Cementos Argos

Track: Management Education and Teaching Cases

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Cementos Argos

Abstract

This case study discusses Cementos Argos, a company engaged in producing cement. In October 2014, Cementos Argos board member José Alberto Vélez, together with the company's management team, were analyzing options toward the next step of company growth after Holcim and Lafarge announced a merger. More than a threat, Cementos Argos board saw the merger as an opportunity to expand. The combined Holcim – Lafarge Company was bound by antitrust legislation, chiefly in the countries where both Holcim and Lafarge were already major competitors. This was the case for Brazil y Canada, which forced them to sell assets. José Alberto and his team wondered if Cementos Argos should seize the opportunity to purchase assets made available in these two countries or rather evaluate other investment opportunities.

In October 2014, Cementos Argos board member José Alberto Vélez was sitting with the company's management team to analyze options toward the next step of company growth after Holcim and Lafarge announced a merger. More than a threat, Cementos Argos board saw the merger as an opportunity to expand, since antitrust legislation would restrict the merged Holcim – Lafarge company. That was likely to occur chiefly in countries where both Holcim and Lafarge were already major competitors, as was the case for Brazil y Canada, forcing them to sell assets. José Alberto and his team wondered if Cementos Argos should seize the opportunity to purchase assets made available in these two countries or rather evaluate other investment opportunities. For example, Cementos Argos could consider investing in Mexico, a country seen as possessing significant potential. Investment, whether in Canada or Mexico, would reinforce Cementos Argos positioning as a result of proximity to both the United States and the Caribbean Basin[1], where the company was already operating. However, investing in Brazil could be advantageous as it was close to Colombian operations. Now José Alberto and his team had to make a decision in line with the company's strategic goal of attaining revenues of US$ 10 billion by 2030.

Cementos Argos last shareholder report highlighted its consolidation as the leading business firm in the Colombian cement market, with a market share close to 51%. In addition, it led the Caribbean market with a 47% share of seaborne cement and clinker trade. Also, Cementos Argos was the second largest cement producer in the southeastern United States and the second largest concrete producer in the country. Cementos Argos' various operations had succeeded in generating revenues of US$ 2,7 billion, EBITDA of US$ 524 million, and a US$ 98.4 million net profit plus a US$ 6,7 billion market capitalization. Still, Cementos Argos board felt there was potential for higher shareholder value. To achieve this, the best course of action was to proceed with internationalization. However, they had to be very careful in making their choices in relation to company expansion.

From Cementos del Caribe to Cementos Argos S.A.

Cementos Argos was one of five subsidiaries owned by Grupo Argos, a major business group in Colombia. Despite having their own CEOs and boards, all companies in Grupo Argos were connected by the *Argos culture.* Cementos Argos

1 Region where the company operates including the Atlantic coast of Colombia to ports on the Atlantic coast of the southern United States, and comprising Panama, Honduras and the Caribbean Islands.

(originally Cementos del Caribe) had brought together over 100 stockholders to invest in cement production. In 1938, it produced its first cement sack in Medellín and two years later the company was making a return and paying dividends to stockholders. In order to expand, it engaged in making investments, mergers, and acquisitions in Colombia, with a strong presence on the Atlantic coast. It began its international expansion in the 90s first into Venezuela and then, together with Holcim, into the Caribbean Islands, Panama, and later into Honduras with Lafarge. In the end, Cementos Argos acquired control of all of these investments.

By 2000, after operating for 66 years, Cementos Argos had contributed to consolidating Colombia's cement industry with stakes in eight major Colombian cement producers.[2] While initially operating in different geographical regions, these companies (each with its own brand, president, board of directors, and executive committee) began to compete with each while seeking economies of scale. In 2003 Cementos del Caribe board member José Alberto Vélez proposed and led the consolidation of all eight companies, arguing that their existence as separate firms resulted in production and market inefficiency, thus destroying shareholder value. José Alberto Vélez commented,

Mergers are strategic decisions where benefits and potential synergies are evaluated, as well as better conditions to face markets. What follows is a legal decision that is then taken to the shareholders assembly. We carried out administrative integration at the C-suite (2003), then in operations (2004) and then at a legal level (2005). We lined up operations through two projects, Being One and Being Agile. As each company had its own president, board of directors, and executive team, we conducted a cross-corporate merger by which each president (eight in all) was given a vice-president appointment in line with their capabilities.

The merger was approved by the cement companies' boards in June 2005. A month later, shareholders gave the nod and Cementos del Caribe absorbed the other companies to create Cementos Argos S.A. The merger brought about production savings, greater capacity and financial flexibility, giving the company access to capital markets both in Colombia and abroad. By then, company assets amounted to US$ 3.1 billion, with liabilities of US$ 500 million and US$ 2.6 billion equity. In addition, it had enough installed capacity to produce 10.5 million tons of cement and 5.6 million cubic meters of concrete.[3]

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2 The eight companies where Cementos Argos had a stake included Cementos del Caribe, Cementos del Valle S.A., Cementos Paz del Río S.A., Cementos Rioclaro S.A., Compañía Colombiana de Clinker S.A. (COLCLINKER), Cales y Cementos de Toluviejo S.A. (TOLCEMENTO), Cementos El Cairo S.A. and Cementos del Nare S.A

3 Cuartas, F. 2005. **Nace la nueva Cementos Argos S.A.** Superintendencia Financiera Grupo Argos.

The merger was assisted by JP Morgan (company appraisals) and BNP Paribas, which issued a fairness opinion on the proposed terms of trade. This promoted transparency and prevented unrest among minority shareholders. In addition, the unification of seven collective bargaining agreements and two working conditions agreements was negotiated. Negotiation with union leaders resulted in a single collective bargaining agreement and a working conditions agreement to be reviewed every three years. The negotiation, which took place without any objection, ensured job stability and made labor costs predictable for the company.

Cementos Argos continued expanding in 2006. With approval from the Industry and Commerce Bureau it merged Agrecon, Concretos de Occidente and Metroconcreto to create Concretos Argos. It also began expanding its plants in Nare and Cartagena, and invested US$ 312 million to increase production capacity by two million tons of cement per year. On the other hand, it invested US$ 30 million to launch three power plants that, together with its current plants, were able to fully meet power requirements from all Cementos Argos plants in Colombia.

Between 2009 and 2012, Cementos Argos resolved to focus on producing cement, concrete and aggregates. As a result of this strategic decision, it sold two coal mine concessions for US$ 373 million. The proceeds were used to reduce debt levels and to acquire full control of cement plants managed in conjunction with MNCs in Panama and the Caribbean.

Aiming to be a pure player in the cement, concrete, and aggregates industry, it began to transfer to its parent company assets and portfolio investments that did not fit in the cement industry, such as coal, port, and real estate assets. In exchange for these assets and portfolio investments, it issued preferred shares to Cementos Argos shareholders at a ratio of 0.31 parent company preferred shares of stock (Grupo Argos) per each common share of Cementos Argos. The distribution ratio for the transaction was approved at extraordinary shareholders assemblies of both parties and by their boards, with guidance from BNP Paribas investment bank. [4]

With Cementos Argos as a pure player, investors were able to better understand Cementos Argos' business concept, as shown by demand for the US$ 500 million ordinary bond issue (2.7 times the amount supplied). Then, in 2013, Cementos Argos issued preferred shares without voting rights and raised US$ 880 million. Both financial transactions enabled it to collect enough capital to invest in Colombia, Latin America and the United States.

Internationalization in Latin America and the Caribbean.

4 Cementos Argos. 2011 Annual Report.

Internationalization began in January 1998. Cementos Argos incorporated Corporación Cemento Andino after purchasing the Cemento Andino plant (with power facilities) from the Venezuelan government. However, in 2006 the Venezuelan government rescinded legitimate ownership of the plant, which by then accounted for 0.2% of company equity. Despite all legal remedies and a court order to restitute property, Venezuela's National Assembly declared it to be of public interest and the president of the republic, together with his ministers, signed an expropriation decree.[5] Then the company announced legal action to obtain compensation.

In 1998, Cementos Argos S.A. expanded into Panama, Dominican Republic and Haiti, through a strategic alliance with Holcim, with both companies holding a 50% share. In 2007, Cementos Argos' subsidiary Cementos Panama sold 560,000 metric tons of cement, while Cementos Colon sold 528,000 tons in the Dominican Republic and CINA sold 401,000 tons in Haiti. The market share of Cementos Argos subsidiaries amounted to 50%, 15% and 43% of their markets, respectively.[6]

Cementos Argos invested US$ 40 million in 2008 to expand milling, in order to double its capacity to 1.6 million tons per year to meet demand arising from the Panama Canal expansion project. In relation to concrete, it invested US$ 1 million to increase aggregate production capacity and US$ 4 million in mixer trucks. On the other hand, it invested $ 2.6 million in Haiti to modernize production equipment and expand milling capacity. However, its largest investment in the Caribbean was made in 2009, after an agreement with Holcim to acquire all subsidiaries for US$ 157 million. Additionally, Cementos Argos acquired four cement terminals in St. Thomas, St. Marten, Antigua, and Dominica to complement its marketing network in the Caribbean.[7]

In 2010, Cementos Argos continued to strengthen its cement production and marketing network in the Caribbean Basin through a joint investment with Suriname's main economic conglomerate Grupo Kersten & Co. Its goal was to manage and operate Grupo Kersten's seaport and crushing / packing facility in Suriname's capital Paramaribo. In addition, it engaged in joint investment with the Dutch group Janssen de Jong in Curaçao to adapt de Jong's silos and packaging facilities there to import and distribute cement.[8]

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5 Cementos Argos, 2006 Annual Report. Cementos Argos, Gustavo Uribe interview by author, October 2014.

6 Cementos Argos, 2007 Annual Report.

7 Cementos Argos, 2008 Annual Report. Cementos Argos, 2009; Cementos Argos, 2010 Annual Report.

8 Cementos Argos Annual Report.

Cementos Argos, 2008 Annual Report.

On the other hand, Cementos Panama signed a US$ 65 million contract with Grupo Unidos por el Canal to supply cement and cementitious products to expand the Panama Canal. Production capacity for concrete was reinforced in the following years by buying basalt and pozzolan stocks in Panama and Dominican Republic. In addition, concrete operations began in Suriname and the Dominican Republic. In 2013, Cementos Argos invested US$ 265 million to acquire 53% of the cement assets held by a company owned by Lafarge in Honduras.

Making inroads in the United States

By late 2005, Cementos Argos S.A. had developed the ability to consolidate itself in the local cement industry, venture into Latin America and explore new lands. Demand at plants in the coastal area had increased as intermediaries bought cement to export to the United States. After evaluating its distribution channel, Cementos Argos resolved to remove distributors to export directly. To do so it hired shipping capacity. This not only increased Cementos Argos cement sales, but also allowed it to venture into port development and management. According to Grupo Argos Strategy Director María Clara Aristizábal,

Making this decision was a huge challenge as it involved breaking the paradigm that a Latin American cement company could not enter the US market. It also allowed us to understand the differences between Latin American and U.S. markets and identify opportunities. For example, 60% to 70% of cement sales in Latin America were made by the sack, while in North America 95% of sales was ready mix.

Aware of the opportunity to enter the United States concrete industry, Cementos Argos management team began looking for concrete companies for sale. Conventional wisdom held that Latin American companies were expected to enter the market at states with a significant number of people sharing the firm's nationality, in this case Colombian. However, that was not the case for the concrete industry. Companies looked for states with sustained population growth and developing urban areas, where the government was investing in infrastructure. In addition to those features, to facilitate cement exports they focused on southern states. As a result, Cementos Argos considered entering Alabama, Arkansas, North Carolina, South Carolina, Georgia, Florida, Mississippi, Texas, and Virginia.

