

## Chapter 1

### Where Three Is Not a Crowd

For years the RCA dog tilted its head toward a trumpet speaker attached to an old Victrola phonograph and listened to its “master’s voice.” The famous logo of the Radio Corporation of America, acquired in 1929 when RCA purchased the Victor Talking Machine Company, symbolized both the dog’s and the record player’s high fidelity that reproduced the voice so faithfully that it must have seemed real, albeit somewhat puzzling, to a canine brain. Once a powerful company in the U.S. consumer electronics market, RCA pretty much silenced that voice when it attempted to create a new videodisk technology. Hoping this innovation would succeed videotapes, RCA lost more than \$500 million in the early 1980s when it failed to convince other manufacturers to adopt the videodisk standard. As recent ads show, the RCA dog has grown up and has a pup of its own. The two, however, are sitting in awe before a giant-screen television set that has the same brand name but a very different corporate identity, now that RCA has been acquired by Thomson Multimedia, S.A.

Competition completely transformed the consumer electronics marketplace in the 1970s and 1980s. In 1984 alone, the United States incurred a \$9.6 billion trade deficit in such products, up a staggering 44 percent in only one year. RCA eventually merged with General Electric in

1986, but only two years later CEO Jack Welch decided to get out of the consumer electronics business altogether. He sold RCA to Thomson, thereby opening the way for the government-owned French company to gain a 23 percent share of the U.S. market. No match for the real powerhouses in this industry—Matsushita, Sony, and Philips—Thomson itself now teeters on the edge of the ditch because of its weak prospects and precarious financial condition, although it has recently undertaken a joint venture with Seagate Technology to develop a digital storage capability for consumer electronics.

The rise and fall of once powerful companies has been the subject of endless speculation. Traditionally economists have theorized that most industries can be categorized in one of two groups: either a few companies dominate the market by virtue of their size, wealth, and economies of scale and scope; or numerous smaller firms, each differentiated as a specialist, jockey for position and exhibit the characteristics of monopolies. Where a few companies compete, the market is said to be *oligopolistic* (from the Greek *oligos*, a few). At the opposite end of the spectrum are *monopolistic* markets in which one company almost completely controls the niche it occupies or is so far ahead of its competitors that they pose no threat.

The Rule of Three takes issue with this dichotomy. Our observations lead us to conclude that industries such as consumer electronics, automobiles, pharmaceuticals, and a host of others evolve into a structure in which oligopolistic competition and monopolistic competition occur simultaneously and in ways that are usually complementary. That is, the most efficient structure is one in which a few firms control the major share of the market, while specialists—in effect, small monopolies—operate in niches not served by the full-line generalists.

In this chapter we examine the first half of this theory—namely, that industries naturally evolve in ways that ultimately favor the rise and dominance of a few, typically three, major players, the oligarchs (chapter 2 takes up the second half of theory and examines more closely the specialists or monopolists, which occupy small niches). In the ideal, most efficient structure, the oligopoly comprises three major competitors. Why three is the optimal number is a question we consider at length, even as we examine those conditions in which the Rule of Three does not apply. Of course, the types and sizes of companies likely to succeed as oligopolists depend on many factors associated with the costs of competing. Any one of the top players can easily lose its dominance and fall into the ditch, where it becomes a prime target for one of its competitors. Time and again this predicament has befallen some of the best-known U.S. automakers.

### **The U.S. Automobile Industry**

Nearly all industries start out with a lot of companies competing against each other to provide the products and services their customers want. Usually only a few survive long enough to become serious market players. When the U.S. automobile industry cranked up around the turn of the twentieth century, for example, some 500 car manufacturers competed for a share of the new market. By 1908, only about 200 of them survived. That year William C. (“Billy”) Durant created the General Motors Corporation, combining the Buick Motor Company and the Oakland Motor Company (later reorganized as Pontiac) with two competitors: the Oldsmobile Motor Car Company, where Ransom Eli Olds had been making cars since 1897, including the popular “curved dash” Oldsmobile; and the Cadillac Motor Car Company, founded by Henry Martyn Leland in 1902. Durant tried but failed to convince Henry Ford to

join the new company. Despite production and financial setbacks in the early years, Ford decided to pursue his alphabet of cars. Between 1903 and 1909, the Ford Motor Company produced a sufficient number of models to go from “A” to “S.”

Launched in 1909, the Model T became, in Henry Ford’s words, a car “for the great multitude, constructed of the best material after the simplest designs that modern engineering can devise, so low in price that no man making a good salary will be unable to own one.”<sup>1</sup> Ford designed it so that it served as a “farmer’s car”: few accessories, little comfort, and a no-frills paint job only in black. With its high clearance and light weight, it was the perfect car for all sorts of chores. Its engine could even run many farm implements.

