



## Note on the Structural Analysis of Industries

The essence of formulating competitive strategy is relating a company to its environment. Though the relevant environment is very broad, encompassing social as well as economic forces, the key aspect of the firm's environment is the industry or industries in which it competes. Industry structure has a strong influence in defining the competitive rules of the game as well as the strategies potentially available to the firm. Forces outside the industry are significant primarily in a relative sense; since outside forces usually affect all firms in the industry, the key is whether firms have differing abilities to deal with them.

The intensity of competition in an industry is neither a matter of coincidence nor bad luck. Rather, the nature of competition in an industry is rooted in its underlying economics and goes well beyond the established competitors already there. The state of competition in an industry depends on five basic competitive forces, which are shown in *Figure A*. The collective strength of these forces determines the ultimate profit potential in the industry, where profit potential is measured in terms of return on invested capital. Not all industries have equal potential. They differ fundamentally in their ultimate profit potential as the collective strength of the forces differs; the forces range from intense in industries like tires, paper, and steel, where no firm earns spectacular returns, to relatively mild in industries like oil field equipment and services, cosmetics, and toiletries, where high returns are quite common.

This note will be concerned with identifying the key *structural* features of industries that determine the strength of the competitive forces and hence industry profitability. The goal of competitive strategy for a business unit in an industry is to find a position in the industry where the company can best defend itself against these forces or can influence them in its favor. Since collective strength of the forces may well be painfully apparent to all competitors, the key for the strategist is to delve below the surface and analyze the sources of each. Knowledge of these underlying sources of competitive pressure highlights the critical strengths and weaknesses of the company, animates the positioning of the company in its industry, clarifies the areas where strategic changes may yield the greatest payoff, and highlights the places where industry trends promise to hold the greatest significance as either opportunities or threats. Understanding these sources will also prove to be useful in considering areas for diversification, though the primary focus here is on strategy in individual industries.

To avoid needless repetition, the term "product" rather than "product or service" will be used to refer to the output of an industry, even though both product and service businesses will be considered. These principles of structural analysis apply equally to product and service businesses.

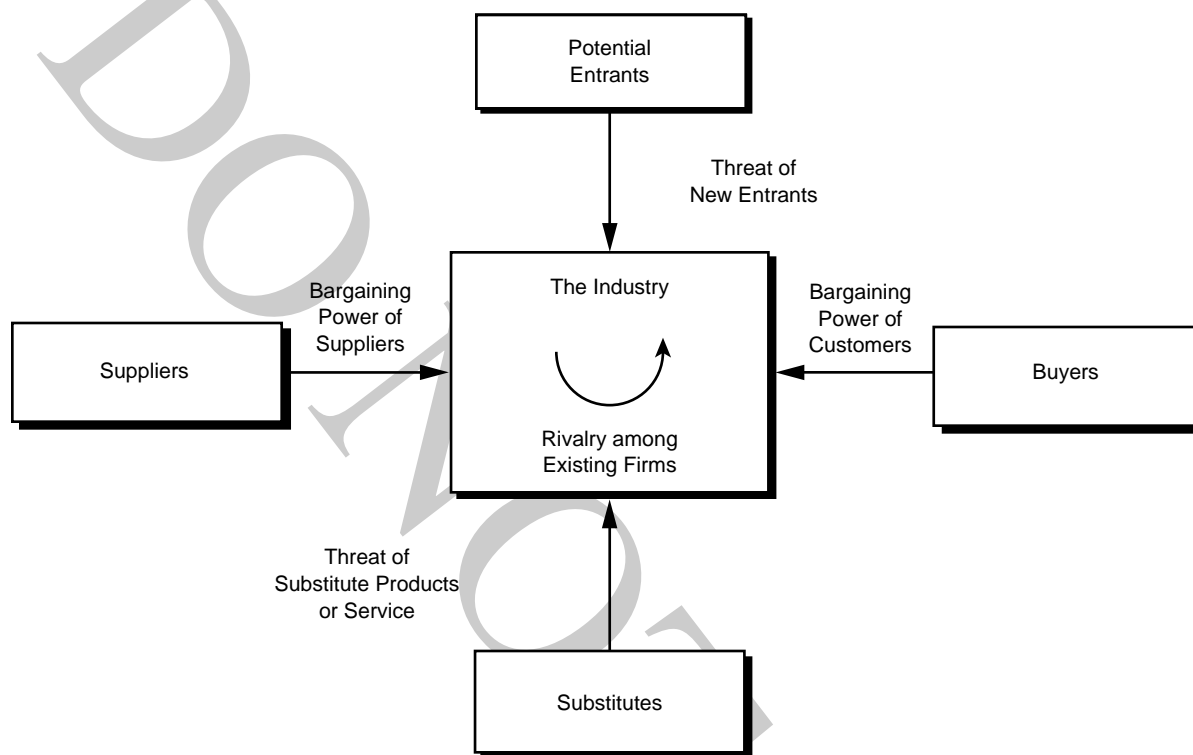
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*Associate Professor Michael E. Porter prepared this note as a basis for class discussion. The note is chapter one of Competitive Strategy: Techniques for Analyzing Industries and Competitors (New York: The Free Press, 1980), which contains a comprehensive framework for analyzing competition and formulating competitive strategy.*

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Structural analysis also applies to diagnosing industry competition in any country or in an international market, though some of the institutional circumstances may differ.

**Figure A** Forces Driving Industry Competition



## I. Structural Determinants of the Intensity of Competition

Let us adopt the working definition of an industry as the group of firms producing products that are close substitutes for each other. In practice there is often a great deal of controversy over the appropriate industry definition, centering around how close substitutability needs to be in terms of product, process, or geographic market boundaries. We will be in a better position to treat the issues in industry definition once the basic concept of structural analysis has been introduced, so it will be assumed that industry boundaries have already been drawn.

Competition in an industry continually works to drive down the rate of return on invested capital toward the competitive floor rate of return, or the return that would be earned by the economist's "perfectly competitive" industry. This competitive floor or "free market" return is approximated by capital loss. Investors will not tolerate returns below this rate in the long run because of their alternative of investing in government securities, and firms habitually earning less than this return will eventually go out of business. The presence of rates of return higher than the adjusted free market return serves to stimulate the inflow of capital into an industry either through new entry or through additional investment by existing competitors. The strength of the competitive forces in an industry determines the degree to which this inflow of investment drives the return to the free market level, and thus the ability of firms to sustain above-average returns.