No companies for sale at that time met their needs. Since the concrete industry was so fragmented, it was hard to start from scratch. Thus, Cementos Argos retained JP Morgan to study the 10 best ready mix companies in southern Unites States. They had to be located in urban areas, with modern equipment and excellent management. First on the list was

Southern Star Concrete, owned by an investment fund. Cementos Argos contacted it, made an offer and after two months acquired it for $ 257 million, thus becoming a leader in Dallas and Houston.

A year later, Cementos Argos acquired Ready Mixed Concrete Company (RMCC), for US$ 435 million. Those companies had invested US$ 10 million in concrete equipment and US$ 24 million in 178 mixer trucks. In addition, Cementos Argos acquired complementary concrete companies for US$ 13 million. It allocated US$ 12 million to acquire 2,310 hectares southeast of Dallas with sand and gravel reserves estimated at 25 million tons. With these investments, concrete sales reached US$ 646 million, equal to 6.2 million cubic meters.[9]

In addition, Cementos Argos invested in logistics to better integrate its businesses in Colombia and the United States. It built a receiving and shipping system for bulk cement at the Port of Houston terminal and adapted the Savannah, Georgia, port to receive and ship cement at a cost of US$ 30 million. This allowed Southern Star and Ready Mixed Concrete to use 25% of its Colombiam cement (386,000 tons). In addition, Cementos Argos took control of a fleet of six motorboats. This allowed it to improve its market share of US imports from 5.2% in 2006 to 6.8% in 2007.

Despite lower demand due to the mortgage crisis, in 2008 Cementos Argos invested US$ 20 million to acquire two concrete companies. Santee Redi-Mix, headquartered in Moncks Corner, SC, with 12 mixer trucks and a concrete plant able to produce 46,000 cubic meters of concrete was purchased in February. In October, Cementos Argos acquired Consort Concrete, with two concrete plants in Houston, 25 trucks and an estimated 110,000 cubic meter production.

In May 2011, at a dinner in Shanghai during a sustainability seminar aimed to cement industry players, Lafarge Chairman and CEO Bruno Lafont offered José Alberto Vélez a package of assets Lafarge would divest.[10] After discussing the offer with his team, José Alberto traveled to Paris with an intent to purchase letter and several months later the transaction was closed in Bogotá. With an investment of US$ 760 million, Cementos Argos became the fourth largest concrete producer in the United States and the second largest

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Cementos Argos, 2006 Annual Report. Cementos Argos, 2007 Annual Report.

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A cement plant able to produce 1.6 million tons per year, located in Roberta (Alabama). Also, a cement plant able to produce 1.1 million tons per year, located in Harleyville (South Carolina). A clinker mill in Atlanta (Georgia) able to produce 500,000 tons or cement per year; 79 concrete plants in Alabama, Georgia, and South Carolina; 347 concrete mixer trucks, five railway terminals: three in Georgia, one in Mississippi and one in North Carolina, and a seaport in Mobile (Alabama).

cement producer in the Southeast. Then in January 2014 it invested US$ 720 million to buy Vulcan Materials' modern facilities (including port facilities) to produce cement, concrete, and blocks.

Cementos Argos Today

After a number of changes over 70 years, Cementos Argos positioned itself as a pure player in the cement, concrete and aggregates industry, with a presence in Colombia, Central America, the Caribbean and the United States. According to Gustavo Uribe, assistant president and investor relations manager,

We have a presence in both developed and emerging economies, in economies with different market cycles marked by economic growth and behavior of the construction industry. We are in developed countries and in countries with growth potential, so when some economies slow down we can switch our resources. We have also achieved logistics' synergies since our resources are located in the Caribbean Basin, allowing exchange of raw materials and finished goods between the various subsidiaries.

Cementos Argos had installed capacity for 19 million metric tons of cement and 18 million cubic meters of concrete. In addition, it had 13 cement plants, 390 concrete plants, nine milling facilities, 55 warehouses and shipping facilities and 2,600 mixer trucks. These assets allowed it to integrate all of its subsidiaries in limestone production, energy, clinker, cement, aggregates, concrete, transport and logistics. (See Exhibit 1- Cementos Argos Geographical Scope.)

Cementos Argos distribution network, logistic flexibility and strategic location of assets allowed it to offer a value proposition based on customized solutions for customers. The value proposition originated with the consolidation of the portfolio of cement brands into the Argos brand. In 2013 it enabled Cementos Argos to achieve revenues of US$ 2.7 billion, EBITDA of US$ 524 million and market capitalization of US$ 6.900 million. (See Exhibit 2. Financial Information).

Environment

Economic Environment

World GDP grew on average 2.9% per year between 2009 and 2013, faster than in the previous five years (1.8%) due to the worldwide economic crisis hitting financial markets and institutions in 2008 - 2009. The World Bank predicted a 3.3% GDP growth in 2014, with 3.4% and 3.5 growth in 2015 and 2016, respectively. (See Exhibit 3 - Gross Domestic Product.)

On the other hand, in 2013 world GDP per capita[11] was around US$ 7.159. However, Canada (US$ 37.500) and United States (US$ 45.800) displayed higher figures as compared to the world average and the average in Latin America and the Caribbean (US$ 6,000). (See Exhibit 4 - Gross Domestic Product per Capita.) That same year, global inflation reached 2.7%. In the United States and Canada, it was about 1.2% and in Latin America and the Caribbean 2.7%. However, Colombia had a lower figure (2.0%) than Mexico (3.8%) and Brazil (6.2%).

Analysts remained optimistic about the economy drive. For instance, the construction industry in the United States grew 2.0% a year between 2010 and 2013. In Canada, the construction market was growing 5.7% a year, while in Latin America and the Caribbean it was 3.5%. Considering the Caribbean only, the annual growth rate slowed to 0.9%, while in Central America it was high (11.4%), driven mainly by Nicaragua and Panama. In Colombia, it was growing at 8.7% a year, in Mexico 0.5% and in Brazil 2.2%. (See Exhibit 5 - Construction Industry Figures.)

Social Environment

Global population grew 1.2% a year between 2005 and 2013, to 7.124 million. Nineteen per cent of the world population lived in China, and this figure was growing 0.5% a year. United States had 301 million people and Canada 35 million, with population growth rates of 0.2% and 1.1%, respectively. Latin America and the Caribbean had 615 million people, with population growing 1.2% a year. Here the most populous countries were Brazil and Mexico, with 200 and 122 million people, respectively. (See Exhibit 6 - World Population.)

About 50% of the world's population lived in cities in 2013. By 2050, 70% of the world population was expected to live there. Urban population grew 2.2% a year in 2005-2013. In United States and Canada, about 81% of the population lived in urban areas. Brazil, Mexico and Colombia displayed figures similar to those for the U.S. and Canada. Meanwhile, in Central America and the Caribbean, 50% to 60% of the population lived in urban areas. However, some countries in this region had urban population growth rates of up to 4.5%. (See Exhibit 7 - 2005 - 2013 Urban Areas - Population and Growth.)

The increase in urban population in Latin America did not necessarily mean better living conditions. According to the Inter- American Development Bank (IDB), over 60 million people were living under adverse conditions. In addition, every year 30% of families started in Latin American cities settled in informal housing units. It was hoped that through better

11 At constant 2005 prices.

regulations regarding land tenure, access to financing and mobilization of private resources this situation could be mitigated. (See Exhibit 8 - Housing Needs in Latin America.)

Political Environment

Taking into account factors such as governance, constitutional order, respect for human rights and strength of democracy, Country Watch[12] rated the United States (9) and Canada (9.5) as politically stable with low risk of deterioration. Also, Country Watch showed some Latin American countries at risk, for instance Mexico (with a 6.5 rating) due to the alarming increase in crime and drug trafficking. Stability had improved in Colombia (rated 7.5) as a result of efforts to achieve peace agreements with FARC insurgents. On the other hand, Brazil was rated as stable (8), despite demonstrations carried out before and during the World Cup and corruption scandals involving government officials.

The Global Cement Industry

Different products have been used over time as cementing agents. For instance, 400 years before Christ, the Romans used volcanic ash (pozzolan) mixed with lime, animal fat, milk and blood to unite stone blocks. However, it was only in the 19th century that Josep Aspdin, an English bricklayer, baked limestone together with mud in the oven of his house and set laid the foundation for the cement industry. Despite the automation of the process and the use of new technologies, the principle to produce cement remained the same.

Cement plants were located near reserves of limestone and other minerals, complete with mines and crushing mills. Through research and development, the industry managed to produce cement with minimal water requirements using horizontal furnaces as large as 30 meters. There components such as calcium, silicon, and aluminum, among others, were subjected to temperatures close to 1,500 degrees Celsius. Controlled chemical reactions occurred during the process resulting in clinker, an active component required in cement production. Clinker is subsequently mixed with gypsum and other components and ground to produce cement, the main input for the construction industry. (See Exhibit 9 - Cement Manufacturing Process.)

The cement industry was typically capital intensive. The investment to set a plant accounted for more than two years of sales of its total capacity. A cement plant with an average capacity of one million tons a year was estimated to cost US$ 200

12 This index measures the dynamics between quality of governance in a country and threats that can endanger and undermine stability. It scores 0 to 10, with 0 as the lowest level of political stability

million. As for operations, major costs were energy (29%), raw materials (27%), labor (32%) and depreciation (12%). These could vary depending on the geographic region where the plant operated. [13]

Cement marketing was carried out in different ways. For example, in United States cement was primarily marketed as concrete (95%),[14] while in Mexico and Colombia 70% of cement was marketed in 50 kg bags, like in the rest of Latin America. Cement was shipped by land over distances no greater than 320 km, so plants were positioned at strategic locations to avoid incurring costs for transportation and storage. Sending large amounts of cement by sea, however, was economically viable.[15] On the other hand, concrete was distributed within distances not requiring more than 90 minutes for delivery.

Global Cement Market

In 2013, Marketline valued the global cement market in US$ 294 billion, and predicted it would reach US$ 324 billion and US$ 357 billion by 2014 and 2015. International Cement Review put world demand for cement as 3, 9 billion tons in 2013, expected to reach 4 billion and 4.3 billion tons for the next few years.

Until 2012 China was the largest player, claiming 58% of cement produced in the world. Emerging markets showed sluggish growth and developed markets were declining slightly. (See Exhibit 10 – Evolution of Global Cement Demand.) China consumed 2.160 million metric tons, followed by India (242 million metric tons), the United States (78 million metric tons), Brazil (69 million metric tons) and Russia (63 million metric tons). Mexico and Canada consumed each 35 and 11 million tons. Per capita consumption figures placed Saudi Arabia as the largest world consumer with 1,683 kg per capita, followed by China (1,581 kg) and South Korea (911 kg). Average per capita consumption worldwide reached 500 kg. Per capita consumption in the Americas was below average with Brazil consuming 330 kg, Mexico and Canada 300 kg, the United States 232 kg and Colombia 217 kg.

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13 Lasserre, P. 2007. The Global Cement Industry. Global Strategic Management. Accessed January 2015. Available at http://philippelasserre.net/contenu/Download/Global_Cement_industry.pdf

14 Cement mixed with aggregates and ready to use.

15 The global cement industry. Ready-mixed fortunes. Accessed December 2014. Available at http://www.economist.com/news/business/21579844-worlds-cement-giants-look-set-recoverybut-will-it-be-durable-ready-mixed-fortunes

In 2012, 96% of global cement production was meant for local markets. Production in China amounted to 2,220 metric tons, followed by India (247 million metric tons) and the United States (74 million metric tons) while Brazil, Mexico and Canada produced 70, 37 and 14 million metric tons, respectively. Only 4% of world production was exported, mainly to the United States and China. The United States imported cement from Canada (45%), South Korea (15%), China (12%), Mexico (7%) and others (21%). (See Exhibit 11 - Countries Importing and Exporting Cement.)