By 1917, the automobile industry in the United States was down to only 23 producers.<sup>2</sup> GM and Ford commanded the lion’s share, but a company founded by two brothers, John and Horace Dodge, both machinists and bicycle builders, began making inroads. Henry Ford used the Dodge brothers’ company as a supplier of engines and other parts for his cars. This strategy enabled Ford to concentrate on design and assembly while leaving many of the manufacturing costs to his suppliers. Ford management dictated the pace of work, within limits, by controlling the speed of the assembly line. By moving the work to the men, Ford found a way to “speed up the slow men and slow down the fast men,” a development that brought an incredible regularity to the Ford factory, “almost as dependable as the rising of the sun.”<sup>3</sup> The assembly line lowered the average labor expenditure per car from more than twelve hours to just over an hour and a half. Coupled with highly standardized, interchangeable parts that required no reworking or machining, the assembly-line process allowed Ford to sell more cars for much less money. In 1916, the price of the Model T fell to a

mere \$360, and Ford sold 577,000—all of them in black. By 1920, 60 percent of all cars on the road were Fords.<sup>4</sup> In 1923, sales of over 2 million vehicles clearly established the Model T as the most popular car in America.

At the same time GM was making significant technological advancements of its own. The invention of Duco lacquer paint, for instance, cut drying time from weeks to hours. This innovation allowed GM to offer cars in many colors, giving it a big marketing advantage over Ford, whose vehicles were still restricted to one color. General Motors continued to grow rapidly into an industry powerhouse, becoming so wealthy that not even the Great Depression could stop its momentum. In 1933, needing funds for new product development that Michigan banks could not provide, GM teamed with the federal government's Reconstruction Finance Corporation to form the National Bank of Detroit.

Ford lost market leadership to GM in the mid-1920s and has played #2 ever since. The fault was partly Henry Ford's own: so attached to the Model T in design and price, he refused to modify the vehicle even as public tastes changed. If the Model T was not selling, as Ford said, it was because his salesmen were not selling it. As the decade of the 1920s came to an end, the Ford Motor Company finally developed a new model, but by then it was too late. The stock market crashed, and the Great Depression put a halt to car sales in large volume. The automobile industry would not recover for another 20 years.

By 1929, GM, Ford, and Chrysler accounted for 75 percent of all cars, but many of their competitors, some of which were industry pioneers, had already disappeared. Haynes, Apperson, Winton, Locomobile, and Stanley, for example, went under or were consolidated.

Newer and highly regarded companies such as Rickenbaker and Wills Saint Claire went bankrupt. During the Depression, Pierce-Arrow, Peerless, Jordan, Stutz, Franklin, Marmon, DuPont, Durant, Auburn, Cord, Hupmobile, and many others disappeared entirely.

The economic boom following World War II, coupled with the vast national construction project known as the Interstate Highway System, helped the U.S. automobile industry to surge ahead. New car sales reached 4.8 million in 1949 and 7.2 million in 1955. Still, small companies struggled. Studebaker and Packard, for example, merged in 1954, but even combining their resources did not keep the new company out of the ditch. The last Packard was produced in 1958, and Studebaker ceased production in 1963. Similarly Nash and Hudson merged in 1954 to form American Motors, which had a longer life span, but the company was sold to Chrysler in 1987. The industry that began with some 500 companies at the beginning of the twentieth century was reduced—through consolidation, takeovers, bankruptcy, and mismanagement—to only three players.

Until 1965, the Big 3 automakers had the U.S. market almost completely to themselves. Imports claimed only 5.8 percent of the nearly 11 million cars and trucks sold that year. The Japanese automakers managed to sell only 30,000 cars in the United States, a market share of less than 0.33 percent. When the Volkswagen Beetle started setting trends, General Motors, Ford, and Chrysler responded by developing their own “import fighters”: the Corvair, the Falcon, and the Valiant, respectively.

Although they controlled the U.S. market, the Big 3 automakers developed a well-deserved reputation for being in the wrong place with the wrong product at the wrong time. In the late

1950s and 1960s, they built heavy, chrome-laden “gas guzzlers,” which became the industry dinosaurs after the oil crisis of 1977. At a time when the average car sold for less than \$10,000, the Japanese automakers grew market share through more efficient production, as much as an astounding \$2,500 per vehicle.<sup>5</sup> By the end of the 1970s, the Japanese automakers were so successful that Detroit had to resort to seeking government intervention in imposing import quotas, a move that only hastened another major change in the industry. Beginning with a new Honda facility in 1982, the Japanese set up numerous production sites in the United States. Other car manufacturers soon followed, and by 1999, the “transplants” were building 3.2 million cars a year, capturing a U.S. market share of 18 percent. If the number of vehicles built abroad is factored in, the market share increases to 27.5 percent. Mercedes and Lexus took over the top spots in the U.S. luxury car market, followed in order by Cadillac and Lincoln.

