the figures over the short-term." [Our mission] allows them to say, "Wait a minute. I don't have to do that." The management has told me that they're . . . interested in me operating under this set of principles.[10]

SOME MISSIONS CAN HURT FIRM PERFORMANCE   Although some firms have used their missions to develop strategies that create significant competitive advantages, missions can hurt a

firm's performance as well. For example, sometimes a firm's mission is very inwardly focused and defined only with reference to the personal values and priorities of its founders or top managers, independent of whether those values and priorities are consistent with the economic realities facing the firm. Strategies derived from such missions or visions are not likely to be a source of competitive advantage.

For example, Ben & Jerry's Ice Cream was founded in 1977 by Ben Cohen and Jerry Greenfield both as a way to produce super-premium ice cream and as a way to create an organization based on the values of the 1960s counterculture.[11] This strong sense of mission led Ben & Jerry's to adopt some very unusual human resource and other policies. Among these policies, the company adopted a compensation system whereby the highest-paid firm employee could earn no more than five times the income of the lowest-paid firm employee. Later this ratio was adjusted to seven to one. However, even at this level, such a compensation policy made it very difficult to acquire the senior management talent needed to ensure the growth and profitability of the firm without grossly overpaying the lowest-paid employees in the firm. When a new CEO was appointed to the firm in 1995, his modest $250,000 salary violated this compensation policy.

Indeed, though the frozen dessert market consolidated rapidly through the late 1990s, Ben & Jerry's Ice Cream remained an independent firm, partly because of Cohen's and Greenfield's commitment to maintaining the social values that their firm embodied. Lacking access to the broad distribution network and managerial talent that would have been available if Ben & Jerry's had merged with another firm, the company's growth and profitability lagged. Finally, in April 2000, Ben & Jerry's Ice Cream was acquired by Unilever. However, the 66 percent premium finally earned by Ben & Jerry's stockholders in April 2000 had been delayed for several years. In this sense, Cohen's and Greenfield's commitment to a set of personal values and priorities was at least partly inconsistent with the economic realities of the frozen dessert market in the United States.

Obviously, because a firm's mission can help, hurt, or have no effect on its performance, missions by themselves do not necessarily lead a firm to choose and implement strategies that help the firm win its competitive game. Indeed, as suggested in Figure 1, although defining a firm's mission is an important step in the strategic management process, it is only the first step in that process.

Objectives

While a firm's mission is a broad statement of its purpose and values, **objectives** are specific measurable targets a firm can use to evaluate the extent to which it is realizing its mission. High-quality objectives are tightly connected to elements of a firm's mission and are relatively easy to measure and track over time. Low-quality objectives either do not exist or are not connected to elements of a firm's mission, are not quantitative, and are difficult to measure or difficult to track over time. Obviously, low-quality objectives cannot be used by management to evaluate how well a mission is being realized. Indeed, one indication that a firm is not that serious about realizing part of its mission statement is when there are no objectives, or there are only low-quality objectives, associated with that part of the mission.

External and Internal Analysis

The next two phases of the strategic management process—external analysis and internal analysis—occur more or less simultaneously. By conducting an **external analysis**, a firm identifies the critical threats and opportunities in its competitive environment. It also examines how competition in this environment is likely to evolve and what implications that evolution has for the threats and opportunities a firm is facing. A considerable body of literature on techniques for and approaches to

conducting external analysis has evolved over the past several years.

Whereas external analysis focuses on the environmental threats and opportunities facing a firm, **internal analysis** helps a firm to identify its organizational strengths and weaknesses. It also helps a firm to understand which of its resources and capabilities are likely to be sources of advantage and which of them are less likely to be sources of such advantages. Finally, internal analysis can be used by firms to identify those areas of its organization that require improvement and change. Just as with external analysis, a considerable body of literature on techniques for and approaches to conducting internal analysis has evolved over the past several years.

The external and internal analyses steps of the strategic management process parallel the steps in SWOT analysis. **SWOT** analysis—an acronym that stands for "strengths, weaknesses, opportunities, and threats"—focuses attention on both the external attributes of a firm's environment (opportunities and threats) and on the internal attributes of a firm (strengths and weaknesses). Traditional SWOT logic suggests that firms should choose strategies that exploit opportunities and neutralize threats through the use of strengths while avoiding or fixing weaknesses.

However, without the analytical tools for analyzing a firm's environment and its internal capabilities, SWOT analysis does little more than identifying the kinds of questions firms should ask in choosing their strategies. By itself, SWOT analysis provides no guidance in how these questions should be answered. Too often, SWOT analysis becomes little more than a listing exercise, in which long lists of strengths, weaknesses, opportunities, and threats are generated; and the strategy with the longest list is chosen. With these tools, however, it becomes possible to rigorously identify a firm's strengths and weaknesses, along with its opportunities and threats.

Strategic Choice

Armed with a mission, objectives, and completed external and internal analyses, a firm is ready to make its strategic choices. That is, a firm is ready to choose its "theory of how to win its competitive game."

The strategic choices available to firms fall into two main categories: business-level strategies and corporate-level strategies. **Business-level strategies** are actions firms take to gain advantages in a single market or industry. The four business-level strategies discussed in this text are cost leadership, product differentiation, flexibility, and tacit collusion.

Corporate-level strategies are actions firms take to gain advantages by operating in multiple markets or industries simultaneously. The corporate-level strategies examined in this text include vertical integration strategies, diversification, strategic alliances, mergers and acquisitions, and international strategies.

Obviously, the details of choosing specific strategies can be quite complex, and a discussion of these details will be delayed until later in the text. However, the underlying logic of strategic choice is not complex. Based on the strategic management process, the objective when making a strategic choice is to choose a strategy that (1) supports the firm's mission, (2) is consistent with the firm's objectives, (3) exploits opportunities in the firm's environment with the firm's strengths, and (4) neutralizes threats in the firm's environment while avoiding the firm's

weaknesses. Assuming this strategy is implemented—the last step of the strategic management process—a strategy that meets these four criteria is likely to be a source of superior performance for a firm.

Strategy Implementation

Of course, simply choosing a strategy means nothing if that strategy is not implemented. **Strategy implementation** occurs when a firm adopts organization policies and practices that are consistent with its strategy. Three specific organizational policies and practices are particularly important in implementing a strategy: a firm's formal organizational structure, its formal and informal management control systems, and its employee compensation policies. A firm that adopts an organizational structure, management controls, and employee compensation that are consistent with and reinforce its strategies is more likely to be able to implement those strategies than a firm that does not do so. Specific organizational structures, management controls, and compensation policies are used to implement business-level strategies.

3 EMERGENT STATEGIES

The simplest way of thinking about a firm's strategy is to assume that firms begin operations with a well-developed theory, that the marketplace provides a test of that theory, and that management makes adjustments to that theory to improve its ability to generate superior performance. There is no doubt that this process describes the strategy process in some firms. For example, FedEx, the world leader in the overnight delivery business, entered this industry with a very well developed theory about how to excel in that business. Indeed, Fred Smith, the founder of FedEx (known originally as Federal Express), first articulated this theory as a student in a term paper for an undergraduate business class at Yale University. Legend says that he received only a C on the paper, but the company that was founded on the theory of competition in the overnight delivery business developed in that paper has done extremely well. Founded in 1971, FedEx had 2009 sales in excess of $35.5 billion, with a net income of $98 million.[12]

However, other firms do not begin operations with a well-defined, well-formed strategy. Even if they do, often they have to modify this strategy so much that once it is actually implemented in the marketplace, it bears little resemblance to the theory with which the firm started. **Emergent strategies** are theories of how to compete successfully in an industry that emerge over time or those that have been radically reshaped once they are initially implemented.[13] The relationship between a firm's intended and emergent strategies is depicted in Figure 2.

We have already seen one example of an emergent strategy: Honda's strategy for entering and later dominating the U.S. motorcycle market. The current strategies of many firms, including many very successful firms, have been emergent. For example, Johnson & Johnson (J&J) was originally only a supplier of antiseptic gauze and medical plasters. The firm had no consumer business at all. Then, in response to complaints about irritation caused by some of the firm's medical plasters, J&J began enclosing a small packet of talcum powder with each of the medical plasters it sold. Soon customers were asking to purchase the talcum powder by itself, and the company introduced "Johnson's Toilet and Baby Powder." Later an employee invented a ready-to-use bandage for his wife. It seems she often cut herself while using a knife in the kitchen. When J&J's marketing managers learned of this invention, they decided to introduce it into the marketplace. J&J's Band-Aid products have become the largest-selling brand category at J&J. Overall,
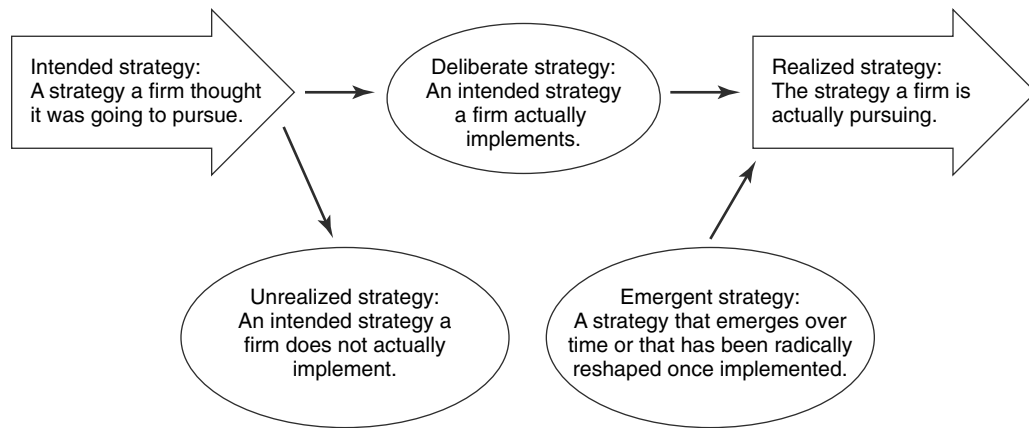
FIGURE 2 **Mintzberg's Analysis of the Relationship between Intended and Realized Strategies**

Source: Reprinted from "Strategy Formation in an Adhocracy," by Henry Mintzberg and Alexandra McHugh, published in *Administrative Science Quarterly*, vol. 30, no. 2, June 1985, by permission of *Administrative Science Quarterly.* Copyright © 1985 by Administrative Science Quarterly.

J&J's intended strategy was to compete in the medical products market, but its emergent consumer products strategies now generate over 40 percent of total corporate sales.

Another firm with an emergent strategy is the Marriott Corporation. Marriott was originally in the restaurant business. In the late 1930s, Marriott owned and operated eight restaurants. One of these restaurants was close to an airport in the Washington, DC area. Managers at this restaurant recognized that airline passengers came into the restaurant to purchase food to eat on their trip. J. Willard Marriott, the founder of the Marriott Corporation, noticed this trend and negotiated a deal with Eastern Airlines to deliver prepackaged lunches directly to Eastern's planes. This arrangement was later extended to include American Airlines. Over time, providing food service to airlines has become a major business segment for Marriott. Although Marriott's initial intended strategy was to operate in the restaurant business, the company at one time engaged in the emergent food service business at over one hundred airports throughout the world. Ultimately, it used this business to expand into the hotel business, for which it is best known today.[14]

Some firms have almost entirely emergent strategies. PEZ Candy, Inc., for example, manufactures and sells small plastic candy dispensers with cartoon and movie character heads, along with candy refills. This privately held firm has made few efforts to speed its growth, yet demand for current and older PEZ products continues to grow. In the 1990s, PEZ doubled the size of its manufacturing operation to keep up with demand. Old PEZ dispensers have become something of a collector's item. Several national conferences on PEZ collecting have been held, and some particularly rare PEZ dispensers were once auctioned at Christie's. This demand has enabled PEZ to raise the price of its dispensers to $1.29 and the price of its candy refills to $1.39, all without increases in advertising, sales personnel, and movie tie-ins so typical in the candy industry.[15]

Of course, although a firm's strategies can be emergent, some have suggested that emergent strategies are relevant only when a firm's strategy formulation process has failed. That is, if managers in a firm were more sophisticated and complete in their strategic analysis, they would have been able to anticipate the economic processes that forced them to abandon their intended strate-

gies in favor of their emergent strategies. In this light, Honda's emergent strategy for entering the U.S. motorcycle market, J&J's emergent consumer products strategy, and Marriott's emergent airline food service strategy, rather than being examples of firms cleverly exploiting opportunities of which they had not been previously aware, are really examples of poor strategic management in the first place.