The five competitive forces—entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers, and rivalry among current competitors—reflect the fact that competition in an industry goes well beyond the established players. Customers, suppliers, and

potential entrants are all “competitors” to firms in the industry that may be more or less prominent depending on the particular circumstances. Competition in this broader sense might be termed *extended rivalry*.

All five competitive forces jointly determine the intensity of industry competition and profitability, and the strongest force or forces are governing and become crucial from the point of view of strategy formulation. For example, even a company with a very strong market position in an industry where potential entrants are no threat will earn low returns if it faces a superior, lower-cost substitute. Even with no substitutes and blocked entry, intense rivalry among existing competitors will limit potential returns. The extreme case is the economist’s perfectly competitive industry, where entry is free, existing firms have no power against suppliers and customers, and rivalry is unbridled because there are numerous firms and products all alike.

Different forces take on prominence, of course, in shaping competition in each industry. In the ocean-going tanker industry the key force is probably the buyers (the major oil companies), while in tires it is powerful OEM (original equipment manufacturer) buyers coupled with tough competitors. In the steel industry the key forces are foreign competitors and substitute materials.

The underlying structure of an industry, reflected in the strength of the competitive forces, should be distinguished from the many short-run factors that can affect competition and profitability in a transient way. For example, fluctuations in economic conditions over the business cycle influence the short-run profitability of nearly all firms in many industries, as can material shortages, strikes, spurts in demand, and the like. While such factors may have tactical significance, the focus of structural analysis is on identifying the stable, underlying characteristics of an industry rooted in its economics and technology that shape the arena in which competitive strategy must be set. Industry structure can shift over time, and firms will each have unique strengths and weaknesses in dealing with structure. Yet understanding industry structure must be the starting point for strategic analysis.

A number of key economic and technical characteristics of an industry are critical to the strength of each competitive force. These will be discussed in turn.

## Threat of Entry

New entrants to an industry bring new capacity, the desire to gain market share, and often substantial resources. Prices can be bid down or costs inflated as a result, reducing profitability. Companies diversifying through acquisition into the industry from other markets often leverage their resources to cause a shake-up, as Philip Morris did with Miller beer. Thus acquisition into an industry with intent to build position should probably be viewed as entry even though no entirely new entity is created.

The threat of entry into an industry depends on the *barriers to entry* that are present, coupled with the *reaction* from existing competitors that the entrant can expect. If barriers are high and/or the newcomer can expect sharp retaliation from entrenched competitors, the threat of entry is low.

## Barriers to Entry

There are six major sources of barriers to entry:

**Economies of scale.** Economies of scale refer to declines in unit costs of a product (or operation or function that goes into producing a product) as the absolute volume produced *per period* increases. Economies of scale deter entry by forcing the entrant to come in at large scale and risk strong reaction from existing firms or accept a cost disadvantage, both undesirable options. Scale economies can be

present in nearly every function of a business, including production, research and development, marketing, service network, sales force utilization, and distribution. For example, scale economies in production, research, marketing, and service are probably the key barriers to entry in the mainframe computer industry, as Xerox and GE sadly discovered.

Scale economies may relate to an entire functional area, as in the case of a sales force, or they may stem from particular operations or activities that are part of a functional area. For example, in television set manufacturing economies of scale are large in color tube production while they are less significant in cabinet making and set assembly. It is important to examine each component of costs separately for its particular relationship between costs and scale.

Multibusiness firms may be able to reap economies similar to scale economies if they are able to *share operations or functions* subject to economies of scale with other businesses in the company. For example, the multibusiness company may manufacture small electric motors which are then used in producing industrial fans, hairdryers, and cooling systems for electronic equipment. If economies of scale in motor manufacturing extend beyond the number of motors needed in any one market, the multibusiness firm diversified in this way will reap economies in motor manufacturing that exceed those available if it only manufactured motors for use in, say, hairdryers. Thus related diversification around common operations or functions can remove volume constraints imposed by the size of a given industry.<sup>1</sup> The prospective entrant is forced to be diversified or face a cost disadvantage. Potentially shareable activities or functions subject to economies of scale can include sales forces, distribution systems, and so on.

A situation in which the benefits of sharing are particularly potent is the case where there are *joint costs*. Joint costs occur when a firm producing product A (or an operation or function that is part of producing A) must inherently produce product B. An example is air passenger services and air cargo. Because of technological constraints only so much space in the aircraft can be filled with passengers, leaving available cargo space and payload capacity. Many of the costs must be borne to put the plane into the air, irrespective of the quantity of passengers and freight it is carrying. Thus the firm that competes in both passenger and freight may have a substantial advantage over the firm competing in only one market. This same effect occurs in businesses that involve manufacturing processes with by-products. The entrant who cannot capture the highest incremental revenue from the by-products can face a disadvantage if incumbent firms do.

A common situation of joint costs occurs where business units can share *intangible* assets such as brand names and knowhow. The cost of creating an intangible asset need only be borne once—the asset may then be freely applied to other businesses subject only to any costs of adapting or modifying it. Thus situations where intangible assets are shared can lead to substantial economies.

A type of economies of scale entry barrier occurs when there are economies to vertical integration, or operating in successive stages of production or distribution. Here the entrant must enter integrated or face a cost disadvantage, as well as possible foreclosure of inputs or markets for its product *if* most established competitors are integrated. Foreclosure in such situations stems from the fact that most customers purchase from in-house units, or most suppliers “sell” their inputs in-house. The independent firm faces a difficult time in getting comparable prices and may get “squeezed” if integrated competitors offer different terms to it than to their captive units. The requirement to enter integrated may heighten the risks of retaliation and also elevate other entry barriers discussed below.

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<sup>1</sup>For this entry barrier to be significant, it is crucial that the shared operation or function be subject to economies of scale that continue beyond the size of any one market. If this is not the case, cost savings of sharing can be illusory. A company may see its costs decline as overhead is spread, but this depends solely on the presence of excess capacity in the operation or function. These economies are short-run economies, and once capacity is fully utilized and expanded, the true cost of the shared operation will become apparent.