As the automobile industry has become more globalized, the Big 3 companies know that to remain competitive, they must venture beyond their home markets and develop common platforms across international boundaries, as well as enter into joint ventures and partnerships to continue to grow. Worldwide today, there are 40 automakers. Collectively, they face a sizable glut in capacity and heavy pressures to increase efficiency. The result has been continued consolidation, with the expectation that another threesome will eventually rise to claim dominance, this time on a global level.

This brief review of automobile production in the United States illustrates how a fledgling industry begins with hundreds of competitors, undergoes multiple shakeouts, and eventually recognizes three dominant market players. As we will see more fully in chapter 3, an industry

can experience any number of such shakeouts. If and when an industry globalizes, subsequent upheavals occur. Inexorably it moves toward another Rule of Three at the global market level.

### **The Rule of Three—in Theory**

Research has shown that left to their own devices, industries evolve in a fairly consistent pattern. Starting from zero, the number of companies increases slowly as the commercial viability of the new industry takes hold. Small and inefficient, those startup companies may be spin-offs of existing firms in “adjacent” industries, but they generally lack economies of scale and a well-developed supply function. As a result, they must produce many of their inputs themselves. Demand is also erratic since in the early stages of an industry, little is known about what product attributes customers will value. Companies experiment with technology, product design, and marketing. Market positions are extremely volatile, and the more efficient and innovative firms are able to overtake their more wasteful competitors, as suggested above in the discussion of the automobile industry.

As the number of firms continues to increase rapidly, the industry reaches a high level of inefficiency. Because of excess capacity and fragmentation, a shakeout commences, and the number of firms drops dramatically, often by as much as 90 percent.

After the shakeout the industry begins to become better organized. Struggling for position, the larger companies weigh financial gains against expenditures in the interest

of becoming more efficient. They make strategic choices about what products to manufacture, which services to offer, and which markets to compete in. Eventually three emerge victorious from the struggle. The emergence of the Big 3, however, leaves many holes on the industry playing field, creating opportunities for new entrants with highly focused strategies. Thus, it is not unusual to see an increase in the total number of companies in an industry following its rationalization into the Rule of Three on the generalist side.

<b>INDUSTRY CHANGES FROM BIRTH TO MATURITY</b>		
<b>Emerging Stage</b>	<b>Shakeouts</b>	<b>Mature Stage</b>
Many small operations	Smaller number of larger competitors	“Shopping Mall” structure
No technical standards	Multiple standards	De facto standards
Fast growth	Faster growth	Slower growth
Ease of entry and exit	Entry and exit barriers	Mobility barriers
High degree of specialization	High degree of specialization	Standardization and specialization
Excess capacity	Rationalized capacity	Renewed capacity
Local focus	National focus	Global focus
Many local or regional brands	National brands	Megabrands and niche brands

Gradually, the sudden and radical innovations give way to the incremental ones, and the industry settles into more standardized ways of doing things. As companies become close substitutes for one another, competitive intensities rise. At the same time, the compatibility in product lines and operating modes makes consolidation an attractive option, even as many non-conforming competitors rapidly exit the industry.<sup>6</sup>

As indicated in the accompanying comparison showing typical industry changes from “birth” to “maturity,” numerous small companies in an emerging industry compete against each other. Since industry norms have yet to be established, rarely are there any overriding technical standards; each company operates on its own proprietary platform. Growth is high, and the players’ lack of economies of scale means that entry and exit barriers are low. Each firm tends to be a product specialist, and there is little overlap in offerings. Often at this stage companies have a decidedly local or at most regional flavor; accordingly, their distribution reach and their brand recognition are circumscribed by that limited geography.

When many firms simultaneously enter a fledgling industry where there are few customers, capacity far exceeds demand. After the industry grows and experiences one or more shakeouts, it presents a distinctly different profile. Through widespread exit by marginal players and the merger or “roll-up” of many others, the industry tends to be dominated by a smaller number of larger players (see sidebar “U.S. Defense Contractors”<sup>17</sup>). In its evolution the industry adopts technology standards, either by consensus or by the exit of competitors opposed to the dominant standard. Growth accelerates as the industry’s efficiency and standardization attract more customers whose preferences become better defined and known. Companies erect substantial barriers to entry in an effort to safeguard market share, but this effort requires a major commitment of resources.

## Sidebar: U.S. Defense Contractors

Today the Big 3 defense contractors in the United States are Lockheed (24 percent share in 1998), Boeing (15 percent), and Raytheon (11 percent). Although together they controlled only 50 percent of the market in 1998, and received a corresponding share of the defense procurement budget, which has remained at \$130 billion a year since 1994 (unadjusted for inflation), the rise of the Big 3 in this industry is a complex story of mergers, acquisitions, politics, and business decisions.

In 1991, the top ten U.S. defense contractors claimed 41 percent of the Department of Defense procurement budget, which totaled \$151 billion. No single company had more than a 6 percent share of that budget. General Electric, which was then in third place with a 5 percent share, sold its aerospace business to Martin Marietta, thereby dropping to the tenth position.