Competitors

Starting in the 70s, the cement industry consolidated itself through a number of mergers and acquisitions resulting in MNCs that engaged in seeking markets where demographics, development, and economic growth would boost housing and infrastructure needs. Thirty companies led cement production in the world, with Lafarge (France), CNBM (China), Holcim (Switzerland), Anhui Conch (China) and Tangshan Jidong (China again) at the top of the list. (See Exhibit 12 – Cement Production - World Ranking on a per Company Basis.) These competed in various regions of the world but also had joint operations and were constantly engaging in business, mainly mergers and acquisitions. MNCs with greater presence in the Americas included Lafarge, Holcim, Cemex, HeidelbergCement, and local cement companies that had achieved significant market share in their home countries and, in some cases, had become international. (See Exhibit 13 - Major Competitors in the Americas - Financial and Operating Data.)

The Cement Industry in Canada

Cement production in Canada decreased 3.3% a year between 2008 and 2012, to 13.8 million metric tons valued at US$ 1, 6 billion. Growth for the next four years was expected to be 2.6%.[16] Of total production, 3.4 million tons were exported, mainly to the United States (99%).

There were 16 cement plants in the country spread across five provinces, with total production capacity of 16.4 million metric tons. Forty per cent of plants were integrated with concrete production with about 28.1 million cubic meters of concrete produced. Companies with higher capacity in the country included Lafarge (31%) and Holcim (18%). Also Lehigh Inland Cement Ltd. owned by HeidelbergCement (15%), St. Mary's Cement Inc. owned by Votorantim (10%) and Ciment Québec Inc. (8%), as well as others (12%).[17] (See Exhibit 14 – Competitors in the Canadian Cement Industry.)

16 Marketline. 2012. Industry profile: Cement in North America

17 Cement Association of Canada. Cement: Economic Contribution. Accessed December 2014, Available at http://www.cement.ca/en/Economic-Contribution.html

The Cement Industry in Mexico

Cement production and consumption in Mexico reached record figures in 2007 (38.8 and 36.8 million metric tons, respectively). However, in 2008-2010 cement production and consumption decreased 3.8% and 2.7% a year. The industry showed signs of recovery in 2010-2012, with annual growth rates of 2.4% and 1.0%, reaching production and consumption figures of 36.2 and 34.6 million metric tons[18], worth US$ 4 billion.[19] Experts predicted a similar growth rate for the next three years.

There were 38 production facilities in 2013, located throughout the entire country, with a higher concentration near the State of Mexico. Total capacity was estimated to be 55.7 million tons, although industry dynamics had led Cemex and Holcim to produce at 70% of their capacity. Six companies were responsible for cement production. Cemex led with 52.6% of production capacity, followed by Holcim (22.6%), Cementos Moctezuma (12.0%), Cementos y Concretos Nacionales ("Cruz Azul") (6.0%), Cementos Chihuahua (4.1) and Cementos Fortaleza (3.7%). (See Exhibit 15 - Competitors in the Mexican Cement Industry.)

Cement in Mexico was marketed primarily through distributors. About 80% of retail sales were made in 50 kg bags, requiring an efficient distribution network. The rest was sold through ready-mix concrete producers (a developing industry), concrete product manufacturers and contractors.[20] On the other hand, approximately 1.6 million metric tons were exported, mainly to Peru (43%), followed by United States (30%), Guatemala (7%), Belize (6%), Colombia (5%) and others (8.2%).

The Cement Industry in Brazil

According to Brazil's Cement Producers Association, since 2008 cement production grew 6.2% a year to 70.1 million metric tons in 2013, valued at US$ 6.7 billion. Production increased 2% between 2012 and 2013, and experts believed this rate would be kept in the near future. In 2013, Brazil imported one million tons to meet total demand of 71 million metric tons. Exports only reached 22,000 tons. Cement was mainly marketed by retailers (56%), and as concrete (21%), as well as by contractors (12%) as blocks (5%), and through other means (6%).

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18 Cámara Nacional de Cemento de México. Producción y Consumo de Cemento. Accessed December 2014, Available at http://www.canacem.org.mx/sitios_de_interes.htm

19 Marketline. 2012. Industry profile: Cement in North America

20 Cementos Chihuahua. 2013 Annual Report. Cementos Chihuahua

Some 69 plants were spread across the country. However, production took place mainly in the Southeast and Northeast, in Sao Paulo, Minas Gerais and Rio de Janeiro. Votoratim was able to produce 35.3% of Brazil's cement, followed by Intercemento (18.1%), Lafarge (10.0%), Joao Santos (10.0%), Holcim (7.6%), Ciplan (3.8%), Itambé (2.5 %) and others (12.8%). (See Exhibit 16 – Competitors in the Brazilian Cement Industry.)

The Cement Industry in Colombia

Cement production in Colombia grew 5.8% per year in 2010 – 2013, to 11.2 million tons in 2013. Domestic consumption in the same period grew 8.6% to 10.8 million tons, while exports declined 12.3% to around 386,000 tons. Industry value was about US$ 1.3 billion, with 67% of cement marketed in 50 kg bags and the remaining 33% in bulk. Distribution centers were the most popular marketing channels (50%), followed by concrete plants (23%) which produced 7.4 million cubic meters in 2013 (a 9% increase over the previous year), builders and contractors (21%), prefabricated products (3%), slate (2%) and others (1%).[21] Cementos Argos was the major producer with 52.4% of the country's capacity, which gave it a market share close to 51%. Its competitors included Cemex (19.0% of production capacity), Cemento Tequendama (15.9%), Holcim (11.1%) and Cementos del Oriente (1.6%). (See Exhibit 17 – Competitors in the Colombian Cement Industry.)

The Holcim – Lafarge Merger

In April 2014, Holcim and Lafarge announced a potential merger with Holcim offering a share of stock for each Lafarge share. At that time, the enterprise value / EBITDA ratio for Holcim was thought to be 8.4 times, while the enterprise value / EBITDA ratio for Lafarge 8.2 times.

Several consulting firms issued their opinion in that regard. Morgan Stanley suggested the merger could result in synergies with savings of up to US$ 490 million (around US$ 130 million resulting from lower overhead and corporate expenses). Holcim's cost of debt in 2013 was 4.8%, while Lafarge's was 6.0%. The merger was expected to cut in half the gap in Lafarge's debt cost, with potential savings of up to US$ 65 million. In addition, the merger would improve logistics and operations resulting in savings of US$ 240 million.

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21 Sistema Estadístico Nacional De Colombia. Estadísticas por Tema: Construcción. Accessed January 2015. Available at http://www.dane.gov.co/index.php/estadisticas-por-tema/construccion

On the other hand, Goldman Sachs indicated that both companies' goals were more ambitious. They expected cost reductions in the order of US$ 695 million. Also, they pursued innovation synergies leading to a revenue increase of US$ 175 million, financial cost savings of US$ 175 million and CAPEX savings of up to US$ 175 million. The merged company was estimated to reach a market capitalization of around US$ 35 billion, sales above US$ 25 billion and EBITDA of US$ 5.8 billion. Lafarge CEO Bruno Lafont would be appointed CEO of the merged firm, while Holcim CFO Thomas Aebischer would take the CFO position. As a result of the merger announcement, the share price of both companies increased. By April 2014, Holcim's shares had reached US$ 87 with a market capitalization of US$ 28.3 billion. Lafarge's shares reached US$ 76 and a market capitalization of US$ 25.2 billion. (See Exhibit 18 - Performance of Lafarge (LFRGY), Holcim (HCMLY) and Cemex (CX) Shares.)

The announcement alerted antitrust authorities, mainly in the 13 countries where both Holcim and Lafarge were significant players.[22] According to experts, to proceed with the merger the combined company would divest half of its assets in those markets for an amount of US$ 4 billion. (See Exhibit 19 - Countries where Holcim and Lafarge Market Share Overlaps.) Antitrust authorities felt that the fact that both companies had cement production operations in the country warranted investigation. In the aggregates industry, they checked what happened within 48 km from the producer plant. The radius for the concrete industry was 30 km, with variations according to transportation conditions.

In the United States, Holcim-Lafarge would become the largest player in the cement industry, with operations in 17 states. However, overlap would occur only in Illinois, Iowa and Maryland. In addition, it would become the fifth largest player in the aggregates industry with a 10.1% market share and operations in 28 states. Overlap would occur in five states (Colorado, Illinois, Michigan, West Virginia, and Wisconsin). Due to geographical scope and location of operations for both companies in different states, no issues were anticipated for the merger in the U.S.

Holcim would divest all its assets in Canada, including two cement plants in Toronto and Montreal able to produce 3.7 million tons per year. In addition, it would divest the Duferein Concrete and Demix Benton business units, including 35 ready-mix concrete plants in Ontario and 15 in Quebec, respectively, together with 25 quarries for raw materials mining for cement, sand and gravel. These assets were estimated to produce revenues of US$ 870 million and EBITDA of US$ 170 million.

22 United States, Canada, Ecuador, Brazil, France, Malaysia, Philippines, Romania, Serbia, Czech Republic, Slovakia and Hungary.

In Brazil, Holcim-Lafarge announced a plan for the Administrative Council for Economic Defense (CADE) to allow the merger. It consisted of selling three integrated plants and two crushing stations with total capacity for 2.8 million tons per year, plus a ready-mix concrete plant in Southeastern Brazil. [23] These assets were estimated to supply revenues of US$ 183 million and EBITDA of US$ 61 million.

Investment Options in Mexico

Cementos Moctezuma and Cementos Chihuahua were two interesting alternatives to enter the Mexican market. Their enterprise value / EBITDA ratios were 7.8 and 10.1, respectively. (See Exhibit 20 – Company Share Features.)

Corporación Cementos Moctezuma

Cementos Moctezuma had been engaging in cement production for 70 years in the country. In 2013, it had three plants in Morelos, San Luis Potosí and Veracruz to supply cement to northern, central and southeastern Mexico. It was able to produce 6.4 million tons of cement per year and had 57 concrete plants. In addition, it had a presence in 29 of all 32 states of Mexico. As a result of geographic scope and brand recognition, it enjoyed a 13.8% market share for cement and 8.3% for concrete in 2013. However, it was already using 93% of its production capacity, so it would be difficult to increase these figures with its available capacity. The proximity of one of its plants to the port of Veracruz allowed it to export cement to Brazil and Colombia for US$ 2.5 million.

Production facilities were relatively modern, so maintenance costs were low. They used a dry process, increasing production efficiency since the product remained for less time in the kilns. They were also among the most energy-efficient facilities in the world, which led to improved operating margins.

Sales for Cementos Moctezuma had grown 6.3% a year between 2009 and 2012 to US$ 732.5 million. However, they decreased 17.5% in 2013 to US$ 604.3 million. Cement accounted for 74.9% of sales, and concrete for the remaining 25.1%. Company EBITDA amounted to US$ 200 million, with an EBITDA margin of 38%, one of the best in the country's cement industry. Net profits amounted to US$ 200.3 million. By that time the company had assets worth US$ 786 million,

23 Lafarge. 2014. Holcim and Lafarge announce a project to sell assets to CRH for an enterprise value of EUR 6.5 Bn [CHF 6.8 Bn] in the context of their planned merger. Construction Europe, World News. Accessed December 2014. Available at http://www.lafarge.com/wps/portal/6_2_1-CADet?WCM_GLOBAL_CONTEXT=/wps/wcm/connect/Lafarge.com/AllPR/2015/PR20150202/MainEN#editoEncartVide0000000000045217

liabilities amounting to US$ 162 million, and equity equal to US$ 623 million. (See Exhibit 21 - Corporación Moctezuma - Financial Information.)

