LISBON
SCHOOL OF
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UNIVERSIDADE DE LISBOA

MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

EQUITY RESEARCH:
LafargeHolcim, Ltd in the
aftermath of a mega merger

AUTHOR
GONÇALO FERNANDO ARAÚJO DA SILVA

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Abstract

This work aims to present a company valuation of LafargeHolcim, Ltd elaborated in agreement with ISEG's Finance Master's Work Project. This Equity Research follows the format recommended by the CFA Institute (Pinto, Henry, Robinson, & Stowe, 2010). We choose LafargeHolcim, Ltd because it came from a merger operation of two leading companies in the sector, thus presenting additional challenges in the valuation approach. In addition, the author has previous knowledge and interest in this industry. This Equity Research is issued considering all the public available information on the company as of October 1st, 2016, and therefore any event or circumstance after this date is not considered in our work. We use the Discounted Cash Flow method to achieve our final target price. The assumptions considered in the valuation result from a careful analysis of the company's data, industry main drivers and futures market prospects from several sources. Our price target is CHF 59.80 for 2016YE, although subject to inherent risks that need to be considered. Thus, the final recommendation stands for HOLD, with an upside potential of 13.9% from current share price of CHF 52.50.

Resumo

Este trabalho pretende apresentar uma avaliação da empresa LafargeHolcim, Ltd elaborado de acordo com o Projeto de Trabalho Final do Programa de Mestrado em Finanças do ISEG. Esta avaliação segue o formato recomendado pelo CFA Institute (Pinto, Henry, Robinson, & Stowe, 2010). A escolha da LafargeHolcim, Ltd deriva da operação de fusão das duas anteriores maiores empresas do setor, adicionando dessa forma maiores desafios para a avaliação. Adicionalmente, o autor também já tem conhecimento prévio e interesse pelo setor. Esta avaliação é emitida considerando toda a informação publicamente disponível até 1 de Outubro de 2016, e por isso, qualquer evento ou circunstância ocorrida depois desta data não é considerada no trabalho. A principal metodologia utilizada para aferir o preço-alvo é através dos Fluxos de Caixa Descontados (DCF). Na avaliação consideramos várias premissas que resultaram de uma análise cuidada dos dados históricos da empresa, dos principais determinantes da indústria e perspetivas futuras de mercado de diversas fontes. O preço-alvo final é de CHF 59.80 para FA2016, contudo com alguns riscos a considerar. Assim, a recomendação final é de MANTER, com um potencial de valorização de 13.9% face ao preço atual de CHF 52.50.

Disclosure

In our valuation, we used publicly available information as of October 1st, 2016. However, information regarding historical cement market as well as future prospects for cement and aggregates are taken from specific databases and industry studies that are only available by the payment of a fee.

The specific database used is CemNet.com which is one of the main sources of information for the industry, delivering information about historical and future demand and supply of cement, exports/imports volumes, updated news, among other publications.

We use the following studies: “Global Cement” published in August 2015 and “World Construction Aggregates” published in March 2016, both from The Freedonia Group. This company conducts market research for several industries that are used by companies as well as the general public. We use information from these surveys, and thus the development of the mosaic theory under this equity research includes both freely available information and public information available upon payment of a fee.

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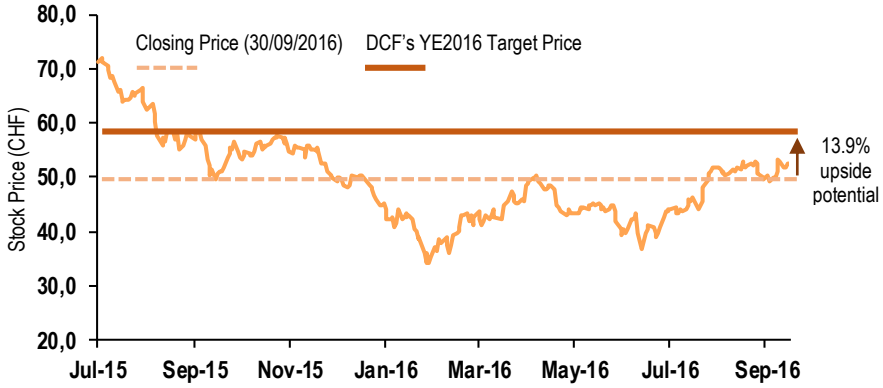
1. Research Snapshot