Certainly, if the economic processes in an industry that determine whether a firm's strategy is valuable could in principle have been known and understood before a firm's strategies were chosen, then a firm's being forced to abandon its intended strategy in favor of an emergent strategy can be understood as a failure in the strategy creation process. However, even in this situation, the ability to adjust quickly and abandon an intended for an emergent strategy can be seen as an important competitive advantage for a firm. Indeed, some firms adopt an explicit "second mover" approach to strategy, relying on their ability to quickly adopt what other firms demonstrate is a valuable strategy. In general, such "second moving" firms may appear to be pursuing more emergent than deliberate strategies. However, given their resources and capabilities, such second moving may actually be optimal for these firms.[16]

Moreover, in some settings, it is effectively impossible to be able to understand the economic processes that determine the value of a strategy. This is especially the case if a firm is operating in a rapidly changing competitive context. When, in principle, changes that affect the value of a firm's strategies cannot be anticipated, then the ability to adjust rapidly to changing conditions and substitute emergent for intended strategies may be very important.

4 Summary

A firm's strategy is its theory of how to compete successfully. In this sense, a firm's strategy is its best guess about what the critical economic processes in an industry or market are and how it can take advantage of these economic processes to enhance its performance. Some theories of how to compete successfully are better than others, and the study of strategy is the study of alternative theories of how to obtain high levels of performance in different competitive contexts.

A firm's strategy can be based on its mission or on its fundamental purpose and long-term objectives. Indeed, a firm's mission can imply a set of objectives (i.e., specific measurable performance targets that a firm aspires to in each of the areas covered by its mission); a set of strategies (i.e., the means through which a firm accomplishes its mission and objectives); and a set of tactics or policies (i.e., the actions that the firm takes to implement its strategies).

Sometimes a firm's mission can have a pervasive effect on a firm and its strategies. A vision is a firm's mission that is central to all that a firm does. Research suggests that visionary firms can outperform nonvisionary firms in the long run. This is true even though the mission in most visionary firms does not emphasize economic performance over other roles and responsibilities of the organization.

Sometimes a firm begins operations with a well-developed, logically complete strategy that is tested by the market and adjusted by managers to improve its ability to generate competitive advantage. Not all strategies, however, are developed and implemented in this way. Emergent strategies are strategies that emerge over time as a firm operates in a market or industry. When the economic processes in operation in an industry cannot be anticipated, emergent strategies can be very valuable. Moreover, some firms have resources and capabilities that facilitate quick imitation of the successful strategies of other firms. These strategies can also be thought of as emergent.

Review Questions

1. Some firms publicize their corporate mission statements widely by including them in annual reports, on company letterheads, and in corporate advertising. What, if anything, does this practice say about the ability of these mission statements to be sources of sustained competitive advantage for a firm? Why?

2. There is little empirical evidence that having a formal, written mission statement improves a firm's performance. Yet many firms spend a great deal of time and money developing mission statements. Why?

3. Is it possible to distinguish between an emergent strategy and an ad hoc rationalization of a firm's past decisions? Can the concept of an emergent strategy be prescriptive? Why or why not?

4. Both internal and external analyses are important in the strategic management process. Is the order in which these analyses are done important? If yes, which should come first—external analysis or internal analysis? If the order is not important, why not?

Endnotes

1. Please note that the author of this textbook has never played blackjack in a casino!

2. This approach to defining strategy was discussed by P. Drucker, "The Theory of Business," *Harvard Business Review* 75 (September/October 1994): 95–105.

3. Luck, as a determinant of a firm's competitive success, has been emphasized by a variety of authors, including A. A. Alchian, "Uncertainty, Evolution, and Economic theory," *Journal of Political Economy* 58 (1950): 211–221; R. B. Mancke, "Causes of Interfirm Profitability Differences: A New Interpretation of the Evidence," *Quarterly Journal of Economics* 108 (1974): 181–193; and J. B. Barney, "Strategic Factor Markets: Expectations, Luck and Business strategy," *Management Science* 32, no. 10 (1986): 1231–1241.

4. Honda's early entry into the U.S. motorcycle market is described by R. T. Pascale, "Perspectives on Strategy: The Real Story behind Honda's Success," *California Management Review* 26, no. 3 (1984): 47–72.

5. A description of Yugo's woeful performance in the United States can be found in R. F. Hartley, *Management Mistakes and Successes*, 3rd ed. (New York: John Wiley & Sons, 1991).

6. A description of Wal-Mart's history and many of its current challenges can be found in P. Ghemawat, "Wal-Mart Stores' Discount Operations," (Harvard Business School case no. 90794–039, 1986); B. Ortega, "Life without Sam: What Does Wal-Mart Do If Stock Drop Cuts into Workers' Morale?" *Wall Street Journal*, January 4, 1995, p. A1; and M. Troy, "Wal-Mart Intensified Global Push for '99," *Discount Store News* 37, no. 23 (1998): 7.

7. http://www.enron.com.

8. "On Trial," *Business Week*, January 12, 2004, pp. 80–81.

9. J. C. Collins and J. I. Porras, *Built to Last: Successful Habits of Visionary Companies* (New York: HarperCollins, 1997).

10. Quoted in Collins and Porras, 1997.

11. See J. Theroux and J. Hurstak, "Ben & Jerry's Homemade Ice Cream Inc.: Keeping the Mission(s) Alive" (Harvard Business School case no. 9–392-025, 1993); and A. Applebaum, "Smartmoney.com: Unilever Feels Hungry, Buys Ben & Jerry's," *Wall Street Journal*, April 13, 2000, pp. B1+.

12. FedEx's history is described in V. Trimble, *Overnight Success: Federal Express and Frederick Smith, Its Renegade Creator* (New York: Crown, 1993). Data from FedEx's 2009 10-K.

13. H. Mintzberg, "Patterns in Strategy Formulation," *Management Science* 24, no. 9 (1978): 934–948; and H. Mintzberg, "Of Strategies, Deliberate and Emergent," *Strategic Management Journal* 6, no. 3 (1985): 257–272. Mintzberg has been most influential in expanding the study of strategy to include emergent strategies.

14. The J&J and Mariott emergent strategy stories can be found in Collins and Porras, 1997.

15. See J. M. McCarthy, "The PEZ Fancy Is Hard to Explain, Let Alone Justify," *Wall Street Journal*, March 10, 1993, p. A1, for a discussion of PEZ's surprising emergent strategy.

16. See Lieberman and Montgomery, 1988.

FIRM PERFORMANCE AND COMPETITIVE ADVANTAGE

Strategy can be defined as a firm's theory of how to successfully compete in its markets and industries. Such success is usually reflected in a firm's performance. In many walks of life, defining performance is easy. In athletics, for example, the team that scores more points outperforms the team that scores fewer points; the athlete who runs faster outperforms the athlete who runs slower. These simple definitions become more complicated, however, when they are applied to a firm. The purpose of this chapter is to introduce one widely accepted definition of firm performance and then to examine several different measures of this definition.

1 FIRM PERFORMANCE AND COMPETITIVE ADVANTAGE

The ultimate objective of the strategic management process is to enable a firm to choose and implement a strategy that generates a competitive advantage. But what is a competitive advantage? In general, a firm has a **competitive advantage** when it is able to create more economic value than rival firms. **Economic value** is simply the difference between the perceived benefits gained by a customer who purchases a firm's products or services and the full economic cost of these products or services. Thus, the size of a firm's competitive advantage is the difference between the economic value a firm is able to create and the economic value its rivals are able to create.[1]

Consider the two firms presented in Figure 1. Suppose these firms compete in the same market for the same customers. Firm I generates $180 of economic value each time it sells a product or service whereas Firm II generates $150 of economic value each time it sells a product or service. Because Firm I generates more economic value each time it sells a product or service, it has a higher level of performance than Firm II. The size of this performance difference is equal to the difference in the economic value these two firms create, in this case, $30 ($180 − $150 = $30).

However, as shown in Figure 1, Firm I's advantage may come from different sources. For example, Firm I might create greater perceived benefits for its customers than
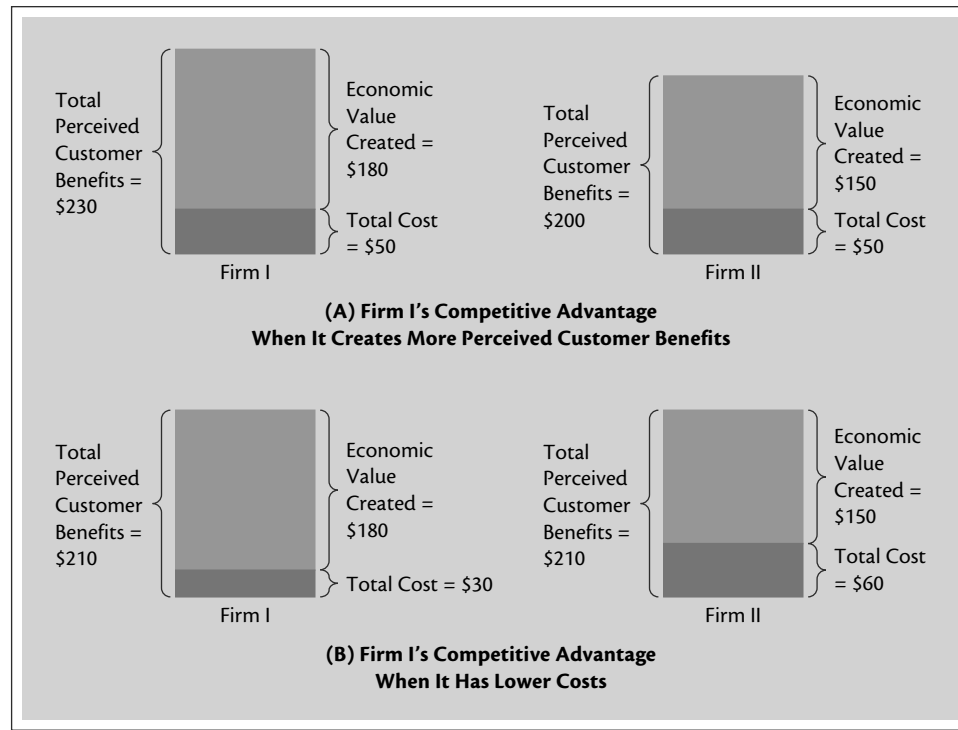
FIGURE 1 The Sources of a Firm's Competitive Advantage

Firm II. In Figure 1A, Firm I creates perceived customer benefits worth $230, while Firm II creates perceived customer benefits worth only $200.

Thus, even though the costs of both firms are the same ($50 per unit sold), Firm I creates more economic value ($230 − $50 = $180) than Firm II ($200 − $50 = $150). Indeed, in this situation it is possible for Firm I to have higher costs than Firm II and still create more economic value than Firm II if these higher costs are offset by Firm I's ability to create greater perceived benefits for its customers.

Alternatively, as shown in Figure 1B, these two firms may create the same level of perceived customer benefit ($210 in this example) but have different costs. If Firm I's costs per unit are only $30, it will generate $180 worth of economic value ($210 − $30 = $180). If Firm II's costs are $60 per unit, it will generate only $150 of economic value ($210 − $60 = $150). Indeed, it might be possible for Firm I to create a lower level of perceived benefits for its customers than Firm II and still create more economic value than Firm II, as long as its disadvantage in perceived customer benefits was more than offset by its cost advantage.

When a firm enjoys a performance advantage over its competition, it is said to enjoy a competitive advantage. Thus, in Figure 1, Firm I has a competitive advantage over Firm II. A firm's competitive advantage can be either temporary or sustained. As summarized in Figure 2, a **temporary competitive advantage** is a competitive advantage that lasts for a very short period of time. A **sustained competitive advantage,** on the other hand, can last much longer. Firms that create the same economic value as their rivals experience **competitive parity.** Finally, firms that generate less economic value than their rivals have a **competitive disadvantage.**
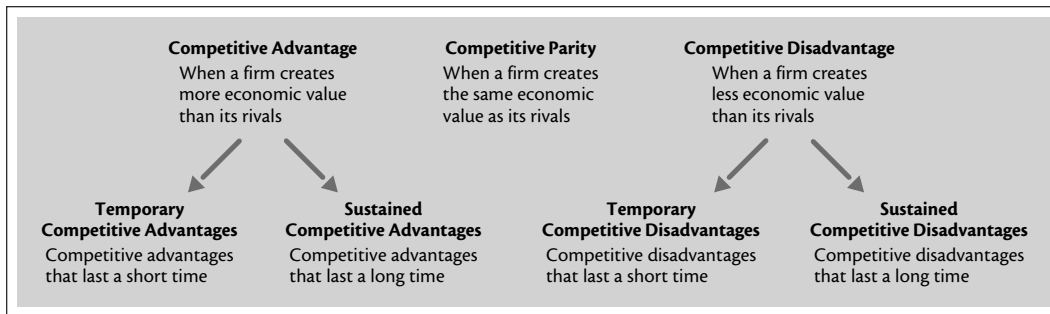
FIGURE 2   Types of Competitive Advantage

Not surprisingly, competitive disadvantages can be either temporary or sustained depending on how long they last.