Cementos Moctezuma was controlled by Buzzi Unicem, the second cement company in Italy, and Cementos Molins. Together, these held 67% of Cementos Moctezuma equity divided equally. However, some experts did not rule out the possibility of total or partial sale of their interest in Cementos Moctezuma in view of the recession hitting the Eurozone, where most of the sales for these companies took place.

Grupo Cementos Chihuahua (GCC)

Cementos Chihuahua, founded in 1941, has since operated in Mexico and engaged in producing and marketing cement, mortar, ready-mix concrete, concrete blocks, gypsum, aggregates and other construction materials. In Mexico, it operated mainly in Chihuahua with three cement plants able to produce 2.21 million tons per year, located in Chihuahua, Juárez, and Samalayuca (all three in northern Mexico). Operations also included 32 ready-mix concrete plants, 230 mixer trucks, six concrete block plants, six aggregates plants, a gypsum plant, and two precast concrete products facilities. In Chihuahua, GCC was the leader in all the businesses where it was a player.

In the United States, GCC was a player in the cement and concrete markets. It had three cement plants with capacity to produce 2.2 million tons of cement per year. These were located in Tijeras, New Mexico, Rapid City, South Dakota, and Pueblo, Colorado. Also it had 21 cement distribution centers and transfer stations in Texas, New Mexico, Colorado, South Dakota, North Dakota, Wyoming, Minnesota, Iowa, Kansas and Montana. In addition, it was a leading ready-mix concrete producer in South Dakota, Minnesota, Iowa, Missouri, Oklahoma and Arkansas. Together, these operations had 84 concrete plants and 427 concrete mixer trucks plus 236 trucks to carry cement and aggregates.

Company sales declined 4.1% per year to US$ 580 million in 2009 - 2011. On the other hand, in 2011-2013 sales grew 6.5% a year and reached US$ 658 million. In 2013, 32.2% of sales were made in Mexico, and the remaining 67.8% in the US market. The cement business line accounted for 57% of sales, concrete accounted for 33% and the other lines for the remaining 10%. Cement exports from Mexico to the United States amounted to 3.3% of total sales value. Company EBITDA in 2013 amounted to US$ 155 million with a US$ 4 million net profit. The enterprise value / EBITDA ratio was estimated to be 10.1 times. In addition, the company had assets of US$ 1,700 million, liabilities of US$ 740 million and equity of US$ 965 million. (See Exhibit 22 – Grupo Cementos Chihuahua - Financial Information.)

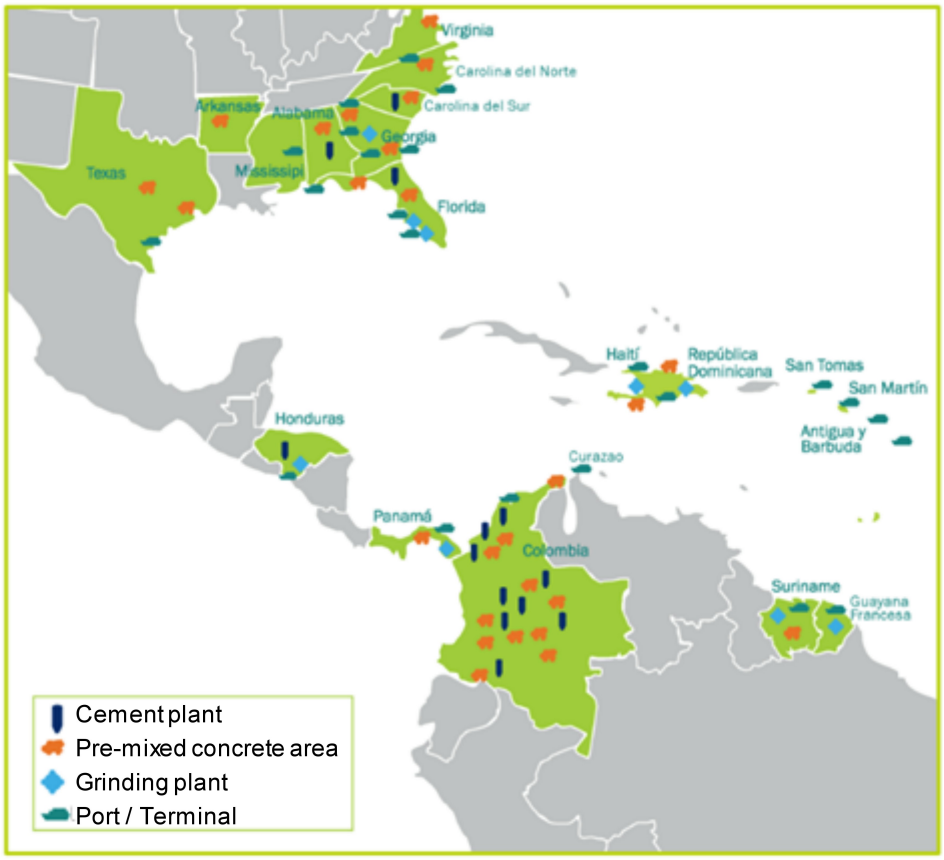
Conclusion

Cementos Argos board and management team wondered what the best decision would be. José Alberto stressed that good relations with Lafarge resulting from various negotiations could facilitate asset acquisition in Canada or Brazil. However, they were not sure whether this alternative would allow them to fulfill their plan to earn revenues of US$ 10 billion by 2030 or whether it would be better to invest in Mexico to achieve that goal.

Exhibit 1

Cementos Argos

Geographical Scope



Source: Cementos Argos, 2013 Annual Report

Exhibit 2

Cementos Argos

Financial Information

	2009	2010	2011	2012	2013
Line Item	**US$ million**				
Revenue	1,817	1,636	2,042	2,343	2,538
EBITDA	343	292	379	423	500
EBITDA margin	18.9%	17.8%	18.6%	18.1%	19.7%
Net profit	111	156	206	207	94
Assets	7,743	8,387	9,340	5,492	5,943
Liabilities	2,634	2,327	2,874	2,436	2,242
Equity	5,110	6,061	6,466	3,057	3,700

Source: Cementos Argos 2010, 2011,2012, 2013 Annual Report

Exhibit 3

Cementos Argos

Gross Domestic Product

Region	**Country**	**GDP (2005 Constant US$ billion)**			**CAGR**		
		2005	**2009**	**2013**	**2005-2013**	**2005-2009**	**2009-2013**
World		***46,469***	***49,966***	***55,929***	***2.3%***	***1.8%***	***2.9%***
North America	United States	13,095	13,263	14,499	1.3%	0.3%	2.3%
	Canada	1,164	1,200	1,319	1.6%	0.8%	2.4%
	Puerto Rico	84	77	71	-2.0%	-2.1%	-2.0%
Latin America and the Caribbean		***2,859***	***3,232***	***3,749***	***3.4%***	***3.1%***	***3.8%***
Latin America	Mexico	866	907	1,042	2.3%	1.1%	3.5%
The Caribbean (1)		127	142	156	2.5%	2.7%	2.4%
The Caribbean	Dominican Republic	84	77	71	-2.0%	-2.1%	-2.0%
	Haiti	4	5	5	2.0%	2.4%	1.7%
Central America	Guatemala	27	32	36	3.6%	3.8%	3.4%
	Belize	1	1	1	2.5%	2.5%	2.5%
	El Salvador	17	18	19	1.6%	1.4%	1.8%
	Honduras	10	11	13	3.5%	3.6%	3.5%
	Nicaragua	6	7	8	3.5%	2.3%	4.6%
	Costa Rica	20	24	28	4.5%	4.5%	4.5%
	Panama	15	21	30	8.6%	8.4%	8.8%
South America	Brazil	882	1,020	1,167	3.6%	3.7%	3.4%
	Colombia	147	176	211	4.7%	4.7%	4.7%

Source: Developed by author based on World Bank data

(1) Bahamas, Barbados, Dominican Republic, Haiti, Jamaica, Surinam, Trinidad & Tobago, St. Vincent, and Cuba.

Exhibit 4

Cementos Argos

Gross Domestic Product per Capita

		GDP per Capita (2005 Constant US$)			Annual Growth Rate		
Region	**Country**	**2005**	**2009**	**2013**	**2005-2013**	**2005-2009**	**2009-2013**
		Gross Domestic Product per Capita (2005 Constant US$)					
World		7,160	7,344	7,850	1.2%	0.6%	1.7%
North America	United States	44,314	43,234	45,863	0.4%	-0.6%	1.5%
	Canada	36,029	35,672	37,524	0.5%	-0.2%	1.3%
	Puerto Rico	21,959	20,610	19,696	-1.4%	-1.6%	-1.1%
Latin America and the Caribbean		5,092	5,494	6,093	2.3%	1.9%	2.6%
	Mexico	7,824	7,788	8,519	1.1%	-0.1%	2.3%
The Caribbean (1)		3,185	3,454	3,708	1.9%	2.0%	1.8%
	Dominican Republic	3,636	4,493	5,195	4.6%	5.4%	3.7%
The Caribbean	Haiti	449	467	473	0.7%	1.0%	0.3%
	Guatemala	2,146	2,262	2,341	1.1%	1.3%	0.9%
	Belize	4,098	4,086	4,084	0.0%	-0.1%	0.0%
	El Salvador	2,815	2,926	3,063	1.1%	1.0%	1.1%
	Honduras	1,402	1,490	1,577	1.5%	1.5%	1.4%
	Nicaragua	1,159	1,207	1,367	2.1%	1.0%	3.2%
	Costa Rica	4,621	5,180	5,839	3.0%	2.9%	3.0%
Central America	Panama	4,594	5,906	7,740	6.7%	6.5%	7.0%
	Brazil	4,739	5,271	5,823	2.6%	2.7%	2.5%
South America	Colombia	3,393	3,841	4,376	3.2%	3.1%	3.3%

Source: Developed by author based on World Bank data

(1) Estimated

Exhibit 5

Cementos Argos

Construction Industry Figures

Countries	2010	2011	2012	2013	CAGR
	US$ million				2010-2013
United States (1)	460,107	460,148	478,722	NA	2.0%
Canada (2)	89,082	96,534	99,584	104,757	5.7%
Mexico	82,376	85,719	87,820	83,628	3.3%
Guatemala	1,665	1,705	1,718	1,746	1.6%
El Salvador	782	851	854	854	4.5%
Honduras	948	990	1,013	989	3.4%
Costa Rica	1,925	1,852	1,957	2,003	0.8%
Nicaragua	294	350	465	545	25.7%
Panama	2,700	3,198	4,115	5,343	23.5%
Brazil	103,726	107,486	108,973	110,766	2.5%
Colombia	20,721	22,428	23,763	26,617	7.1%
Latin America	301,044	315,892	328,688	333,480	4.5%
The Caribbean	4,009	3,969	4,029	4,118	0.2%
Central America	8,314	8,946	10,122	11,480	10.3%

(1) Annual growth in 2010-2012
(2) 2007 constant value
Source: Developed by author based on ECLA and OECD data