In 1994 [TK verify date], Martin Marietta merged with Lockheed, and the new company jumped to the #1 position with a 9 percent share of the market. That year all defense contractors with the exception of Lockheed Martin, McDonnell Douglas, and Northrup Grumman lost market share. Even Raytheon, which acquired the defense unit of the Chrysler Corporation, lost about a third of its defense-related revenue. By 1994, only four companies—Lockheed, McDonnell Douglas, Northrup, and GM-Hughes—had a share of 3 percent or greater of the budget. That lineup represented a significant contrast to the ten companies just three years earlier, each of which had between 3 percent and 6 percent share. Also in 1994, Raytheon had only a 2 percent share, whereas the giant Boeing Corporation claimed no more than a 1 percent share of the defense procurement budget.

For the next few years, the major contractors grew apace. In 1997, however, the number of acquisitions shot up like a heat-seeking missile. The post-Cold War defense budget was cut to \$127 billion, and the major contractors scrambled to claim a piece of it. Boeing bought McDonnell Douglas in one of the ten largest mergers in U.S. history up until that time. Northrup purchased the defense arm of Westinghouse, but still fell into the ditch with only an 8 percent share of market. In buying the defense business that Texas Instruments had operated, Raytheon staked out a shaky #3 position.

That position was solidified to some extent when Raytheon beat Northrup to the punch in acquiring the Hughes Aircraft business from General Motors. The \$9.5 billion purchase involved a complicated stock switch that saved GM over \$3 billion in taxes, but even more significant was the fact that only one company—Raytheon—would be left to make missiles that could be launched from air, sea, and land.

A company such as General Electric competes in various markets, and its overall size or wealth may have little to do with its position in a single, well-defined market. For all practical purposes, GE has decided to act like a specialist in this market, focusing primarily on jet engines, some of which power the jets used by the armed forces.

Exit barriers are also more significant. Because companies have invested a great deal in establishing themselves in the industry, they are reluctant to abandon sunk costs and other expenditures. Much of the industry's excess capacity is removed as inefficient companies exit, and the balance is rationalized and deployed toward the industry's most attractive opportunities. The industry evolves to a broader geographic focus, often at the national level. Commensurate with the reduction in the number of competitors, the number of brands shrinks dramatically.

Moving beyond this stage in the industry's evolution, we find that the Rule of Three comes into play, and the industry structures itself according to the "shopping mall" analogy described in the Introduction. The primary change from the previous stage is that the number of players in the industry can actually *increase* even as the large companies coalesce into the Big 3. That is, as the Big 3 stabilize their business models, they withdraw from a number of pockets within the overall market. They recognize that their competencies are an ill match for the requirements of those niches. Such market gaps never last long in a competitive market, and new entrants rush to fill them.

A mature industry is also characterized by numerous opportunities for innovation and nichemanship, and many small companies can thrive in the shadow of the Big 3. Because some of these specialized niches differ greatly from the mainstream market served by the inner circle players, they may in fact have very different technology standards. Overall, though, the bulk of the market adheres to a *de facto* standard. Reflecting its maturity, the industry grows at a rate slower than it was before and during the shakeout period, but

nonetheless quite healthy, given that the industry is operating at a peak of efficiency and effectiveness. While entry barriers are low for companies aiming to be niche players, the barriers to moving from one strategic group to another are very high. Generalists and specialists cannot cross the chasm without great risk to themselves. The industry has simultaneous standardization (among the generalists) and specialization (among the specialists, of course). Specialists typically create new capacity in the industry. The industry can now begin to expand its geographic interest beyond the national scope and look to global competition. In terms of branding, the Big 3 use broadly defined “megabrands” that can span multiple products, whereas specialists have a different brand focused on each niche served. In the larger picture, a few generalists and a host of specialists can live comfortably side by side, without stepping on each other’s toes. In competitive markets at least, oligopolistic and monopolistic firms are not mutually exclusive.

### **Why Three?**

A market structure based on three major players is both more stable and more competitive than one with two players. For this reason the endless comparisons between business and athletic contests, while they may grab our attention, are basically fallacious. Why this is so is one of the distinguishing features of competitive markets.

### **Mutual Assured Destruction or Collusion**

On the one hand, when there are just two players, the outcome is either mutual destruction or collusion that is ultimately damaging to customers. Either scenario

produces a de facto monopoly. On the other hand, in most markets a coalition of two out of the three is strong enough to block any predatory intentions that the third might have. Just that threat prevents an attack, since the would-be “victim” can always seek the assistance of the third to counterbalance.

