

Caterpillar, Inc.

Sara L. Pitterle and J. Paul Peter *University of Wisconsin-Madison*

After a record year in 1988, Caterpillar's profits declined steadily, culminating in a \$404 million loss (\$4.00 per share of common stock) in 1991. The loss was attributed to a number of factors, including a prolonged global recession and one-time charges associated with facility closings, consolidation, and employment reductions. These cutbacks were designed to reduce Caterpillar's manufacturing costs over the long term. On April 23, 1992, Caterpillar announced a \$132 million loss for the first quarter. Although a strike by the United Auto Workers had disrupted production for the entire quarter, management attributed the loss solely to lower sales. (Appendix A contains a summary of Caterpillar's recent financial performance.)

These losses were incurred by a company which had made unprecedented changes over the past decade in response to the changing industrial equipment market. These changes include a multibillion dollar plant modernization program begun in 1985 and a company reorganization undertaken in 1990. These two changes were designed to ensure Caterpillar's profitability for the 1990s and beyond. However, the 1991 and 1992 profit results led management to wonder whether the changes would be successful.

History

Caterpillar is a multinational corporation headquartered in Peoria, Illinois, that competes in three principal business segments. The company designs, manufactures, and markets engines for a wide range of applications including electrical power generation systems, on-highway trucks, and industrial machinery. The company also designs, manufactures, and markets earthmoving, construction, and materials-handling machinery. (See Appendix B for a complete listing of Caterpillar equipment.) In addition, Caterpillar provides financial products to assist customers in purchasing Caterpillar and noncompetitive related equipment.¹ The company has manufacturing facilities and/or marketing offices in fifteen countries besides the United States.²

Caterpillar, the largest manufacturer of engines and construction equipment in the world, traces its origins to two inventors, Daniel Best and Benjamin Holt, who in the late 1800s independently developed mechanized agricultural equipment. In February 1889,

This case was prepared by Sara L. Pitterle, Nielson Fellow at the University of Wisconsin-Madison, under the supervision of J. Paul Peter.

¹Caterpillar, Inc. Annual Report for 1991.

²Taken from speech by Ed Terrel, Manager of Human Resources for Caterpillar, Inc., at the University of Wisconsin-Madison, September 23, 1992.

Daniel Best introduced the first steam-powered harvester, replacing the 40-horse-drawn combine with an 8-man, 11-ton, self-propelled tractor using wheels eight feet in diameter. Around the same time, Benjamin Holt began field testing the first crawler-type equipment, built simply by replacing the wheels on existing equipment with new "track" structures—pairs of treads comprised of wooden slats linked loosely together.

The two companies prospered, driven by increasing demand in agriculture, road building, military equipment, and industrial construction. The introduction of the internal-combustion engine provided yet another boost for the evolving heavy-equipment industry. In 1925, the Holt and Best companies merged to form Caterpillar Tractor Company, setting the stage for several decades of uninterrupted growth through technological leadership and a commitment to total quality.

In 1931, the first Caterpillar diesel tractor was introduced. This product initiated a six-year sales growth from \$13 million to \$63 million and launched the track-type tractor into prominence as the single largest user of diesel power. Caterpillar's growing reputation for industry leadership and technological superiority was further strengthened during World War II by U.S. government defense contracts. These contracts included demand for both existing equipment (e.g., bulldozers and graders) and special government requests for revolutionary and sophisticated equipment such as air-cooled diesel engines for advanced military operations.

Throughout the postwar years, and into the 1970s, Caterpillar generally concentrated on the development of large industrial-sized machines and engines. During this time the company purchased the Trackson Company of Milwaukee to produce hoists, pipe layers, and hydraulically operated tractor shovels for Caterpillar crawlers. Later, Towmotor Corporation was acquired to continue the company's expansion into heavy equipment with forklift trucks and straddle carriers for a wide range of materials-handling applications. By the early 1970s, Caterpillar had achieved at least foothold positions in a variety of heavy equipment product lines, with the objective of achieving industry leadership in each of the new areas.