Exhibit 6

Cementos Argos

World Population

		World Population (Million)			CAGR
Region	Country	**2005**	**2009**	**2013**	2005-2013
World		6,490	6,804	7,125	1.2%
	China	1,304	1,331	1,357	0.5%
	United States	296	298	301	0.2%
	Canada	32	34	35	1.1%
North America	Puerto Rico	4	4	4	-0.7%
Latin America and the Caribbean		562	588	615	1.2%
Latin America	Mexico	111	116	122	1.3%
The Caribbean (1)		40	41	42	0.6%
	Dominican Republic	9	10	10	1.4%
The Caribbean	Haiti	9	10	10	1.4%
	Guatemala	13	14	15	2.5%
	Belize	0	0	0	2.5%
	El Salvador	6	6	6	0.5%
	Honduras	7	8	8	2.0%
	Nicaragua	5	6	6	1.4%
	Costa Rica	4	5	5	1.5%
Central America	Panama	3	4	4	1.7%
South America	Brazil	186	195	200	0.9%
	Colombia	43	46	48	1.4%

Source: Developed by author based on World Bank data

Exhibit 7

Cementos Argos

2005 - 2013 Urban Areas - Population and Growth

Region	**Country**	**Urban Population (% of total population)**			**CAGR**
		2005	**2009**	**2013**	**2005-2013**
World		49.0	51.0	53.0	2.2%
	China	42.5	47.9	53.2	3.4%
	United States	79.9	80.8	81.3	0.4%
North America	Canada	80.1	80.9	81.5	1.3%
	Puerto Rico	94.1	93.8	93.7	-0.7%
Latin America and the Caribbean		76.9	78.1	79.3	1.5%
Latin America	Mexico	76.3	77.5	78.7	1.6%
The Caribbean (1)		NA	NA	NA	
	Dominican Republic	44	52	56	4.5%
The Caribbean	Haiti	44	52	56	4.5%

Central America	Guatemala	47	49	51	3.4%
	Belize	46	45	44	2.0%
	El Salvador	62	64	66	1.4%
	Honduras	49	52	54	3.3%
	Nicaragua	56	57	58	1.9%
	Costa Rica	66	72	75	3.2%
	Panama	64	65	66	2.2%
South America	Brazil	83	84	85	1.3%
	Colombia	74	75	76	1.8%

Source: Developed by author based on World Bank data

Exhibit 8

Cementos Argos

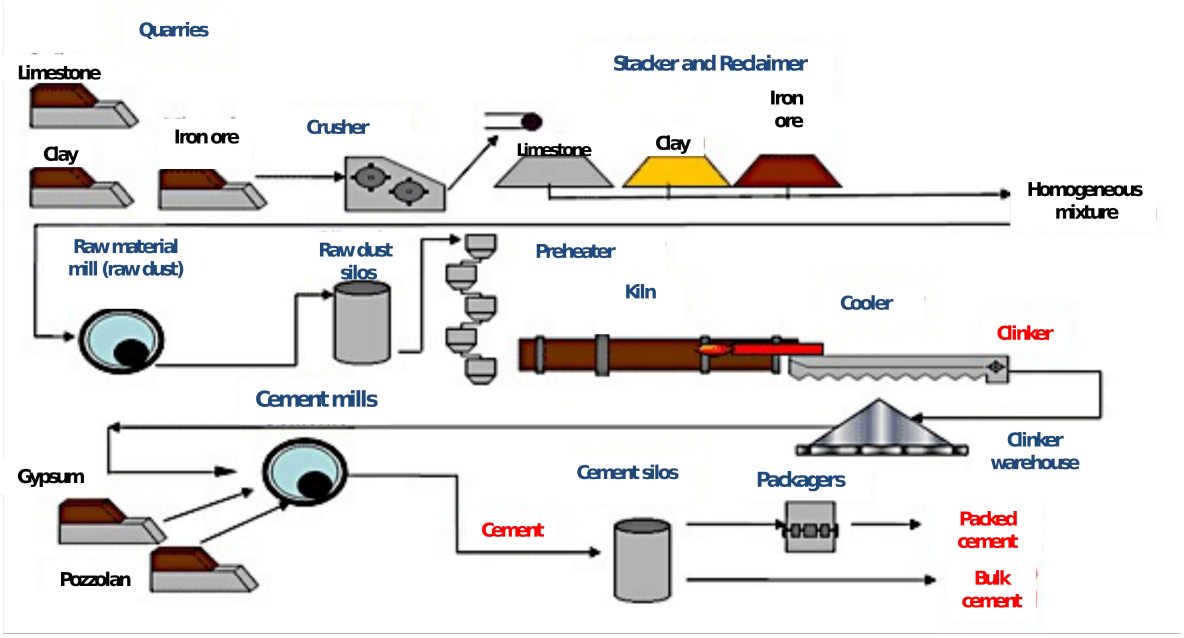
Housing Requirements in Latin America

Source: Federación Interamericana del Cemento FICEN, 2013 Statistical Report

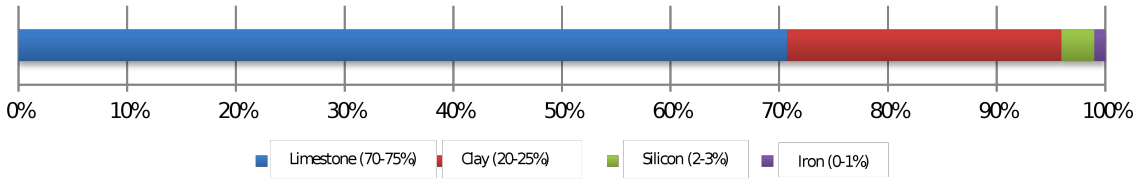
Exhibit 9

Cementos Argos

Cement Production Process



Stage I: Mining, preparation and crushing of raw materials (limestone, marl, clay, shale, etc.) providing the following mineral compounds: calcium carbonate ($CaCO_3$), silica (SiO_2), aluminum oxide (Al_2O_3) and iron oxide (Fe_2O_3). The result is a powdered mixture of minerals known as raw dust or flour.



Stage II: Processing of raw dust in rotary kilns at temperatures close to 1.450 -1.500 ° C, to be suddenly chilled to obtain an intermediate product known as clinker.

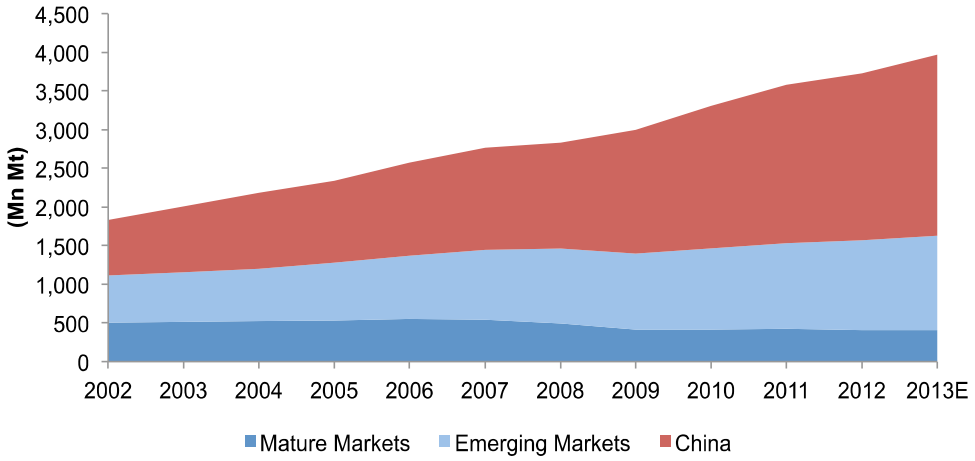
Stage III: Crushing of clinker with other components such as gypsum (setting regulator) and additions (blast furnace slag, fly ash, limestone, pozzolan) to produce different types of cement.

Source: Lasserre, P. 2007. Globalization Cement Industry. Global Strategic Management Mini Cases Series.
http://www.canacem.org.mx/procesos_de_produccion.htm#

Exhibit 10

Cementos Argos

Evolution of Global Cement Demand - 2002-2013

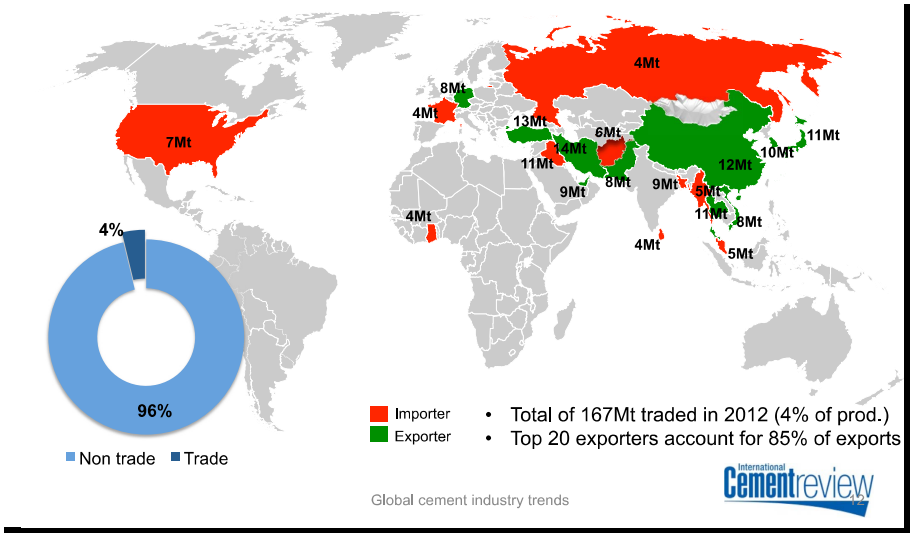


* 2013E: Estimated figures
Source: An overview of global cement sector trends, International Cement Review

Exhibit 11

Cementos Argos

Countries Importing and Exporting Cement



Source: International Cement Review

Exhibit 12

Cementos Argos

Cement Production - World Ranking on a per Company Basis

Ranking	Company/Group	Country	Capacity (million tons)	Number of Cement plants
1	Lafarge	France	221	155
2	CNBM	China	221	NA
3	Anhui Conch	China	209	NA
4	Holcim	Switzerland	206	142
5	Tangshan Jidong	China	130	43
6	HeidelbergCement	Germany	128	98
7	Sinoma	China	100	NA
8	Cemex	Mexico	97	67
9	Shanshui	China	93	NA
10	China Resources	China	74	117
11	Taiwan Cement Corp	Taiwan	71	NA
12	Italcementi	Italy	68	53
13	Votorantim	Brazil	57	22
14	Ultra Tech	India	51	22
15	Buzzi	Italy	45	39
27	Cementos Argos	Colombia	20	13

Source: Global Cement Magazine. Top 75 Cement Companies. December 2013. Note: Data for Holcim, Lafarge, Cemex, HeidelbergCement, and Grupo Argos was updated.

