



PANKAJ GHEMAWAT

The Globalization of CEMEX

Geographic diversification enables us to operate in multiple regions with different business cycles. For the long term, we are trying to ensure that no one market accounts for more than one third of our business. Yet we do not diversify simply to balance cyclic downturns and upswings. We do not see volatility as an occasional, random element added to the cost of doing business in an interconnected global marketplace. We plan for volatility. We prepare for it. We have learned how to profit from it.

Lorenzo Zambrano, CEO of CEMEX.¹

In 1990, Cementos Mexicanos was a Mexican cement company that faced trade sanctions in its major export market, the United States. By the end of 1999, CEMEX operated cement plants in 15 countries, owned production or distribution facilities in a total of 30, and traded cement in more than 60. Non-Mexican operations accounted for nearly 60% of assets, slightly over 50% of revenues and 40% of EBITDA (earnings before interest, taxes, depreciation, and amortization) that year. CEMEX's sales revenues had increased from less than \$1 billion in 1989 to nearly \$5 billion in 1999, and it had become the third largest cement company in the world in terms of capacity, as well as the largest international trader. Growth had been achieved without compromising profitability: in the late 1990s, its ratio of EBITDA to sales ranged between 30% and 40%—ten to fifteen percentage points higher than its leading global competitors. In addition, the company was celebrated as one of the few multinationals from Latin America, and as a model user of information technology in an otherwise low-tech setting.

CEMEX executives sometimes characterized the company's international operations as a "ring of grey gold," comprising commitments to high-growth markets, mostly developing and mostly falling in a band that circled the globe north of the Equator. By the end of 1990s, the addition of countries such as Indonesia and Egypt to the ring had prompted discussions about the scope and speed of CEMEX's international expansion. So had the hostile bid, in early 2000, by Lafarge, the second-largest cement competitor worldwide in cement for Blue Circle, the sixth largest. Hector Medina, CEMEX's Executive Vice President of Planning and Finance, likened the takeover struggle to "ripples in an agitated environment" that could have significant implications for the other cement majors.

This case begins with a brief overview of the cement industry and international competition within it. It then describes the globalization of CEMEX and how it was managed.

Professor Pankaj Ghemawat and Research Associate Jamie L. Matthews prepared this case drawing, in part, on a course paper by Pau Cortes, Heriberto Diarte and Enrique A. Garcia. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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The Cement Industry

Cement had been used since antiquity as a binding agent that hardened when mixed with water. It was first made in its modern form in England during the early part of the 19th century. The production process, which remained broadly unchanged, involved burning a blend of limestone (or other calcareous rocks) and smaller quantities of materials containing aluminum, silicon, and iron in a kiln at high temperatures to yield marble-sized pellets of “clinker.” Clinker was then ground with gypsum and other minerals to yield cement, a fine gray powder. The mixture of cement, aggregates, and water that hardened into a rocklike mass after hydration was known as concrete. Concrete could be mixed “on site” where it was to be used, or it could be obtained in “ready-mix” form from a central drum at the plant or a ready-mix truck.

Supply

Since limestone, clay and the other raw materials required were abundant in many regions of the world, cement could usually be produced locally. Cement companies often owned raw material quarries and located their production facilities close by to minimize materials handling. The production technology was continuous process, consisted of a number of stages (see **Exhibit 1**) and was marked by high capital- and energy-intensity. It was also considered relatively mature: no major innovations had been recorded in the last 20 years. The minimum efficient scale (MES) for a cement plant approximated 1 million tons of capacity per year. New capacity cost about \$120-\$180 per ton, depending on local factors such as the cost of land, environmental legislation, and the need for ancillary equipment and infrastructure, including investment in quarries and kilns. A cement plant’s assets were largely dedicated to the production of cement and might last for decades. Operating costs typically ranged from \$20-\$50 per ton, with labor accounting for well under \$10 per ton.² Transportation costs, in contrast, could account for as much as one-third of total delivered costs.

High transportation costs in relation to production costs meant that there was only a limited distance within which a plant could deliver cement at competitive prices. Road transportation was the most expensive, and limited the effective distribution radius to 150-300 miles.³ Waterborne transportation was the most economical and, as a result of innovations since the mid-1950s, had led to a substantial expansion of MES.⁴ New systems of loading and unloading barges were introduced and specialized ships for carrying cement were developed. As a result, cement producers began to establish much larger plants that shipped cement to distribution terminals in distant markets as well as serving local ones. Still, a host of other costs had to be layered on top of the costs of ocean freight for long-distance trade to take place (see **Exhibit 2**). In the late 1990s, international seaborne traffic in cement and clinker averaged about 50 million tons per year. It was believed that about 10 million tons of this traffic was carried by small vessels on short coastal or estuarial voyages, and about 40 million tons by oceangoing vessels.⁵

Demand

Cross-country comparisons indicated that the long-run demand for cement was directly related to GDP, with per capita consumption increasing up to the \$20,000-plus per capita income mark and then declining very gradually. Numerous other local attributes affected cement demand as well. Rainfall had a negative effect since it made cement-based construction more difficult and increased the likelihood of using substitutes such as wood or steel instead. Population density had a positive effect, as higher density led to taller buildings and more complex infrastructure. Demand also tended to be higher in areas with a warm climate and lower under extremes of heat or cold. Demand generally decreased with a long coastline, since more sea transport meant fewer roads, and increased

with the share of governmental expenditures in GDP. CEMEX forecast total world demand to grow at slightly under 4% per annum through 2010. Demand growth was expected to be highest in the developing Asian economies, Central America, the Caribbean, and Sub-Saharan Africa, where it would approach or exceed 5%, and lowest in Western Europe and North America, where it would be closer to 1%.

In the short run, cement demand varied directly with GDP and, even more reliably, with construction expenditure/investment. As a result, construction plans could be used to develop short-run forecasts for cement demand. However, the cyclicity of the construction sector made medium-run forecasts somewhat dicey. Bulk sales were very sensitive to GDP growth, interest rates, and other macroeconomic factors that affected the formal construction market. Retail sales to individual consumers for home construction and the like, which were important in developing countries, were discovered to be less cyclical and also offered opportunities for some branding, as described below.

Competition

Cyclicity on the demand side combined with capital-intensity, durability, and specialization on the supply side to mean that overcapacity in the cement industry could be ruinous in its effects. Cement firms tried to cushion their interactions under conditions of overcapacity by relying on “basing point” pricing systems, other leadership strategies, and even direct restraints on competition.

The basing point system had been common in the United States until the end of World War II, and in Europe until much more recently. Under this system, the leading firm set a base price, and the other firms calculated their prices by taking the base price and increasing it by the cost of transportation from the leading firm’s plant to the delivery point. This offered a transparent price structure in the absence of hidden discounts, and let the biggest players sell throughout the entire market, while smaller producers ended up selling in relatively small areas around their plants.

Other devices that cement firms relied on to mitigate competition included attempts to collude and to secure protection from imports. There had even been explicit cartels in the industry. Well-documented examples included one in southern Germany during the 1980s and another in Switzerland during the early 1990s. Governmental support was instrumental in erecting trade barriers to curb foreign competitors as well. The antidumping duties imposed in the late 1980s by the United States on cement imports from Mexico are an example that will be discussed in some detail later on.

International Competitors

By 1999, six major international competitors had emerged in cement: Holderbank, Lafarge, CEMEX, Heidelberg, Italcementi, and Blue Circle. Given their geographic diversification, these competitors tended to be outperformed in any given year by competitors focused on local markets that happened to be “booming” (see **Exhibit 3**), but they had achieved significantly greater stability in their returns. In aggregate, the six majors controlled 500 million tons of capacity, representing slightly over one-quarter of the world total, or over one-third of the total excluding China. The six-firm concentration ratio had been only 12% in 1988, with Votorantim of Brazil edging out CEMEX for the sixth spot.⁶

In 1999, each of the six major international competitors still had clearly identifiable national origins and controlled a significant share of its home market. But each had also come to operate production facilities in anywhere between a dozen and several dozen countries around the world.

Exhibit 4 supplies financial data on the six majors, and **Exhibit 5** summarizes their capacity shares in a number of major markets.

Although some of the majors, such as Holderbank, had operated in several countries for decades, internationalization, particularly in an interregional sense, did not begin until the 1970s. This was when European players began to penetrate the United States. During the 1960s and 1970s, the U.S. cement industry had fallen into a crisis as profitability dropped with the collapse in prices, and domestic firms responded by lowering investment in cement and diversifying into other lines of business. This resulted in shortages in some regional markets and provided an opening for European cement firms that had remained strong and were looking to expand. By 2000, European groups controlled 65% of the U.S. market.