How long firms are able to sustain competitive advantages has interested scholars for some time. Traditional economic theory predicts that such advantages should be short-lived in highly competitive markets. This theory suggests that any competitive advantages gained by a particular firm will quickly be identified and imitated by other firms, ensuring competitive parity in the long run. In real life, however, competitive advantages often last longer than traditional economic theory predicts.

One of the first scholars to examine this issue was Dennis Mueller. Mueller divided a sample of 472 firms into eight categories depending on their level of performance in 1949. He then examined the impact of a firm's initial performance on its subsequent performance. The traditional economic hypothesis was that all firms in the sample would converge on an average level of performance. This did not occur. Indeed, firms that were performing well in an earlier period tended to perform well in later periods, and firms that performed poorly in an earlier period tended to perform poorly in later periods as well.[2]

Geoffrey Waring followed up on Mueller's work by explaining why competitive advantages seem to persist longer in some industries than in others. Waring found that, among other factors, firms that operate in industries that (1) are informationally complex, (2) require customers to know a great deal in order to use an industry's products, (3) require a great deal of research and development, and (4) have significant economies of scale are more like to have sustained competitive advantages compared to firms that operate in industries without these attributes.[3]

Peter Roberts studied the persistence of profitability in one particular industry—the U.S. pharmaceutical industry. Roberts found that not only can firms sustain competitive advantages in this industry, but also the ability to do so is attributable almost entirely to the firm's capacity to innovate by bringing out new and powerful drugs.[4]

2 MEASURING COMPETITIVE ADVANTAGE

A firm has a competitive advantage when it creates more economic value than its rivals; and economic value is the difference between the perceived customer benefits associated with buying a firm's products or services and the cost of producing and selling these products or services. These are deceptively simple definitions, however, and these concepts are not always easy to measure directly. For example, the benefits of a firm's products or services are always a

matter of customer perception, and perceptions are hard to measure. Also, the total costs associated with producing a particular product or service may not always be easy to identify or associate with the particular product or service. Despite the very real challenges associated with measuring a firm's competitive advantage, two approaches have emerged. The first estimates a firm's competitive advantage by examining its simple accounting performance; and the second by examining the firm's adjusted accounting performance. Each of these approaches is discussed below.

Simple Accounting Measures of Competitive Advantage

By far the most popular way of measuring a firm's performance is through the use of simple accounting measures. Simple accounting measures of performance are publicly available for many firms. They communicate a great deal of information about a firm's operations. For these reasons, most early teaching and research in strategy and strategic management focused on the effect of strategy on a firm's accounting performance.

Accounting approaches to characterizing a firm's performance often rely on ratio analysis. Accounting ratios come in various types. Some of the most important accounting ratios and what they suggest about a firm's performance are listed in Table 1. The major categories of accounting ratios are profitability ratios (ratios with some measure of profit in the numerator and some measure of firm size or assets in the denominator), liquidity ratios (ratios that focus on the ability of a firm to meet its short-term financial obligations), leverage ratios (ratios that focus on the level of a firm's indebtedness), and activity ratios (ratios that focus on the level of activity in a firm's business).

It is also possible to integrate a firm's financial ratios to obtain a more complete picture of the firm's economic performance. Altman applied several statistical techniques to estimate the effect of different financial ratios on the probability that a firm will declare bankruptcy.[5] Altman's estimated equation is

$$
\begin{aligned}
Z = {} & .012 \text{ (working capital/total assets)} \\
& + .014 \text{ (retained earnings/total assets)} \\
& + .033 \text{ (earnings before interest and taxes/total assets)} \\
& + .0006 \text{ (market value of equity/book value of total debt)} \\
& + .999 \text{ (sales/total assets)}
\end{aligned}
\tag{1}
$$

Altman concluded that if a firm's Z score is less than 1.8, the firm will fail; if it is between 1.8 and 3.0, it will probably not fail; and if it is more than 3.0, it will not fail. This model successfully predicts corporate failures up to five years prior to their occurrence 69.8 percent of the time. Minor adjustments to this equation can improve the prediction rate.[6]

LIMITATIONS OF SIMPLE ACCOUNTING MEAURES The simple accounting measures of performance summarized in Table 1 are powerful tools for understanding a firm's performance, but they are not without limitations. Three particularly important limitations of accounting measures of performance are discussed below.

Managerial Discretion. Managers often have some discretion in choosing accounting methods, including methods of counting revenues, valuing inventory (e.g., last in first out [LIFO] versus first in first out [FIFO]), rates of depreciation (straight line versus accelerated), depletion,

TABLE 1   **Ratio Analysis Using Simple Accounting Measures of Historical Firm Performance**

Ratio	Calculation	Interpretation
Profitability Ratios		
1. Return on total assets (ROA)	$\dfrac{\text{Profits after taxes}}{\text{Total assets}}$	A measure of return on total investment in a firm.
2. Return on equity (ROE)	$\dfrac{\text{Profits after taxes}}{\text{Total stockholders' equity}}$	A measure of return on total equity investment in a firm.
3. Gross profit margin	$\dfrac{\text{Sales} - \text{cost of goods sold}}{\text{Sales}}$	A measure of sales available to operating expenses and still generate a profit.
4. Earnings per share (EPS)	$\dfrac{\text{Profits (after taxes)} - \text{Preferred stock dividends}}{\text{Number of shares of common stock outstanding}}$	A measure of profit available to owners of common stock.
5. Price earnings (P/E)	$\dfrac{\text{Current market price/share}}{\text{After-tax earnings per share}}$	A measure of anticipated firm's performance—high P/E ratio tends to indicate that the stock market anticipates strong future performance.
6. Cash flow per share	$\dfrac{\text{After-tax profits} + \text{depreciation}}{\text{Number of common shares outstanding}}$	A measure of funds available to fund activities above current level of costs.
Liquidity Ratios		
1. Current ratio	$\dfrac{\text{Current assets}}{\text{Current liabilities}}$	A measure of the ability of a firm to cover its current liabilities with assets that can be converted into cash in the short term.
2. Quick ratio	$\dfrac{\text{Current assets} - \text{inventory}}{\text{Current liabilities}}$	A measure of the ability of a firm to meet its short-term obligations without selling of its current inventory.
Leverage Ratios		
1. Debt to assets	$\dfrac{\text{Total debt}}{\text{Total assets}}$	A measure of the extent to which debt has been used to finance a firm's business activities.
2. Debt to equity	$\dfrac{\text{Total debt}}{\text{Total equity}}$	A measure of the use of debt versus equity to finance a firm's business activities.
3. Times interest earned	$\dfrac{\text{Profits before interest and taxes}}{\text{Total interest charges}}$	A measure of how much a firm's profits can decline and still meet its interest obligations.
Activity Ratios		
1. Inventory turnover	$\dfrac{\text{Cost of goods sold}}{\text{Average inventory}}$	A measure of the speed with which a firm's inventory is turning over.
2. Accounts receivable turnover	$\dfrac{\text{Annual credit sales}}{\text{Accounts receivable}}$	A measure of the average time it takes a firm to collect on credit sales.
3. Average collection period	$\dfrac{\text{Accounts receivable}}{\text{Average daily sales}}$	A measure of the time it takes a firm to receive payment after a sale has been made.

amortization, and so forth. Thus, to some degree at least, measures of accounting performance reflect managerial interest and preferences. The relationship between a variety of different managerial interests and accounting methods has been examined in the accounting literature.

These choices may have a significant impact on a firm's reported simple accounting performance and can thus make it difficult to link a firm's strategies with its underlying performance. In the extreme, this managerial discretion can make a firm with actual low levels of performance appear to be performing well or even a firm with actual high levels of performance appear to be performing poorly.

A branch of accounting has examined the incentives that managers have to adjust their reported simple accounting performance, along with the impact of these adjustments. It is called "positive accounting," and scholars have identified at least four conditions under which managers may choose to adjust their reported simple accounting performance: (1) when the value of a manager's compensation depends critically on reported accounting performance, (2) when a firm's actual accounting performance violates capital market expectations, (3) when a firm's actual level of performance might lead to government antitrust action, and (4) when a firm's actual accounting performance would hurt it in negotiations with labor or other key stakeholders. Typically, managers have an incentive to exaggerate their firm's actual performance in the first two settings and to reduce their firm's reported performance in the second two settings.[7]

Numerous examples of the first two settings—where managers are likely to exaggerate their firm's performance—exist.[8] Indeed, many of the accounting scandals that have plagued Western economies over the past few years are examples of this form of "accounting discretion" and include everything from keeping some liabilities off the books through the use of dummy corporations to counting promises of future sales as current sales to changing from LIFO to FIFO approaches to valuing inventory.[9] Note also that many of these adjustments to accounting procedures are completely legal and consistent with generally accepted accounting principles and are not practiced just by the "lowlifes" of the strategy world—the Enrons and Tycos of 2001. For example, at various times, even widely respected firms such as IBM have engaged in these accounting activities.[10]

In many ways, the more interesting case is of managers who choose to understate their performance, either to avoid government antitrust actions or to gain power over labor or other key stakeholders. For example, research has shown that firms operating in highly concentrated markets—where the threat of antitrust is greater—often adopt very conservative accounting practices that reduce their reported earnings.[11] Prominent examples of firms doing so to gain advantages over key stakeholders include sports teams seeking to gain favorable conditions in labor negotiations with players or seeking to obtain public funds to build new sports stadiums. Major league baseball teams, for example, often cite significant annual accounting losses—even though the value of these franchises has doubled every nine years for the past one hundred years.[12]

What this research on managerial interests and accounting methods suggests is that accounting measures of performance cannot be understood independent of the interests and preferences of managers. Thus, if two firms have exactly the same underlying "true" performance, but one firm has large management bonus plans tied to accounting numbers or is not meeting capital market expectations about accounting performance, while the second is under threat of government antitrust action or in the midst of labor negotiations, management choices about accounting methods can lead these firms to have very different "reported" accounting performance.

Short-Term Bias. Most simple accounting approaches to measuring performance have a built-in short-term bias. This is because longer-term, multiple-year investments in a firm are usually treated, for accounting purposes, simply as costs in those years in which they do not generate

revenues that exceed costs. Consider, for example, a firm that has a research and development (R&D) budget of $50,000 per year. For convenience, assume that this firm knows with absolute certainty that five years of investing in R&D at this level will create a product that will generate $3 million in net income in the sixth year. If this firm calculates its return on investment (ROI) in each of the first five years of R&D, the ROI for each of those years looks very bad ($0/$50,000 = 0% ROI). However, if this firm calculates the ROI for the entire six-year period ($3,000,000/$250,000 = 1,200% ROI), the return looks very good. Unfortunately, because most accounting measures of performance are calculated on an annual basis, the longer-term positive effect of R&D for this firm can easily be understated.

Valuing Intangible Resources and Capabilities. A third limitation of accounting measures of firm performance is that they generally do not fully value a firm's intangible resources and capabilities. A firm's **intangible resources and capabilities** are productive assets that are difficult to observe, describe, and value but that nevertheless can have a significant effect on a firm's performance. Intangible resources and capabilities such as "close relationships with customers," "close cooperation among managers," "a sense of loyalty to the firm," and "brand awareness" are difficult to measure yet are often important determinants of a firm's success.[13]

The challenge facing users of simple accounting measures of performance is that intangible resources and capabilities, just like their more tangible counterparts, are the result of investments that firms make over long periods of time. However, instead of investing in such physical assets as plant and equipment, firms invest in nonphysical assets such as teamwork, reputations, loyalty, and relationships. If these investments in intangible resources and capabilities are not included in a measure of firm performance, computed accounting rates of return may substantially overstate a firm's actual performance.

EFFECTS OF ACCOUNTING LIMITATIONS Simple accounting measures of performance are limited, but if these limitations are inconsequential, accounting numbers may still be an extremely accurate—and convenient—measure of firm performance. Several researchers have examined the magnitude of these measurement problems.[14] Unfortunately, this research suggests that these measurement problems may in fact be very large. Indeed, two of the most influential of these researchers have concluded that "[t]he[se] effects can be large enough to account for the entire inter-firm variation in the accounting rates of return among the largest firms in the United States. A ranking of firms by accounting rates of return can easily [be] invert[ed]."[15]

This assertion has created controversy among those interested in understanding the determinants of a firm's performance.[16] Recall that most of the early teaching and research focused on the link between a firm's strategies and its performance had adopted accounting measures of performance. However, most subsequent empirical work has consistently supported the conclusion that simple accounting measures of firm performance can be very inaccurate.[17]

All this does not suggest that simple accounting measures of performance are somehow bad, nor does it suggest that these accounting numbers should be ignored. It does suggest, however, that care and judgment must be used when applying accounting measures to characterize firm performance.