Exhibit 13

Cementos Argos

Major Competitors in the Americas - Financial and Operating Data

Competitors		Lafarge	Holcim	Heidelberg Cement	Cemex	Cementos Argos
Cement	Volume (million tons)	221.0	206.2	128.4	93.7	20.3
	Plants	155.0	142.0	98.0	67.0	13.0
Concrete	Volume (m^3 million)	30.7	NA	40.3	NA	17.4
	Plants	1,481.0	1,091.0	1,100.0	1,784.0	319.0
Aggregates	Volume (million tons)	192.8	NA	241.0	NA	NA
	Plants	NA	426.0	538.0	362.0	NA
Distribution Centers		NA	NA	191.0	222.0	55
Seaports		NA	NA	NA	63.0	20
Revenue (US$ million)		13,222	21,276	12,124	14,984	2,656
Revenue CAGR 2012-2013		-0.5%	-6.8%	-1.0%	1.6%	8.3%
EBITDA (US$ million)		2,831	4,203	2,128	2,624	524
Net profit / loss (US$ million)		680	1,373	822	-843	98
Assets (US$ million)		32,255	40,800	23,526	38,018	6,037
Liabilities (US$ million)		17,895	20,717	12,580	26,652	2,086
Equity (US$ million)		14,360	20,082	10,946	11,366	3,951

Source: Developed by author based on company data

Exhibit 14

Cementos Argos

Competitors in the Canadian Cement Industry, 2014, prior to the Holcim-Lafarge Merger

Region/Country		Canada				
Competitors		Lafarge	Holcim	Heidelberg Cement	Votorantim	Ciment Québec Inc.
Cement	Volume (million tons)	5.8	3.3	2.7	1.8	1.5
	Plants	6.0	2.0	2.0	3.0	1.0
Concrete	Volume (m^3 million)	5.0	NA	2.2	3	NA
	Plants	143.0	NA	53.0	40	NA
Aggregates	Volume (million tons)	54.7	NA	19.4	140	NA
	Plants	115.0	NA	38.0	NA	NA

Source: Developed by author based on company data

Exhibit 15

Cementos Argos

Competitors in the Mexican Cement Industry, 2014, prior to the Holcim-Lafarge Merger

Region/Country		Mexico					
Competitors		Cemex	HOLCIM	Cementos Moctezuma	Cruz Azul	GCC Cemento	Cementos Fortaleza
Cement	Volume (million tons)	29.3	12.6	6.4	3.2	2.2	2
	Plants	18.0	7.0	3	4.0	3	3
Concrete	Volume (m^3 million)	NA		NA	1.8	NA	NA
	Plants	286.0	40.0	50	55	32	NA
Aggregates	Volume (million tons)			NA	NA	NA	NA
	Plants	16.0	3.0	NA	NA	NA	NA

Source: Developed by author based on company data

Exhibit 16

Cementos Argos

Competitors in the Brazilian Cement Industry, 2014, prior to the Holcim-Lafarge Merger

Region/Country		**Brazil**						
Competitors		**Votorantim**	**Inter cemento**	**Lafarge**	**Joao Santos**	**Holcim**	**Ciplan**	**Itambé**
Cement	**Volume (million tons)**	25.2	12.9	7.1	7.1	5.4	2.7	1.8
	Plants	28	16	9	10	5	1	1
Concrete	**Volume (m^3 million)**	NA	NA	1.2	NA	NA	NA	NA
	Plants	316	NA	54	NA	55	16	
Aggregates	**Volume (million tons)**	NA	NA	2.8	NA	NA	NA	NA
	Plants	NA	NA	3	NA	2	NA	NA

Source: Developed by author based on company data

Exhibit 17

Cementos Argos

Competitors in the Colombian Cement Industry, 2014, prior to the Holcim-Lafarge Merger

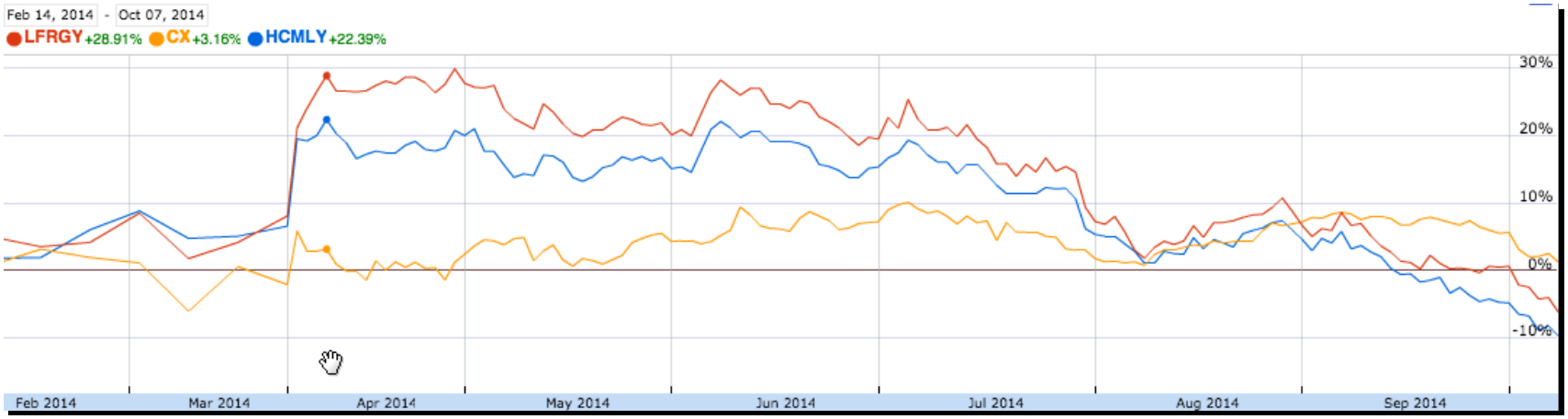
Region/Country		**Colombia**				
Competitors		**Grupo Argos**	**Cemex**	**HOLCIM**	**Cemento Tequendama**	**Cementos del Oriente**
Cement	**Volume (million tons)**	9.9	3.6	2.1	3	0.3
	Plants	9	4	1	1	1
Concrete	**Volume (m^3 million)**	3.4	NA	NA	NA	NA
	Plants	67	40	9	NA	NA
Aggregates	**Volume (million tons)**	NA	NA	NA	NA	NA
	Plants	NA	6		NA	NA

Source: Developed by author based on company data

Exhibit 18

Cementos Argos

Performance of Lafarge (LFRGY), Holcim (HCMLY) and Cemex (CX) Shares, February - October 2014.



Source: Google Finance

Exhibit 19

Cementos Argos

Countries where Holcim and Lafarge Market Share Overlaps

Country	**Industry Volume**	**Holcim**		**Lafarge**		**Holcim-Lafarge Merger**
		Volume	Market Share	Volume	Market Share	
North America						
USA	99.3	18.7	19%	10.7	11%	19%
Canada	18.3	3.3	18%	5.8	32%	50%
Brazil	81.6	5.4	7%	7.1	8.7%	15%

Source: Holcim - Lafarge: Merger of equals - Our first reaction analysis of the possible deal Abril 2014.

Note: Mexico's National Competition Commission (Comisión Nacional de Competencia, Cofece) approved the Holcim / Lafarge merger. Lafarge participated in the Mexican market through Cementos Fortaleza and announced its intention to sell its stake to the parent company (Elementia) by late 2014.

Exhibit 20

Cementos Argos

Company Share Features

Company	Share Price US$	Market Capitalization US$ million	P/U			Enterprise value/EBITDA		
			2012	2013	2014(e)	2012	2013	2014(e)
Corporación Moctezuma	2.6	2,305	14.0x	13.2x	12.8x	8.0x	7.8x	7.5x
Cemex	0.8	11,367	N/D	N/D	30.9x	10.9x	9.6x	8.5x
Cementos Chihuahua	3.4	1,117	36.4x	25.2x	16.9x	11.6x	10.1x	8.0x
Cementos Argos	5.8	6,717	37.7x	44.9x	29.6x	15.5x	13.5x	11.5x
Holcim	73.9	24,177	20.2x	19.6x	20.1x	8.7x	9.1x	9.3x
Lafarge	55.8	16,026	20.0x	27.4x	22.1x	8.3x	8.4x	9.1x

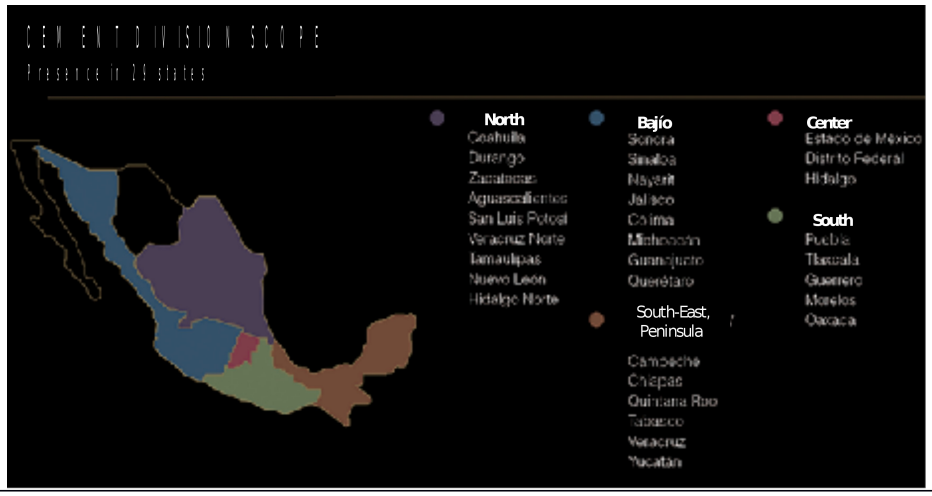
Source: Developed by author based on company data and on Consultor 414. 2013 "Corporación Moctezuma"; NBP Paribas, 2014 "Lafarge Holcim merger: a look at disposals".

Exhibit 21

Cementos Argos

Corporación Moctezuma - Financial Information

	2009	2010	2011	2012	2013
Line Item	**US$ million**				
Revenue	609	529	651	732	604
EBITDA	235	191	226	265	200
EBITDA margin	38.5%	36.2%	34.6%	36.2%	33.1%
Net profit	150	105	130	166	112
Assets	938	890	939	867	786
Liabilities	157	174	171	182	162
Net worth	781	716	768	685	623



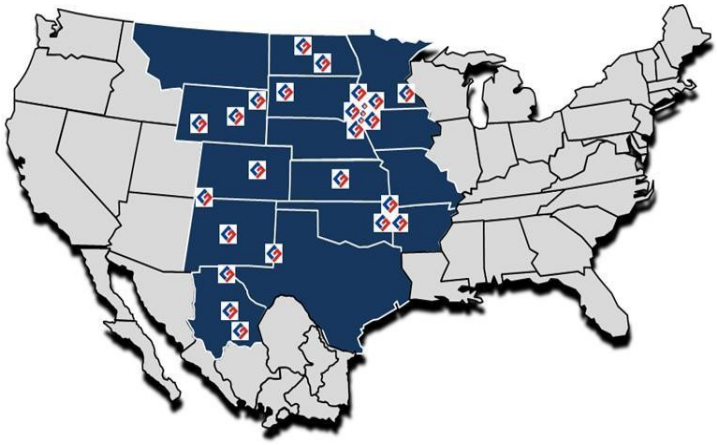
Source: Developed by author based on Corporación de Cementos Moctezuma annual reports

Exhibit 22

Cementos Argos

Grupo Cementos Chihuahua - Financial Information

	2009	2010	2011	2012	2013
Line Item	**US$ million**				
Revenue	630	617	580	631	658
EBITDA	157	147	192	228	155
EBITDA margin	24.9%	23.8%	33.2%	36.1%	23.6%
Net profit	34	7	5	19	4
Assets	1,945	1,912	1,831	1,668	1,704
Liabilities	1,016	979	812	736	739
Equity	928	933	1,019	932	965



Source: Developed by author based on Grupo Cementos Chihuahua annual reports

Cementos Argos

Teaching Note

Summary

In October 2014, Cementos Argos board member José Alberto Vélez, together with the company's management team, were analyzing options toward the next step of company growth after Holcim and Lafarge announced a merger. More than a threat, Cementos Argos board saw the merger as an opportunity to expand. The combined Holcim – Lafarge Company was bound by antitrust legislation, chiefly in the countries where both Holcim and Lafarge were already major competitors. This was the case for Brazil y Canada, which forced them to sell assets. José Alberto and his team wondered if Cementos Argos should seize the opportunity to purchase assets made available in these two countries or rather evaluate other investment opportunities. For example, Cementos Argos could consider investing in Mexico, a country seen as possessing significant potential.