**Product differentiation.** Product differentiation means that established firms have brand identification and customer loyalties, which stem from past advertising, customer service, product differences, or simply being the first in the industry. Differentiation creates a barrier to entry by forcing entrants to spend heavily to overcome existing customer loyalties, not infrequently involving start-up losses and considerable elapsed time. Investments in building a brand name are particularly risky since they are unrecoverable.

Product differentiation is perhaps the most important entry barrier in baby care products, over-the-counter drugs, cosmetics, investment banking, and public accounting. In the brewing industry, product differentiation is coupled with economies of scale in production, marketing, and distribution to create high barriers.

**Capital requirements.** The need to invest large financial resources in order to compete creates a barrier to entry, particularly if the capital is required for risky or unrecoverable up-front advertising or R&D. Capital may be necessary not only for production facilities but also for things like customer credit, inventories, or covering start-up losses. Xerox created a major capital barrier to entry in copiers, for example, when it chose to rent copiers rather than sell them outright. While today's major corporations have the financial resources to enter almost any industry, the huge capital requirements in fields like computers and mineral extraction limit the pool of likely entrants. Even if capital is available on the capital markets, entry represents a risky use of that capital, which should be reflected in risk premiums charged the prospective entrant that constitute advantages for going firms.

**Access to distribution channels.** A barrier to entry can be created by the new entrant's need to secure distribution for its product. To the extent that logical distribution channels for the product have already been served by established firms, the new firm must persuade the channels to accept its product through price breaks, cooperative advertising allowances, and the like, which reduce profits. A new food product, for example, must displace others from the fiercely competitive supermarket shelf via promotions, intense selling efforts, heavy advertising to create consumer pull, or some other means.

The more limited the wholesale or retail channels for a product are and the more existing competitors have these tied up, obviously the tougher entry into the industry will be. Existing competitors may have ties with channels based on long relationships, high quality service, or even exclusive relationships in which the channel is solely identified with a particular manufacturer. Sometimes this barrier to entry is so high that, to surmount it, a new firm must create an entirely new distribution channel in order to get into the industry.

**Cost disadvantages independent of scale.** Established firms may have cost advantages not replicable by potential entrants no matter what their size and attained economies of scale. The most critical advantages are the following factors:

- Proprietary product technology: knowhow or techniques that are kept proprietary through patents or secrecy.
- Favorable access to raw materials: Established firms may have locked up the most favorable raw material sources, and/or tied up foreseeable raw material needs early at prices reflecting a lower demand for them than currently exists. For example, Frasch sulphur firms like Texas Gulf Sulphur gained control of some very favorable salt dome sulphur deposits many years ago, before mineral right-holders were aware of their value as a result of the Frasch mining technology. Discoverers of sulphur deposits were often disappointed oil companies that were exploring for oil.
- Favorable locations: Established firms may have cornered favorable locations before market forces bid up prices to capture their full value.

- Government subsidies: Preferential government subsidies may give established firms lasting advantages in some businesses.
- Learning or experience curve: In some businesses, there is an observed tendency for unit costs to decline as the firm gains more cumulative experience in producing a product. This is because workers improve their methods and get more efficient (the classic learning curve), layout improves, specialized equipment and processes are developed, better performance is coaxed from equipment, product design changes make manufacturing easier, techniques for measurement and control of operations improve, and other factors. Experience is just a name for certain kinds of technological change. As is the case with scale economies, cost declines with experience relate not to the entire firm but to the individual operations or functions that make up the firm. Experience can lower costs in marketing, distribution, and other areas as well as in production or operations within production, and each component of costs must be examined for experience effects.

Cost declines with experience seem to be the most significant in businesses involving a high labor content and/or complex assembly operations (aircraft, shipbuilding). Cost declines with experience are nearly always the most significant in the early growth phase of a product's development and later reach diminishing proportional improvements. Often economies of scale are cited as one of the reasons costs decline with experience. Economies of scale are dependent on volume per period and *not* on cumulative volume, and are very different analytically from experience, though the two often occur together and can be hard to separate. It is misleading for scale and experience to be lumped together, as will be further discussed below.

If costs decline with experience in an industry, and *if the experience can be kept proprietary by established firms*, then this leads to an entry barrier. Newly started firms, with no experience, will have inherently higher costs than established firms and must bear heavy start-up losses from below or near-cost pricing in order to gain the experience to achieve cost parity with established firms (if they ever can). Established firms, particularly the market share leader, will have higher cash flow because of their lower costs in order to invest in new equipment and techniques. However, it is important to recognize that pursuing experience curve cost declines (and scale economies) may require substantial up-front capital investment. If cost declines with volume continue to occur even as cumulative volume gets large, then new entrants may never catch up. A number of firms, notably Texas Instruments, Black and Decker, Emerson Electric, and others, have built successful strategies based on the experience curve through aggressive investments to build cumulative volume early in the development of industries, often by pricing in anticipation of future cost declines.

Cost declines due to experience can be augmented if there are diversified firms in the industry that *share* operations or functions subject to experience cost declines with other units in the company, or if there are related activities in the company from which incomplete but useful experience can be obtained. When an activity like raw material fabrication is shared by multiple business units, experience obviously accumulates faster than it would if the activity was used solely to meet the needs of one industry. Or when the corporate entity has related activities within the firm, sister units can get the benefits of their experience at little or no cost since much experience is an intangible asset. This sort of shared learning accentuates the entry barrier provided by the experience curve, provided the other conditions for its significance are met. Experience is such a widely used concept in strategy formulation that its strategic implications will be further discussed below.

**Government policy.** The last major source of entry barriers is government policy. Government can limit or even foreclose entry into industries with such controls as licensing requirements and limits on access to raw materials (like coal lands or mountains on which to build ski areas). Regulated industries like trucking, railroads, liquor retailing, and freight forwarding are obvious examples. More subtle government restrictions on entry can stem from controls such as air and water pollution

standards, and product safety and efficacy regulations. For example, pollution control requirements can raise capital needed for entry and can increase required technological sophistication and even optimal scale of facilities. Standards for product testing, common in industries like food and in other health-related products, can impose substantial lead times on getting into an industry which not only raise the cost of entry but also give established firms ample notice of impending entry, and sometimes full knowledge of competitor products with which to formulate retaliatory strategies. Government policy in such areas certainly has direct social benefits, but it often has second-order consequences for entry which are unrecognized.