The U.S. agricultural equipment market offers an interesting case in which three full-line generalists—John Deere, CNH Global, and AGCO—occupy the top positions. The #2 player, CNH Global, was formed through the merger of New Holland N.V. and Case Corporation on November 15, 1999.<sup>8</sup> Prior to this merger, Case and New Holland were second and third in terms of their shares of the agricultural equipment market. Case was looking for ways to cut operating costs without compromising the quality of its products, and like Deere, it wanted to penetrate emerging markets. New Holland, which was formed in May 1991 when Fiat Geotech S.p.A. and Ford New Holland, Inc. merged, produced a full line of agricultural equipment products. It wanted to expand globally while keeping its emphasis on product innovation. The combination of Case and New Holland created a strong second-place generalist to challenge John Deere, at least as part of a long-term strategy. In corporate size, product lines, and brand loyalty, CNH Global is integrating the manufacturing, engineering, purchasing, and other business functions from Case and New Holland, while maintaining both companies’ widely recognized brands.<sup>9</sup> This merger of the #2 and #3 players, in effect, bumped up AGCO to the new #3 position, despite its large debts incurred from a string of acquisitions.

In contrast to the evolution of the U.S. agricultural equipment market, recent revelations about years of collusive behavior between the two dominant auction houses, London-based

Christie's International plc and Sotheby's, based in New York, indicate the dangers of having only two major players. In 2000, the two companies, which together control 90 percent of the world market, pled guilty to having colluded in 1994 and 1995 on setting seller fees, sharing customer lists, and keeping employee salaries low.<sup>10</sup> Christie's and Sotheby's each have agreed to pay \$256 million as a settlement to plaintiffs in a class-action suit against the companies.

With three main players, there is less predatory competition as well as a lower likelihood of collusion or mutual destruction. The third player can refuse to collude, or it chooses to cooperate with the victim to keep the other two at bay, or it skillfully pits one powerful player against the other. Analogously, during the Cold War between the two superpowers, there was in fact a third bloc that was in many ways the most powerful. The so-called nonaligned nations became quite adept at playing off one superpower against the other, usually to their advantage.

### **The Search for Greatest Efficiency**

Our analysis indicates that an industry structure based on the Rule of Three provides the best blend of competitive intensity, overall efficiency, industry profitability, and customer satisfaction.

The well-known PIMS (Profit Impact of Market Strategies) studies conclude that market share and return on investment are strongly related. Economies of scale, the phenomenon of the "experience curve," market power, and quality of management are typically all greater in

companies with high market shares. But the importance of market share varies among industries: it is greater for fragmented industries and infrequently purchased products.<sup>11</sup> These findings were confirmed by an analysis of 48 separate studies presenting a combined total of 276 market share-profitability relationships. In this analysis the researchers found that, on average, market share has a positive effect on business profitability.<sup>12</sup> Moreover, evidence suggests that lower costs rather than higher prices account for most of the greater profitability of high market-share businesses. This conclusion should allay arguments that high market share automatically leads to greater market power and price gouging.<sup>13</sup> Finally, economies of scale and scope benefit those companies with high market shares. They are able to make more efficient use of marketing and extend their communication efforts without incurring a proportionally large share of the expense.<sup>14</sup>

That said, large companies in a competitive market do best when their market share does not exceed approximately 45 percent. When they grow beyond that mark, they can start losing their profitability, run into trouble with regulatory agencies, and experience the agony of no new growth. The incremental number of new customers can be more expensive to acquire and often generate less revenue. Companies with high market shares also find that the costs of subsidy across customers tend to increase as well. That is, there is always going to be a blend of profitable and unprofitable customers, and in many cases a company simply elects to put up with the unprofitable (or only marginally profitable) ones.

Some large companies go to great extremes to manipulate the public's perception of its growth potential and to divert the eye of regulatory agencies. Consider the case of the American Telephone and Telegraph Company a few years ago. Before its forced breakup,

AT&T was the dominant player in its market as a long-distance carrier. Given that it had over 1 million employees and assets in excess of \$100 billion, it was by far the largest company in the United States. Indeed, it was a monopoly, as regulators determined when they forced the company to divide itself into the regional telephone companies. In one annual report, the company claimed \$70 billion in annual revenue and a 65 percent share of the U.S. long-distance market.<sup>15</sup>

When we read that report, we took interest in a statement the company made to its shareholders: namely, that in terms of the entire global information industry, which at the time was estimated to have some \$2 trillion in annual revenues, AT&T's "share" was quite small. In fact, it was a mere 3.5 percent. The company concluded that despite its apparent size and market dominance, it was merely a small fish in a very large pond. As such, it had plenty of room to grow. Accordingly, investors should treat the company as a growth stock rather than just another utility. Implicit in this message was the argument that it was silly and inappropriate to continue to regulate AT&T as a dominant player in its market.