They felt that investing in Canada or Mexico would reinforce Cementos Argos positioning as a result of proximity to both the United States and the Caribbean Basin[24], where the company was already operating. However, investing in Brazil could be advantageous as it was close to Colombian operations. José Alberto and his management team had to make a decision in line with the company's strategic goal of attaining revenues of US$ 10 billion by 2030.

Cementos Argos last shareholder report highlighted its consolidation as the leading business firm in the Colombian cement market, with a market share close to 51%. In addition, it led the Caribbean market with a 47% share of seaborne cement and clinker trade. Also, Cementos Argos was the second largest cement producer in the southeastern United States and the second largest concrete producer in the country. Cementos Argos' various operations had succeeded in generating revenues of US$ 2,7 billion, EBITDA of US$ 524 million, and a US$ 98.4 million net profit plus a US$ 6,7 billion market capitalization. Still, Cementos Argos board felt there was potential for higher shareholder value. To achieve this, the best

24 Region where the company operates including the Atlantic coast of Colombia to ports on the Atlantic coast of the southern United States, and comprising Panama, Honduras and the Caribbean Islands.

course of action was to proceed with internationalization. However, they had to be very careful in making their choices in relation to company expansion.

Use of Case Study

This case study was written to be used in Business Strategy courses of MBA programs, with a focus on strategic positioning and growth routes.

Teaching Objectives

This case study can be used at a Business Strategy course to show competitive positioning issues and how a company's current strategy can have a major impact on decisions related to future company growth[25].

Case discussion will contribute to:

- Understand what strategic positioning means in terms of a strategic business unit.
- Understand what a competitive field is (where am I competing?), what generic strategies of cost leadership and high perceived value are (how am I competing?) and the steps required to ensure positioning is achieved (how can I implement it?)
- Consolidate learnings from previous political and economic analysis courses and other functional areas.
- Assess companies through the EBITDA multiple methodology and financial analysis using the DUPONT technique.

Case Study Questions

1. State Cementos Argos strategy.
2. What environment / industry features can pose threats / offer opportunities to Cementos Argos?

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25 Brenes, E.R., & Mena, M. 2006. "The Three Vertexes of Competitive Strategy", bac&asociados. Available online at:http://www.bacyasociados.com/download/Los_tres_vertices_de_la_Estrategia_Competitiva-Ingles.pdf

3. State Cementos Argos growth alternatives. Mention each alternative's advantages and disadvantages. Which of these options match Cementos Argos strategic positioning?

Analysis

1. State Cementos Argos strategy.

State where Cementos Argos is competing. What is Cementos Argos' competitive field? *Industrial sector, market segments, geographic scope and diversification levels, vertical and horizontal integration.*

Industrial Sector

Cementos Argos engages in cement, concrete, and aggregates production. However, the firm's core activity is cement production. In 2009-2012, Cementos Argos resolved to divest non-cement assets (coal, power, land, and real estate development) to focus on cement, concrete, and aggregates production and become a pure player in the cement industry.

Market Segments

Cementos Argos produces and markets a commodity. Its market includes different construction industry players such as distribution centers, concrete companies, builders and contractors, manufacturers of precast concrete products, and other actors using cement as raw material.

Service and Product Line

- Cement (in bulk and 50 kg bags)
- Concrete
- Aggregates

Level of vertical integration

In addition to cement production, Cementos Argos ventured into concrete production, mainly in the United States, where over 95% of cement is sold as concrete. It has export facilities, mainly at points allowing for distribution cost efficiency among the regions where it operates.

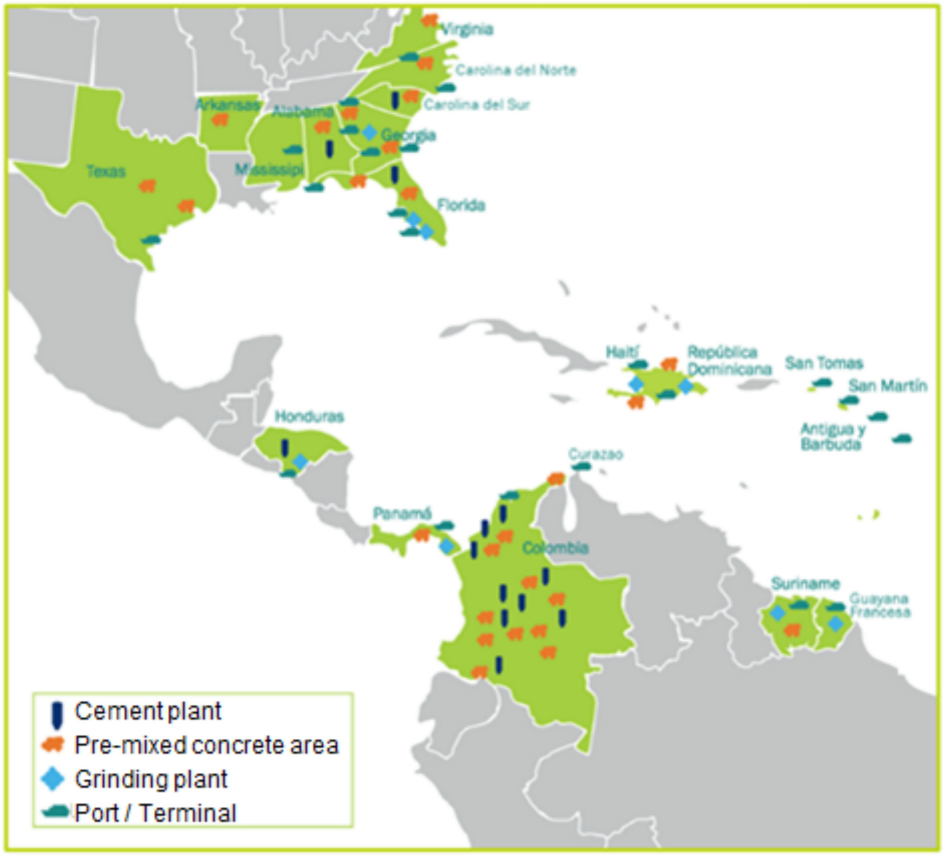
Geographical Scope

Cementos Argos operated in Colombia, Central America, the Caribbean and the United States (Alabama, Arkansas, North Carolina, South Carolina, Georgia, Florida, Mississippi, Texas and Virginia). It had thirteen cement plants, nine clinker crushing plants, 390 concrete plants and 20 ports and terminals allowing it to exchange goods between its different sites in the Caribbean Basin. It sold 46% of its cement in Colombia, 30% in Central America and the Caribbean, 17% in the United States and the remaining 7% in other countries. As for concrete, it sold 58% in the United States, 36% in Colombia, and 6% in Central America and the Caribbean. The illustration below shows the different regions where Cementos Argos operates.

Figure 1

Cementos Argos

Geographical Scope



Source: Cementos Argos, 2013 Annual Report

<u>Describe how Cementos Argos competes.</u> Indicate the generic strategy best accounting for what Cementos Argos does. What strategic actions and skills has Cementos Argos developed to support its generic strategy?

Cementos Argos' generic strategy is cost leadership, typical of the cement industry. Strategic skills include:

- *Ability to use mergers and acquisitions as a means to grow. Cementos Argos has considerable experience, from merging cement companies in Colombia to joint administration of (subsequently acquired) production plants with multinational companies and the acquisition of key players in the US market.*

- *Ability to locate assets strategically.*

  - *It built a distribution network providing it with flexibility in logistics, synergies, cost reduction and the ability to offer customers a value proposition based on tailored solutions.*

  - *It has a presence in both developed and emerging economies, which allows it to reduce risk as these are economies with different market cycles, marked by economic growth and the behavior of the construction industry.*

- *Ability to constantly invest to increase production capacity and to have modern, efficient machines to reduce costs.*

- *Ability to choose between industries to invest or divest. Cementos Argos resolved to become a pure player in the cement industry to enhance enterprise value and attract investors.*

How has Cementos Argos implemented its strategic positioning? Describe concrete action is terms of policies, systems and processes; strategic investment; people, culture, and leadership.

Policies, systems and processes

- Effective operational process: capital intensive; low operation costs.

Strategic Investments / Divestitures

- Merger of eight cement companies into Cementos del Caribe.

- Expansion of plants in Nare and Cartagena, investing US$ 312 million to increase production capacity by two million tons of cement per year.

- Investment of US$ 30 million to launch three power plants.

- Full acquisition of cement plants managed in conjunction with MNCs in Panama and the Caribbean.

- Joint investment with Suriname's main economic conglomerate Grupo Kersten & Co. to manage and operate Grupo Kersten's seaport and crushing/packing facility in Suriname's capital Paramaribo.

- Joint investment with the Dutch group Janssen de Jong in Curaçao to adapt de Jong's silos and packaging facilities there to cement import and distribution.

- Investing US$ 265 million to acquire 53% of the cement assets held by a company owned by Lafarge in Honduras.

- Acquisition of Southern Star Concrete for US$ 257 million, turning Cementos Argos into a leading company in Dallas and Houston.

- Acquisition of Ready Mixed Concrete Company (RMCC), for US$ 435 million. Acquisition of concrete companies complementing Cementos Argos operations for US$ 13 million.

- US$ 12 million allocated to acquire 2,310 hectares southeast of Dallas with sand and gravel reserves estimated at 25 million tons.

- Building a receiving and shipping system for bulk cement at the Port of Houston terminal and adapting the Savannah, Georgia, port to receive and ship cement.

- Taking control of a fleet of six motorboats which allowed it to improve its market share in US imports from 5.2% in 2006 to 6.8% in 2007.

- Investing US$ 20 million to acquire Santee Redi-Mix, headquartered in Moncks Corner, SC, with 12 mixer trucks and a concrete plant able to produce 46,000 cubic meters of concrete. Later it acquired Consort Concrete, with two concrete plants in Houston, 25 trucks and an estimated 110,000 cubic meter production.

- Acquiring a number of Lafarge assets to become the fourth largest concrete producer in the United States and the second largest cement producer in the Southeastern United States.

- Investing US$ 720 million to buy Vulcan Materials' modern facilities (including port facilities) to produce cement, concrete, and blocks.

- In 2009 - 2012, Cementos Argos resolved to focus on producing cement, concrete and aggregates. As a result of this strategic decision it sold two coal mine concessions for US$ 373 million.

- It transferred to its parent company assets and portfolio investments that did not fit in the cement industry, such as coal, port, and real estate assets.

People, leadership, and culture

- People with industry knowledge and experience in mergers and acquisitions.

- Growth-oriented culture focused on efficiency, quality, and productivity.

2. What environment / industry features can pose threats / offer opportunities to Cementos Argos?

According to the case study, cement companies were "seeking markets where demographics, development, and economic growth would boost housing and infrastructure needs." Therefore, readers solving the issue must base their decision on an analysis of these aspects, with the data found in the environment and industry sections for each country.

Economic Environment

The case provides sufficient information for readers to analyze various economic factors, both in countries where Cementos Argos is currently competing and in those it established itself as an investment alternative. At the very least, readers are expected to conduct a detailed analysis of information in relation to Brazil, Mexico and Canada.

Gross Domestic Product

In relation to GDP, readers should as a minimum compare the size of the economies of alternative countries where Cementos Argos can invest. With case data readers can compare economy size and growth rate in different periods of time to support their answer. The table below shows a comparison using green to indicate either higher GDP or greater growth, depending on period of time, and red to indicate the opposite. For instance, a potential conclusion is that Canada has a larger economy but a slower growth, a feature that would be a potential threat if Cementos Argos decides to invest there.