### **Expected Retaliation**

The potential entrant's expectations about the reaction of existing competitors also will influence the threat of entry. If existing competitors are expected to respond forcefully to make the entrant's stay in the industry an unpleasant one, then entry may well be deterred. Conditions that signal strong likely retaliation to entry and hence deter it are:

- A history of vigorous retaliation to entrants;
- Established firms with substantial resources to fight back, including excess cash and unused borrowing capacity, adequate excess productive capacity to meet all likely future needs, or great leverage with distribution channels or customers;
- Slow industry growth, which limits the ability of the industry to absorb a new firm without depressing the sales and financial performance of established firms.

### **The Entry Detering Price**

The condition of entry facing an industry can be summarized in an important hypothetical concept called the entry deterring price. The entry deterring price is the prevailing price structure in the industry, adjusted for product quality and service, which just balances the potential rewards from entry (forecast by the potential entrant) with the expected costs of overcoming entry barriers and risking retaliation. If the current price level is higher than the entry deterring price, entrants will forecast above-average profits from entry, and entry will occur. Of course the notion of entry deterring price must reflect entrants' expectations of the future and not just current conditions.

The threat of entry into an industry can be eliminated if incumbent firms choose or are forced by competition to price below this hypothetical entry deterring price. If they price above it, gains in terms of profitability may be short-lived.

### **Properties of Entry Barriers**

There are two additional properties of entry barriers that are crucial from a strategic standpoint. First, entry barriers can and do change as the conditions described above change. The expiration of Polaroid's basic patents on instant photography, for instance, greatly reduces its absolute cost entry barrier built by proprietary technology. It is not surprising that Kodak plunged into the market. Product differentiation in the magazine printing industry has all but disappeared, reducing barriers. Conversely, in the auto industry economies of scale increased enormously with post-World War II automation and vertical integration—virtually stopping successful new entry.

Second, while entry barriers sometimes change for reasons largely outside the firm's control, firm strategic decisions can have a major impact on entry barriers. For example, the actions of many U.S. wine producers in the 1960s to step up product introductions, raise advertising levels, and expand distribution nationally surely increased entry barriers by raising economies of scale and

making access to distribution channels more difficult. Similarly, decisions by members of the recreational vehicle industry to vertically integrate in order to lower costs have greatly increased the economies of scale there and raised the capital cost barriers.

### Experience and Scale as Entry Barriers

While they are often mixed together, economies of scale and experience have very different properties as entry barriers. The presence of economies of scale or sharing *always* leads to a cost advantage for the large scale or properly diversified firm over small scale or undiversified firms, presupposing that the large scale firms have the most efficient facilities, distribution systems, service organizations, and other functional units for their size. This cost advantage can only be replicated by possessing comparable scale or diversification. The large scale or diversified firm can spread the fixed costs of operating these efficient facilities over a large number of units, while the smaller firm, even if it has technologically efficient facilities, will not fully utilize them.

Some limits to economies of scale as an entry barrier, from a strategic standpoint, are as follows:

- Large scale and hence lower costs may involve tradeoffs with other potentially valuable barriers to entry such as product differentiation (scale may work against image or responsive service, for example), or the ability to rapidly develop proprietary technology.
- Technological change may penalize the large scale firm if facilities designed to reap scale economies are also more specialized and less flexible in adapting to new technologies.
- Commitment to achieving scale economies using existing technology may cloud the perception of new technological possibilities, or of other new ways of competing that are less dependent on scale.

Experience is a more ethereal entry barrier than scale, because the mere presence of an experience curve does not insure an entry barrier. Another crucial prerequisite is that the experience be proprietary, rather than available to competitors and potential entrants through (1) copying, (2) hiring competitor employees, or (3) purchasing the latest machinery from equipment suppliers or purchasing knowhow from consultants or other firms. Many times experience cannot be kept proprietary, and even when it can it may accumulate more rapidly for the second and third firms in the market than it did for the pioneer because they can observe some aspects of the pioneer's operations. In situations where experience cannot be kept proprietary, new entrants may actually have an advantage if they can buy the latest equipment or adapt to new methods unencumbered by having operated the old way in the past.

Other limits to the experience curve as an entry barrier are:

- The barrier can be nullified by product or process innovations leading to a substantially new technology and thereby creating an entirely new experience curve.<sup>2</sup> New entrants can leapfrog the industry leaders and alight on the new experience curve, to which the leaders may be poorly positioned to jump.

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<sup>2</sup>For an example of this drawn from the history of the automobile industry, see William J. Abernathy and Kenneth Wayne, "The Limits of the Learning Curve," Harvard Business Review, September–October 1974, p. 109.

- Pursuit of low cost through experience may involve tradeoffs with other valuable barriers such as product differentiation through image, or technological progressiveness. For example, Hewlett-Packard has erected substantial barriers based on technological progressiveness in industries where other firms are following strategies based on experience and scale like calculators and minicomputers.
- If more than one strong company is building its strategy on the experience curve, the consequences can be nearly fatal. By the time only one rival is left pursuing such a strategy, industry growth may have stopped and the prospects of reaping the spoils of victory may have long since evaporated.
- Aggressive pursuit of cost declines through experience may draw attention away from market developments in other areas or may cloud perception of new technologies that nullify past experience.

### Intensity of Rivalry among Existing Competitors

Rivalry among existing competitors takes the familiar form of jockeying for position—using tactics like price competition, advertising battles, product introductions, and increased customer service or warranties. Rivalry occurs because one or more competitors either feels the pressure or sees the opportunity to improve position. In most industries, competitive moves by one firm have noticeable effects on its competitors and thus may incite retaliation or efforts to counter the move—that is, firms are *mutually dependent*. This pattern of action and reaction may or may not leave the initiating firm and the industry as a whole better off. If moves and countermoves escalate, then all firms in the industry may suffer and be worse off than before.