Cross-border investment in the United States had been concentrated in certain periods—most recently, 1985-1988 and 1991-1993—instead of trickling in more continuously. Such waves were characteristic of cross-border investment in other regions as well, given the cement majors' emphasis on buying existing capacity rather than adding new capacity to enter new markets (see **Exhibit 6**). Obviously, acquisitions were most attractive to them when the market values of target companies were less than their underlying values—a condition more likely to be fulfilled at the bottom of the local economic cycle rather than the top. The underlying values of acquired franchises could be assessed by estimating their average profitability, capacity utilization, weighted average cost of capital and, probably most problematically, expected long-run growth rates. See **Exhibit 7** for an attempt by an investment bank to perform such calculations at the country level. In practice, of course, such country-level analyses had to be supplemented with target-specific considerations such as the target's cost position and market share, and the kind of base it afforded for further cost-reduction and expansion.

Starting in 1997 and particularly after the summer of 1998, the largest and most concentrated wave of cross-border investment ever began in South East Asia. The international players had their eye on the market for many years, but had been unable to justify the entry premium—some companies in the region had been valued at up to \$300 per ton of capacity on an enterprise value basis! The Asian crisis that began in 1997 changed the situation dramatically and gave the majors the opportunity they were waiting for. The six majors' Asian cement deals through fall 1999 are summarized in **Exhibit 8**. They quickly increased their share of capacity in Asia, excluding China, from less than 20% to about 60%.

Of the leading international competitors in cement, two, Holderbank and Lafarge, were larger than CEMEX. Holderbank had cement operations on five continents and in more than 50 countries, making it the most global as well as the largest international competitor. Its globalization strategy could be traced back to the early 1920s when the company (formed in 1912) first moved out of Switzerland and into neighboring France, Belgium, and the Netherlands. The company's 1999 sales were \$7,618 million and its EBIT was \$1,066 million. Cement accounted for 68% of 1999 sales and concrete and aggregates for 24%.

Lafarge was ranked second in the global cement market and also had strong positions in other building such as plaster, aggregates, concrete, and gypsum. Its 1999 sales were \$10,552 million and EBIT was \$1,766 million. Cement accounted for 35% of 1999 sales and concrete and aggregates for another 30%. Lafarge was not as focused on emerging markets as some of the other global players. In February 2000, it mounted a hostile bid, valued at nearly \$5.5 billion, for Britain's Blue Circle, the sixth-largest cement competitor. Motives for the deal included achieving a certain size in order to remain visible and attractive to investors, expanding cashflow and, relatedly, geographic presence and, probably, dislodging Holderbank from the top spot in the global cement industry. However, by

May, Lafarge had managed to attract only 44% of Blue Circle's shares with its aggressively priced offer.

CEMEX

By the year 2000, CEMEX had become the third largest cement company in the world with approximately 65 million tons of capacity (see **Exhibit 9** for historical financial data). CEMEX traced its origins back to 1906 when the Cementos Hidalgo cement plant was opened, with a capacity of less than 5,000 tons per year, in northern Mexico, near Monterrey. In 1931, it was merged with Cementos Portland Monterrey, founded by Lorenzo Zambrano, to form Cementos Mexicanos, later renamed CEMEX. Over the next half-century, the company expanded its capacity to about 15 million tons, and was well on its way to becoming Mexico's market leader by the early 1980s.

In 1985, Lorenzo Zambrano, scion of the Zambrano family that still controlled CEMEX and a grandson as well as namesake of the company's founder, took over as CEO. In his first few years at the helm, CEMEX continued to grow by constructing additional cement capacity. It also began to diversify horizontally into areas such as petrochemicals, mining, and tourism in order to reduce the risks related to its dependence on a highly cyclical core business. However, it wasn't long before Zambrano decided to refocus the company on cement and cement-related businesses. Based partly on the work of the Boston Consulting Group, he had concluded that geographic diversification within the cement business was preferable to horizontal diversification outside it. All the non-core assets were eventually divested and CEMEX switched to a strategy of growth through acquisitions.

This strategy focused, in the first instance, on Mexico. As Mexico began to open up in the late 1980s, large firms such as Holderbank and Lafarge viewed it as a possible market to expand their operations. Faced with this threat, CEMEX decided to unify its Mexican operations. In 1987, CEMEX acquired Cementos Anahuac, giving the company access to Mexico's central market and bolstering its export capabilities with the addition of two plants and four million tons of capacity. Two years later, the acquisition of Cementos Tolteca, Mexico's second-largest cement producer with seven new plants and 6.6 million tons of capacity, made CEMEX Mexico's largest producer. These mergers, which cost CEMEX nearly \$1 billion, secured its position in Mexico and gave it the size and financial resources to begin the process of geographic expansion.

When the 1994/1995 peso crisis struck, CEMEX had just finished a plan for revamping its Mexican operations. In December 1994, after a year of political instability that included the assassination of a presidential candidate, Mexico's foreign reserves dropped to about \$5 billion, down from nearly \$30 billion in March. Incoming President Zedillo warned his citizens to prepare for tough times. CEMEX quickly reworked its planned Mexican revamp and compressed it from 18 months to 3 months. Despite the recession that followed, it managed to maintain margins at reasonable levels. One reason was that many Mexicans did not have credit, so the self-construction part of the market was affected to only a limited extent, even though demand from the formal sector went down by 50%.⁷ Another was that the company had already begun to expand into foreign markets. At the start of the year 2000, CEMEX was the leader in the Mexican market, with an installed capacity of 28 million tons, or about 60% of the country's total. Apasco, which Holderbank had acquired and invested heavily in expanding in the early 1990s, was the second largest player, with another 9 million tons of capacity. Analysts did not expect further increases in CEMEX's share of the Mexican market.

International Expansion

After having secured its leadership in Mexico, CEMEX began to look for opportunities beyond Mexico's borders. Internationalization began with exports, principally to the United States. By 2000, CEMEX was the largest international cement trader in the world, with projected trading volumes of 13 million tons of cement and clinker that year, 60% of which was expected to be third-party product.⁸ International trade offered opportunities to arbitrage price differentials across national boundaries and to divert low-priced imports away from one's own markets. It also expanded the range of options available to deal with threats from particular competitors and let CEMEX study local markets and their structure at minimal cost before deciding whether to make more of a commitment to them by acquiring capacity locally.

After the imposition of trade sanctions by the United States, foreign direct investment had become a much more important component of CEMEX's internationalization strategy than pure trade. CEMEX's foreign investments focused on acquiring existing capacity rather than building "greenfield" plants. Its major international moves are summarized in **Exhibit 10** and described in more detail in the rest of this section.

The United States CEMEX had begun to export to the U.S. market in the early 1970s. In the late 1980s, it established distribution facilities in the southern United States in order to expand this effort. However, the U.S. economy and the construction industry in particular were experiencing a downturn. As a result, eight U.S. producers banded together to file an antidumping petition claiming that they were being harmed by low-cost Mexican imports and demanding protection. After finding that cement prices were higher in Mexico than in the southern United States and inferring that Mexican producers were dumping cement in the U.S. market at artificially low prices, the U.S. International Trade Commission (ITC) imposed a 58% countervailing duty on CEMEX's exports from Mexico to the United States. The duty was reduced to 31% after CEMEX started limiting exports to U.S. states where prices were relatively high.⁹ The company tried to fight these actions before the relevant U.S. bodies, but this proved very difficult. Medina recalled that at one point, CEMEX was simultaneously being investigated by the ITC for artificially lowering prices and by the U.S. Federal Trade Commission for purchasing a distribution terminal with the intent of artificially raising them! A ruling by the General Agreement on Tariffs and Trade (GATT) in 1992 sided with Mexico in this dispute, but the United States refused to give way. As of early 2000, the countervailing duty was still in place, although there were also reports that the United States was finally moving closer to repealing it.

After the countervailing duty was imposed, CEMEX had acquired a 1 million ton cement plant in Texas to reinforce its ready-mix and distribution facilities in the southern United States. Zambrano sometimes referred to this constellation of facilities as a firewall protecting the Mexican market from incursions from the United States. In addition, CEMEX's coastal terminals in the United States continued to import cement into the United States, from third parties as well as from the company's other plants. Thus, CEMEX credited imports of Chinese cement to the west coast of the United States for doubling the profits of its activities in the United States during 1999, to the point where they accounted for 12% of CEMEX's total sales and 7% of its EBITDA.