Adjusted Accounting Measures of Competitive Advantage

Although simple accounting measures of firm performance have important limitations, they have the enormous advantage of being widely available for publicly traded firms. For some time now, finance and accounting scholars have been exploring ways to adjust publicly available

accounting numbers so that they can be used to measure more accurately the economic value that a firm is generating. Such adjusted accounting measures take advantage of the broad availability of accounting numbers, but they do so in a way that avoids many of the limitations of simple accounting measures of firm performance. Some of these adjusted accounting performance measures are discussed in this section.[18]

At the simplest level, these adjusted accounting measures of firm performance just compare a firm's revenues and costs. For some of these measures, estimating a firm's costs relies heavily on the concept of a firm's cost of capital. In efficient capital markets, a firm's **cost of capital** is the return that capital suppliers (both debt and equity) expect to receive from investing in a firm. A firm that generates a return that is less than its cost of capital will be unable to continue to attract capital; a firm that generates a return that is greater than its cost of capital will be able to attract additional capital. Thus, a firm's cost of capital is an important component of a firm's costs. Estimating a firm's revenues, on the other hand, requires a thorough understanding of current accounting practices and the implications of those practices on a firm's reported profits.

THREE ADJUSTED ACCOUNTING MEASURES OF A FIRM'S ECONOMIC PERFORMANCE
Three adjusted accounting measures of a firm's economic performance are described in this section: return on invested capital (ROIC), economic profit (EP), and Tobin's q. Taken together, these three adjusted accounting measures of performance can provide a clear picture of a firm's true economic performance. Calculation of the first two of these measures, ROIC and EP, in turn, depends on three numbers that must be calculated from a firm's profit and loss statement and balance sheet, and from information about a firm's capital market performance. These three numbers are net operating profit less adjusted taxes (NOPLAT), invested capital, and the weighted average cost of capital (WACC). Calculation of these three building-block numbers is described first, followed by a description of how these numbers are combined to calculate a firm's ROIC and EP. The calculation of Tobin's q is then described. Calculation of ROIC, EP, and Tobin's q is completed for a hypothetical firm, with the profit and loss statement and balance sheet presented in Tables 2 and 3.

TABLE 2 Profit and Loss Statement for a Hypothetical Firm ($ million)

	2005	2006	2007	2008	2009	2010
Net sales	182.3	193.4	205.3	231.1	229.2	255.3
Cost of goods sold	(125.1)	(132.3)	(145.1)	(168.2)	(162.1)	(182.2)
Selling, general, & admin. expenses	(18.3)	(21.7)	(24.5)	(28.7)	(32.3)	(29.2)
Other expenses	0	0	0	0	0	0
Depreciation expense	(8.5)	(10.1)	(13.1)	(8.2)	(15.4)	(14.2)
Amortization of goodwill	(3.0)	(4.2)	(3.5)	(2.1)	(1.1)	(1.2)
Interest income	.4	.3	.7	1.2	.2	.4
Interest expense	(.6)	(.8)	(.9)	(2.1)	(.4)	(.8)
Provision for income taxes	(10.2)	(9.1)	(8.6)	(12.1)	(10.1)	(11.2)
Other income	0	0	0	0	0	0
Net income	17.0	15.5	10.3	10.9	8.0	16.9

TABLE 3   Balance Sheet for a Hypothetical Firm ($ million)

	2005	2006	2007	2008	2009	2010
Assets						
Operating cash	2.8	3.1	4.2	5.3	5.4	6.8
Accounts receivable	17.0	19.2	27.3	28.7	32.1	36.5
Inventories	2.0	3.1	8.5	7.6	28.7	27.9
Other current assets	3.2	10.3	4.8	8.1	12.1	12.2
Total current assets	25.0	35.7	44.8	49.7	78.2	83.4
Gross property, plant, and equipment	81.3	89.3	96.1	107.3	138.2	149.3
Accumulated depreciation	(24.2)	(31.2)	(35.1)	(38.4)	(44.4)	(41.2)
Book value of fixed assets	57.1	58.1	61.0	68.9	93.8	108.1
Goodwill	17.4	27.1	28.1	20.0	15.9	15.0
Other operating assets	3.4	12.7	11.1	14.2	33.3	44.4
	102.9	133.6	145.0	152.8	221.3	250.9
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Liabilities & equity						
Short-term debt	.3	.5	.9	2.3	9.8	12.0
Accounts payable	6.4	12.2	10.8	8.9	24.7	22.2
Accrued liabilities	4.3	7.7	8.3	9.2	21.7	24.5
Total current liabilities	11.0	20.4	20.0	20.4	56.2	58.7
Long-term debt	5.0	12.8	14.3	19.2	37.5	49.2
Deferred income taxes	9.2	11.3	14.4	11.2	21.3	22.3
Preferred stock	0	0	0	0	0	0
Retained earnings	55.1	57.2	58.1	56.2	55.1	56.0
Common stock & paid-in capital	22.3	32.0	38.2	45.8	51.2	63.7
Other long-term liabilities	0	0	0	0	0	0
Total liabilities & equity	102.6	133.7	145.0	152.8	221.3	249.9
Shares outstanding	1.3	1.5	1.8	1.7	1.4	1.7
Average price/share (high-low/ trading days)	18	19.5	21.2	16.3	10.1	12.2
Bond rating	AA	A	AB	BB	BB	BB
β	1.1	1.1	1.2	1.4	1.4	1.3
Risk-free rate	3.5	3.8	3.9	3.8	3.9	3.9
Market rate of return	11.1	12.2	14.3	15.3	14.2	15.1

CALCULATING NET OPERATING PROFITS LESS ADJUSTED TAXES   In order to calculate NOPLAT, it is first necessary to calculate three numbers from a firm's profit and loss statement and balance sheet: (1) earnings before interest and taxes (EBIT), (2) taxes on EBIT, and (3) changes in deferred income taxes. EBIT is calculated as

$$\text{EBIT} = \text{net sales} - (\text{cost of goods sold} + \text{selling, general, and administrative} \qquad \textbf{(2)}$$
$$\text{expenses} + \text{depreciation expense})$$

EBIT is calculated for our hypothetical firm in Panel A of Table 4. Taxes on EBIT are calculated as

$$\text{Taxes on EBIT} = \text{provision for income taxes} + \text{tax shield on interest} \quad \quad (3)$$
$$\text{expense} - (\text{tax on interest income} + \text{tax on nonoperating profit})$$

Provision for income taxes is usually reported in a firm's financial statements. To calculate tax shield on interest expense, tax on interest income, and tax on nonoperating profit, it is usually necessary to multiply a firm's interest expense, interest income, and nonoperating profit by its marginal tax rate. The marginal tax rate is set by statute and should include all national and regional taxes. Taxes on EBIT are calculated for our hypothetical firm in Panel B of Table 4.

Changes in deferred income taxes are calculated by comparing a firm's deferred income taxes in a year with its deferred income taxes in the previous year. The calculation of changes in deferred income taxes for our hypothetical firm is presented in Panel C of Table 4.

NOPLAT is calculated by combining EBIT, taxes on EBIT, and changes in deferred income taxes in the following way:

$$\text{NOPLAT} = \text{EBIT} - \text{taxes on EBIT} + \text{changes in deferred income taxes} \quad \quad (4)$$

NOPLAT is calculated for our hypothetical firm in Panel D of Table 4.

TABLE 4 Calculating NOPLAT from the Profit and Loss Statement (Table 2) and Balance Sheet (Table 3) for a Hypothetical Firm Assuming This Firm's Deferred Income Tax in 2004 Equaled $8.8 Million and Its Marginal Tax Rate Is 40% ($ million)

Panel A: Calculating EBIT						
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Net sales ($)	182.3	193.4	205.3	231.1	229.2	255.3
Cost of goods sold ($)	125.1	132.8	145.1	168.2	162.1	182.2
SGA ($)	18.3	21.7	24.5	28.7	32.3	29.2
Depreciation expense ($)	8.5	10.1	13.1	8.2	15.4	14.2
EBIT ($)	30.4	28.8	22.6	26.0	19.4	29.7

EBIT = net sales − (cost of goods sold + selling, general, and administrative expense[SGA] + depreciation expense)

Panel B: Calculating Taxes on EBIT						
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Provision for income taxes ($)	10.2	9.1	8.6	12.1	10.1	11.2
Tax shield on interest expense[1] ($)	.24	.32	.36	.84	.16	.32
Tax on interest income[2] ($)	.16	.12	.28	.48	.08	.16
Tax on nonoperating profit[3] ($)	0	0	0	0	0	0
Taxes on EBIT ($)	10.28	9.3	8.68	12.46	10.18	11.36

Taxes on EBIT = Provision for income taxes + tax shield on interest expense − (tax on interest income + tax on nonoperating profit)

TABLE 4   (*Continued*)

Panel C:
Calculating Changes in Deferred Income Taxes

	2005	2006	2007	2008	2009	2010
Changes in deferred income tax ($)	0.4	2.1	3.1	3.2	10.1	1.0

Changes in deferred income taxes = (deferred tax $_{t-1}$ − deferred tax$_t$)

Panel D:
Calculating NOPLAT

	2005	2006	2007	2008	2009	2010
EBIT	30.4	28.81	22.6	16.0	19.4	29.7
Taxes on EBIT	10.28	9.3	8.68	12.46	10.18	11.36
Changes in deferred income tax	.4	2.1	3.1	3.2	10.1	1.0
NOPLAT	19.72	17.4	10.82	10.34	(.88)	17.34

NOPLAT = EBIT −taxes on EBIT + change in deferred income taxes

[1]Marginal tax rate × interest expense
[2]Marginal tax rate × interest income
[3]Marginal tax rate × nonoperating profit

CALCULATING INVESTED CAPITAL   Invested capital is the amount of money a firm has invested in the operations of its businesses. Invested capital is calculated as

$$
\begin{aligned}
\text{Invested capital} = \ &(\text{operating current assets} \\
&+ \text{book value of fixed current assets}) \\
&- (\text{net other operating assets} \\
&+ \text{non-interest-} + \text{bearing current liabilities}) \quad (5)
\end{aligned}
$$

As shown in Panel A of Table 5, operating current assets equals the sum of a firm's operating cash, accounts receivable, inventories, and other current assets. Panel B of Table 5 shows that the book value of current fixed assets equals the sum of a firm's gross property, plant, and equipment less accumulated depreciation. Panel C of Table 5 calculates net other operating assets as equal to a firm's other assets minus its other liabilities. Non-interest-bearing current liabilities equal a firm's accounts payable plus other accrued liabilities and is calculated in Panel D of Table 5. Finally, invested capital is calculated for our hypothetical firm in Panel E of Table 5.

CALCULATING THE WEIGHTED AVERAGE COST OF CAPITAL   A firm's WACC is the weighted average of the marginal costs of all of a firm's sources of capital, including its debt and equity. The precise calculation of a firm's WACC can be quite complicated. However, a simplified approach involves estimating a firm's cost of debt, estimating a firm's cost of equity, weighting the cost of each of these sources of capital, and then summing these figures.