Table 1

Cementos Argos

Comparison of GDP in countries where investment can be made

Country	GDP (2005 Constant US$ billion)			CAGR		
	2005	2009	2013	2005-2013	2005-2009	2009-2013
Brazil	882	1,020	1,167	3.60%	3.70%	3.40%
Colombia	147	176	211	4.70%	4.70%	4.70%
Mexico	866	907	1,042	2.30%	1.10%	3.50%
Canada	1,164	1,200	1,319	1.60%	0.80%	2.40%

GDP per capita

The analysis can be done as explained under GDP above. In this case it can be said that Colombia and Brazil show a lower GDP per capita, but higher annual growth rate.

Table 2

Cementos Argos

Comparison of GDP per capita in countries where investment can be made

	GDP per Capita (2005 constant US$)			Annual growth rate		
Country	2005	2009	2013	2005-2013	2005-2009	2009-2013
Brazil	4,739	5,271	5,823	2.60%	2.70%	2.50%
Colombia	3,393	3,841	4,376	3.20%	3.10%	3.30%
Mexico	7,824	7,788	8,519	1.10%	-0.10%	2.30%
Canada	36,029	35,672	37,524	0.50%	-0.20%	1.30%

Construction Industry

The analysis can be done as explained under GDP.

Table 3

Cementos Argos

Comparison of construction industry in countries where investment can be made

Countries	2010	2011	2012	2013	CAGR
	US$ million				2010-2013
Brazil	103,726	107,486	108,973	110,766	2.50%
Colombia	20,721	22,428	23,763	26,617	7.10%
Mexico	82,376	85,719	87,820	83,628	3.30%
Canada	89,082	96,534	99,584	104,757	5.70%

Population

The analysis can be done as explained under GDP.

Table 4

Cementos Argos

Population comparison for countries where investment can be made

	World population (million)			CAGR
Country	**2005**	**2009**	**2013**	2005-2013
Brazil	186	195	200	0.90%
Colombia	43	46	48	1.40%
Mexico	111	116	122	1.30%
Canada	32	34	35	1.10%

Urban population

The analysis can be done as explained under GDP.

Table 5

Cementos Argos

Population comparison for countries where investment can be made.

Country	Urban Population (% of total population)			CAGR
	2005	2009	2013	2005-2013
Brazil	83	84	85	1.30%
Colombia	74	75	76	1.80%
Mexico	76.3	77.5	78.7	1.60%
Canada	80.1	80.9	81.5	1.30%

Another analysis alternative is for readers to build a comparative table with the most current data to support their decision. However, this information must be complemented with industry analysis and assessment of investment alternatives. The analysis can be like the one in the table below.

Table 6

Cementos Argos

Population comparison for countries where investment can be made

	Brazil	Mexico	Canada	Best option
2013 GDP (US$ billon).	1,167	1,042	1,319	Canada
2009-2013 GDP CAGR (US$)	3.4%	3.5%	2.4%	Mexico
2013 Construction industry (US$ million)	110,766	83,628	104,757	Brazil
2013 CAGR Construction industry	2.50%	3.30%	5.70%	Canada
2013 Population (million)	200	122	35	Brazil
2005-2013 CAGR Population	0.90%	1.30%	1.10%	Mexico
2013 Urban population (% of total population)	85	78.7	81.5	Brazil
2005-2013 CAGR Urban population	1.30%	1.60%	1.30%	Mexico
Population - Housing Requirements (%)	33	34	NA	Mexico

Cement Industry

This case study provides a description of the cement industry worldwide and offers the following data:

- The cement industry is capital intensive, which is a major barrier to new entrants.

- It is highly concentrated. Usually, in each country there is a number of players able to meet nearly 100% of demand. Thus, entry into other countries usually takes place through mergers and acquisitions.

- Major production costs include labor (32%), power (29%), raw materials (27%), and depreciation (12%).

- Cement in the United States is sold chiefly as concrete (95%), whereas in Mexico and Colombia 70% of cement is sold in 50 kg bags, as in the rest of Latin America.

- Cement is shipped by land over distances no greater than 320 km.

- Worldwide cement production amounts to 4 billion tons, worth US$ 294 billion, i.e., approximately US$ 73.5 per ton.

- China is the largest cement consumer worldwide (58%).

- Only 4% of cement is imported. China and the United States are the leading importers.

- The United States imports cement from Canada (45%), South Korea (15%), China (12%), Mexico (7%) and others (21%). This data can supplement the investment decision due to Cementos Argos geographic scope.

- Per capita consumption in the Americas was below average, with Brazil consuming 330 kg, Mexico and Canada 300 kg, the United States 232 kg and Colombia 217 kg.

On the other hand, the case study provides a brief financial description of some global competitors with a presence in Latin America for students to conduct financial analysis using the Dupont methodology.

Dupont: This is a tool used to estimate return on equity (ROE), that is, how many dollars of profit result of every dollar of equity. Dupont analyzes three variables: (1) profit received for each dollar of sales, *sales margin*; (2) profit generated by each dollar of assets employed, *asset turnover*, (3) amount of equity used to finance assets, i.e., *financial leverage*. Sales margin summarizes a company's income

statement, indicating profit dollars earned per dollar of sales. The asset turnover ratio indicates asset management conducted by the firm to maintain sales, and leverage indicates the equity used to finance the asset.[26]

$$ROE = \frac{net\ profit}{equity} = \frac{net\ profit}{sales}\ X\ \frac{sales}{assets}\ X\ \frac{assets}{equity}$$

The table below shows that information and the Dupont calculation for each of the various companies. Students can contrast these data with the calculations resulting from this analysis for each alternative.

Table 7

Cementos Argos

DUPONT estimate and general data on global players in Latin America

Competitors		**Lafarge**	**Holcim**	**Heidelberg Cement**	**Cemex**	**Cementos Argos**
Cement	Capacity (mill. tons)	221	206.2	128.4	93.7	20.3
	Plants	155	142	98	67	13
Concrete	Capacity (m^3 million)	30.7	NA	40.3	NA	17.4
	Plants	1,481.00	1,091.00	1,100.00	1,784.00	319
Aggregates	Capacity (mill. tons)	192.8	NA	241	NA	NA
	Plants	NA	426	538	362	NA
Distribution centers		NA	NA	191	222	55
Seaports		NA	NA	NA	63	20
a. Revenue (US$ mill.)		13,222	21,276	12,124	14,984	2,656
2012-2013 CAGR Revenue		-0.50%	-6.80%	-1.00%	1.60%	8.30%
b. EBITDA (US$ mill.)		2,831	4,203	2,128	2,624	524
c. Net profit / loss (US$ mill.)		680	1,373	822	-843	98
d. Assets (US$ mill.)		32,255	40,800	23,526	38,018	6,037
e. Liabilities (US$ mill.)		17,895	20,717	12,580	26,652	2,086
f. Equity (US$ mill.)		14,360	20,082	10,946	11,366	3,951
DUPONT						
(1) Sales margin (c/a)		5%	6%	7%	-6%	4%

26 Robert H. 2004. Análisis para la dirección financiera. 7th ed. Madrid, McGraw-Hill Interamericana.

(2) Asset rotation (a/d)	0.41	0.52	0.52	0.39	0.44
(3) Financial leverage (d/f)	225%	203%	215%	334%	153%
ROE= 1 X 2 X 3	4.7%	6.8%	7.5%	-7.4%	2.5%

In addition, the case study provides detailed data for readers to compare the industry in Brazil, Mexico, and Canada and back their decision with data. The table below summarizes key cement industry data for these countries.

Table 8

Cementos Argos

Comparison of cement industry in Mexico, Brazil, and Canada

Indicators	**Brazil**	**Colombia**	**Mexico**	**Canada**
Installed capacity (mill. tons)	72.0	18.9	55.7	16.4
Production (mill. tons)	70.1	11.2	36.2	13.8
Consumption (mill. tons)	71	10.8	34.6	10.4
Per capita consumption (kg)	330	217	300	300.0
Expected annual growth rate	2.0%	8.6%	2.4%	-3.3%
Industry value (US$ million)	6,700	1,300	4,000	1,600.0
Exports (mill. tons)	0.022	0.4	1.6	3.40
Export markets	NA	NA	Peru (43%), USA (30%), Guatemala (7%), Belize (6%), Colombia (5%), others (8.2%).	USA
Competitors, production capacity	Votoratim (35.3%), Intercemento (18.1%), Lafarge (10.0%), Joao Santos (10.0%), Holcim (7.6%), Ciplan (3.8%), Itambé (2.5%), others (12.8%)	Cementos Argos (52.4%), Cemex (19.0%), Cemento Tequendama (15.9%), Holcim (11.1%) and Cementos del Oriente (1.6%)	Cemex (52.6%), Holcim (22.6%), Cementos Moctezuma (12.0%), Cementos y Concretos Nacionales ("Cruz Azul") (6.0%), Cementos Chihuahua (4.1), Cementos Fortaleza (3.7%)	Lafarge (31%), Holcim (18%), Lehigh Inland Cement Ltd. owned by HeidelbergCement (15%), St. Mary's Cement Inc. owned by Votorantim (10%), Ciment Québec Inc. (8%), others (12%).

3. Investment Alternatives

The table below summarizes potential investment alternatives.

Table 9

Cementos Argos

Investment Alternatives

Alternatives	**1**	**2**	**3**	**4**
Country	**Canada**	**Brazil**	**Mexico & USA**	**Mexico**
Company	**Holcim**	**Lafarge**	**Cementos Chihuahua**	**Cementos Moctezuma**
Assets	Two cement plants able to produce 3.7 million tons per year; 50 concrete plants, 25 quarries to mine raw materials for cement, sand, and gravel.	Three integrated plants and two crushing stations able to produce 2.8 million tons per year. One ready-mix concrete plant.	**Mexico.** Three cement plants able to produce 2.21 million tons per year, 32 ready-mix concrete plants, 230 mixer trucks, six concrete block plants, six aggregate plants, a gypsum plant and two concrete prefabricated products plants. **USA.** 84 concrete plants, 427 concrete mixer trucks, and 236 trucks to carry cement and aggregates	Three cement plants able to produce 6.4 million tons and 57 concrete plants.
Revenue (US$ million)	870	183	658	604.3
EBITDA (US$ million)	170	61	155	200.3
EBITDA margin	19.5%	33.3%	23.6%	33.1%
EBITDA factor	8.4	8.3	10.1	7.8
Investment value (US$ million)	1,428	506	1,566	1,562
DUPONT				
(1) Sales margin	6.5%	5.14%	0.61%	18.54%
(2) Asset rotation	0.52	0.41	0.39	0.77
(3) Financial leverage	2.03	2.25	1.76	1.26
ROE= 1 X 2 X 3	**6.8%**	**4.7%**	**0.4%**	**18.0%**

Note: Holcim and Lafarge sales margin, asset rotation, and financial leverage were estimated based on business consolidated data.

To find the market value of various alternatives the EBITDA multiple method was used. This valuation method incorporates flow concept and allows estimating both the company market value and equity (equity = market value - debt value). To calculate it start with financial information in the income statement, taking profits before taxes and adding financial expenses, depreciation, and amortization to find EBITDA. Next EBITDA is multiplied by a capitalization factor reflecting risk and growth rate. This method is somehow restricted as it does not see money over time as important. Also, it does not take into account potential investments of companies analyzed. [27]

27 Marín, N & Ketelhöhn W. 2011. Fusiones y adquisiciones en la práctica. Published in 2011. Cengage Learning.