Spain In 1991, CEMEX built distribution terminals in Spain to trade cement that was produced in Mexico, and also to study the European market. In July 1992, it spent about \$1.8 billion to acquire what ended up being 68% of the stock and 94% of the voting rights in two large Spanish cement companies, Valenciana and Sanson, with a total of nearly 12 million tons of capacity. These acquisitions yielded a market-leading 28% share in one of Europe's largest cement markets, which then happened to be in the throes of a major boom. The acquisitions also lowered dependence on the

Mexican market, gave CEMEX significant capacity in a major market for Holderbank and Lafarge, and raised its international profile. But shareholders generally took a dim view of the deals: CEMEX's American Depositary Receipts, issued just a year earlier (another first for a Latin American company), tumbled by about one-third around the dates at which the acquisitions were announced. And immediately afterwards, the Spanish economy plunged into its deepest recession in 30 years, with the Spanish peseta having to be devalued three times during late 1992 and 1993. These developments added to the urgency of orchestrating major turnarounds at the two Spanish companies.

It was in this context that CEMEX began to develop and codify its post-merger integration process. Every aspect of the Spanish acquisitions was reviewed, from procurement policies to the location of the mines to the use of automation. Processes were streamlined, as was the workforce (by 25%) and investments in information technology were stepped up. Simultaneously, CEMEX moved quickly to harmonize and integrate the systems for its Spanish operations with its Mexican ones. The post-merger integration process reportedly took a little more than a year, or less than one-half the amount of time originally budgeted, and was followed by major improvements in operating margins, from 7% at the time of the acquisitions to about 20% by 1994 and an average of 25% for the second half of the 1990s. The Spanish operations turned out to be critical in helping CEMEX weather the Mexican peso crisis of 1994/1995.

In 1998, CEMEX sold its cement plant in Sevilla for \$260 million. The Sevilla plant, which had accounted for about 10% of CEMEX's capacity in Spain, was relatively old, and had high production costs. CEMEX remained the largest competitor in the Spanish market after the sale. It used the proceeds to invest in capacity in South East Asia, particularly Indonesia. According to its annual report for 1998, "We effectively exchanged one million metric tons of production capacity in Spain for the equivalent of approximately 4 million metric tons in Southeast Asia, a higher long-term growth market." In 1999, Spain accounted for 16% of CEMEX's revenues and 15% of EBITDA.

Latin America CEMEX's next major international move was entry into Venezuela, which initiated a broader series of engagements in Latin America, mostly around the Caribbean Basin. Venezuela had been wracked by macroeconomic instability since the late 1980s, depressing demand for cement and forcing large losses on the industry. In April 1994, CEMEX paid \$360 million for a 61% stake in industry leader Vencemos, which operated about 4 million tons of capacity, or about 40% of the Venezuelan total. Virtually all remaining Venezuelan capacity ended up in the hands of Holderbank and Lafarge. As in Spain, CEMEX moved quickly to integrate and improve the efficiency of its Venezuelan operations. Vencemos' operating margin improved from 9% in the third quarter of 1994 to 41% a year later,¹⁰ and stood at 34% in 1998.¹¹ Although the Venezuelan economy had continued to disappoint, Vencemos was able to keep capacity utilization high even when domestic demand was low because it was located near a major port facility. This permitted it to export surplus production to places such as the Caribbean islands and the southern United States. In 1998, Venezuela accounted for 12% of CEMEX's revenues and 13% of EBITDA. Earnings were down in 1999, however.

In mid-1996, CEMEX acquired a 54% interest—subsequently increased—in Cementos Diamante, Colombia's second-largest cement producer, for \$400 million, and a 94% interest in Inversiones Samper, the third-largest producer, for \$300 million. The acquisitions gave CEMEX 3.5 million tons of capacity, or a bit less than one-third of the Colombian total, behind industry leader Sindicato Antioqueño—a loose confederation of small cement producers—with a share of about 50%. Weak demand topped off by a price war caused CEMEX's operating margins in Colombia to decline from more than 20% at the beginning of 1998 to 3% by late in the year. Margins began to recover, however, during 1999.¹² That year, Colombia accounted for 3-4% of CEMEX's revenues and EBITDA.

Next, CEMEX entered Chile, paying \$34 million for an 12% stake in Cementos Bio-Bio, Chile's third-largest competitor. The largest producer in Chile was Cement Polpaico, a subsidiary of Holderbank, and the second-largest was one of Blue Circle's subsidiaries. Compared to them, Bio-Bio was relatively focused on the northern and southern parts of Chile rather than on its populous middle. Elsewhere in Latin America, CEMEX acquired controlling stakes in the largest producers in Panama, the Dominican Republic, and Costa Rica.¹³

Other regions Between late 1997 and early 1999, CEMEX invested in Filipino cement producers Rizal (a 70% interest in 2.3 million tons of capacity for \$218 million) and APO (a 100% interest in 2.0 million tons of capacity for \$400 million). Both Rizal and APO were close to ports and therefore had export as well as domestic potential. The Philippines itself had been a Spanish colony in the 19th century, and was one of the first East Asian economies to experience macroeconomic pressures in the second half of the 1990s.. Less than 20% of Filipino cement capacity had been controlled by foreign firms in early 1997, when there had been nearly 20 producers and a supply shortage as the result of a decade in which demand had grown at about 10% per year.¹⁴ But the Filipino market just as large capacity additions by domestic competitors were coming on line. This gave international competitors their opening. CEMEX ended up controlling about 22% of Filipino cement capacity, well behind Holderbank but slightly ahead of Lafarge and Blue Circle. In 1999, the Philippines accounted for 2.5% of CEMEX's revenues and approximately one-half that percentage of its EBITDA.

Indonesia was the other Southeast Asian market in which CEMEX had established a presence: in September 1998, it paid \$115 million for a 14% stake in Semen Gresik, Indonesia's largest cement company with 17 million tons of capacity, and considered by many to be its most efficient. Originally, 35% of the company was supposed to have been sold (out of a total of 65% held by the Indonesian government), but public protests reduced the number of shares offered. By 2000, CEMEX had increased its stake to 25% by spending another \$77 million, but continued to have the Indonesian state as a major partner. The political and economic environment in Indonesia remained fluid, and further negotiations to buy out more of the government's stake were complicated by weakened institutions and the turnover of officials as well as by continued public opposition. In addition, excess capacity of almost 20 million tons—the largest such amount in the region—needed to be restructured. Still, the Indonesian market had significant long-run potential, not least because its population numbered 220 million (three times that of the Philippines). As the dollar value of the Indonesian rupiah collapsed, the dollar price of cement in the local market had decreased from about \$65 per ton in early 1997 to less than \$20 per ton in 1998, before starting to recover in 1999. As part of its investment in Semen Gresik, CEMEX had also entered into export commitments, which it intended to fulfill in part by setting up a grinding mill in Bangladesh to receive and process shipments of clinker from Indonesia.

In November 1999, CEMEX acquired a 77% stake in Assiut Cement Company, the largest cement producer in Egypt with about 4 million tons in capacity, for a total of about \$370 million. In May 2000, CEMEX announced plans to invest in expanding Assiut's capacity to 5 million tons, and to add 1.5 million tons of capacity in a new Egyptian facility. These plans catered to the Egyptian government's interest in increasing domestic production of cement to help meet demand that had been growing at an average annual rate of 11% since 1995. But the Egyptian market remained fragmented—Assiut accounted for only 17% of it—and the Egyptian regulatory context cumbersome.

The future In May 2000, CEMEX announced that it had accumulated \$1.175 billion to spend on global acquisitions. China was an obvious target because of the size of its market, variously pegged at about half a billion tons by official estimates and closer to half that according to independent analysts.¹⁵ However, approximately 75% of Chinese production took place in small, technologically

obsolete kilns owned by local authorities and not run on a commercial basis. Even after discounting opportunities in China, the bulk of the capacity that might be consolidated by the six major international competitors was located in emerging markets, particularly in Asia and Africa/the Middle East (see **Exhibit 11**). CEMEX was thought likely to enter India, where it thought the restructuring process was farther advanced, before China. Indian demand amounted to about 100 million tons, or more than three times Mexico's, and was served by 28 competitors, the eight largest of which combined to account for two-thirds of total demand. Holderbank and Lafarge already had a degree of presence there. In Latin America, CEMEX had its eye on Brazil, although it was unwilling to pay prices for acquisitions that, at \$250 or more per ton, exceeded its capacity valuations. In May 2000, the company announced that it was negotiating with the Portuguese government over a 10% stake in Cimentos de Portugal (Cimpor), that country's largest cement maker. Such a deal might permit consolidation of operations around the Mediterranean as well as giving CEMEX access to Brazil and some African markets. Holderbank and Lafarge were reportedly also interested.