LafargeHolcim
HOLD
Medium Risk
October 2016
SIX SWISS Exchange

(2016YE Price Target of CHF **59.80**; **13.9%** Upside Potential; Medium Risk; Final Recommendation: **HOLD**)



Our **final recommendation** for LafargeHolcim, Ltd stands for **HOLD** with a YE2016 target price of CHF **59.80** and an upside potential of 13.9% in comparison with the last closing price of CHF 52.50 on September 30th, 2016.

The target price is computed using the **DCF** approach as the main model. To corroborate this recommendation, we use two other methodologies – the **DDM** and the **Market Approach**. The DDM is in line with the DCF recommendation. On the other hand, the Market Approach recommends to Reduce. In our opinion, the latter model's downside potential arises from differences in size, global capacity and footprint between LHN and its closest competitors. Consequently, in our view, this model represents the least reliable price estimation.

We expect LHN's sales to grow at 1.97% CAGR between 2016F-2021F, from CHF 29.483 million to CHF 33.788 million. We base our forecasts on industry studies for future demand, current and future cement pricing patterns and rising competition. The exposure of LHN on emerging markets like Asia Pacific will be key drivers for this growth, while it enables the firm to spread the risk of the current fragile European market. Although the company presented a decrease in its total sales by 2016Q2 (-1.1% on a YoY basis), in our view the actions taken by management (e.g. increase cement prices) will start reflecting positive trends in total net sales over the next months. One should highlight that this negative growth is due to the market decline in Brazil, production shortages in Nigeria and weaker cement prices.

Net income should return to positive values of CHF 1.560 million in 2016F after the 2015 year loss, heavily impacted by one-offs from the merger operation costs. LHN's EBITDA margin is expected to reach 15.2% in 2016F and 17.2% in 2021F, with this grow being sustained by the successful achievement of targeted synergies. Thus, we predict present value of accumulated synergies to reach CHF 4.973 million over the valuation period.

We project net capex to be negative in CHF -1.750 million in 2016F as LHN continues its divestment plan of CHF 3.000 million. Debt restructuring is also one of the main challenges since the company intends to extend its short-term liabilities to longer maturities.

	Change in Sales Growth by Geography (2016F-2021F)						
	-3%	-2%	-1%	0%	1%	2%	3%
Asia Pacific	52.4	54.9	57.3	59.8	62.3	64.7	67.2
Latin America	57.2	58.0	58.9	59.8	60.7	61.6	62.4
Europe	54.0	56.0	57.9	59.8	61.7	63.6	65.6
North America	55.3	56.8	58.3	59.8	61.3	62.8	64.3
Middle East Africa	56.0	57.3	58.5	59.8	61.1	62.3	63.6
	Change in Target Synergies (2016F-2021F)						
	55%	70%	85%	100%	115%	130%	145%
Price Target	47.1	51.3	55.6	59.8	64.1	68.3	72.5

Source: GFS analysis

Notes: The annualized upside potential is 68%. However even with this annual potential, the short term potential (13.9%) does not justifies a BUY recommendation. Moreover, one of our valuation methodologies points for a Reduce recommendation.

Analyst's Risk Assessment

Low	**Medium**	High

Our risk assessment derives from the mature nature of LHN business, high barriers for new entrants, limited local competition as well as globally diversified sales.