   The Cost of Debt.   Different kinds of debt have different costs. In general, the cost of a firm's debt can be estimated based on the quality of that debt as evaluated by Moody's, Standard and Poor's, or some other bond-rating service. If a firm's debt is rated say, AA, and the cost of AA-rated debt is currently 12 percent, then 12 percent is not an unreasonable estimate of the current

TABLE 5   Calculating Invested Capital from the Profit and Loss Statement (Table 2) and Balance Sheet (Table 3) for a Hypothetical Firm Assuming This Firm's Deferred Income Tax in 2004 Equaled $8.8 Million and Its Marginal Tax Rate Is 40% ($ million)

Panel A:
Calculating Operating Current Assets

	2005	2006	2007	2008	2009	2010
Operating cash ($)	2.8	3.1	4.2	5.3	5.1	6.8
Accounts receivable ($)	17.0	19.2	27.3	28.7	32.1	36.5
Inventory ($)	2.0	3.1	8.5	7.6	28.7	17.9
Other current assets ($)	3.2	10.3	4.8	8.1	12.1	21.2
Operating current assets ($)	25.0	35.7	44.8	49.7	78.0	82.4

Operating current assets = operating cash + accounts receivable +
inventory + other current assets

Panel B:
Calculating Book Value of Fixed Current Assets

	2005	2006	2007	2008	2009	2010
Gross property, plant, and equipment ($)	81.3	89.3	96.1	107.3	138.2	149.3
Accumulated depreciation ($)	24.2	31.2	35.1	38.4	44.4	41.2
Book value of fixed current assets ($)	57.1	58.1	61.0	68.9	93.8	108.1

Book value of fixed current assets = gross property,
plant, and equipment − accumulated depreciation

Panel C:
Calculating Net Operating Other Assets

	2005	2006	2007	2008	2009	2010
Other operating assets ($)	3.4	12.7	11.1	14.2	33.3	44.4
Other long-term liabilities ($)	0	0	0	0	0	0
Net other operating assets ($)	3.4	12.7	11.1	14.2	33.3	44.4

Net operating other assets = other operating assets − other long-term liabilities

Panel D:
Calculating Non-Interest-Bearing Current Liabilities

	2005	2006	2007	2008	2009	2010
Accounts payable ($)	6.6	12.2	10.8	8.9	24.7	22.2
Accrued liabilities ($)	4.3	7.7	8.3	9.2	21.7	24.5
Non-interest-bearing current liabilities ($)	10.9	19.9	19.1	18.1	46.4	46.7

Non-interest-bearing current liabilities = accounts payable + accrued liabilities

Panel E:
Calculating Invested Capital

	2005	2006	2007	2008	2009	2010
Operating current assets ($)	25.0	35.7	44.8	49.7	78.0	82.4
Book value of fixed current assets ($)	57.1	58.1	61.0	68.9	93.8	108.1
Net other operating assets ($)	3.4	12.7	11.1	14.2	33.3	44.4
Non-interest-bearing current liabilities ($)	10.9	19.9	19.1	18.1	46.4	46.7
Invested capital ($)	68.0	61.2	75.6	86.3	92.1	99.4

Invested capital = (operating current assets + book value of fixed current assets) − (net other operating assets + non-interest-bearing current liabilities)

pretax cost of this debt. If a firm's debt is rated CCC (a high-yield or "junk-bond" rating), and the cost of CCC-rated debt is currently 22 percent, then the pretax cost of this high-yield debt is currently 22 percent. If a firm's debt is not rated by one of the major bond-rating services, then it is necessary to identify a firm similar to the firm whose cost of capital is being estimated whose debt is rated. This rating can be used as a basis for calculating the pretax cost of debt.

If a firm's interest payments are tax-deductible, then the pretax cost of debt must be adjusted to reflect the tax benefits of debt. This is done by multiplying the cost of a firm's debt times one minus that firm's marginal tax rate:

$$\text{After-tax cost of debt} = (1 - \text{marginal tax rate}) \text{ cost of debt} \qquad (6)$$

The calculation of a firm's cost of debt is complicated by the existence, for many firms, of quasi-debt forms of financing such as operating leases, capital leases, and preferred stock. If these quasi-debt forms of financing are a significant part of a firm's capital structure, additional work must be done to calculate the cost of a firm's debt. On the other hand, if these quasi-debt forms of financing are not a significant portion of a firm's capital structure, then the approach to calculating a firm's after-tax cost of debt, as in equation 6, is sufficient. This is done for our hypothetical firm in Panel A of Table 6.

The Cost of Equity. There are two approaches to estimating a firm's cost of equity. One applies the capital asset pricing model (CAPM), the other applies arbitrage pricing theory (APT). Only the CAPM approach to estimating the cost of equity will be described here. The CAPM can be written as

$$\text{Cost of equity} = RFR_t + \beta_j \left[E(R_{m,t}) - RFR_t \right] \qquad (7)$$

where

RFR_t = the risk-free rate of return in time t

β_j = firm j's systematic risk

$E(R_{m,t})$ = the expected rate of return on a fully diversified portfolio of securities at time t

TABLE 6 Calculating the Weighted Average Cost of Capital from the Profit and Loss Statement (Table 2) and Balance Sheet (Table 3) for a Hypothetical Firm Assuming This Firm's Deferred Income Tax in 2004 Equaled $8.8 Million and Its Marginal Tax Rate Is 40%

	Panel A: Calculating the After-Tax Cost of Debt					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Cost of debt[1] (%)	.08	.083	.094	.102	.104	.106
After-tax cost of debt (%)	.048	.049	.056	.061	.062	.064

After-tax cost of debt = (1 − marginal tax rate) cost of debt

	Panel B: Calculating the Cost of Equity					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Risk-free rate (%)	.035	.038	.039	.038	.039	.039
β	1.1	1.1	1.2	1.4	1.4	1.3
Market rate (%)	.111	.122	.143	.153	.142	.151
Cost of equity (%)	.119	.130	.164	.199	.183	.185

Cost of equity = risk-free rate + β (market rate − risk-free rate)

	Panel C: Calculating the Weighted Average Cost of Capital					
	2005	**2006**	**2007**	**2008**	**2009**	**2010**
After-tax cost of debt (%)	.048	.049	.056	.061	.062	.064
Cost of equity (%)	.119	.130	.164	.199	.183	.185
Liabilities/firm market value (%)	.25	.33	.34	.33	.52	.52
Equity/firm market value (%)	.75	.67	.66	.67	.48	.48
Weighted average cost of capital (%)	.101	.139	.127	.1534	.120	.121

$$\text{Weighted average after-tax cost of debt} = \frac{\text{market value of debt}}{\text{firm's market value}}(\text{after-tax cost of debt})$$

$$\text{Weighted average cost of equity} = \frac{\text{market value of equity}}{\text{firm's market value}}(\text{cost of equity})$$

Weighted average cost of capital = weighted average after-tax cost of debt + weighted average cost of equity

[1]Based on bond rating in Table 5

and where, theoretically,

$$\beta_j = \frac{\text{COV}(R_j, R_m)}{\text{VAR}(R_m)} \tag{8}$$

where

$\text{COV}(R_j, R_m)$ = the covariance between returns from firm j's securities and the overall securities market

$\text{VAR}(R_m)$ = the variance of overall security market returns

Empirically, each of the variables in the capital asset pricing model, except one, can be measured directly. For example, a reasonable measure of the risk-free rate of return in a time period (RFR_t) is the interest rate on government securities during that period. A reasonable measure of the expected market rate of return during a period [$E(R_{m,\,t})$] is the actual rate of return of various stock market indices, including the New York Stock Exchange common stock index or the Standard and Poor's composite index. The remaining variable in equation 7, β_j, can be estimated by rewriting equation 7 in the form of a statistical multiple-regression equation as

$$R_{j,\,t} = a_j + b_j R_{m,\,t} + e_{j,\,t} \tag{9}$$

where

$R_{j,\,t}$ = the actual return of firm j's securities at time t

a_j = a constant equal to $(1 - b_j)RFR_t$

b_j = an estimate of β_j

$R_{m,\,t}$ = the rate of return on a fully diversified portfolio of securities at time t

$e_{j,\,t}$ = the error in estimating $R_{j,\,t}$

The value of b_j in equation 9 can be estimated through regression analysis, and is an empirical estimate of β_j.

The cost of equity for our hypothetical firm is calculated in Panel B of Table 6.

Weighting the Components of a Firm's Cost of Capital. The cost of each source of capital needs to be weighted by the percentage of a firm's total capital that takes that form. This is done for debt and equity by

$$\text{Weighted after-tax cost of debt} = \frac{\text{market value of debt}}{\text{firm's market value}} \, (\text{after-tax cost of debt}) \tag{10}$$

$$\text{Weighted cost of equity} = \frac{\text{market value of equity}}{\text{firm's market value}} \, (\text{cost of equity}) \tag{11}$$

A reasonable estimate of the market value of a firm's debt is simply the book value of that debt. This information is usually found in a firm's balance sheet. The market value of equity is calculated by multiplying the number of a firm's shares outstanding by the price per share. In order to avoid significant changes in the market value of equity due to short-term stock price fluctuations, it is usually appropriate to calculate a firm's price per share as an average over some period of time. These calculations are done for our hypothetical firm in Panel C of Table 6.

Finally, a firm's WACC is calculated as

$$\text{WACC} = (\text{weighted after-tax cost of debt}) + (\text{weighted cost of equity}) \tag{12}$$

The WACC for our hypothetical firm is also calculated in Panel C of Table 6.

CALCULATING A FIRM'S RETURN ON INVESTED CAPITAL With a firm's NOPLAT, invested capital, and WACC now calculated, it is possible to calculate ROIC and EP. This is done in Table 7. In this table, ROIC is calculated as

$$\text{ROIC} = \frac{\text{NOPLAT}}{\text{invested capital}} \tag{13}$$

TABLE 7 Calculating ROIC and EP from the Profit and Loss Statement (Table 2) and Balance Sheet (Table 3) for a Hypothetical Firm Assuming This Firm's Deferred Income Tax in 2004 Equaled $8.8 Million and Its Marginal Tax Rate Is 40%

Panel A:
Calculating ROIC

	2005	2006	2007	2008	2009	2010
NOPLAT ($)	19.72	17.4	10.82	10.34	(.88)	17.34
Invested capital ($)	68.0	61.2	75.6	86.3	92.3	99.4
ROIC (%)	.29	.284	.143	.119	(.009)	.174
Weighted average cost of capital (%)	.101	.139	.127	.153	.120	.121

$$ROIC = \frac{NOPLAT}{invested\ capital}$$

Panel B:
Calculating ROIC Adjusted for Goodwill

	2005	2006	2007	2008	2009	2010
NOPLAT ($)	19.72	17.4	10.82	10.34	(.88)	17.34
Invested capital ($)	68.0	61.2	75.6	86.3	92.3	99.4
Goodwill ($)	17.4	27.1	28.1	20.0	15.9	15.0
Amortization of goodwill ($)	3.0	4.2	3.5	2.1	1.1	1.2
Adjusted ROIC (%)	.275	.257	.143	.119	.002	.164
Weighted average cost of capital (%)	.101	.139	.127	.153	.120	.121

$$ROIC\ adjusted\ for\ goodwill = \frac{NOPLAT + amortization\ of\ goodwill}{invested\ capital + (goodwill - amortization\ of\ goodwill)}$$

Panel C:
Calculating EP

	2005	2006	2007	2008	2009	2010
Invested capital	68.0	61.2	75.6	86.3	92.3	99.4
ROIC (%)	.29	.284	.143	.119	(.009)	.174
Weighted average cost of capital (%)	.101	.139	.127	.153	.120	.121
EP ($)	12.9	8.9	1.2	(2.9)	(11.1)	5.3

$$EP = invested\ capital \times (ROIC - WACC)$$

ROIC equals a firm's operating profits divided by the amount of capital invested in a company and characterizes a firm's return on its capital (in percentage terms) for a given time period. If a firm's ROIC is greater than its WACC, that firm is generating profits in excess of the capital required to generate these profits. This is consistent with a firm achieving superior performance. In a similar way, a firm with an ROIC less than its WACC is achieving inferior economic performance.

Goodwill in Calculating ROIC.   The treatment of one important component of the balance sheet of many firms in calculating ROIC has yet to be discussed. This component is goodwill. **Goodwill** is defined as the difference between the market value of an asset and the price a firm paid to acquire that asset. Firms pursuing an acquisition strategy will often have to pay a premium over the market price of a target to complete the acquisition of that target.

From an accounting point of view, goodwill is included as an asset on a firm's balance sheet. Some firms can accumulate substantial amounts of goodwill, especially if they have engaged in numerous acquisitions.

Technically, it is not difficult to incorporate goodwill into the calculation of a firm's ROIC. In calculating a firm's invested capital, the total amount of goodwill on a firm's balance sheet, before cumulative amortization of goodwill, should simply be added to equation 5. Also, in calculating NOPLAT, the amortization of goodwill should not be subtracted from equation 4. Incorporating goodwill into the calculation of a firm's ROIC in this way implicitly recognizes that goodwill, unlike the physical assets a firm purchases, does not wear out and is not replaced. The incorporation of goodwill is done for our hypothetical firm in Panel B of Table 7.

It has been suggested that a firm's ROIC should be calculated both including its goodwill and not including its goodwill.[19] ROIC without including goodwill measures the operating performance of a firm; it can be used to compare the performance of different firms and of a single firm over time. On the other hand, calculating ROIC including goodwill measures how well a firm has invested its capital—in particular, whether it has generated a return on its capital in excess of the cost of its capital, taking into consideration the premiums it has paid to gain access to some assets. If a firm has overpaid for several assets (that is, if it has paid in expectation of an operating profit that has not been forthcoming), then that firm could have an ROIC, excluding goodwill, greater than the cost of capital, but an ROIC, including goodwill, less than the cost of capital.