In 1977, Caterpillar unveiled the single largest, most technologically advanced tractor in the world—the D-10. Foremost among its advantages were an elevated drive sprocket and modular-designed major components. The elevation of the drive sprocket removed it from high-wear and shock-load areas, reduced overall stress on the undercarriage, and produced a smoother ride. The modular design of major components not only permitted faster and more efficient servicing, but also provided the opportunity to pretest components before final assembly. Modular designs thereby reduced repair and overall downtime in some cases by as much as 80 percent.³ Caterpillar rapidly introduced other new products which incorporated the modular design concept.

In the early 1980s, after 50 years of uninterrupted profits, Caterpillar appeared to be invincible because of its ability to continually introduce technologically superior machines that became the industry standard. The company built the biggest and the best equipment in the world for which customers were willing to pay hefty premiums. Then, during 1982, in the words of past Caterpillar chairman and chief executive officer George Schaefer, "Almost overnight the world changed for us."⁴

The construction industry collapsed. Oil and other commodity prices fell, eliminating demand for Caterpillar equipment in mining, logging, and other heavy equipment markets. The dollar strengthened against the yen, giving Japanese equipment makers, especially Komatsu, an opportunity to aggressively pursue the United States' equipment market with cost advantages of up to 40 percent.⁵ If these factors were not enough to

³Donald Eckrich, "Caterpillar Tractor Company," in J. Paul Peter and James H. Donnelly, Jr., *Marketing Management: Knowledge and Skills*, 3rd ed. (Homewood, IL: Richard D. Irwin, 1991), pp. 702-4.

⁴Ronald Henkoff, "This Cat Is Acting Like a Tiger," *Fortune*, December 19, 1988, p. 72.

⁵Allan J. Magrath, "Eight Ways to Avoid Marketing Shock," *Sales & Marketing Management*, April 1989, p. 55.

disrupt the "profits as usual" pattern at Caterpillar, the United Auto Workers, Caterpillar's largest union, went out on strike for seven months during 1982. After making record profits of \$579 million in 1981, the company lost \$953 million over the next three years.

Realignment Strategies

Some of Caterpillar's financial problems during the early '80s were a result of management's failure to react to the changing world environment. Caterpillar was increasing its plant capacity at a rate of 5 percent a year as late as 1982, even though expansion in the world heavy-equipment market ended in 1980. In fact, Caterpillar had pursued expansion until less than half of existing capacity was needed. As a result of this overcapacity, the company reduced plant space by one-third, closing 10 plants (8 in the United States) between 1983 and 1987. During this same time period, 28 percent of the company's equity and 40 percent of its labor force, more than 30,000 jobs, were eliminated.⁶

New Products

With the realization that world demand for large heavy equipment would expand only marginally in the future, the company began to consider other market opportunities. The company recognized that it had been ignoring small contractors who did not need such massive equipment, but who represented a growing market segment. The company responded by introducing new multipurpose products for the owner/operator or small construction contractor. These products included tractor mounted backhoes, front-end loaders, and even farm tractors.⁷ While Caterpillar has gained market share in these segments quite successfully (11 percent by 1987), these smaller products also have smaller profit margins and more competition from both domestic manufacturers, such as Deere & Company and Tenneco's J. I. Case, and Japanese companies such as Komatsu, Kawasaki, and Kubota.⁸

Price Changes

Because of Caterpillar's leadership position in product quality and innovation, the company was able to obtain a premium price for its equipment. However, when Komatsu began offering comparable equipment at a 40 percent lower price in the early 1980s, Caterpillar was forced to cut prices to match those of a competitor for the first time in its history. The company decided to sacrifice profits to protect market share and ensure the company's long-term survival. Even using this strategy, Caterpillar's North American market share dropped 11 points from 1981 to 1986. Most analysts agree the figures would have been worse had the company not slashed prices and profits in response to its competitors.⁹

In addition, Caterpillar recognized that pricing was just one part of the overall revenue-generating strategy for the corporation. Caterpillar pursued other strategies to generate income. For example, the company capitalized on its recognized strength in distribution of products, and sold logistic services to a variety of corporations including Land Rover and Chrysler.¹⁰

⁶Robert S. Eckley, "Caterpillar's Ordeal: Foreign Competition in Capital Goods," *Business Horizons*, March-April 1989, p. 80.

⁷Henkoff, p. 73.

⁸Kathleen Deveny, "For Caterpillar, the Metamorphosis Isn't Over," *Business Week*, August 31, 1987, p. 73.