Of course, AT&T's competitors predictably took a somewhat different view of this situation. The company's own managers, in fact, probably defined the scope of its business more narrowly than "the global information industry," as the annual report put it. On the one hand, that definition included TV game shows to magazines to semiconductors—all businesses that presumably would not be in AT&T's future. On the other hand, those managers that continued to view AT&T's domain as consisting principally of the U.S. long-distance market would be clearly guilty of possessing a myopic view of AT&T's business and its relevant market. After the passage of the 1996 Telecommunications Act, a broader definition—in

other words, a more expansive demarcation of the “pond”—to include local telephony and video transmission became logical and necessary.

Furthermore, as many a specialist has come to realize, managers who focus on improving market share beyond that percentage often lead their organizations down a path of inefficient operations: they lose sight of core capabilities, quality products, and customer satisfaction, all in the quest for more sales. The temptation is real, and it often brings a company to its knees, or at least makes it humble.

In the U.S. market for stereophonic speakers, for instance, Harman International Industries, Inc. has been a major challenger to the Bose Corporation, a highly profitable and privately held company based in the Boston area. Smaller rivals in this competitive market include Boston Acoustics and Cambridge Soundworks, but major competition comes from Japanese manufacturers. In 1994, after a time of big losses and layoffs, Harman made the classic mistake for a specialist: it became obsessed with market share. Harman merged the design, marketing, and sales forces and greatly expanded its JBL and Infinity product lines. The two brands accounted for over 80 products. As sales dwindled, the company’s positioning became more muddled. “It was tempting, so I chased market share,” admits CEO Sidney Harman. “It turned out not to be the best move.”<sup>16</sup> Harman pulled out of discount retailers and smaller specialty stores. He reduced the JBL and Infinity lines to 25 products each and focused on the professional market that supplies products to theatres, stadiums, and studios. In addition, Harman International now supplies speakers to numerous automobile and personal computer manufacturers.

## **The Equilibrium Point**

The Rule of Three offers customer choice, competitive intensity, and market efficiency. No wonder it seems to be the point of equilibrium in many an industry. From a societal perspective, it is often assumed that customers suffer the most when competition dwindles, but a high degree of market concentration is not necessarily incompatible with consumer welfare. In fact, fragmented markets usually cost consumers more, since no firm is able to achieve economies of scale and all firms are expending high levels of resources on fighting one another rather than serving their customers. The Rule of Three still leaves as much as 30 percent of the market for the specialists to serve, and entry barriers are only entrepreneurial, not legal or regulatory ones. The benefits of this structure can be seen in industries that have recently achieved profitability as well as increased customer and employee satisfaction. For example, the U.S. airline industry, which has greatly increased its profitability after years of enormous losses, is rapidly moving to the Rule of Three. We expect that commodity industries such as aluminum and copper will also finally start rewarding their shareholders with better financial performance.

## **Why Not More than Three?**

Because only three players are needed to create a balance of power, the fourth player becomes expendable in the market's push toward efficiency. More important, however, we believe that the Rule of Three is strongly linked with the theory that on average consumers consider at most three choices before making a purchase. These options

constitute what is called the consumer's "evoked set" or "consideration set," which is actually nothing more than the short list of options a typical shopper considers. Likewise, in industrial and commercial markets, customers typically consider at most three suppliers. Volume-oriented competitors such as the #1, #2, and #3 players have to be very concerned about getting into this "inner circle" that a consumer or customer first thinks about. In short, the full-line generalist has to offer one of the top three brands. Because transaction costs rise with choice, the most efficient number for gaining maximum value through competition is three.

In some industries, almost always outside the United States, a "Rule of Four" appears to be in operation. In Europe, this level of competition arises not only because of the disjointed nature of the European market in the past but also because of a long-standing sense of nationalism in industries such as airlines and telecommunications. Most industries support large players from Germany, France, and the United Kingdom. In addition, a fourth successful player might emerge from Italy, Spain, Switzerland, or Scandinavia. Europe's big four airlines, for example, are British Airways, Air France, Lufthansa, and KLM Royal Dutch Airlines. The most significant phone companies are British Telecom, Deutsche Telecom, France Telecom, and Telecom Italia. In a short time, however, these Big 4 players are likely to lose one of their own. As the European economy evolves toward unification, and as barriers to cross-border consolidation dissolve, we expect to see the Rule of Three come more fully into play. On a country-by-country basis, the Rule of Three is clearly evident, as examples cited earlier suggest (see also Appendix 2 for a sampling of Big 3 companies by nation).