Some forms of competition, notably price competition, are highly unstable and quite likely to leave the entire industry worse off from a profitability standpoint. Price cuts are quickly and easily matched by rivals, and once they are matched they lower revenues for all firms unless industry price elasticity of demand is very great. Advertising battles, on the other hand, may well expand demand or raise the level of product differentiation in the industry for the benefit of all firms.

Rivalry in some industries is characterized by such phrases as “warlike,” “bitter,” or “cut-throat,” while in other industries it is termed “polite” or “gentlemanly.” Intense rivalry is related to the presence of a number of the following interacting structural factors.

**Competitors are numerous or are roughly equal in size and power.** When firms are numerous, the likelihood of mavericks is great and some firms may habitually believe they can make moves without being noticed. Even if there are relatively few firms, if they are relatively balanced in terms of size and perceived resources this creates instability because they may be prone to take each other on and have the resources for sustained and vigorous retaliation. On the other hand, when the industry is highly concentrated or dominated by one or a few firms, there is little mistaking about relative power and the leader or leaders can impose discipline as well as play a coordinative role in the industry through devices like price leadership.

In many industries, foreign competitors, either exporting into the industry or participating directly through foreign investment, play an important role in industry competition. Foreign competitors, though having some differences that will be noted below, should be treated just like national competitors for purposes of structural analysis.

**Industry growth is slow.** Slow industry growth turns competition into a market share game for firms seeking expansion. Market share competition is a great deal more volatile than the situation where rapid industry growth means that firms can improve results just by keeping up with the industry, and in fact all their financial and managerial resources may be consumed by expanding with the industry.

**High fixed or storage costs.** High fixed costs create strong pressures for all firms to fill capacity which often leads to rapidly escalating price cutting. Many basic materials like paper and aluminum suffer from this problem, for example. The key is fixed costs relative to value added, and not the absolute proportion of fixed costs. Firms purchasing a high proportion of costs in outside inputs (low value added) may feel enormous pressures to fill capacity to break even, even if the absolute proportion of fixed costs is low.

A related situation to fixed costs is when the product, once produced, is very difficult or costly to store. Here firms will also be vulnerable to temptations to shade prices in order to insure sale. This sort of pressure keeps profits low in industries like lobster fishing and certain hazardous chemicals.

**The product or service lacks differentiation or switching costs.** When the product or service is perceived as a commodity or near-commodity, buyer choice is based largely on price and service, and pressures for strong price and service competition result. These forms of competition are particularly volatile, as has been discussed. Differentiation, on the other hand, creates layers of insulation against competitive warfare because buyers have preferences and loyalties to particular sellers.

A related factor influencing rivalry is *switching costs*. Switching costs are one-time costs of switching brands, or switching from one competitor's product to another. Switching costs may include such things as employee retraining costs, cost of new ancillary equipment, cost and time in testing or qualifying a new source, need for technical help as a result of reliance on seller engineering help, product redesign, or even psychic costs of severing a relationship. If these switching costs are high, then competitors must offer a major improvement in cost or performance in order for the buyer to switch. For example, in intravenous (IV) solutions and kits for use in hospitals, procedures for attaching solutions to patients differ among competitive products, and the hardware for hanging the IV solution bottles is not compatible. Here switching encounters great resistance from nurses responsible for administering the treatment and requires new investments in hardware. This industry is characterized by relatively stable shares and high returns.

**Capacity is normally augmented in large increments.** When economics dictate that capacity must be added in large increments, capacity additions can be chronically disruptive to the industry supply/demand balance, particularly because there is a risk of bunching of capacity additions. The industry may face chronic periods of overcapacity and price cutting, like those that afflict chlorine, vinyl chloride, and ammonium fertilizer.

**Competitors are diverse in strategies, origins, "personalities," and relationships to their parent companies.** Diverse competitors have differing goals and differing ideas about how to compete and are continually running head-on into each other in the process. They have a hard time accurately reading each other's intentions and agreeing on a set of "rules of game" for the industry. Strategic choices that are right for one competitor will be wrong for others.

Foreign competitors often add a great deal of diversity to industries because of their differing circumstances and often differing goals. Owner-operators of small manufacturing or service firms may also, because they may be satisfied with a subnormal rate of return on their invested capital to maintain the independence of self-ownership, while such returns are unacceptable and may appear irrational to a large, publicly held competitor. In such an industry, the posture of the small firms may limit the profitability of the larger concerns. Similarly, firms viewing a market as an outlet for excess capacity (e.g., in the case of dumping) will adopt policies contrary to the profits of firms viewing the

market as a main business. Finally, differences in the relationship of business units competing in an industry to their corporate parents is an important source of diversity as well. For example, a business unit that is part of a vertical chain of businesses in its corporate organization may well adopt different and perhaps contradictory goals to a freestanding firm competing in the same industry. Or a business unit that is a “cash cow” in its parent company’s portfolio of businesses will behave differently than one that is being developed for long-run growth in view of a lack of other opportunities in the parent.

**High strategic stakes.** Industry rivalry becomes even more volatile if a number of firms in an industry have high stakes in achieving success in the particular industry. For example, a diversified firm may place great importance on achieving success in a particular industry in order to further its overall corporate strategy. Or a foreign firm like Bosch, Sony, or Philips may perceive a strong need to establish a solid position in the U.S. market in order to build global prestige or technological credibility. In such situations, the goals of high-stakes firms may not only be diverse but even more destabilizing because they are expansionary and involve potential willingness to sacrifice profitability.

**Exit barriers are high.** Exit barriers are economic, strategic, and emotional factors that keep companies competing in businesses even though they may be earning low or even negative returns on investment. The major sources of exit barriers are:<sup>3</sup>

- Specialized assets: assets highly specialized to the particular business or location have low liquidation values.
- Fixed costs of exit: such as labor agreements, resettlement costs, maintaining spare parts capabilities, and so forth.
- Strategic interrelationships: interrelationships between the business unit and others in the company in terms of image, marketing ability, access to financial markets, shared facilities, and so on. They cause the firm to perceive high strategic importance to being in the business.
- Emotional barriers: management’s unwillingness to make economically justified exit decisions due to loyalty to employees, fear for their own careers, pride, and other reasons.
- Government and social restrictions: government denial or discouragement of exit due to job loss and regional economic effects. This is particularly common outside the United States.