⁹Henkoff, p. 72.

¹⁰Allan J. MaGraph, "Ten Timeless Truths about Pricing," *Journal of Consumer Marketing*, Winter 1991, pp. 5-13.

Production Changes

In response to Japanese competition, Caterpillar also broke with its traditional policy of manufacturing everything it sells. The company's paving equipment, sold under the Cat name, was manufactured by CMI Corp. Caterpillar also began a joint venture with Mitsubishi Heavy Industries Ltd. to make excavation equipment in Japan, as well as light construction equipment and forklifts for the U.S. market. In addition, almost all of the equipment sold with the Caterpillar name in the Pacific Rim was manufactured jointly with Mitsubishi.

Plant with a Future Program

Although Caterpillar was profitable in 1985, management had no illusions about the company's ability to remain profitable for the long term with its historically high cost structure. For this reason, the company decided to concentrate on driving costs down and improving quality standards. To achieve these objectives, Caterpillar completed a massive six-year, \$1.2 billion plant modernization program called *Plant with a Future (PWAF)*. At the heart of PWAF were automation, new factory layouts, and continuous work flow. The program meant a complete remake of Caterpillar's tooling and manufacturing methods, as well as a change to global sourcing to achieve the lowest possible costs on components.

The first priority for the Plant with a Future program was to simplify and integrate assembly-line processes. This objective was accomplished using a cell manufacturing concept in which plants and equipment are arranged to process families of components from start to finish. For example, machining, welding, heat treating, and painting might all be functions within a single cell. Work flow is continuous because all cells feed the assembly line just in time. Thus, the entire plant requires just-in-time (JIT) delivery schedules.

For Caterpillar to integrate just-in-time delivery to each cell, computer integrated manufacturing (CIM) was utilized. CIM links self-contained manufacturing cells (independent islands of automation) to a material tooling and information network. The program allows and enhances electronic communication between engineering, logistics, and the factory floor. At the completion of the modernization program, interplant communication flowed through a corporate information center coupled with global marketing and financial databases. All systems, from the plant's host computer to personal computers on the shop floor, were linked—resulting in unprecedented coordination and optimization of all manufacturing functions.

An example of what Plant with a Future accomplished can be found at the East Peoria, Illinois, transmission factory. Modernization took five years and cost \$200 million. While workers put together gears and clutch assemblies, construction crews worked to build an underground chamber the size of a high school gymnasium. The chamber became a computer-controlled heat treatment system, just one part of the modernization program that touched every corner of this 20-acre factory. Transmission assembly, formerly performed in five different buildings, has been consolidated under one roof. Nearly every one of the 500 machine tools has been moved or replaced, and all of this modernization was accomplished without slowing down production lines.

Efficiency at the East Peoria plant increased even during modernization. By installing a computerized inventory control system, the time it took to run components through the plant was cut dramatically. The parts for a clutch housing used to take 20 days to assemble and ship under the old system. With the new system, this same process took just four hours. Quality standards were maintained by shifting quality-control responsibilities to the workers themselves. Costs at this plant were expected to drop 19 percent.¹¹

¹¹Henkoff, p. 74.

Company Reorganization

In addition to the plant modernization program, Caterpillar tried to reduce costs and maintain a competitive advantage by restructuring the entire company. In 1990, the company announced a plan to change the company from its functional structure to a modern product orientation. The new matrix revolves around 13 profit centers spread throughout the world. Each profit center is divided into specific product groups and four service divisions. This new structure has streamlined processes to such an extent that the company has been able to eliminate 1,000 positions that were no longer necessary.¹²

Caterpillar's new structure tied the entire company much more closely to its customers. For example, although Caterpillar has always had an impressive global dealer network, the old structure required countless phone calls to multiple functional areas in order to receive assistance from the company. Under the new structure, customers and dealers are able to contact each product group directly. The ability to effectively communicate with dealers and customers enabled Caterpillar to guarantee delivery of replacement parts in 48 hours or there was no charge.