CALCULATING A FIRM'S ECONOMIC PROFIT   Not surprisingly, a firm's EP and its ROIC are closely related. Whereas ROIC characterizes a firm's performance in terms of a percentage return on invested capital, EP calculates the actual economic value created by a firm in a given time period in dollar terms. EP is calculated as

$$\text{EP} = \text{invested capital} \times (\text{ROIC} - \text{WACC}) \qquad \textbf{(14)}$$

If a firm is earning superior performance, the difference between ROIC and WACC will be positive. Suppose this difference is 8 percent. Then the economic value that this firm would have created during a given time period would be 8 percent times its invested capital. Note that WACC is subtracted from a firm's ROIC, and the result is multiplied by the capital invested in a firm to see how much wealth (measured in dollars) a firm created over and above the cost of the capital required to generate these profits in a given time period.

Of course, if a firm's WACC is greater than its ROIC, then the firm's calculated EP will be negative and becomes a measure of how much value the firm destroyed in a given time period. The calculation of EP for our hypothetical firm is presented in Panel C of Table 4.

CALCULATING TOBIN'S Q   ROIC and EP provide a great deal of information about the performance of a firm over a defined period of time. Unfortunately, both of these performance measures require information about a firm's cost of capital. And, as was suggested earlier, calculating a firm's WACC can be very difficult, especially if a firm is using a wide variety of domestic

and international sources of capital. In this setting, it can be convenient to adopt an approach to characterizing a firm's performance that avoids many of the problems of simple accounting measures of performance but does not rely on the explicit calculation of a firm's WACC. This is what Tobin's q does.

Conceptually, **Tobin's q** is defined as the ratio of a firm's market value to the replacement cost of its assets.[20] If a firm has assets that would cost, say, $10,000 to replace, and the market perceives the value of this firm to be, say, $50,000, this firm has taken assets worth $10,000 and generated $50,000 with them—a condition consistent with creating economic value. Thus, a q greater than 1.0 is an indicator that a firm is generating superior performance. Similarly, a q less than 1.0 suggests that a firm is generating low levels of performance.

As with the other adjusted accounting measures of performance discussed here, the numerator and denominator of q must be estimated from numbers on a firm's profit and loss statement and balance sheet.[21] The market value of a firm can be calculated as

$$
\begin{aligned}
\text{Firm market value} = \ & \text{market value of common stock} \\
& + \text{Market value of preferred stock} \\
& + \text{book value of a firm's short-term debt} \\
& + \text{book value of a firm's long-term debt}
\end{aligned}
\tag{16}
$$

The market value of common stock is calculated as the number of firm shares outstanding times the price per share at the end of a given time period. Alternatively, one can calculate the average number of shares outstanding over some time period, as well as the average price per share over this same time period, and obtain the market value of common stock.

If a firm's preferred stock is traded frequently, then the market value of preferred stock can be calculated in a way that parallels the calculation of the market value of common stock—that is, number of shares of preferred stock outstanding times the ending price per share of preferred stock. If the stock is not traded frequently, then the market value of preferred stock will equal a firm's total preferred dividends capitalized by the Standard and Poor's preferred stock yield index. Fortunately, the market value of preferred stock is reported by one of the most widely available sources of accounting information about a firm—Compustat.

The book value of a firm's short-term debt is the difference between the value of a firm's short-term liabilities and its short-term assets. The book value of a firm's long-term debt is taken directly from a firm's balance sheet.

Several different approaches have been proposed for calculating the replacement value of a firm's assets. The simplest of these approaches is to take a firm's period-ending book value of total assets as an estimate of the replacement value of those assets and calculate q as

$$
q = \frac{\text{firm market value}}{\text{book value of total assets}}
\tag{17}
$$

Obviously, it is important to calculate the numerator and denominator of q over the same time periods.

This simple approach to estimating q has been criticized on several grounds.[22] For example, it has been suggested that the market value of a firm's total short- and long-term debt is more appropriate to include in q's numerator than the book value of debt. Also, a variety of techniques have been used to develop more accurate estimates of the actual replacement cost of a firm's assets.[23] Clearly, if a firm has had assets in place for some time, the actual replacement cost of those assets and the book value of those assets can be significantly different, thereby inflating q.

TABLE 8 Calculating Tobin's *q* for a Hypothetical Firm

	2005	**2006**	**2007**	**2008**	**2009**	**2010**
Shares outstanding	1.3	1.5	1.8	1.7	1.4	1.7
Average market price	18.0	19.5	21.2	16.3	10.1	12.2
Market value of common stock	23.4	29.25	38.16	27.71	14.14	20.74
Current assets	25.0	35.8	44.8	49.7	78.2	82.4
Current liabilities	11.0	20.4	20.0	20.4	56.2	58.7
Book value of short-term debt	14.0	15.4	24.8	29.3	22.0	23.7
Book value of long-term debt	5.0	12.8	14.3	19.2	37.5	49.2
Firm market value	42.4	57.45	77.26	76.2	73.64	93.64
Book value of fixed assets	57.1	58.1	61.0	68.9	93.8	108.1
Tobin's *q*	.74	.99	1.27	1.11	.79	.87

Although these are real limitations to the calculation of an accurate q, they are at least partially compensated for by the simplicity of calculating q in this manner. Moreover, some recent research suggests that this simple form of calculating q is highly correlated with more sophisticated and presumably more accurate approaches to this calculation.[24] Tobin's q is calculated for our hypothetical firm in Table 8.

WEAKNESSES OF ADJUSTED ACCOUNTING MEASURES OF FIRM PERFORMANCE Although ROIC, EP, MVA, and Tobin's q all provide important information about the historical performance of a firm, and although all these measures avoid some of the weaknesses of simple accounting measures of firm performance, these measures nevertheless have some important weaknesses.

Measurement Problems in Estimating β. Theoretically, it should be possible to estimate β_j with b_j, as in equation 9. However, this estimation can be problematic. The traditional approach for estimating β_j described previously seems straightforward enough—that is, simply estimate the statistical regression in equation 9. However, slight modifications in how the variables in equation 9 are measured can lead to different β_j estimates. For example, Merrill Lynch's approach to estimating b_j is based on monthly capital gains for an individual security ($R_{j,\,t}$) and for the market as a whole ($R_{m,\,t}$), where market returns are estimated using the Standard and Poor's 500 Index. The resulting regression equation is then adjusted according to the criteria developed by Blume.[25] Value Line, on the other hand, estimates b_j using weekly capital gains return data and uses the New York Stock Exchange Composite Index as a measure of market returns. The resulting regression equation is again adjusted according to Blume's method. Unfortunately, the betas calculated in these different ways can vary. Indeed, research has shown that these two estimates of β are statistically different from one another even though they use the same empirical equation—equation 9—and only slightly different measures of variables.[26]

Further, the estimate of β_j typically requires a relatively long data series, both for the returns of an individual firm's securities and for expected market rates of returns. This requirement is not a problem for firms that have existed for long periods of time or for calculating expected market rates of return. However, if a firm has a relatively brief history, it may be statistically impossible to estimate its β_j.

Theoretical Mis-specification of the CAPM.   Another limitation of adjusted accounting measures of performance concerns the theoretical validity of the CAPM. As suggested previously, the CAPM can be used to calculate a firm's cost of equity. Unfortunately, there is a growing consensus that this model is an incomplete explanation of how returns on a firm's securities are generated.

If the CAPM is complete, and if capital markets are efficient, then empirical estimations of equation 9 should reveal that a_j is not significantly different from zero and that b_j should be the only statistically significant factor to explain a firm's security performance. Unfortunately, empirical research is simply not consistent with these expectations: a_j is often significantly different from zero, and other factors besides b_j have a significant effect in explaining a firm's security returns, even when controlling for b_j.[27] These results suggest that the CAPM is an incomplete model, that capital markets are not efficient, or both. Roll has concluded that it is logically *impossible* to conduct separate tests of the completeness of the CAPM and capital market efficiency, and thus not possible to evaluate the completeness of the CAPM fully.[28] The development of the arbitrage pricing theory is an effort to overcome the limitations of the CAPM.[29]

Intangible Resources and Capabilities and Adjusted Accounting Measures of Performance.   One of the important limitations of simple accounting measures of firm performance discussed earlier was the inability of these measures to incorporate information about the cost of acquiring or developing intangible resources and capabilities in a firm. Many of these limitations carry over to adjusted accounting measures of firm performance.

Consider, for example, Tobin's q. This measure uses the replacement cost of a firm's assets as its denominator. The simple approach to calculating q presented in this chapter uses the book value of a firm's assets as an estimate of replacement costs. More sophisticated approaches to calculating q use more complicated approaches to estimating the replacement value of a firm's assets. However, none of these approaches incorporates the full cost of replacing a firm's intangible resources and capabilities, because the full cost of these intangible assets is not incorporated into a firm's balance sheet. This can lead to significant inaccuracies in calculating a firm's q, especially when a firm has significant investments in intangible resources and capabilities such as brand name, relationships with suppliers, relationships with buyers, teamwork among employees, and so forth.

Other Measures of Firm Performance

Although the simple accounting and adjusted accounting approaches to measuring firm performance have received a great deal of attention in the literature, a variety of other techniques are also useful. Some of the most important of these are discussed in this section.

EVENT STUDY MEASURES OF PERFORMANCE   It is possible to use the stock market's reaction to the implementation of a particular strategy to gauge the value created (or destroyed) by that strategy. This approach is rooted firmly in the theory of finance and assumes that capital markets are efficient in the **semistrong form**—that is, the price of a firm's debt and equity fully reflects all publicly available information about the economic value of the firm.[30] This approach has come to be known as the **event study method**.[31]

The logic behind these event studies is quite simple. Imagine that a firm chooses and implements a valuable new strategy. A valuable new strategy will generate higher levels of economic performance for a firm after it is implemented compared to the economic performance of that firm before the strategy is implemented. In efficient capital markets, this greater economic performance will be reflected in higher stock market performance for this firm compared with its stock market performance before the strategy was implemented. In this approach to measurement, the

implementation of a new strategy marks the beginning of an **event.** An event ends when the capital markets adjust fully to the additional value created by the firm's new strategy. The period of time between the beginning of an event and the end of an event is called the **event window.**

A measure of the total value created by a strategic event is that event's **cumulative abnormal return,** or CAR. An event's CAR is computed in several stages. First, an individual firm's capital asset pricing model parameters (a_j and b_j) are estimated. This is done by regressing the stock market rate of return in time $t(R_{m,\,t})$ on a firm's actual rate of return in the stock market in time $t\,(R_{j,\,t})$, as in equation 18:

$$R_{j,\,t} = a_j + b_j R_{m,\,t} + e_{j,\,t} \tag{18}$$

All these variables are defined as in equation 19.

It is important that these parameters be estimated using a firm's market return data *outside* the event window of interest. Thus if a firm implements a new strategy in January 2010, the estimates of a_j and b_j for that firm should be based on its returns before January 2010. These parameter estimates can then be used to calculate excess returns for that firm ($XR_{j,\,t}$) in the event window, as in equation 19:

$$XR_{j,\,t} = R_{j,\,t} - (a_j + b_j R_{m,\,t}) \tag{19}$$

In this equation, $R_{j,\,t}$ is the actual stock market return a firm experiences in the event window—that is, after the firm has implemented its new strategy—and $(a_j + b_j\,R_{m,\,t})$ is the return this firm would have obtained if its historical performance had continued. If $XR_{j,\,t}$ is greater than zero for each time period, t, then the firm earned a greater than historically expected return in that period. $XR_{j,\,t}$ thus becomes a measure of superior performance. Of course, if $XR_{j,\,t}$ is less than zero, then a firm will have earned less than its historically expected return on its new strategy in each time period t. If $XR_{j,\,t}$ is equal to zero, the firm would have earned just its historically expected return in each time period t.

The cumulative effect of a new strategy on a firm's stock market performance is then measured by its cumulative abnormal return:

$$\mathrm{CAR}_j = \sum_{t=T_1}^{T_2} XR_{j,\,t} \tag{20}$$

where T_1 is the beginning of the strategic event and T_2 is the end of the strategic event. Whether a firm's cumulative abnormal return is large enough to conclude that it did not occur by chance (that is, large enough to be statistically significant) can be calculated by dividing a firm's CAR by the standard deviation of excess returns during the event window:

$$t_j = \frac{\mathrm{CAR}_j}{s_j} \tag{21}$$

where s_j is the standard deviation of $XR_{j,\,t}$ from time T_1 to time T_2. This statistics is normally distributed when the number of time periods in an event window is large. A t_j greater than 2.0 means the probability that a firm's CAR was generated by chance is less than .05.

Event studies are powerful measures of a firm's performance, but they, too, have limitations. First, it is sometimes difficult to specify a strategic event's beginning date. Firms sometimes have a strong incentive to keep the implementation of new and valuable strategies proprietary. Thus, specifying with any precision when a strategy is implemented can be difficult. Moreover, emergent strategies, in an important sense, have no starting date. They are described as strategies only after they have been implemented.