The Expansion Process

As CEMEX moved to more distant markets, the various stages in the expansion process—opportunity identification, due diligence, and post-merger integration—became more formalized and greater attempts were made to standardize them, reflecting past experiences.

Opportunity identification While the logic of expanding to the U.S., Spain, and, in particular, Latin America, had been relatively obvious, CEMEX had had to develop better tools for screening opportunities as it ventured farther afield. CEMEX looked at several factors in deciding whether to invest in other countries. A country had to have a large population and high population growth as well as a relatively low level of current consumption. In addition, CEMEX wanted to lead the market or at least control 25% of it. These considerations tended to favor opportunities in emerging countries. Quantitative factors were assigned a 65% weight in country analysis, and qualitative factors, such as political risk, a weight of 35%. The analysis was complicated by the fact that CEMEX looked at countries in a regional context rather than as independent markets and was particularly interested in the Caribbean Basin, South East Asia, and the Mediterranean. According to CFO Rodrigo Treviño, "We now have a very balanced and well-diversified portfolio and we can afford to be more selective."¹⁶

If detailed market analysis was the top-down component of the process for identifying opportunities, the process of identifying target companies constituted its bottom-up component. CEMEX's conceptual framework for looking at targets is summarized in **Exhibit 12**. CEMEX pursued controlling stakes—often as close to 100% as possible—in the companies that it bought into, in order to maximize flexibility. When identifying a possible acquisition target, CEMEX also examined the potential for restructuring both the target company and the market as a whole. Restructuring the target company meant increasing its efficiency and optimizing capacity utilization. Restructuring the market might involve reductions in the number of players or volume of imports, moves toward rational pricing, fragmentation of distribution channels, product differentiation and other attempts to get closer to the customer. Speed in both respects was very important to improving target valuations.

Due diligence After a target was identified, a process of due diligence was performed whereby it was assessed in depth by a team of people. In 1999, about 20 processes of due diligence were undertaken, resulting in three acquisitions. The due diligence process typically lasted one to two weeks and involved about ten people per team, half of whom usually had prior experience with the process. Once a team was formed, it was briefed on the target company and given a standardized methodology to follow in assessing it. Negotiations with the government usually continued through the due diligence process, and meetings with local competitors and industry associations were often

held as well to allay any concerns about the acquisition. The final output from the due diligence process was a standardized report, to be presented to the Executive Vice President of Planning and Finance, Hector Medina, that was critical in pricing deals. Only rarely, however, would CEMEX bid prices that exceeded top-down estimates of the value of capacity in particular markets (as illustrated in **Exhibit 7**).

Especially in Southeast Asia, CEMEX had recently found itself looking at the same targets as other international cement companies. CEMEX believed that its due diligence process was more specific and systematic. To cite just one example, the human resources component of its process looked at the age, education, and average years of service of the target's employees, and at labor union affiliations, government involvement, and relationship to the community in order to estimate the optimal number of employees and recommend strategies for moving towards those targets. Other issues related to human resources, such as training programs and organizational restructuring, were also covered. Such thoroughness was thought to reduce the possibility of unpleasant surprises down the road, and to speed up the post-merger integration process if an acquisition was, in fact, undertaken. The process methodology was revised every six months to reflect recent experiences.

Post-Merger integration (PMI) process Once the decision to proceed with an acquisition was made, CEMEX formed a PMI team. The purpose was to improve the efficiency of the newly obtained operation and adapt it to CEMEX's standards and culture. PMI teams had become more diverse and multinational over time. The PMI process took anywhere from six months to a year, during which team members kept their original positions and salaries, returning home one week in every six. At the beginning of the process, the team was briefed on the country and methodology, and attended cultural awareness and teambuilding workshops. The process itself had a monthly cadence: the regional director visited every month, the country president of the new operation reported to headquarters in Monterrey every month in the same format as the other CEMEX country presidents, and CEO Zambrano, the regional directors and all the country presidents met every month in Monterrey or, occasionally, New York or Madrid.

The PMI process involved integration at three levels: the improvement of the situation at the plant acquired, the sharing or replication of basic management principles, and the harmonization of cultural beliefs. CEMEX tried to send in a PMI team as soon after an acquisition as possible and, while there were differences in terms of how quickly and to what extent the team tried to take charge, regarded itself as moving much more quickly in this respect than its leading international competitors. Integration almost always involved substantial manpower reductions, most of which were concentrated within the first six months. But the PMI team also tried to discover whom to retain or promote to managerial positions. It was possible for as many as half the members of a PMI team to stay on as expatriates after the process was over. CEMEX also viewed the PMI process as a vehicle for continuous improvement in existing operations. Thus, every two or three years, a PMI process was performed on CEMEX's Mexican operations, which were looked at as if they had just been acquired.

Management

As CEMEX expanded internationally, other broad aspects of its management changed as well. Geographic diversification had reduced earnings volatility: thus, over 1994-1997, the standard deviation of quarterly cash flow margins averaged 7.1% for CEMEX as a whole, compared to 9.5% for Mexico, 12% for Spain, 22% for the U.S., and 30% for Venezuela. Financing, nevertheless loomed large as an issue because of the asset-intensity of the international acquisition strategy, which included not only paying for equity but also the assumption of significant debt and incurrence of large investments in modernization—up to 50% of purchase prices in some cases. While high costs of

capital had always been a major issue for Mexican companies, the situation was exacerbated by the peso crisis, which simultaneously raised domestic interest rates and restricted the extent to which Mexican cashflows could be used to finance foreign direct investment (because of the 70% devaluation of the peso against the U.S. dollar). CEMEX responded by folding the ownership of its non-Mexican assets into its Spanish operations and financing new acquisitions through the latter. This was several hundred basis points cheaper for CEMEX, partly because Spain had an investment-grade sovereign rating, and partly because all interest expenses were tax-deductible in Spain (compared to just real interest expenses in Mexico). Consolidating its bank debt through the Spanish operations in 1996 was estimated to have saved CEMEX about \$100 million per year in interest costs, and to have better matched dollar-linked assets and its principally dollar-denominated debt.¹⁷

CEMEX's net debt amounted to \$4.8 billion at the end of 1999, leaving it relatively close to the 55% limit on debt-to-total-capital that was specified in bank covenants. The company had managed, however, to satisfy the cap on leverage and the floor on interest coverage that it had set for itself more than one year ahead of schedule, and further strengthening of capital structure had been promised. CEMEX had also tried to broaden its sources of capital. In 1998, it sold its plant in Sevilla, as described above. In early 1999, it partnered with AIG, the insurance company, and the private equity arm of the Government of Singapore Investment Corporation, among others, to set up a fund of up to \$1.2 billion to invest in some of the cement assets it was acquiring in Asia. In September 1999, CEMEX listed and started to trade on the New York Stock Exchange. And while no new shares were offered in conjunction with that listing, the company issued \$500 million of warrants later on in the year.

CEMEX also continued to distinguish itself by the intent of its emphasis on emerging markets, even though some of its competitors had moved in the same direction. The company calculated that the weighted average growth rate in cement demand in the countries in which it was present was close to 4%, compared to 3% for Holderbank and Lafarge and 2% for the three other international majors. CEMEX also thought that its emerging market business should command higher price-earnings ratios in cement than business in advanced markets—the reverse of the situation that prevailed. According to CEO Lorenzo Zambrano, “They assign us the ratios of developing-country companies, even though we have very little volatility and our risk is limited due to our geographical diversification.”¹⁸

Despite the increasing number of countries in which CEMEX participated, Mexico continued to play a critical role in its strategy as a lab for developing, testing, and refining new ideas about how to compete in emerging markets. Thus, in addition to reinforcing CEMEX's skills at handling macroeconomic fluctuations, the peso crisis had led to the discovery of a distinct customer segment involving informal construction that demanded bagged cement through retail channels, exhibited less cyclicity than the formal construction sector, and was apparently ubiquitous in emerging markets. Such demand lent itself to branding and promotion, which CEMEX first worked out in Mexico, before rolling out marketing campaigns to other countries. Another example was provided by the idea of using global positioning satellites to link dispatchers, truckers, and customers in a system that could track deliveries and guarantee them to within 20 minutes, rather than the usual three-hours-plus. This idea originated with visits to Federal Express in Memphis and an emergency call center in Houston and required the assistance of consultants from the U.S. in using complexity theory to model cement delivery logistics. The innovation was, once again, first implemented in Mexico, aided by imaginative advertising comparing the speeds of cement and pizza delivery. Customer willingness-to-pay went up while fuel, maintenance, and payroll costs came down.