This enhanced ability to communicate directly with customers and dealers enabled Caterpillar to respond to customer suggestions more rapidly, and allowed the company to exploit product niches. Under the new structure, decisions were pushed down to lower level management throughout the company. This simplification of the decision making chain enabled the company to introduce new models every two years instead of every five as it had under the old system.¹³

Labor Agreements

Caterpillar's responses to foreign competitors and sliding market share in the '80s assume that personnel, both salaried and hourly, would give full support to each new program. The plant-modernization program and the company's reorganization into strategic profit centers required unequivocal labor support to be successful. Caterpillar assumed personnel support through these changes. The company endured a decade of tumultuous relations with its largest union, the United Auto Workers.

The company weathered two prolonged strikes, a seven-month strike in 1982 and a five-month strike beginning in late 1991. In between these strikes, the company managed to increase its production flexibility by winning union approval to cut the number of union job classifications from 418 to 150 in 1986.

During the 1991 strike, Caterpillar steadfastly refused to accept another "pattern agreement" with the United Auto Workers as it has done since 1950.* The company maintained that such pattern agreements provided Japanese competitors with a 25 percent wage cost advantage. While the union never accepted this position, the strike was broken when Caterpillar announced plans to replace all striking workers. The company hoped to gain productivity increases by avoiding job security clauses that were traditionally part of union contracts.

By breaking the union's strike, Caterpillar had an opportunity to negotiate favorable wage and benefit terms but also had to manage a disgruntled and disheartened workforce. The company, at this writing, has not been able to regain workers' trust. In November 1991 the union cancelled all worker involvement programs. These worker involvement programs had been a successful and critical part of both the factory modernization and company

¹²Tracy E. Benson, "Caterpillar Wakes Up," *Industry Week*, May 20, 1991, p. 33.

¹³Gary Slutsker, "Cat Claws Back," *Forbes*, February 17, 1992, p. 46.

*Pattern bargaining is a potent negotiating tactic for the United Auto Workers, although it was abandoned long ago by unions in other industries like communications and steel. Under pattern bargaining, a union negotiates a new contract with one company and that contract then becomes the pattern for contracts with the company's competitors. In Caterpillar's case, its UAW contract would be patterned on contracts negotiated with both Deere and Tenneco's J. I. Case.

organization programs. At a single plant in Aurora, Illinois, the worker involvement programs had saved the company in excess of \$4 million. Now, many workers view these programs as management's attempt to weaken the influence of the UAW at Caterpillar.¹⁴

Dealers

While Caterpillar substantially changed its manufacturing systems, philosophy, and corporate structure, the company did not change its distribution system. Caterpillar's channel involved a network of independent dealers. Caterpillar's dealer network handled all sales and service worldwide, with the exception of direct sales to the U.S. government, the Soviet Union, and the People's Republic of China. Caterpillar's 215 independent dealers represented an enterprise almost as large as the company itself; it included operating, sales, parts, and service outlets in more than 140 countries, and employed approximately 72,000 people. A typical dealership sold and serviced Caterpillar equipment exclusively and was likely to be in a second- or third-generation affiliation with the company. Caterpillar's dealer network has long been recognized as the strongest in the industry.

In the early '80s, Caterpillar responded to Komatsu's entrance into the U.S. market by capitalizing on the area where it had a strong competitive advantage—its extensive global dealer network. Caterpillar chose to compete with a total product concept by providing the services that customers deemed most important, which included postsales support and responsiveness to equipment malfunction. Typically, the purchaser of industrial equipment can expect to spend three to four times the original investment on repair and maintenance costs over the life of the machine. While equipment breakdown is a normal part of using this equipment, customers expect quick service and replacement parts for machinery; downtime is extremely costly for them. Caterpillar, through its dealers, has been able to provide unequalled postsales service to the end users.

Caterpillar expects its dealers to be experts in the industry in which they compete. The dealers must know which Caterpillar equipment is required by what market segments and how best to reach these market segments in their own territories. Dealers decide on the best marketing strategy to reach potential customers in their territory. Dealers can elect to reach their customers through direct-mail campaigns, electronic media, trade shows, or some unique combination of the above. The company supports each dealer's marketing plans through merchandising plans, inventory plans, and assistance in pricing and advertising.