When exit barriers are high in an industry, excess capacity does not leave the industry, and companies that lose the competitive battle do not give up. Rather they grimly hang on and, because of their weakness, have to resort to extreme tactics. The profitability of the entire industry can be destroyed as a result.

### Shifting Rivalry

The factors that determine the intensity of competitive rivalry can and do change. A very common example is the change in industry growth brought about by industry maturity. As an industry matures its growth rate declines, resulting in intensified rivalry, declining profits, and (often) a shakeout. In the booming recreational vehicle industry of the early 1970s, nearly every

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<sup>3</sup>For a fuller treatment see Michael E. Porter, “Please Note Location of Nearest Exit, *California Management Review*, Winter 1976, p. 21.

producer did well; but slow growth since then has eliminated the high returns, except for the strongest members, not to mention many of the weaker companies. The same story has been played out in industry after industry—snowmobiles, aerosol packaging, and sports equipment are just a few examples.

Another common change in rivalry occurs when an acquisition introduces a very different personality to an industry, as has been the case with Phillip Morris's acquisition of Miller beer, and Procter & Gamble's acquisition of Charmin Paper Company. Or technological innovation can boost the level of fixed costs in the production process and raise the volatility of rivalry, as it did in the shift from batch to continuous-line photofinishing in the 1960s.

While a company must live with many of the factors that determine the intensity of industry rivalry—because they are built into industry economics—it may have some latitude in improving matters through strategic shifts. For example, it may try to raise buyers' switching costs through providing engineering assistance to customers to design its product into their operations, or to make them dependent for technical advice. Or the firm can attempt to raise product differentiation through new kinds of service, marketing innovations, or product changes. Focusing selling efforts in the fastest-growing segments of the industry or on market areas with the lowest fixed costs can reduce the impact of industry rivalry. Or if it is feasible, a company can try to avoid confrontation with competitors having high exit barriers and can thus sidestep involvement in bitter price cutting.

### Exit Barriers and Entry Barriers

While exit barriers and entry barriers are conceptually separate, their combination is an important aspect of the analysis of an industry. Often exit barriers and entry barriers move together. The presence of substantial economies of scale in production, for example, usually implies specialized assets, as does the presence of proprietary technology.

Taking the simplified case where exit barriers and entry barriers can be either high or low, there are a number of possible combinations, as shown in *Figure B*.

**Figure B**

		Exit Barriers	
		Low	High
Entry Barriers	Low	Low Returns	Worst Case
	High	Best Case	High Returns But Risky

The best case from the viewpoint of industry profits is when entry barriers are high but exit barriers are low. Here entry will be deterred, and unsuccessful competitors will leave the industry. When both entry and exit barriers are high, profit potential is high but is usually accompanied by more risk. Though entry is deterred, unsuccessful firms will stay and fight in the industry.

While the case of low entry and exit barriers is unexciting, the worst case is when entry barriers are low and exit barriers are high. Here entry is easy and will be attracted by upturns in economic conditions or other temporary windfalls. However, capacity will not leave the industry

when results deteriorate. As a result capacity stacks up in the industry and profitability is usually chronically poor.

## Pressure from Substitute Products

All firms in an industry are competing, in a broad sense, with industries producing substitute products. Substitutes limit the potential of an industry by placing a ceiling on the prices firms can charge. The more attractive the price-performance tradeoff offered by substitutes, the firmer the lid on industry profits.

Sugar producers confronted with the large-scale commercialization of high fructose corn syrup, a sugar substitute, are learning this lesson today, as are producers of acetylene and rayon facing extreme competition from alternative, lower cost materials for many of their respective applications. Substitutes not only limit profits in normal times, but they also reduce the bonanza an industry can reap in boom times. In 1978 the producers of fiberglass insulation enjoyed unprecedented demand as a result of high energy costs and severe winter weather. But the industry's ability to raise prices was tempered by the plethora of insulation substitutes, including cellulose, rock wool, and styrofoam. These substitutes are bound to become an ever stronger force once the current round of plant additions by fiberglass insulation producers has boosted capacity enough to meet demand (and then some).

Identifying substitute products is a matter of searching for other products that can perform the same *function* as the product of the industry. Sometimes this can be a subtle task, and one which takes the analyst into businesses seemingly far removed from the industry. Securities brokers, for example, are increasingly confronted with substitutes like real estate, insurance, money market funds, and other products that are alternative ways for the individual to invest capital, accentuated in importance by the poor performance of the equity markets.

Position vis-à-vis substitute products may well be a matter of *collective* industry actions. For example, while advertising by one firm in an industry does little to bolster the industry's position against a substitute, heavy and sustained advertising by all industry participants may well improve the industry's collective position against the substitute. Similar arguments apply to collective industry response in areas like product quality improvement, marketing efforts, securing greater product availability, and so on.

Substitute products that deserve most attention are those that (1) are subject to trends improving their price-performance tradeoff with the industry's product, or (2) are produced by industries earning high profits. In the latter case, substitutes often come rapidly into play if some development increases competition in their industries and causes price reduction or performance improvement. Trend analysis can be important in deciding whether to attempt to head off a substitute strategically, or plan strategy with it as inevitably a key force. In the security guard industry, for example, electronic alarm systems represent a potent substitute. Electronic systems can only become more important as a substitute since labor-intensive guard services face inevitable cost escalation, while electronic systems are highly likely to improve in performance and decline in costs. Here, the appropriate response of security guard firms is probably to offer packages of guards and electronic systems, based on a redefinition of the security guard as a skilled operator, rather than to attempt to outcompete electronic systems across the board.