CEMEX's organizational arrangements also differed in important ways from its competitors'. One key difference was that country-level managers at CEMEX reported directly to regional directors

whereas competitors often had an extra layer of area managers between regional and country managers. CEMEX plants were organized into 7-9 departments, each with its own vice president. Every month, the vice presidents reported to the country president and the regional manager during the latter's visit. The reports covered all aspects of the plants and used a standardized format. In addition, the country presidents, regional directors, CEO Zambrano, and his executive committee all met every month as well. Other global competitors might hold such meetings as infrequently as once a quarter and tended to be more decentralized in their decisionmaking. CEMEX had recently reorganized from a structure with a Mexican division and an international one to a structure with three regional divisions: North America, South America and the Caribbean, and Europe and Asia. Also, while it resisted setting up full-fledged regional offices, it had made some recent attempts to coordinate more formally across different countries within a region. For example, it had consolidated the administrative and financial functions for six countries in the South American and Caribbean region in Venezuela.

At the apex of this structure sat CEMEX's CEO, Lorenzo Zambrano. Zambrano had begun working at CEMEX during the summers in the early 1960s while he was a teenager attending nearby ITESM (Monterrey Tech), and had returned to the company after earning his MBA from Stanford University in 1968. Lorenzo Zambrano favored a very hands-on approach to running CEMEX, often checking kiln statistics and sales data on a daily basis. He was a bachelor who devoted the vast majority of his time to the company, and encouraged his subordinates to do the same. He also got personally involved in sending and receiving e-mail and using Lotus Notes, which was still unusual among local CEOs.

Zambrano's personal commitment to information technology mirrored CEMEX's early and consistent use of IT. When Zambrano took over as CEO in the mid-1980s, heavy investments in IT in Mexico seemed to be overruled by the country's weak telecom infrastructure. Zambrano was convinced, however, that the importance of using IT to increase productivity would become more apparent as the Mexican economy opened up, and that the optimal private response to the disabilities of Mexico's public infrastructure was to invest more rather than less in this area. In 1987, CEMEX created a satellite system to link the Mexican plants it had begun to acquire. In 1988, the company transferred internal voice and data communications to its own private network. The Spanish acquisitions were also connected immediately to each other as well as to the Mexican operations. In 1992, the company founded Cemtec, which was supposed to complement the company's IT department by performing the functions of software development and hardware installation, and which was eventually spun off. In 1987, CEMEX spent about 0.25% of its sales on IT; by 1999, this figure had increased to about 1%. CEMEX's competitors were considered slower at capitalizing on the possibilities afforded by IT, although they were moving in the same direction.

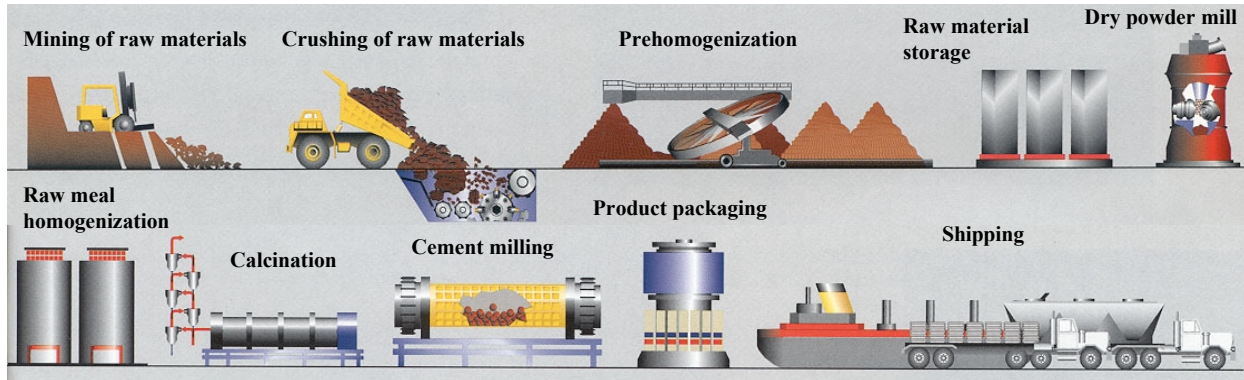
CEMEX's use of IT had transformed the way the company worked in numerous ways. The 20-minute site delivery guarantee, already described, was a very visible example that led to the company's being canonized as a master of "digital business design."¹⁹ The company was also connected via the Internet to distributors and suppliers. More recently, it had announced plans to launch a Latin American e-business development accelerator and, in alliance with B2B specialist Ariba and three large Latin American companies (Alfa of Mexico, and Bradespar and Votorantim of Brazil), a neutral business-to-business integrated supplier exchange, Latinexus, that was supposed to become the leading e-procurement marketplace in Latin America. Within CEMEX, IT made an enormous amount of information become available to Zambrano and his top management. Sales figures were reported daily, broken out by product and geography. On the production side, various operating metrics were available kiln by kiln. Even emissions data were included. And information flowed sideways as well as upwards: country managers could view data from other countries, and kiln managers were able to look at other kilns.

CEMEX provided its employees with a number of IT training programs and had also been aggressive in using new technology to overhaul its training function. A private satellite TV channel was acquired for this purpose, and CEMEX developed a virtual MBA program in collaboration with Monterrey Tech that combined satellite TV, the Internet, and the university's network of campuses to deliver courses to executive (part-time) MBA students. Recruitment was greatly aided by the company's public profile and included not only the graduates of Mexico's top educational institutions, but also Mexican graduates of top foreign business schools and alumni of other leading firms. Thus, while the Boston Consulting Group had long been CEMEX's principal strategy consultant, more than one of the professionals in the company's strategic planning function was a McKinsey alumnus. Overall, many regarded CEMEX as having shifted over time from an engineering-driven approach to one more dependent on economics.

Outlook

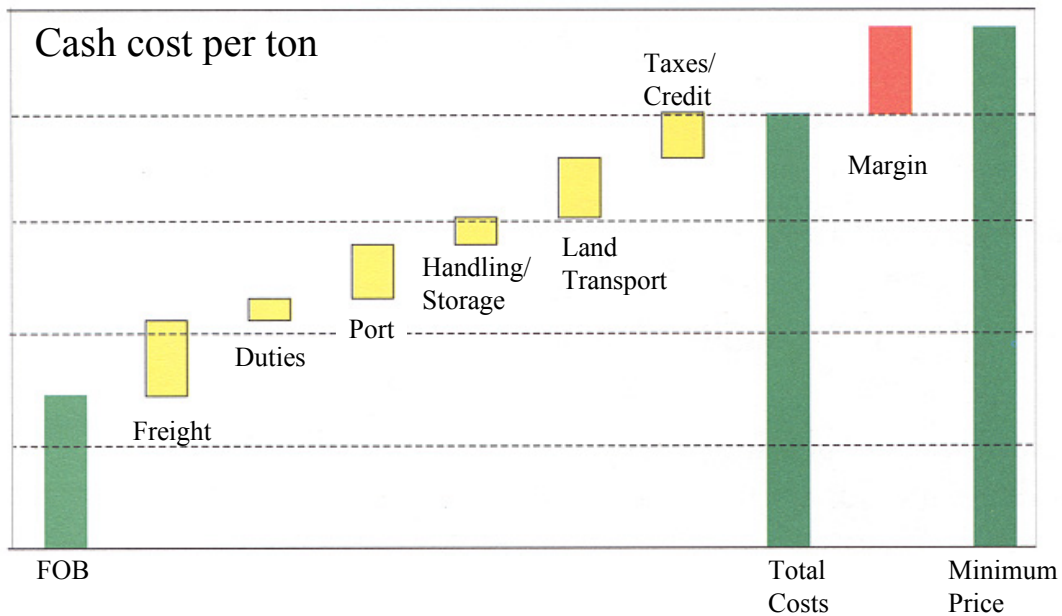
While CEMEX faced a number of issues in 2000, perhaps the most important one concerned how far its competitive advantage could travel. CEMEX's entry into Indonesia and Egypt, in particular, stirred some concerns about the difficulties of working across language barriers and the challenges of adapting to different cultures—such as incorporating prayer-breaks into continuous process operations in Muslim countries. Others, however, were more optimistic, pointing out that the CEMEX already used English as its semiofficial language, arguing that cement itself was a language of sorts, and noting that the company had its own strong culture that could serve as a binder. And everybody recognized that while Lafarge's hostile bid for Blue Circle appeared to have failed, consolidation at a new level—of international competitors rather than by them—might be the next big dynamic in the cement industry.