Second, even when a strategic event does have an explicit beginning date, information about a pending strategy may leak out to the capital markets before the strategy is officially implemented. As this information becomes public, it will be reflected in a firm's stock prices. Thus, by the time of the official announcement, much of the rise in the price of a firm's stock will already have occurred, because investors will have anticipated the valuable strategy that was announced. In this situation, a firm's CAR in the event window may not be statistically significant even though the strategy itself added significant value to the firm.[32]

Given these limitations, event study measures of economic performance are most applicable for analyzing the performance implications of intended and discrete strategies, such as mergers and acquisitions, organizational restructurings, and changes in management compensation.

Finally, these event study methods depend on the capital asset pricing model. Measurement problems associated with the CAPM, along with possible theoretical mis-specification, continue to be limitations for event study measures of firm performance.

SHARPE'S MEASURE   In Sharpe's measure of firm performance, a firm's stock market performance is compared to a firm's total risk.[33] Stock market performance is computed by taking the difference between a firm's stock market performance in some time interval ($R_{j,\,t}$) and the average risk-free rate of return during that same interval (RFR_t). A firm's total risk is measured as the standard deviation of its stock market returns in the time interval (sd_t). Thus, S_j is computed as

$$S_j = \frac{R_{j,\,t} - \text{RFR}_t}{\text{sd}_t} \tag{22}$$

The numerator in equation 22 can be thought of as a measure of the risk premium earned by a firm, and the denominator is the firm's total risk. Thus, S_j is a measure of a firm's return dollars per unit of risk. The higher the value of S_j, the greater the dollar return per unit of risk and the greater the economic performance of a firm.

THE TREYNOR INDEX   Treynor's index is similar to Sharpe's measure.[34] Whereas Sharpe's measure compares a firm's returns to total risk, Treynor's index compares returns to the firm's systematic risk, measured by β_j:

$$T_j = \frac{R_{j,\,t} - \text{RFR}_t}{\beta_j} \tag{23}$$

JENSEN'S ALPHA   Another alternative market-based measure of performance was proposed by Jensen.[35] This measure is computed by comparing a firm's stock market performance to its risk-adjusted expected performance:

$$R_{j,\,t} - \text{RER}_t = a_j + b_j(R_{m,\,t} - \text{RFR}_t) + e_j \tag{24}$$

where

$R_{j,\,t}$ = Firm j's stock market returns at time t

RFR_t = the risk-free rate of return at time t

a_j = an empirically determined CAPM parameter

a_j = an estimate of Firm j's systematic risk, β_j

$R_{m,\,t}$ = the stock market return for a fully diversified portfolio of stocks at time t

e_j = error

Notice that in equation 24, a_j is the only difference between the risk premium actually earned by Firm j ($R_{j,\,t} -$ RFR$_t$) and that firm's expected market performance, given its economic history $[b_j(R_{m,\,t} -$ RFR$_t) + e_j]$. A Jensen's alpha greater than zero suggests that a firm is outperforming the market (superior returns); an alpha less than zero suggests that a firm is underperforming the market; and an alpha equal to zero suggests that a firm is performing at market levels.

LIMITATIONS OF ALTERNATIVE MARKET MEASURES Each of these alternative performance measures was originally designed to evaluate the performance of an investment portfolio. Only recently have they begun to be applied to measuring firm performance. However, they continue to rely on assumptions that are usually more appropriate for valuing investment portfolios than for valuing firms. For example, both Sharpe's and Treynor's measures implicitly assume that the cost of capital for firms is equal to the risk-free interest rate. This is why both of these measures, in the numerator, calculate the difference between a firm's actual returns ($R_{j,\,t}$) with the risk-free return (RFR$_t$). Fully diversified investment portfolios are more likely to be able to obtain capital at this low risk-free rate. However, a firm's cost of capital is usually higher than this risk-free rate. Also, the Treynor index compares a firm's actual returns only to systematic risk (β_j), implicitly assuming that the firm has fully diversified away any unsystematic risk. Again, this may be a reasonable assumption for investment portfolios, but relatively few firms diversify away all unsystematic risk. Such unrelated diversification often reduces the wealth of a firm's shareholders. Finally, both Treynor's index and Jensen's alpha depend on the capital asset pricing model to compute a firm's systematic risk. All the limitations of the CAPM also apply to these measures.

Despite these limitations, these three alternative market measures, in combination with other measures of firm performance, can provide insight into a firm's economic position. Empirically, Sharpe's measure, Treynor's index, and Jensen's alpha are highly correlated. In a study of 160 diversified and nondiversified firms, it was found that the correlations among these performance measures ranged from .84 to .90 and were all statistically significant. However, the correlation between these three measures and two accounting measures of performance (firm ROA and ROE minus industry average ROA and ROE), although consistent, were much lower, ranging from .15 to .30. These correlations were still statistically significant. These results suggest that these alternative market measures of firm performance provide information about performance over and above simple accounting measures of performance.[36]

3 STAKEHOLDERS' ALTERNATIVES

All of the definitions and measures of firm performance discussed so far in this chapter share a common, often unstated assumption—that the primary objective of a firm is (and should be) maximizing the wealth of its shareholders. As **residual claimants,** shareholders receive any cash in excess of what is required to pay off a firm's other claimants. Those other claimants, according to this approach, largely determine a firm's costs. Generating revenues in excess of these costs creates cash that can be paid to shareholders, as residual claimants.

From another point of view, shareholders are just one of several different stakeholders in a firm. A firm's **stakeholders** are those institutions and groups that provide a firm with resources and thus have an interest in how a firm performs. Stakeholders include a firm's employees, customers, management, suppliers, debt holders, and even society at large. Because stakeholders provide resources, they have an interest in how those resources are used and applied. Also because each stakeholder provides different resources to a firm, each stakeholder can have a different interest in

how it would like to see the firm managed. In this multiple-stakeholders approach, one set of stakeholders may believe that a firm is a very high performer, another set may conclude that a firm is only a mediocre performer, and still another might conclude that a firm is performing poorly.[37]

Because different firm stakeholders use different criteria to judge a firm's performance, rarely will it be possible for an organization to implement strategies that completely satisfy all of its stakeholders. For example, a firm that fully satisfies its employees and managers by providing expensive non-business-related perquisites (such as chauffeur-driven limousines, numerous corporate jets, extra-thick carpeting in offices) may be reducing the economic wealth of its stockholders. Both of these stakeholding groups will not be fully satisfied simultaneously. A firm that fully satisfies its customers by selling high-quality products at very low prices may be reducing its profits, an action that reduces the potential gain of stockholders. Also, a firm that fully meets the needs of its stockholders by borrowing money for low-risk projects, by investing in high-risk projects, can end up increasing the risks borne by its debt holders.[38]

Understanding the performance implications of strategies becomes extremely complex in these situations. The implications of a particular strategy for each of a firm's numerous stakeholders would need to be isolated. As long as there is significant variance in these stakeholders' interests, this task can be challenging.

Several authors have argued that the unique status of equity holders as residual claimants reduces the need to think about a firm's stakeholders in evaluating performance. This argument suggests that because equity holders are residual claimants, they gain access to a firm's cash only after all other legitimate claims are paid. In this logic, a firm that maximizes the wealth of its equity holders automatically satisfies the legitimate demands of its other stakeholders.[39]

Recently, however, some scholars have begun observing that whenever a stakeholder makes an investment in a firm that is more valuable in that firm than any other firm, that stakeholder also becomes, to some extent at least, a residual claimant. For example, when an employee works for a single firm for many years, he or she develops a great deal of knowledge about how to get work done in that firm that is of little value in other firms. However, this kind of knowledge can be very valuable in the firm in which it was developed. It can even be a source of competitive advantage and superior performance. In general, however, employees (and other stakeholders) will only be willing to make these kinds of investments in a firm if they are able to share some of the economic profits they generate. In this sense, these employees (and other stakeholders) become residual claimants in the firm.

When multiple stakeholders have claims on a firm's residual cash flows, questions about how this cash should be divided among them, and what actions firms should engage in to satisfy these different stakeholders, both emerge. That is, questions about stakeholder interests—though they are complex—must nevertheless be addressed. The field of strategic management is only beginning to come to terms with these ideas.[40]

4 Summary

This chapter has examined the role of performance in strategic management. Conceptually, firm performance was defined by comparing the willingness of a firm's customers to pay and a firm's cost of developing and selling its products or services. The difference between these is known as economic value. Firms that create greater economic value than their competitors gain competitive advantages, which can be temporary or sustained; firms that create the same economic value as their competitors gain competitive parity;

those that create less end up with competitive disadvantages, which also can be temporary or sustained. Two classes of measures of this conceptualization of firm performance have been described: simple accounting measures and adjusted accounting measures (including ROIC, economic profit, MVA, event studies, Sharpe's measure, Treynor's index, and Jensen's alpha). All of these measures have both strengths and weaknesses. Finally, the challenges associated with applying a stakeholder approach to evaluating firm performance have also been described.

Review Questions

1. A firm is currently earning an economic profit. What effect will this current performance have on the expected performance of this firm in the future? What implications, if any, does your answer have for the strategizing efforts of managers?

2. Should a firm's managers attempt to gain superior profits from their strategizing efforts? Justify your answer from the point of view of stockholders, employees, customers, and society at large.

3. Economic definitions of firm performance have been criticized for focusing on only one of a firm's stakeholders—stockholders. Do you agree with this criticism? Why or why not?

4. You are on an airplane, sitting next to the president of a company, and she begins boasting about her firm's high ROA. What questions should you ask her to fully evaluate the performance of her firm? Suppose she is boasting about her firm's high EPS. What questions should you ask her to fully evaluate her firm's performance? Suppose she is boasting about her firm's ability to attract managerial and professional talent. What questions should you ask her to fully evaluate her firm's performance?

5. In the following tables, the profit-and-loss statement and balance sheet for Apple Computer in 2008 and 2009 are reproduced. Using these numbers, calculate Apple's ROA, ROE, gross profit margin, quick ratio, debt-to-equity ratio, inventory turnover, ROIC, and EP. Assume that Apple's marginal tax rate is .4 and that its deferred tax in 1997 was $35 million.

Financial Results for Apple Computer in 2008 and 2009 ($ millions)

Income:	2009	2008
Net sales	42,905	37,491
Cost of goods sold	25,683	24,294
Selling, general, and administrative expense	4,149	3,761
Other expenses[1]	1,333	1,109
Amortization of goodwill	176	123
Provision for Income taxes[3]	2,280	2,061
Interest income (net)[2]	326	620
Net Income	5,704	4,834

Total Assets:	2009	2008
Operating cash	23,437	22,111
Accounts receivable	3,361	2,422
Inventories	455	509
Other current assets	8,985	7,269
Total current assets	36,265	32,311
Book value of fixed assets[4]	13,482	4,834
Goodwill	423	408
Net other operating assets	3,651	1,935
Total assets	53,851	39,572

Liabilities and equity:	2009	2008
Net current liabilities[5]	19,282	14,092
Long term debt	6,737	4,450
Deferred income taxes	2,101	1,447
Preferred stock	0	0
Retained earnings	19,538	13,845
Shareholder's equity	27,832	21,030
Total liabilities & equity	53,851	39,572

Other financial information:	2009	2008
Shares outstanding	907 million	902 million
Price/share (average)	134.02	159.20
Bond rating	AA	AA
Beta	.65	.66
Risk-free rate	.01	.01
Market rate	.111	.112

[1] Includes R&D and restructuring costs
[2] Interest income − interest expense = interest income (net)
[3] Provision for income taxes in 2007: 1512
[4] Property, plant, and equipment net of depreciation
[5] Includes account payable, accrued expenses

Answers to Question 5		
Calculating Accounting Measures	**2009**	**2008**
Return on Assets	$\dfrac{5704}{53851} = 10.6\%$	$\dfrac{4834}{39572} = 12.2\%$
Return on Equity	$\dfrac{5704}{27832} = 20.5\%$	$\dfrac{4834}{21,032} = 22.9\%$
Gross Profit Margin	(2009) 42905 − 25683 = $17,222	
	(2008) 37491 − 24294 = $13,197	
Quick Ratio	$\dfrac{36265}{19282} = 1.88$	$\dfrac{32311}{14092} = 2.29$

Calculating ROIC and EP
EBIT (2009) = 42905 − (25683 + 4149 + 1333) = 11,740
EBIT (2008) = 37491 − (24294 + 3761 + 1109) = 8327
Taxes on EBIT(2009) = 326 + .4(455) + .4(0) = 508
Taxes on EBIT(2008) = 620 + .4(509) + .4(0) = 824
Changes in Deferred Income Taxes (2008 − 2009) = 2280 − 2061 = 219
Changes in Deferred Income Taxes (2007 − 2008) = 2061 − 1512 = 549
NOPLAT(2009) = 11740 – 508 + 219 = 11451
NOPLAT(2008) = 8327 – 823 + 549 = 8052

	2009	**2008**
Total current assets	36265	32311
Book value of fixed assets	13482	4834
Net other operating assets	3651	1935
Invested capital	53398	39080

$\text{ROIC (2009)} = \dfrac{11451}{53398} = 21.4\%$

$\text{ROIC (2008)} \dfrac{8052}{39080} = 20.6\%$

	2009	**2008**
After tax cost of debt	.048	.049
Cost of equity (2009) = .01 + .65(.11 − .01) = .075		
Cost of equity (2008) = .01 + .66(.11 − .01) = .076		
Weight of equity	$\dfrac{27832}{53851} = 51.7\%$	$\dfrac{21030}{39572} = 53.1\%$
Weight of debt	48.3%	46.9%

WACC(2009) = .517(.075) + .483(.048) = .062
WACC(2008) = .531(.076) + .469(.049) = .063
EP (2009) = 53398 × (.214 − .062) = $4,165
EP (2008) = 39080 × (.206 − .063) = $5,588

Endnotes

1. This definition of competitive advantage has a long history in the field of strategic management. For example, it is closely related to the definitions provided by J. B. Barney (1986, 1991) and M. C. Porter (1985). It is also consistent with the value-based approach described by M. A. Peteraf (2001), A. M. Brandenburger and H. W. Stuart, Jr. (1999), and D. Besanko, D. Dranove, and M. Shanley (2000). For more discussion on this definition, see M. A. Peteraf and J. B. Barney (2004).