## Bargaining Power of Buyers

Buyers compete with the industry by forcing down prices, demanding higher quality or more services, and playing competitors off against each other—all at the expense of industry profitability. The power of each important buyer group depends on a number of characteristics of its market situation and on the relative importance of its purchases from the industry compared with its overall business. A buyer group is powerful if:

- *It is concentrated or purchases large volumes relative to seller sales:* Large volumes of purchases raise the importance of particular buyers' business in achieving firm financial results. Large volume buyers are particularly potent forces if heavy fixed costs characterize the industry—as they do in corn refining and bulk chemicals, for example—and raise the stakes to keeping capacity filled.
- *The products it purchases from the industry represent a significant fraction of its costs or purchases:* Here buyers are prone to expend the resources necessary to shop for a favorable price and purchase selectively. Where the product sold by the industry in question is a small fraction of buyers' costs, buyers are usually much less price sensitive.
- *The products it purchases from the industry are standard or undifferentiated:* Buyers, sure that they can always find alternative suppliers, may play one company against another, as they do in aluminum extrusion.
- *It faces few switching costs:* Switching costs, defined earlier, lock the buyer to particular sellers.
- *It earns low profits:* Low profits create great incentives to lower purchasing costs. Suppliers to Chrysler, for example, are complaining that they are being pressured for superior terms. Highly profitable buyers, however, are generally less price sensitive (that is, of course, if the item does not represent a large fraction of their costs).
- *Buyers pose a credible threat of backward integration:* If buyers either are partially integrated or pose a strong threat of backward integration, they are in a position to demand bargaining concessions. The major automobile producers, General Motors and Ford, are well known for using the threat of self-manufacture as a bargaining lever. They engage in the practice of *tapered integration*, or producing some of their needs for a given component in-house and purchasing the rest from outside suppliers. Not only is their threat of further integration particularly credible, but partial manufacture in-house gives them a detailed knowledge of costs which is a great aid in negotiation. Buyer power can be partially neutralized when firms in the industry offer a threat of forward integration into the buyers' industry.
- *The industry's product is unimportant to the "quality" of the buyers' products or services:* When the quality of the buyers' products is very much affected by the industry's product, buyers are generally less price sensitive. Industries in which this situation exists include oil field equipment, where a malfunction can lead to large losses (witness the enormous cost of the failure of a blowout preventor in an offshore oil well), and enclosures for electronic medical and test instruments, where the quality of the enclosure can greatly influence the user's impression about the quality of the equipment inside.

Most of these sources of buyer power can be attributed to consumers as well as to industrial and commercial buyers; only a modification of the frame of reference is necessary. For example, consumers tend to be more price sensitive if they are purchasing products that are undifferentiated, expensive relative to their incomes, and of a sort where quality is not particularly important to them.

The buyer power of wholesalers and retailers is determined by the same rules, with one important addition. Retailers can gain significant bargaining power over manufacturers when they can *influence consumers' purchasing decisions*, as they do in audio components, jewelry, appliances, sporting goods, and other goods. Similarly, wholesalers can gain bargaining power if they can influence the purchase decisions of the retailers or other firms to which they sell.

### Altering Buyer Power

As the factors creating buyer power change with time or as a result of a company's strategic decisions, naturally the power of buyers rises or falls. In the ready-to-wear clothing industry, for example, as the buyers (department stores and clothing stores) have become more concentrated and control has passed to large chains, the industry has come under increasing pressure and suffered falling margins. The industry has been unable to differentiate its product or engender switching costs that lock in its buyers enough to neutralize these trends.

A company's choice of buyer groups to sell to should be viewed as a crucial strategic decision. A company can improve its strategic posture by finding buyers who possess the least power to influence it adversely—in other words, *buyer selection*. Rarely do all the buyer groups a company sells to enjoy equal power. Even if a company sells to a single industry, segments usually exist within that industry that exercise less power (and that are therefore less price sensitive) than others. For example, the replacement market for most products is less price sensitive than the OEM market.

### Bargaining Power of Suppliers

Suppliers can exert bargaining power over participants in an industry by raising prices or reducing the quality of purchased goods and services. Powerful suppliers can thereby squeeze profitability out of an industry unable to recover cost increases in its own prices. By raising their prices, for example, chemical companies have contributed to the erosion of profitability of contract aerosol packagers because the packagers, facing intense competition from self-manufacture by their customers, have limited freedom to raise their prices accordingly.

The conditions making suppliers powerful are largely the inverse of those making buyers powerful. A supplier group is powerful if:

- *It is dominated by a few companies and is more concentrated than the industry it sells to:* Suppliers selling to more fragmented buyers will be able to exert considerable influence on prices, quality, and terms.
- *It is not obliged to contend with other substitute products for sale to the industry:* The power of even large, powerful suppliers can be checked if they compete with substitutes. For example, industries producing alternative sweeteners compete sharply for many applications even though individual firms are large relative to individual customers.
- *The industry is not an important customer of the supplier group:* When suppliers sell to a number of industries and a particular industry does not represent a significant fraction of sales, suppliers are much more prone to exert power. If the industry is an

important customer, suppliers' fortunes will be closely tied to the industry and they will want to protect the industry through reasonable pricing and assistance in activities like R&D and lobbying.

- *The supplier group's products are differentiated or it has built up switching costs:* Differentiation or switching costs cut off buyers' options in playing one supplier against another.
- *The supplier group poses a credible threat of forward integration:* This provides a check against the industry's ability to improve the terms on which it purchases.

While we usually think of suppliers as other firms, *labor* must be recognized as a supplier as well, and one that exerts great power in many industries. There is substantial empirical evidence that scarce, highly skilled employees and/or tightly unionized labor can bargain away a significant fraction of potential profits in an industry. The principles in determining the potential power of labor as a supplier are similar to those outlined above. The key additions in assessing the power of labor are its *degree of organization*, and the ability of the supply or scarce varieties of labor to *expand*. When collective labor organization is tight and supply of scarce labor constrained from expansion, the power of labor can be high.

The conditions determining supplier power are not only subject to change but are often out of the firm's control. However, as with buyer power the firm can sometimes improve its situation through strategy. It can promote a threat of backward integration, seek to eliminate switching costs, and so forth.

### Government as a Force in Industry Competition

While government has been discussed primarily in terms of its possible impact on entry barriers, in the 1970s and 1980s government at all levels must be recognized as potentially influencing many if not all aspects of industry structure both directly and indirectly. In many industries, government *is* a buyer or supplier and can influence industry competition by the policies it adopts. For example, government plays a crucial role as a buyer of defense-related products, and as a supplier of timber through the Forest Service's control of vast timber reserves in the western United States. Many times government's role as a supplier or buyer is determined more by political factors than by economic circumstances, and this is probably a fact of life. Government regulations can also set limits on the behavior of firms as suppliers or buyers.