Caterpillar recognizes that to sustain its competitive advantage in the industry, it must provide an aggressive program of ongoing training and support for its dealers. Caterpillar provides training for dealership personnel, both sales and service, to make them more responsive to the market and to improve total product image. As the company's product line broadens and deepens, it has to ensure that dealers are aware of each new product and its potential market. In 1985, Caterpillar initiated a program known as the *Sales Team Development System (STDS)*. The aim of the program was to provide professional assistance in utilizing all the resources that are available through Caterpillar. The results from STDS were impressive: 80 percent of the participating dealers felt they significantly improved their planning skills, product/technical knowledge, and general marketing sales skills. Dealers participating in the program increased their net revenues by 102 percent during a time of contraction in global markets.¹⁵

¹⁴Robert L. Rose and Alex Kotlowitz, "Strife between UAW and Caterpillar Blights Promising Labor Idea," *The Wall Street Journal*, November 23, 1992, Section A: p. 1.

¹⁵S. Tamer Cavusgil, "The Importance of Distributor Training," *Industrial Marketing Management*, February 1990, p. 5.

Caterpillar also increased its support for dealers through improved information flow and communications. The company modernized its communications capabilities with the purchase of advanced computer equipment that allowed for more accurate record and inventory keeping. During the 1991 strike at Caterpillar's U.S. plants, the ability to communicate effectively with dealers enabled Caterpillar to meet the needs of the majority of customers. Equipment was moved between dealers as needed, and some used equipment was leased to customers until new equipment could be made available. Domestic dealers, who normally received most of their inventory from manufacturing plants in the United States, received equipment from Japan, Belgium, and Brazil to meet their customers' orders. Caterpillar management stated repeatedly that they could not identify a single sale lost due to the strike.¹⁶

Caterpillar's distinct advantage lies not only in its control of the largest market share in the United States, but also in having the most extensive and competent dealership organization in the industry. Its customer offering goes beyond the equipment to a complete package of unique benefits. Caterpillar was able to break away from the competition because of its stronger distribution network. Caterpillar's dealers compete directly and effectively with competitors' dealers, especially Komatsu's and Deere's, by being able to respond to individual customer needs more effectively.

Competition

Caterpillar is striving to remain the dominant manufacturer in a mature industry that has many competitors. One competitor, Japan's Komatsu, has aggressively pursued Caterpillar for the last decade. Its motto has been "Encircle Cat."¹⁷ Long before the crisis in the early 1980s, management had identified Komatsu as a deadly serious contender in its quest to become the new industry leader. While management had identified the risk, it failed to act upon this information. In 1982, Komatsu began to aggressively pursue market share in the United States. The strong dollar allowed Komatsu to offer prices 40 percent below Caterpillar's prices and still remain profitable.

In 1983, Komatsu continued its aggressive entry into Caterpillar's home market by adding five lines to the crawler tractor and loaders already being sold in the United States. Two years later, the company established a manufacturing plant in Tennessee and bought an old Caterpillar plant in England. In 1988, Komatsu and Dresser formed a 50/50 joint venture for their operations in the United States, Canada, and Latin America. The joint venture combined the two companies' manufacturing, financial, and distribution functions but maintained the companies' separate product lines. The joint venture did not change the dealership network of either company. Komatsu dealers still competed with Dresser dealers in most territories.

Komatsu's surge in the U.S. market slowed in 1987 when it lost its price advantage. Komatsu began to lose market share in the following year, and by 1991 its market share in the United States had fallen from a high of 20 percent to 18 percent. During this same period, Caterpillar increased its market share from 34.5 percent to 36.4 percent.¹⁸

In addition to losing its price advantage, Komatsu had problems with the Dresser joint venture from the beginning. After the joint venture was established, Dresser executives felt left out of decision making, and most U.S. employees could not understand the w

¹⁶Robert L. Rose, "Caterpillar Reports First-Quarter Loss Plays Down Strike," *The Wall Street Journal*, April 23, 1992, Section A: p. 6.

¹⁷Robert L. Rose and Masayoshi Kanabayashi, "Corporate Focus: Komatsu Throttles Back on Construction Equipment; Japanese Company, Lagging Rival Caterpillar, Eyes Other Areas for Growth," *The Wall Street Journal*, May 13, 1992, Section B: p. 4.