The pattern is seen elsewhere, but for different reasons. Japan, for example, currently has four big stockbrokers (Nikko Securities, Daiwa, Nomura, and Yamaichi), four major convenience stores chains (7-Eleven's 6,400 stores, Lawson's 5,700 stores, Family Mart's 3,400 stores, and Sunshop Yamazaki's 2,700 stores). Among car companies, several of the "minor majors" have decided to focus their operations more narrowly (for example, Isuzu around sport utility vehicles, Subaru around four-wheel drive vehicles). Of the remaining Big 5 automakers—Toyota, Nissan, Honda, Mitsubishi, and Mazda—it appears evident that Mazda cannot make it on its own. Ford already owns 33 percent of the company, and we predict that that level of ownership will soon increase to 100 percent. An anomaly in this market, Mitsubishi Motors produces a full-line of vehicles even though its market share is very low. As a member of the mammoth Mitsubishi corporate empire, however, the company's automotive operations have been propped up by other diversified operations. If it does not merge with another automaker, the company will have to retreat into a narrower profile, either producing cars to be sold under other brand names or focusing on a limited number of successful products such as its popular sports cars. In 2000, DaimlerChrysler agreed to acquire a sizable stake in the company, signaling a now familiar turn in the automobile industry toward fewer players.

The Big 4 inevitably become the Big 3, as one falls by the wayside or two of the companies merge to become the new #1 or #2. For example, until 1996, there were four major manufacturers of computer disk drives. Seagate merged with Conner Peripherals early in 1996, and became the top-selling disk drive vendor, ahead of Quantum, which had held the top position since 1993. The new #3 player is Western Digital Corporation. The rapid rate of technological change, intense margin pressures, and relative lack of specialization

opportunities in this market caused some weaker players such as Hewlett-Packard to exit. Other marginal players sold out to more diversified electronics companies. For example, Hyundai Electronics took over former #5 Maxtor, and Singapore Technologies purchased Micropolis. IBM remains as a vertically integrated producer of disk drives, but it produces them primarily for its own computers.

In the gas turbine business, the four major players are General Electric, Westinghouse Electric, Siemens, and ABB. The business is highly competitive, margins are razor thin, prices are falling, and there is substantial industry overcapacity (estimated to range from 25 to 40 percent) despite repeated downsizings by the four major players. The core markets of Europe and North America are stagnant, while prices in emerging markets are cutthroat. Given these conditions, it is very likely that one of the Big 4 will soon exit the market. Siemens, for example, may retrench from the North American market, as has been rumored. Westinghouse, which at the corporate level has reinvented itself as a media company, has spun off its industrial holdings.

In the liquor business, the big four spirits makers are Guinness' United Distillers, Grand Metropolitan's IDV, Allied Domecq, and Seagram. This business is rapidly globalizing. For example, it has resulted in the steady consolidation of the Scotch whisky industry, where Guinness, through United Distillers, controls 26.5 percent of Scotland's malt whisky production capacity. Seagram's is the second largest player with 14.7 percent, and Allied Domecq is third with 11 percent. With continued globalization, there will no longer be room for four big players, and one of them will retreat to a specialist position or merge with another company.

## Barriers to the Rule of Three

These instances suggest a trend in industry consolidation toward the conditions favorable for the dominance of three major players, but by no means do they indicate that this trend is happening everywhere. The Rule of Three does not apply when naturally occurring competitive forces are diverted by regulatory and technological impediments. We would not expect three full-line generalists to emerge in markets where any of the following conditions—all of which are artificial creations—occur:

- **Regulation:** The industries most susceptible to government regulation include those that directly serve the public: utilities, highways, airports, telephone, and the like. Government agencies act to limit competition in order to allow incumbents to serve everyone and to recover their capital investment. If regulatory policies hinder market consolidation, as they have in Japan, or allow for the existence of “natural” monopolies, as was the case with the local telecommunications market, the Rule of Three is not operational. With deregulation, it comes into play, as illustrated by the consolidations in the U.S. long-distance telecommunications industry. The 1984 breakup of AT&T created six regional “Baby Bells,” which over the years through mergers and acquisitions have regrouped themselves into three: the #1 provider, Verizon (a combination of Bell Atlantic and NYNEX, as well as GTE); SBC Communications (formed from Pacific Bell, Southwestern Bell, and Ameritech) in second place; and the #3 player BellSouth, which is expanding operations in Latin America and has teamed up with SBC to create Cingular Wireless to compete with

Verizon Wireless. On the left side of the ditch for this industry, numerous specialists—MCI, Sprint, 10-10-220, and even AT&T itself—are vying for customers' attention.

- **Exclusive rights.** If licenses, patents, and trademarks are major factors, the market in question must be viewed as a collection of monopolies, which are not subject to traditional competitive forces. In the chemicals industry in the United States, where patents are not so paramount as they are for the large pharmaceutical companies, the Rule of Three has selected E. I. Du Pont de Nemours, Dow Chemical, and Monsanto. In the specialty chemical markets such as pharmaceuticals, which have traditionally been heavily restricted by patents and licenses, we would not expect to see the Rule of Three govern market evolution.
- **Major barriers to trade and foreign ownership of assets:** In this case, we see the Rule of Three operating at the national level but not at the global level. The Rule of Three may still be seen in the formation of global groups or alliances, as we believe is likely to occur in the global telecommunications market. Other examples include the airline and railroad industries, as well as national postal systems.
- **Markets with a high degree of vertical integration:** To the extent that certain customer groups are captive to in-house suppliers or vice-versa, the emergence of three full-line players in the supplier market is unlikely. Currently, for example, GM has its AC Delco unit, whereas Ford has its Visteon. Vertical integration impedes traditional competitive market forces by tying up suppliers and customers internally and preventing them from buying and selling freely in the open market. Over time,

many such arrangements are likely to break down, triggering the Rule of Three in the process. We predict that both GM and Ford will eventually spin out their auto supply units.