Government can also affect the position of an industry with substitutes through regulations, subsidies, or other means. The U.S. government has strongly promoted solar heating, for example, using tax incentives and research grants. Government decontrol of natural gas has quickly eliminated acetylene as a chemical feedstock. Safety and pollution standards affect relative cost and quality of substitutes. Government can also affect rivalry among competitors by influencing industry growth, affecting the cost structure through regulations, and through other means.

Thus no structural analysis is complete without a diagnosis of how present and future government policy, at all levels, will affect structural conditions. For purposes of strategic analysis it is usually more illuminating to consider how government affects competition *through* the five competitive forces than to consider it as a force in and of itself. However, strategy may well involve treating government as an actor to be influenced.

## II. Structural Analysis and Competitive Strategy

Once the forces affecting competition in an industry and their underlying causes have been diagnosed, the firm is in a position to identify its strengths and weaknesses relative to the industry. The crucial strengths and weaknesses from a strategic standpoint are the firm's posture vis-à-vis the underlying causes of each competitive force. Where does the firm stand against substitutes? Against the sources of entry barriers? In coping with rivalry from established competitors?

Competitive strategy is taking offensive or defensive action in order to create a *defendable* position against the five competitive forces. Broadly, this involves a number of possible approaches:

- Positioning the firm so that its capabilities provide the best defense against the existing array of competitive forces;
- Influencing the balance of forces through strategic moves, thereby improving the firm's relative position; or
- Anticipating shifts in the factors underlying the forces and responding to them, hopefully exploiting change by choosing a strategy appropriate to the new competitive balance before rivals recognize it.

### Positioning

The first approach takes the structure of the industry as given and matches the company's strengths and weaknesses to it. Strategy can be viewed as building defenses against the competitive forces or as finding positions in the industry where the forces are weakest.

Knowledge of the company's capabilities and of the causes of the competitive forces will high-light the areas where the company should confront competition and where avoid it. If the company is a low-cost producer, for example, it may choose to confront powerful buyers while it takes care to sell them only products not vulnerable to competition from substitutes.

### Influencing the Balance

When dealing with the forces that drive industry competition, a company can devise a strategy that takes the offensive. This posture is designed to do more than merely cope with the forces themselves; it is meant to alter their causes.

Innovations in marketing can raise brand identification or otherwise differentiate the product. Capital investments in large-scale facilities or vertical integration affect entry barriers. The balance of forces is partly a result of external factors and is partly within a company's control. Structural analysis can be used to identify the key factors driving competition in the particular industry and thus indicate the places where strategic action to influence the balance will yield the greatest payoff.

### Exploiting Change

Industry evolution is important strategically because evolution, of course, brings with it changes in the sources of competition that have been identified. In the familiar product life-cycle pattern of industry development, for example, growth rates change, advertising is said to decline as the business becomes more mature, and the companies tend to integrate vertically.

These trends are not so important in themselves; what is critical is whether they affect the structural sources of competition. Consider vertical integration. In the maturing minicomputer industry, extensive vertical integration, both in manufacturing and in software development, has taken place. This very significant trend has greatly raised economies of scale as well as the amount of capital necessary to compete in the industry. This in turn has raised barriers to entry and could drive some smaller competitors out of the industry once growth levels off.

Obviously, the trends carrying the highest priority from a strategic standpoint are those that affect the most important sources of competition in the industry and those that bring new structural factors to the forefront. In contract aerosol packaging, for example, the trend toward less product differentiation is now dominant. It has increased buyers' powers, lowered the barriers to entry, and intensified competition.

Structural analysis can be used to predict the eventual profitability of an industry. In long-range planning the task is to examine each competitive force, forecast the magnitude of each underlying cause, and then construct a composite picture of the likely profit potential of the industry.

The outcome of such an exercise may differ a great deal from the existing industry structure. Today, for example, the solar heating business is populated by dozens and perhaps hundreds of companies, none with a major market position. Entry is easy, and competitors are battling to establish solar heating as a superior substitute for conventional heating methods.

The potential of solar heating will depend largely on the shape of future barriers to entry, the improvement of the industry's position relative to substitutes, the ultimate intensity of competition, and the power captured by buyers and suppliers. These characteristics will in turn be influenced by such factors as the likelihood of establishment of brand identities, whether significant economies of scale or experience curves in equipment manufacture will be created by technological change, what the ultimate capital costs to compete will be, and the extent of eventual fixed costs in production facilities.

### **Structural Analysis and Diversification Strategy**

The framework for analyzing industry competition can be used in setting diversification strategy. It provides a guide for answering the extremely difficult question inherent in diversification decisions: What is the potential of this business? The framework may allow a company to spot an industry with a good future before this good future is reflected in the prices of acquisition candidates.

The framework can also help in identifying particularly valuable types of relatedness in diversification. For example, relatedness that allows the firm to overcome key entry barriers through shared functions or preexisting relationships with distribution channels can be a fruitful basis for diversification.

## **III. Structural Analysis and Industry Definition**

A great deal of concern and attention has been directed at defining the relevant industry as a crucial step in competitive strategy formulation. Numerous writers have also stressed the need to look beyond product to function in defining a business, beyond national boundaries to potential international competition, and beyond the ranks of one's competitors today to those that may become competitors tomorrow. As a result of these urgings, the proper definition of a company's industry or industries has become an endlessly debated subject. An important motive in this debate is the fear of overlooking latent sources of competition that may someday threaten the industry.

Structural analysis, by focusing broadly on competition well beyond existing rivals, should reduce the need for debates on where to draw industry boundaries. Any definition of an industry is essentially a choice of where to draw the line between established competitors and substitute products, between existing firms and potential entrants, and between existing firms and suppliers and buyers. Drawing these lines is inherently a *matter of degree*.

If these broad sources of competition are recognized, however, and their relative impact assessed, then where the lines are actually drawn becomes more or less irrelevant to strategy formulation. Latent sources of competition will not be overlooked, nor will key dimensions of competition.

Definition of an industry is *not* the same as definition of where the firm wants to compete, however (defining *its* business). Just because the industry is defined broadly, for example, does not mean that the firm can or should compete broadly. And there may be strong benefits to competing in a group of related industries as has been discussed. Decoupling industry definition and the definition of the businesses the firm wants to be in will go far in eliminating needless confusion in drawing industry boundaries.