¹⁸*Ibid.*

ethic or culture of Japanese personnel. Another major problem for the Komatsu-Dresser venture was that the dealers of both companies struggled against each other for sales, instead of focusing on the major competition from Caterpillar dealers. As a solution to this problem, Komatsu-Dresser began encouraging dealers to combine operations and sell both lines of equipment. Currently, over 50 percent of dealers have combined operations. Komatsu-Dresser's sixty independent U.S. and Canadian dealers have a net worth of \$300 million. In comparison, Caterpillar's 65 full-line U.S. dealers have a net worth of \$1.72 billion.¹⁹

Komatsu reported its first annual loss of \$14.4 million in 1990. It was followed by a \$74 million operating loss in 1991. Both of these losses were attributed to low sales volume as a result of a severe recession. Komatsu began to diversify away from construction equipment, which accounted for 63 percent of the company's total sales. Company executives said publicly that they were no longer trying to overtake Caterpillar as industry leader and that Komatsu's future lies in robotics and machine tools. To underline this shift away from construction equipment, the bulldozer was removed from atop the corporate headquarters in Tokyo.²⁰

While Komatsu states that it is no longer going head-to-head with Caterpillar, the companies are still arch rivals in all markets. Although Komatsu has lost many of its competitive advantages, the company has been able to maintain a better relationship with blue-collar workers in its North American factories. In addition, its per unit labor costs are lower than Caterpillar's. In the international market arena, when Caterpillar was constrained by U.S. foreign policy from selling to many former communist countries, Komatsu was able to develop strong trading relationships with them. For example, when Caterpillar was prohibited by the Carter administration from making sales to the Soviet Union, Komatsu was able to provide the necessary equipment.

Major Domestic Competitors

While Caterpillar and Komatsu battle for the number one and two positions in the heavy equipment market around the world, Caterpillar also competes with a number of domestic manufacturers. These include Deere & Company and Tenneco's J. I. Case in selected product lines. While Deere is more commonly known for its major share of the farm equipment market, it does manufacture and market a line of industrial equipment. Caterpillar has met more competition from Deere & Company since introducing backhoes and front-end loaders for smaller construction companies. These are areas that have traditionally been serviced by Deere and others.

Deere & Company has gone through a turbulent decade much the same as Caterpillar. The company has survived strikes by its largest union and a decade-long slump in its farm-equipment markets. Deere responded by trimming its payroll by 29,000 jobs, which included both salaried and hourly positions. The company restructured and modernized its manufacturing facilities to be able to react more quickly and efficiently to changing customer requirements. Deere expects to compete aggressively in all market segments, but sees its best growth potential in the farm equipment segment of its business.

Tenneco's J. I. Case was primarily a manufacturer of tractors and industrial equipment until it acquired International Harvester and Steiger Tractor Company. Case now has a full line of agricultural equipment and has the number two position for the farm equipment market behind Deere & Company. Case competes with Caterpillar primarily in the smaller construction lines and the farm equipment segment.

¹⁹Kevin Kelly, "A Dream Marriage Turns Nightmarish," *Business Week*, April 29, 1991, p. 94.

²⁰Robert L. Rose and Masayoshi Kanabayashi, "Corporate Focus: Komatsu Throttles Back on Construction Equipment; Japanese Company, Lagging Rival Caterpillar, Eyes Other Areas for Growth," *The Wall Street Journal*, May 13, 1992, Section B: p. 4.

International Sales

Caterpillar has traditionally sold approximately 50 percent of its products in countries other than the United States. Sales outside of the United States are projected to increase in the future. Many of Caterpillar's greatest opportunities lie in developing countries that are not able to pay for products in hard currency. Caterpillar established the Caterpillar World Trade Corporation in response to these payment difficulties. The World Trade Corporation negotiates payment for Caterpillar equipment in commodities or other finished goods that are then resold to obtain hard currency.

An example of how the World Trade Corporation facilitates Caterpillar's equipment sales can be seen in a recent sale of mining equipment to a Brazilian corporation. Instead of paying for the equipment in an agreed-upon currency, the Brazilian company traded iron ore for it. Caterpillar's World Trade Corporation sold the iron ore to a company in Hungary for men's suits. These suits were then sold in London for hard currency. Although this is a complex means of receiving payment for construction equipment, it allows Caterpillar to take advantage of opportunities in developing countries.²¹

Africa

Caterpillar is one of the largest exporters to Africa. The company has been successful on this continent because it has exploited the expertise of its local dealers. In addition, the company has been extremely flexible in arranging sales terms. The company will sell to governments under existing international loans programs, or establish long-term leasing arrangements. Counter-trade options have also been used with success.* The company has met with success on this continent on its own terms. The company, while adopting the local business practices, will not indulge in bribery or other kickbacks, which are a common means of facilitating business exchanges in many parts of this continent. In the future, Africa is expected to be an area of continued growth for mining equipment because of the continent's mineral wealth.