2. D. C. Mueller, "The persistence of profits above the norm," *Economica* 44 (1977): 369–380.

3. G. F. Waring, "Industry Differences in the persistence of firm-specific returns," *The American Economic Review* (1996): 1253–1265.

4. P. W. Roberts, "Product Innovation, Product-Market Competition, and Persistent Profitability in the U.S. Pharmaceutical Industry," *Strategic Management Journal* 20 (1999): 644–670.

5. See E. I. Altman, "Financial Ratios, Discriminate Analysis and the Prediction of Corporate Bankruptcy," *Journal of Finance* 23 (1968) 589–609.

6. See I. G. Dambolona and S. J. Khoury, "Ratio Stability and Corporate Failure," *Journal of Finance* 35, no. 4 (1980): 1017–1026; and E. I. Altman, R. G. Haldemen, and P. Narayanan, "Zeta Analysis: A New Model to Identify Bankruptcy Risk of Corporations," *Journal of Banking and Finance* 1 (1977): 29–54. These adjustments include the standard deviation of some financial ratios in equation 1.

7. Two important papers in this tradition are R. L. Watts and J. L. Zimmerman, "Towards a Positive Theory of Determination of Accounting Standards," *Accounting Review* 53 (1978): 112–133; and R. L. Watts and J. L. Zimmerman, "Positive accounting theory: A Ten-Year Perspective," *Accounting Review* 65 (1990): 131–156.

8. See R. L. Watts and J. L. Zimmerman, *Positive Accounting Theory* (Upper Saddle River, NJ: Prentice Hall, 1986); and P. M. Healy, "The Effect of Bonus Schemes on Accounting Decisions," *Journal of Accounting & Economics* 7 (1985): 85–107.

9. See A. Kalay, "Stockholder-Bondholder Conflict and Dividend Constraints," *Journal of Financial Economics* 10 (1982): 211–233; E. G. Press and J. B. Weintrop, "Accounting-based Constraints in Public and Private Debt Agreements: Their Association with Leverage and Impact on Accounting Choice," *Journal of Accounting & Economics* 12 (1990): 65–95; J. Duke and H. Hunt, "An Empirical Examination of Debt Covenant Restrictions and Accounting-related Debt Proxies," *Journal of Accounting & Economics* 12 (1990): 45–63; and R. M. Bowen, E. W. Noreen, and J. M. Lacey, "Determinants of the Corporate Decision to Capitalize Interest," *Journal of Accounting & Economics* 3, no. 2 (1981): 151–179.

10. An incident at IBM is described in M. W. Miller and L. Berton, "Softer numbers: As IBM's Woes Grew, Its Accounting Tactics Got Less Conservative," *Wall Street Journal* April 7, 1993, p. A1.

11. See M. E. Zmijewski and R. L. Hagerman, "An Income Strategy Approach to the Positive Theory of Accounting Standard Setting/Choice," *Journal of Accounting & Economics* 3 no. 2 (1981): 129–149; and J. L. Zimmerman, "Taxes and Firm Size," *Journal of Accounting & Economics* 5 no.2 (1983) 119–149.

12. See T. K. Smith and E. Norten, "Throwing Curves: One Baseball Statistic Remains a Mystery," *Wall Street Journal*, April 2, 1993, p. A1; and M. Hymon, "Pity the Poor Owners? That's Rich," *BusinessWeek*, November 22, 1999, pp. 91+.

13. The role of intangible assets in creating competitive advantage is discussed in detail in Chapter 5. Some of the best discussions of the role can be found in J. B. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management* (1991) 99–120; I. Dierickx and K. Cool, "Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science* 35 (1989): 1504–1511; and H. Itami, *Mobilizing Invisible Assets* (Cambridge, MA: Harvard University Press, 1987).

14. Some of the best of this work can be found in F. M. Fisher and J. J. McGowan, "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits," *American Economic Review* 73 (1983): 82–97; F. M. Fisher, "Diagnosing Monopoly," *Quarterly Review of Economics & Business* 19 (1979): 7–33; J. L. Livingstone and G. L. Salamon, "Relationship Between the Accounting and the Internal Rate of Return measures: A Synthesis and Analysis," in J. L. Livingstone and T. J. Burns (eds.), *Income Theory and Rate of Return* (Columbus: Ohio State University Press, 1971); E. Solomon, "Alternative Rate of Return Concepts and Their Implications for utility regulation," *Bell Journal of Economics* (1970): 65–81; and T. R. Stauffer, "The Measurement of Corporate Rates of Return: A Generalized Formulation," *Bell Journal of Economics* 2 (1971): 434–469.

15. F. M. Fisher and J. J. McGowan, "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits," *American Economic Review* 73 (1983): 83. In this particular study, Fisher and McGowan examined only the implications of changing the accounting treatment of depreciation. And, using just this one potential adjustment to a firm's accounting procedures, they found these very substantial effects.

16. W. F. Long and D. J. Ravenscraft, "The Misuse of Accounting Rates of Return: Comment," *American Economic Review* 74 (1984): 494–500.

17. For example, see Y. Injiri, "Recovery Rate and Cash Flow Accounting," *Financial Executive* 48 no. 3

(1980): 54–60; and G. L. Salamon, "Accounting Rates of Return," *American Economic Review* 75 (1985): 495–504.

18. Much of the discussion in this section is taken from T. Copeland, T. Koller, and J. Murrin, *Valuation: Measuring and Managing the Value of Companies*, 2nd ed. (New York: John Wiley & Sons, 1995).

19. Ibid.

20. The methods described for calculating these three measures of economic performance are widely applicable. However, they may need to be adjusted according to specific accounting practices in an industry or country. Industries such as oil and gas exploration, movie production, and financial services have all developed specific accounting conventions that require additional adjustments to reported accounting numbers in order to calculate accurate estimates of the true conventions used in the United States, although some research suggests that these accounting differences are not very important [see F. D. S. Choi and R. M. Levich, *The Capital Market Effects of International Accounting Diversity* (Homewood, IL: Dow-Jones Irwin, 1990)]. When accounting conventions used by a firm are significantly different from generally accepted accounting principles in the United States, the approach to calculating the adjusted accounting measures described here will have to be modified. See Copeland, T. Koller, and J. Murrin, *Valuation: Measuring and Managing the Value of Companies*, 2nd ed. (New York: John Wiley & Sons, 1995) for more information.

21. This information was taken from Cooper's 10-K filings.

22. T. Copeland, T. Koller, and J. Murrin, *Valuation,* 165–166.

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27. See S. B. Perfect and K. K. Wiles, "Alternative constructions of Tobin's *q*: An empirical comparison," *Journal of Empirical Finance* 1 (1994): 313–341; B. H. Hall, "The Manufacturing Sector master file: 1959–1987" (working paper series no. 3366, National Bureau of Economic Research, Graduate Center, City University of New York,1990); and E. B. Lindenberg and S. A. Ross, "Tobin's *q* Ratio and Industrial Organization," *Journal of Business* 54 no. 1 (1981): 1–32.

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38. J. L. Treynor, "How to Rate Mutual Fund Performance," *Harvard Business Review* (January/February 1965): 63–75.

39. See M. C. Jensen, "The Performance of Mutual Funds in the Period 1945–64," *Journal of Finance* (May 1968): 389–416.

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41. See K. Cameron, "Effectiveness As Paradox: Consensus and Conflict in Conceptions of Organizational Effectiveness," *Management Science* 32 (1986): 539–553.

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43. T. Copeland, T. Koller, and J. Murrin (1995) provide a particularly articulate example of this argument.

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EVALUATING ENVIRONMENTAL THREATS

EVALUATING ENVIRONMENTAL THREATS

We have defined a firm's strategy as its theory of how to achieve high levels of performance in the markets and industries in which it is operating. Defining and measuring performance was then explored. Armed with these sets of ideas, it is now possible to explore the specific attributes that a firm's strategy must possess if it is to generate competitive advantages.

Some of these specific attributes have already been mentioned. In the strategic management process, both internal analysis—to understand a firm's strengths and weaknesses—and external analysis—to understand a firm's opportunities and threats—are required if firms expect to choose high-performance-generating strategies.

However, observing that it is important to understand threats and opportunities in a firm's environment and a firm's strengths and weaknesses is not the same as providing a rigorous theory-based set of tools to actually accomplish these analyses. These tools are the subjects of this chapter. This chapter focuses on environmental threats—how they can be identified and neutralized.

The tools described in this chapter—for describing a firm's threats and opportunities—are derived from a common theoretical perspective called the structure-conduct-performance paradigm. This chapter begins by describing this theoretical perspective and then turns to a discussion of how it has been applied, first, to identify a firm's threats and opportunities.

1 THE STRUCTURE-CONDUCT-PERFORMANCE MODEL

In the 1930s, a group of economists began developing an approach for understanding the relationships among a firm's environment, behavior, and performance. The original objective of this work was to describe conditions under which perfect-competition dynamics would *not* develop in an industry. Understanding when perfect-competition dynamics were not developing assisted government regulators in isolating those industries in which competition-enhancing regulations should be implemented.[1]

The theoretical framework that developed out of this effort became known as the structure-conduct-performance model (SCP). The term **structure** in this model refers to industry structure, measured by such factors as the number of competitors in an industry, the heterogeneity of products, and the cost of entry and exit. **Conduct** refers to specific firm actions in an industry, including price taking, product differentiation, tacit collusion, and exploitation of market power. **Performance** in the SCP model has two meanings: the performance of individual firms and the performance of the economy as a whole. The SCP model is summarized in Figure 1.

The logic that links industry structure to conduct and performance is well known. Attributes of the industry structure within which a firm operates define the range of options and constraints facing a firm. In some industries, firms have very few options and face many constraints. Firms in these industries generate, at best, returns that just cover their cost of capital in the long run, and social welfare (as traditionally defined in economics) is maximized. In this setting, industry structure completely determines both firm conduct and long-run firm performance.
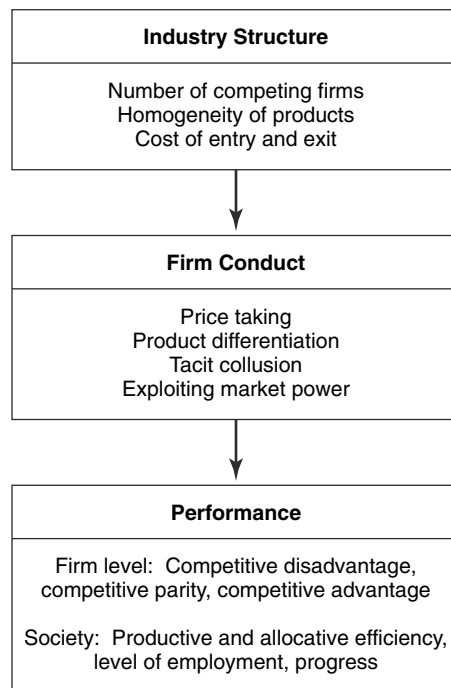

FIGURE 1   The Structure-Conduct-Performance Model