Exhibit 1 How CEMEX Makes Cement



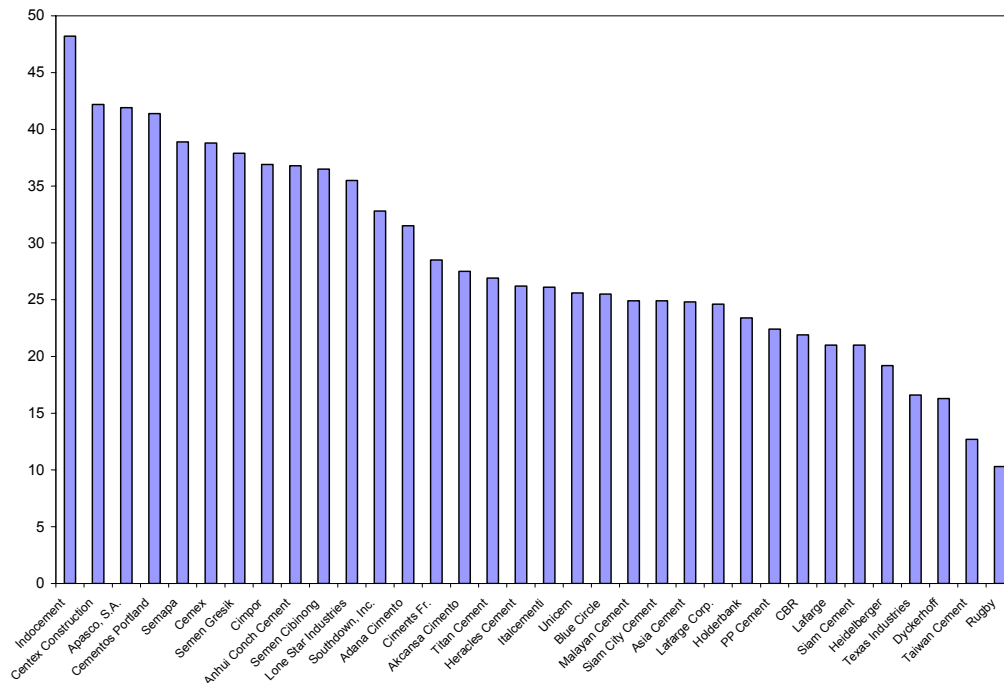
Source: CEMEX Company book, pp. 18-19.

Exhibit 2 Cost Structure of Asian Exports to the United States



Source: Holderbank, as quoted in "The Global Cement, Aggregates and Plasterboard Analyser," Warburg Dillon Read, September 1999, p. 229.

Exhibit 3 1999 EBITDA Margin



Source: "The Global Cement, Aggregates and Plasterboard Analyser," Warburg Dillon Read, September 1999, p. 26.

Exhibit 4 Selected Data on Global Competitors (December 1999)

Company	Holderbank	Lafarge	CEMEX	Heidelberg	Italcementi	Blue Circle
Accounting Data						
Sales (US\$ m)	7,618	10,552	4,828	6,404	3,414	3,604
Cement volume (m tons)	74.6	64.3	39.1	46.0	37.8	NA
EBIT (US\$ m)	1,066	1,766	1,436	645	511	466
EBITDA (US\$ m)	1,785	2,446	1,791	1,195	838	684
CAPEX (US\$ m)	784	1,144	262	540	310	295
Free Cash Flow (US\$ m)	144	511	862	487	200	(294)
Net debt (US\$ m)	4,767	5,422	4,794	2,957	1,731	538
Net debt/EBITDA	.7	2.2	2.7	2.5	2.1	0.8
Total debt to capitalization	54.1%	46.5%	44.1%	51.3%	43.0%	31.0%
Interest coverage	4.6	6.6	3.6	4.8	6.8	5.7
Stock Market Data^a (to Dec. '99)						
Market value (US\$ m)	11,122	12,132	7,203	4,209	2,488	4,707
Profitability of stock ^b US\$b (12 mth)	16%	22%	114%	3%	9%	12%
TEV ^c (US\$ m)	17,015	19,157	12,500	7,373	5,050	5,593
TEV adjusted/ton (US\$) ^d	160	130	172	86	90	93
Capacity Data						
Footprint ^e (m tons)	140	107	85	71	55	45
Degree of control of footprint	72%	79%	77%	75%	98%	97%
Controlled capacity (m tons)	101	85	65	53	54	44
Number of Countries	53	38	15	33	14	14

Sources: Annual Reports; Datastream; JP Morgan; CEMEX

^a End-of-period exchange rate used for calculations.

^b For Holderbank, class B stock; for CEMEX, New CPO.

^c TEV defined as total enterprise value (debt plus equity).

^d Excluding non-cement assets for Lafarge (35%), Heidelberg (10%) and Blue Circle (25%).

^e Footprint defined as total capacity in which a given company has a significant stake.

Exhibit 5 Capacity Shares of the Big 6 in Selected Markets

Country	Holderbank	Lafarge	CEMEX	Heidelberger	Italcementi	Blue Circle
Japan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Korea	0.0%	12.0%	0.0%	0.0%	0.0%	0.0%
Taiwan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indonesia	0.0%	2.6%	43.7%	0.0%	0.0%	0.0%
Malaysia	0.0%	6.6%	0.0%	3.9%	0.0%	46.4%
Philippines	37.5%	20.5%	22.0%	0.0%	0.0%	16.7%
Thailand	25.3%	0.0%	0.0%	0.0%	13.2%	0.0%
India	1.4%	0.3%	0.0%	0.0%	0.0%	0.0%
South Africa	36.3%	25.8%	0.0%	0.0%	0.0%	0.0%
Egypt	5.4%	5.0%	16.9%	0.0%	0.0%	3.3%
Greece	0.0%	0.0%	0.0%	0.0%	5.5%	58.9%
Poland	0.0%	21.2%	0.0%	22.4%	0.0%	0.0%
Turkey	0.0%	8.3%	0.0%	17.3%	9.2%	0.0%
France	12.6%	33.9%	0.0%	26.8%	26.4%	0.0%
Germany	6.6%	7.0%	0.0%	25.3%	0.0%	0.0%
Italy	6.2%	5.0%	0.0%	0.0%	36.9%	0.0%
Portugal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	9.9%	19.3%	26.5%	0.0%	6.6%	0.0%
UK	0.0%	0.0%	0.0%	23.8%	0.0%	50.3%
Canada	19.1%	32.9%	0.0%	20.4%	11.2%	13.8%
US	13.5%	8.3%	1.8%	11.2%	4.6%	6.2%
Argentina	37.6%	11.2%	0.0%	0.0%	0.0%	0.0%
Brazil	10.0%	13.4%	0.0%	0.0%	0.0%	0.0%
Mexico	19.2%	4.3%	64.6%	0.0%	0.0%	0.0%
Venezuela	24.5%	23.6%	40.6%	0.0%	0.0%	0.0%

Source: CEMEX

Exhibit 6 Waves of Acquisitions

Period	Region	Period	Region
1985-1988	U.S./Canada	1995-1997	Latin America
1987-1990	Latin America	1996-1998	E. Europe
1989-1991	Mediterranean	1998 onwards	SE. Asia
1991-1993	U.S.	1999 onwards	W. Europe
1990-1994	E. Europe		

Source: Adapted by casewriters from ING Barings, European Cement Review, February 2000.