Brazil

The decline in the company's overall profits during 1990 was due in large part to difficulties in the Brazilian unit. The unit was profitable through 1989 and the first quarter of 1990, but incurred an operating loss for the year overall. The Brazilian government, in March 1990, introduced austerity programs that curtailed government spending and reduced sales volume for Caterpillar. The Brazilian currency weakened substantially, which meant that sales that were finalized translated into fewer dollars for the parent company.²² In 1991, due to continuing economic turmoil in Brazil, Caterpillar Brasil S.A. announced the planned closing of its facility in São Paulo and the consolidation of all operations in Piracicaba. Business conditions are expected to continue to be affected by political and economic factors in the short term.

Eastern Europe and Countries of the Former Soviet Union

While there are definite opportunities for industrial equipment manufacturers in the countries that made up Eastern Europe and the former Soviet Union, in all these countries some means of payment for imported equipment must be established. Counter-trade arrangements and international loan programs are expected to play a major role in these countries.

²¹Taken from speech by Ed Terrel, manager of human resources for Caterpillar Inc., at the University of Wisconsin-Madison, September 23, 1992.

*Counter-trade options are defined as the selling company accepting commodities in lieu of cash payment. Caterpillar's World Trade Corporation specializes in counter-trade options.

²²James P. Miller, "Caterpillar Shares Tumble as Firm Says Profit Will Drop Substantially in 1990," *T. Wall Street Journal*, June 26, 1990, Section C: p. 15.

Caterpillar pursued these opportunities with caution because of continued political instability. The company has tried to extend its distribution network into these countries. However, establishing dealerships in these countries is difficult because most interested parties do not meet Caterpillar's criteria, which include a stable financial position and the ability to do business with Caterpillar in English.

Southeast Asia, China, and Pacific Rim Countries

Caterpillar has been quite successful in pursuing opportunities in these countries. The company has established a special Far East trading company to focus on the opportunities and special problems associated with transacting business in many of these countries. Caterpillar already has a manufacturing plant in Indonesia and has been successful in selling heavy equipment in China. To take advantage of many of these sales, the company has had to establish complex counter-trade arrangements. In the future, there should be additional opportunities in Cambodia if the recently signed peace agreement is successful.

Counter trade has not been necessary when dealing with the developed countries of Australia and New Zealand. Caterpillar had been extremely successful in selling equipment, particularly large mining equipment, in these two countries. Recently, environmental concerns in both these countries have reduced sales. In Australia, large new mining developments in the Northern Territory have been rejected because of environmental concerns and complaints from indigenous people. In addition, the government has been prohibiting the expansion of even existing mining operations in all regions of the country.

Caterpillar's Future

Slow growth in the industrial equipment market is projected for the short term because of continued global recession. In the United States, industrial equipment market growth is closely linked to expansion in the national economy. The need to upgrade and maintain the public infrastructure in older cities is expected to increase and stimulate growth in the construction equipment segment of this market. In addition, highway and bridge repair may continue to provide a major source of market demand, as will the continued construction of new power plants and water supply facilities.

Environmental issues are affecting the demand of industrial equipment. Demand for products used primarily in large mining operations will be most affected by the increased awareness of environmental issues. The world's recent focus on the environment has forced many existing mining operations to downsize, and in some countries, mining projects which would utilize industrial equipment are not being approved.

The equipment market is expected to be stimulated by the growing versatility of products in which attachments are designed to be changed quickly. For example, excavators can now be equipped with bucket or rock-breaker attachments for a wide range of applications. In addition, higher productivity is being achieved through computerized power transmissions that automatically control the engine speed and hydraulic output to maximize productivity and achieve fuel savings. These product improvements promote higher product-replacement rates in the near term.²³

Caterpillar responded to the challenges of the 1980s better than many other U.S. manufacturers. The company made unprecedented changes and learned from previous mistakes. Even with all these changes, the company still recorded losses in recent years and continues to be troubled by severe labor problems. The company must decide whether there is a profitable future for it as a U.S.-based manufacturer of heavy construction equipment and diesel engines.