- ***Markets with combined ownership and management:*** If ownership and management are combined, as in the case of professional services, the market process is not allowed to work. Owner-based businesses, in general, including most professional services such as law firms, accounting firms, consultants, and advertising agencies remain an exception to the Rule of Three. Ownership creates an emotional attachment, and inhibits rational economic decision-making. This is one explanation why the Big 5 accounting firms—PricewaterhouseCoopers, Arthur Andersen, Ernst & Young, Deloitte Touche Tohmatsu, and KPMG International—may not become the Big 3. That said, it should be noted that those five firms are themselves the products of acquisitions that have reduced the number of major accounting firms from the Big 8 of only a few years ago. Moreover, as these industries go public and as ownership is separated from management, we expect to see the Rule of Three become operational.
- ***Licensed economies:*** In years past, many countries placed limits on production, chiefly in the former Soviet bloc of countries, as well as in China, India, and emerging economies. Companies in India, for example, were required to obtain government licenses to raise production levels. This type of regulation effectively prevented any one company from growing large enough to initiate a Rule of Three within its industry.

This exception to the Rule of Three is temporary, although the path to free market-driven economies is sure to be longer for some than for others.

When these barriers fall, markets move quickly toward the ideal equilibrium and stability that the Rule of Three posits. Nearly all of the barriers noted above are starting to crumble. As a result, an increasing number of industries in more countries are likely to come under the sway of the Rule of Three. But numerous stumbling points remain in the path of even the best-managed companies, especially those pondering whether to stop competing against the #1, #2, and #3 companies in order to pursue a life as a specialist. This is one of the key questions we take up in chapter 2, which examines in detail the complementary relationship between generalists and specialists in competitive markets.

<sup>1</sup> TK source for the Henry Ford quote.

<sup>2</sup> This section is based on the following sources: "The Automobile Industry," *Encyclopedia of American Business History and Biography* (New York: Facts on File Publications, 1998); Alan K Binder, "The GM Story: From Near Bankruptcy to Global Powerhouse," *Ward's Auto World*, May 2000, p. 154; David C Smith, "Bumpy Ride into the 21<sup>st</sup> Century," *Ward's Auto World*, January 2000, p. 92; "1914: Putting America on Wheels," *The Economist*, December 31, 1999, p. 82; Meryl Davids, "Henry Ford (1863–1947): Loving the Line," *The Journal of Business Strategy*, September / October 1999, p. 29.

<sup>3</sup> David A. Hounshell, *From the American System to Mass Production 1800–1932: The Development of Manufacturing Technology in the United States* (Baltimore: Johns Hopkins University Press, 1984), p. TK.

<sup>4</sup> *Hoover's Handbook of American Business 1995* (Austin: Hoover's Business Press, 19TK), p. TK

<sup>5</sup> Charles Burck, "Ford's Mr. Turnaround: We Have More To Do," *Fortune*, March 4, 1985, p. 83.

<sup>6</sup> Steven Klepper and Elizabeth Graddy, "The Evolution of New Industries and the Determinants of Market Structure," *The Rand Journal of Economics*, 21 (Spring 1990), p. 1.

<sup>7</sup> TK source for U.S. Defense Contractors sidebar.

<sup>8</sup> CNH Global, B.V., corporate press release, November 24, 1999.

<sup>9</sup> CNH Global, B.V., "About CNH," "Multiple Brand," and "Multiple Distribution Strategy," available from <http://www.cnh.com/about/brands.html>.

<sup>10</sup> Douglas Frantz, "Secret Partners: The Unraveling of a Conspiracy," *The New York Times*, October 8, 2000, p. TK.

<sup>11</sup> Cathy Anterasian, John L. Graham, and R. Bruce Money, "Are U.S. Managers Superstitious about Market Share?" *Sloan Management Review* 37.4 (June 22, 1996), p. 67.

<sup>12</sup> David M. Szymanski, Sundar G. Bharadwaj, and P. Rajan Varadarajan, "An Analysis of the Market Share-Profitability Relationship," *Journal of Marketing* 57.3 (1993), p. 1.

<sup>13</sup> *Ibid.*, p. 1.

<sup>14</sup> *Ibid.*, p. 1.

<sup>15</sup> AT&T Annual Report, [TK year].

<sup>16</sup> TK source for Sidney Harman quote.