Exhibit 7 Market Statistics and Valuations for Selected Countries^a

Country	Ex-plant Price per Ton (US\$)	Cash Cost per Ton (US\$)	EBITDA per Ton (US\$)	Risk Free Rate (%)	Equity Risk Premium (%)	Market Gearing (%)	WACC (%)	Value/Ton of Demand (US\$)	Domestic Demand (m tons)	Domestic Capacity (m tons)	Value/Ton of Capacity growth (US\$)	Trend Growth (%)	Value/Ton of Capacity (trended) (US\$)
Japan	48	38	10	1.8	5.0	50.0	4.8	208	72.8	97.0	156	0.1	160
Korea	50	33	17	8.5	8.0	20.0	15.1	113	47.6	62.1	86	5.0	129
Taiwan	58	37	21	5.7	8.0	25.0	12.0	176	20.5	24.5	147	3.0	196
Indonesia	41	23	18	12.0	8.0	50.0	16.5	109	18.1	45.3	44	7.5	80
Malaysia	41	28	13	8.0	8.0	25.0	14.3	90	8.2	17.5	42	7.8	93
Philippines	49	34	15	14.0	8.0	50.0	18.5	81	12.5	20.4	50	8.0	88
Thailand	48	26	22	10.0	8.0	40.0	15.2	145	25.6	58.0	64	8.0	135
India	52	38	14	9.5	8.0	40.0	19.0	74	80.8	85.0	70	7.5	116
S. Africa	55	37	18	15.0	6.0	15.0	20.3	89	8.8	12.0	65	0.9	68
Egypt	53	33	20	10.0	8.0	0.0	18.0	111	24.7	23.0	119	5.9	178
Greece	58	30	28	6.4	6.0	20.0	11.4	246	8.5	15.0	139	1.5	161
Poland	38	28	10	9.5	6.0	20.0	14.5	69	13.8	16.3	58	5.0	89
Turkey	40	26	14	10.3	8.0	0.0	18.3	77	36.4	61.0	46	6.5	71
France	78	49	29	4.7	4.0	30.0	7.8	372	19.1	28.1	253	-1.5	211
Germany	72	51	21	4.6	4.0	25.0	7.9	268	37.0	51.0	194	1.0	221
Italy	55	38	17	4.8	4.0	25.0	8.1	211	35.0	52.5	141	-0.3	136
Portugal	66	40	26	4.8	5.0	10.0	9.4	277	10.0	9.6	289	0.0	289
Spain	64	40	24	4.8	5.0	10.0	9.4	255	31.0	39.3	201	2.7	283
UK	74	51	23	5.4	4.0	10.0	9.1	253	12.8	14.4	225	-0.2	219
Argentina	62	40	22	12.0	8.0	40.0	17.2	128	8.2	9.5	110	3.0	134
Brazil	59	39	20	13.0	8.0	40.0	18.2	110	40.1	45.8	96	5.0	133
Mexico	96	40	56	12.0	8.0	50.0	16.5	339	25.7	44.0	198	2.5	233
Venezuela	95	35	60	15.0	8.0	20.0	21.6	278	4.5	8.6	145	-0.5	142
Canada	67	42	25	5.5	4.0	0.0	9.5	263	8.6	15.2	148	0.5	157
US	69	48	21	5.7	4.0	0.0	9.7	216	107.1	97.3	238	1.0	266

Source: Adapted by casewriters from ING Barings, European Cement Review, February 2000, p. 29.

^a Franchise value represents the theoretical value of one ton of capacity (assuming all sales are made domestically). The first step in its derivation is to obtain the capital value of cash flow generated in perpetuity by one ton of production. This is calculated by taking EBITDA per ton (\$) and dividing by the weighted average cost of capital. The second step is to find the ratio of domestic demand to domestic supply. Dividing the value of one ton of production by the ratio calculated in the second step gives the value of one ton of capacity. (The idea is that if domestic demand exceeds available supply then the value of owning capacity is greater than the value suggested by current EBITDA alone). The final step is to adjust franchise value for growth in domestic demand, trend growth, which is defined as the average of rolling averages for the previous 5, 10 and 20 years and is therefore less vulnerable to short-run fluctuations in growth rates.

Exhibit 8 Cement Majors' Asian Deals after the Asian Crisis

	Country	Date	Stake %	Price (US\$ m)	Capacity (m tons)	Value/Ton (US\$)	Source
Holderbank							
Union Cement	Philippines	Jul-98	40%	210	5.8	146	A
Alsons Cement	Philippines	Jan-99	25%	22	2.5	130	B
Tengara Cement	Malaysia	Jun-98	70%	28	1.1	42	A
Siam City Cement	Thailand	Aug-98	25%	153	12.3	95	A
Huaxin Cement	China	Jan-99	23%	20	1.4	61	A
<i>Total</i>				433	23.1	107	
Lafarge							
Republic Cement	Philippines	Feb-98	14%	25	1.6	119	A
Continental Cement and South East Asia Cement	Philippines	Oct-98	100%/64%	460	4.6	132	C
Haifa Cement	Korea	Jul-99	33%	100	7.4	68	A
Andalas	Indonesia	n/a	16%	10	1.2		D
Tisco	India	1999	100%	127	0.3	107	A
<i>Total^a</i>				712	13.9	109	
CEMEX							
Rizal and Solid Cement	Philippines	Dec 97, Nov 98	70%	219	2.8	166	C
Apo Cement	Philippines	Jan-99	100%	400	3.0	164	A
Semen Gresik	Indonesia	mid-98	14%	115	20.1	55	A
Semen Gresik	Indonesia	Nov-98	8%	49	20.1	56	A
Semen Gresik	Indonesia	1999	4%	28	20.1	58	A
<i>Total</i>				811	25.9	109	
Italcementi							
Jalaprathan Cement	Thailand	Oct-98	55%	26	1.6	58	A
Asia Cement	Thailand	Jul-99	53%	180	4.8	131	A
<i>Total</i>				206	6.4	112	
Blue Circle							
Iligan Cement Corp	Philippines	Jul-99	95%	53	0.5	109	C
Kedah Cement	Malaysia	Oct-98	65%	185	3.5	164	A
APMC	Malaysia	Dec-98	50%	309	4.7	157	A
Inflow from Minorities in Malaysian rights	Malaysia	Dec-98	65%	-118			D
Republic Cement	Philippines	1998	54%	90	1.6	138	C
Fortune Cement	Philippines	Jul-98	20%	35	1.9	114	A
Fortune Cement	Philippines	Jan-99	31%	86	1.9	147	A
Zeus Holdings	Philippines	Jul-98	73%	31	0.4	204	A
<i>Total^b</i>				671	12.6	153	

Sources: Adapted by casewriters from: A) CEMEX; B) SDC database, Cembureau, *World Cement Directory 1996*, p. 322; C) Warburg Dillon Read, Global Equity Research, *The Global Cement, Aggregates and Plasterboard Analyser*, September 1999, p. 230; D) Merrill Lynch, *Asian Cement*, December 1999, p. 5.

^a Excludes Andalas. Also, value/ton includes a weighting of 94% for Continental/SEACem to reflect breakdown of capacity between the companies.

^b Includes inflow from minorities in Malaysian rights in total price.

Exhibit 9 CEMEX Financials (millions of US dollars, except share and per share amounts)

Income Statement	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Net Sales	612	988	1,305	1,706	2,194	2,897	2,101	2,564	3,365	3,788	4,315	4,828
Cost of Sales	428	772	928	1,064	1,371	1,747	1,212	1,564	2,041	2,322	2,495	2,690
Gross Profit	184	215	377	642	823	1,150	889	1,000	1,325	1,467	1,820	2,138
Operating Expenses	61	120	178	221	286	444	325	388	522	572	642	702
Operating Income	123	95	199	420	537	706	564	612	802	895	1,178	1,436
Comprehensive Financing (Cost)	2	52	(5)	124	179	25	(16)	567	529	159	(132)	(29)
Other Income (Expenses) Net	70	4	(42)	(47)	(89)	(101)	(133)	(162)	(171)	(138)	(152)	(296)
Income Before Taxes & Others	195	151	152	498	628	630	415	1,017	1,160	916	893	1,111
Minority Interest	26	25	30	60	70	97	45	109	119	107	39	56
Majority Net Income	167	121	148	442	545	522	376	759	977	761	803	973
Earnings per Share	0.15	0.11	0.13	0.40	0.52	0.49	0.35	0.59	0.75	0.59	0.64	0.77
Dividends per Share	0.01	0.01	0.02	0.06	0.07	0.09	0.06	0.07	0.0	0.12	0.14	0.17
Shares Outstanding (millions)	1,114	1,114	1,114	1,114	1,056	1,056	1,077	1,286	1,303	1,268	1,258	1,366
ROE	14.2	9.5	10.6	24.1	18.7	16.2	13.3	26.4	29.3	21.7	20.7	18.8
Balance Sheet												
Cash and Temporary Investments	189	186	145	202	384	326	484	355	409	380	407	326
Net Working Capital	140	226	236	286	562	595	528	567	611	588	638	699
Property, Plant, & Equipment, Net	1,117	2,037	2,357	2,614	4,124	4,407	4,093	4,939	5,743	6,006	6,142	6,922
Total Assets	1,710	2,940	3,438	3,848	7,457	8,018	7,894	8,370	9,942	10,231	10,460	11,864
Short-Term Debt	69	360	261	144	884	684	648	870	815	657	1,106	1,030
Long-Term Debt	142	792	1,043	1,267	2,436	2,866	3,116	3,034	3,954	3,961	3,136	3,941
Total Liabilities	355	1,354	1,566	1,607	3,897	4,022	4,291	4,603	5,605	5,535	5,321	5,430
Minority Interest	182	306	474	408	649	771	771	889	1,000	1,181	1,251	1,253
Stockholders' Equity, excluding Minority Interest	1,173	1,280	1,398	1,833	2,911	3,225	2,832	2,878	3,337	3,515	3,887	5,182
Total Stockholders' Equity	1,355	1,586	1,872	2,242	3,560	3,996	3,603	3,767	4,337	4,696	5,138	6,435
Book Value per Share	1.05	1.15	1.25	1.65	2.76	3.05	2.63	2.24	2.57	2.74	3.08	3.79
Other Financial Data												
Operating Margin (%)	20.2	9.6	15.3	24.6	24.5	24.4	26.9	23.9	23.8	23.6	27.3	29.8
EBITDA Margin (%)	28.6	17.9	24.8	33.2	31.9	31.6	34.2	31.8	32.3	31.5	34.4	37.1
EBITDA	175	177	324	567	700	914	719	815	1,087	1,193	1,485	1,791