²³1991 U.S. Industrial Outlook.

APPENDIX A Four-Year Financial Summary (Dollars in millions except per share data)*

Years Ended December 31

| | 1991 | 1990 | 1989 | 1988 |
|--|-----------|-----------|-----------|-----------|
| Sales and revenues | \$ 10,182 | \$ 11,436 | \$ 11,126 | \$ 10,435 |
| Sales | 9,838 | 11,103 | 10,882 | 10,255 |
| Percent inside U.S. | 41% | 45% | 47% | 50% |
| Percent outside U.S. | 59% | 55% | 53% | 50% |
| Revenues | 344 | 333 | 244 | 180 |
| Profit (loss) | (404) | 210 | 497 | 616 |
| As a percent of sales and revenue | (4.0%) | 1.8% | 4.5% | 5.9% |
| Profit (loss) per share of common stock | (4.00) | 2.07 | 4.90 | 6.07 |
| Dividends per share of common stock | 1.05 | 1.20 | 1.20 | .86 |
| Return on average common stock equity | (9.4%) | 4.7% | 11.6% | 16.0% |
| Capital expenditures: | | | | |
| Land, buildings, etc. | 653 | 926 | 984 | 732 |
| Equipment leased to others | 121 | 113 | 105 | 61 |
| Depreciation and amortization | 602 | 533 | 471 | 434 |
| R&E expense | 441 | 420 | 387 | 334 |
| As a % of sales and revenue | 4.3% | 3.7% | 3.5% | 3.2% |
| Provision (credit) for income taxes | (152) | 78 | 162 | 262 |
| Wages, salaries, and employee benefits | 3,051 | 3,032 | 2,888 | 2,643 |
| Average number of employees | 55,950 | 59,662 | 60,784 | 57,954 |
| Total receivables: | | | | |
| Trade and other | 2,133 | 2,361 | 2,353 | 2,349 |
| Finance | 2,145 | 1,891 | 1,498 | 1,222 |
| Inventories | 1,921 | 2,105 | 2,120 | 1,986 |
| Total assets: | | | | |
| Machinery and engines | 9,346 | 9,626 | 9,100 | 8,226 |
| Financial products | 2,696 | 2,325 | 1,826 | 1,460 |
| Long-term debt due after one year: | | | | |
| Machinery and engines | 2,676 | 2,101 | 2,561 | 1,428 |
| Financial products | 1,216 | 789 | 491 | 525 |
| Total debt: | | | | |
| Machinery and engines | 3,136 | 2,873 | 2,561 | 2,116 |
| Financial products | 2,111 | 1,848 | 1,433 | 1,144 |
| Ratios—excluding financial products: | | | | |
| Ratio of current assets to current liabilities | 1.74 to 1 | 1.67 to 1 | 1.78 to 1 | 1.76 to 1 |
| Percent of total debt to total debt and stockholders' equity | 43.7% | 38.8% | 36.4% | 34.0% |

*Data taken from Caterpillar's 1991 Annual Report, pp. 28-29.

APPENDIX B
Caterpillar Product
Line

Source: Tabulated from
 Caterpillar's 1991 Annual
 Report.

| Type of Equipment | Number of Models |
|--------------------------------|------------------|
| Wheel loaders | 10 |
| Integrated tool carriers | 4 |
| Backhoe loaders | 5 |
| Pavement profilers | 4 |
| Asphalt pavers | 5 |
| Road reclaimer/soil stabilizer | 2 |
| Compaction equipment | 15 |
| Wheel tractors | 3 |
| Compactors | 2 |
| Landfill compactors | 4 |
| Track loaders | 10 |
| Track-type tractors | 22 |
| Motor graders | 6 |
| Excavators | 18 |
| Pipelayers | 4 |
| Scrapers | 12 |
| Trucks | 6 |
| Tractors | 4 |
| Articulated trucks | 8 |
| Forest machines | 4 |
| Skidders | 4 |
| Engines | 7 |
| Lift trucks | 8 |