Market Profile	
Closing Price (CHF)	52.50
52-week price range (CHF)	33.29 - 58.30
90 Days average daily volume (Million)	1.76
Volume as percent of shares outstanding	0.290%
Shares outstanding (Million)	606.91
Market Capitalization (Bn CHF)	32.041
BV per share	1.670
Free Float	68.08%
Institutional Ownership	31.19%
Insider Ownership	25.58%
Dividend yield	3.17%
ROE	3.20%
D/E	0.695
P/CF	7.40
P/E	18.31
P/BV	0.96

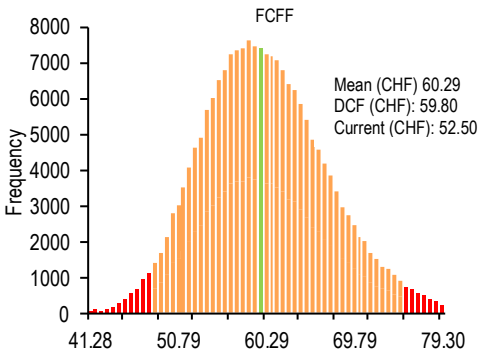
Source: Thomson Reuters; GFS analysis

Valuation	YE2016 Target Price	Upside/Downside Potential
DCF	59.80	13.9%
DDM	58.41	11.3%
Multiples	50.98	-2.9%

Source: GFS analysis

Key Drivers (Bn CHF)	2015	2016F	2021F
Total Sales	23.58	30.24	33.79
EBITDA	3.68	4.59	5.83
Net Income	-1.36	1.56	2.44
Net Debt	17.40	16.32	12.30
EBITDA/Interest Exp.	4.90	4.91	7.74
Total Assets	73.3	69.9	71.1
Total Liabilities	37.6	36.6	34.2
Total Equity	35.7	33.3	36.8

Source: GFS analysis



Source: GFS analysis

2. Business Description

LafargeHolcim, Ltd (LHN) was founded on July 10th, 2015 as a result of a mega-merger between the two main players in the construction materials industry: **Lafarge (French)** and **Holcim (Switzerland)**. The company headquarter is in Switzerland and since July 14th, 2015 is listed in the Zurich and Paris stock exchanges. By FY2015, LHN had operations in 90 countries, a working force of 100.000 employees and **CHF 29.483 and 4.555 million** of **net sales** and **operating EBITDA**[1] respectively.

The original exchange offer was announced on April 7th, 2014 by both companies in which they agreed to swap **1 Holcim share** for **1 Lafarge share**. This agreement was approved unanimously by their respective Board of Directors and supported by core shareholders. However, after the announcing deal, both companies' presented a divergence path in the stock market (Holcim showed a robust growth while Lafarge missed market expectations) leading to a new arrangement by both Boards to reflect the new financial performance. This new plan was set on March 20th, 2015 with a **new trading offer** of **9 Holcim shares** for **10 Lafarge shares**. This latest agreement indicated that the final operation was more of an absorption of Lafarge into Holcim.

By May 8th of the same year, Holcim shareholders approved a wide range of resolutions which included a capital increase for the exchange offer, the change of the company name from Holcim, Ltd to LafargeHolcim, Ltd, the appointment of new members of the Board and the new compensation systems for the Board and the Executive Management.

Lafarge and Holcim Background: Global leaders in the cement industry

Lafarge was founded in 1833 by Joseph-Auguste Pavin de Lafarge in the Ardèche region – France, where its operations started by exploiting several limestone quarries. The company was publicly traded in the Paris Stock Exchange since 1923 and by FY2014 it was the world largest producer of cement with consolidated sales of EUR 12.000 million, 63.000 employees and presence in 61 countries from all continents.

The firm started its international growth in 1864 when it won a contract to supply hydraulic lime for the Suez Canal in Egypt and soon after, it started developing operations in other African Mediterranean countries like Tunisia and Algeria. By the end of WWII, the company was the leader in cement production in France and North Africa.

In 1956, Lafarge expanded to the American continent, building its first cement factory in Western Canada, followed by a second one in Quebec in 1960. In the subsequent years, the company continued its growth through mergers and acquisitions in several markets like Brazil, USA, sub-Saharan Africa, China, and India. Before the merger, the biggest acquisition occurred in 2008 when Lafarge bought Orascom Cement for EUR 8.800 million. This was one of the key players in the Middle East market, which put Lafarge in a leading position in several African countries, where it already had operations (e.g. Egypt) and enabled to enter on other fast-growing countries like the United Arab Emirates.