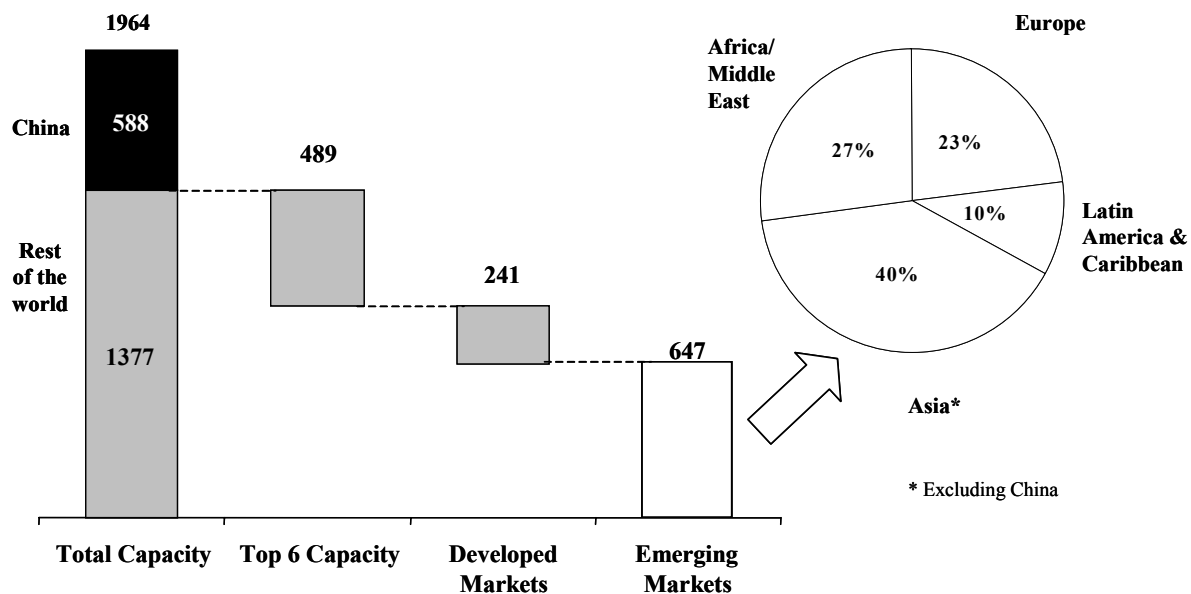
Source: CEMEX

Exhibit 10 Timeline of CEMEX’s International Expansion

Year	Event
1985	GATT signed; CEMEX began to concentrate on cement and divests other business lines
1987	Acquired Cementos Anáhuac in Mexico
1989	Acquired Cementos Tolteca; became Mexico’s largest producer and one of ten largest worldwide
1992	Acquired Valenciana and Sanson in Spain; became world’s fifth largest cement producer
1993-1994	Acquired 0.7 mt of capacity in Jamaica, 0.4 mt in Barbados, and 0.7 mt in Trinidad & Tobago
1994	Acquired Vencemos in Venezuela, Cemento Bayano in Panama, and the Balcones plant in Texas
1995	Acquired Cementos Nacionales in the Dominican Republic
1996	Acquired a majority stake in Colombia’s Cementos Diamante and Industrias e Inversiones Samper; became world’s third largest cement company
1997	Acquired 30% stake in Rizal Cement Company in the Philippines
1998-1999	Acquired a 20% interest in PT Semen Gresik in Indonesia; acquired an additional 40% of Rizal, and 99.9% of APO Cement Corp, also in the Philippines
1999	Acquired Assiut in Egypt, a 12% stake in Bio Bio in Chile, and Cemento del Pacifico in Costa Rica
2000	Announced availability of \$1.175 billion for global acquisitions during the course of the year (36% more than 1999 spending)

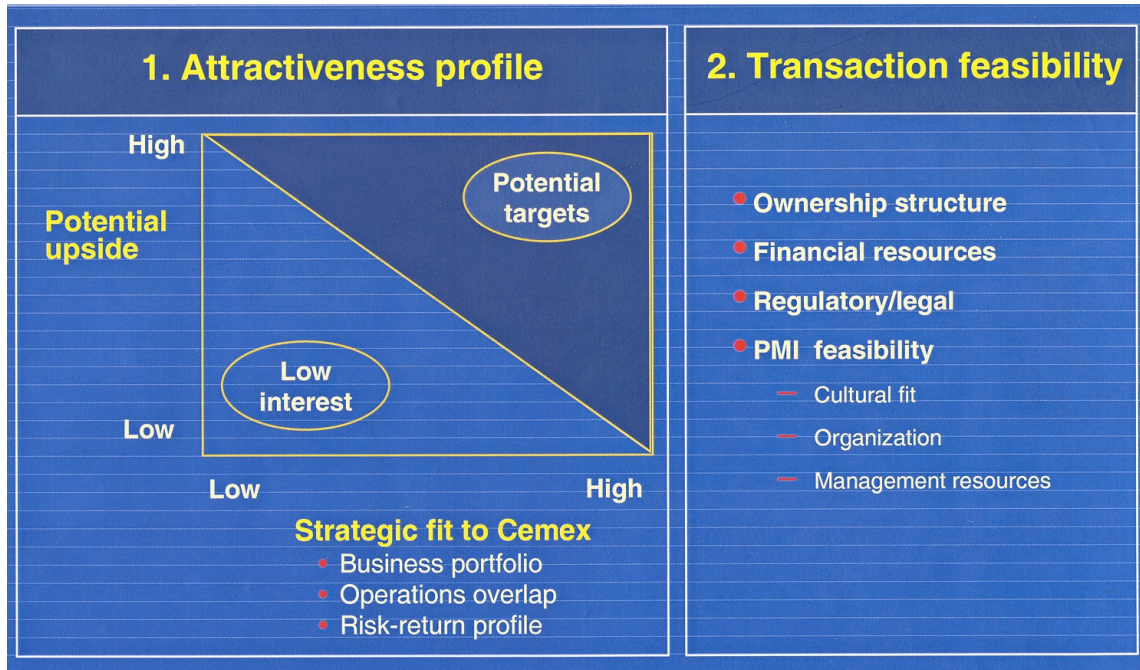
Source: CEMEX

Exhibit 11 Capacity Consolidation Potential (millions of tons)



Source: CEMEX

Exhibit 12 Framework for Acquisition Analyses



Source: CEMEX

Endnotes

- ¹ CEMEX 1998 annual report, p. 4.
- ² Merrill Lynch, Ownership Changes in Asian Cement, December 3, 1999, p. 117.
- ³ ING Barings, *European Cement Review*, February 2000, p. 24.
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- ⁶ Podolny, Joel, John Roberts, Joon Han, and Andrea Hodge, 1999, "CEMEX, S.A. de C.V.: Global Competition in a Local Business," Stanford, CA: Stanford University. ECCH #IB17.
- ⁷ Interview with Hector Medina, Executive Vice President—Planning and Finance.
- ⁸ Interview with Jose L. Saenz de Miera, President of Europe-Asia Region.
- ⁹ David P. Baron, "Integrated Strategy: Market and Nonmarket Components," *California Management Review*, vol. 37, no. 2 (Winter 1995), pp. 51-52.
- ¹⁰ "Global Invasion," *International Cement Review*, Jan. 2000, p. 35.
- ¹¹ Company fact book.
- ¹² *International Cement Review*, January 2000, pp. 35-36.
- ¹³ *Ibid*, p. 36.
- ¹⁴ *International Cement Review*, January 2000, p. 37.
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- ¹⁶ Tim Duffy, "CEMEX's CFO: Still Eying International Markets for Diversification," *Dow Jones International News*, March 7, 2000.
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- ¹⁸ James F. Smith, "Making Cement a Household Word," *Los Angeles Times*, January 16, 2000, p. C1.
- ¹⁹ Adrian J. Slywotzky and David J. Morrison, with Ted Moser, Kevin A. Mundt, and James A. Quella, *Profit Patterns: 30 Ways to Anticipate and Profit from Strategic Forces Reshaping Your Business*, New York: Times Business/Random House, April 1999.