Over the years, Lafarge main products included cement, aggregates, and ready-mix concrete. The company also had other non-core activities like the production of gypsum and roofing products but in the 2007-2011 period, it sold these business lines. The total amount of disposal assets reached EUR 3.892 million and enable the company to reduce its debt levels in a time were cement demand decreased sharply (mature markets).

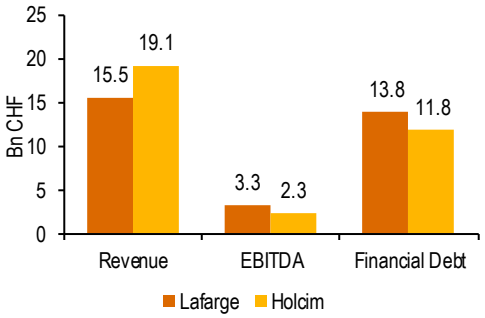
Holcim, on the other hand, was established in 1912 as "Aargauische Portlandcementfabrik Holderbank-Wildegg" in 1912 in Holderbank, Switzerland. By FY2014, it was the second largest producer of cement and a key player in the aggregates and ready-mix concrete industry. The company had total consolidated sales of CHF 19.100 million (EUR 15.700 million), operations in around 70 countries from all continents and employed approximately 68.000 workers. Holcim became publicly traded on the Swiss Stock Exchange in 1981.

Since the beginning, Holcim's main goal was the production and distribution of cement. A few years after its establishment, in 1923, the company started to expand its operation through other European and African countries (e.g. Belgium, Germany, Netherlands, Egypt, Lebanon and South Africa). After the WWII, the firm starts

Figure 1 - LHN worldwide presence

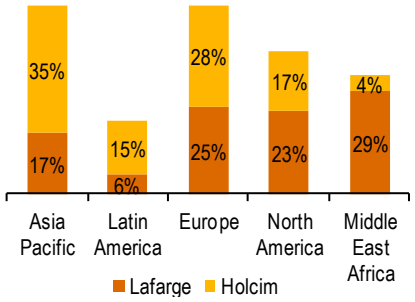
Source: Company data

Figure 2 - Lafarge/Holcim financial data



Source: Companies data; The Author

Figure 3 - Lafarge/Holcim sales by region



Source: Companies data; The Author

Table 1 - Lafarge/Holcim production capacities – YE2014

Production Capacities	Lafarge	Holcim
Cement (Mt)	**215**	**211**
Asia Pacific	77	96
Latin America	7	35
Europe	55	47
North America	17	22
Africa Middle East	59	11
Aggregates (facilities)	**437**	**363**
Asia Pacific	7	72
Latin America	4	12
Europe	250	188
North America	142	86
Africa Middle East	34	5
Ready-Mix Concrete (facilities)	**1,016**	**935**
Asia Pacific	95	290
Latin America	63	109
Europe	475	373
North America	186	148
Africa Middle East	197	15

Source: Companies data; The Author

[1] On a Pro Forma Basis, which reflects a hypothetical situation of the merger if it had occurred on January 1st, 2015. In practical terms, this means that Lafarge sales between January 1st and July 10th, 2015 are added to the initial income statement of LHN.

operating on the American continent and by the 70's, Holcim turned its focus to the Asia Pacific region.

One of the most important acquisitions occurred between 2005 and 2006, where the company entered in the Indian cement market by making an alliance with the "Gujarat Ambuja Cements" (GACL) to acquire a 67% stake in "Ambuja Cement India" (ACIL) in a CHF 808 million deal. At the deal moment, this company had a 13.8% participation in the share capital of "The Associated Cement Companies" (ACC) which was the second largest cement group in that market. By 2008, Holcim increased its share capital on Huaxin Cement Co (China) from 26.1% to 39.9% in an investment of USD 282 million and in the next year the firm bought all assets from Cemex Australia for a total amount of CHF 1.770 million. These assets included cement, grinding plants, several aggregates, and ready-mix concrete production sites.

LHN Business Segments: Developing cohesive solutions

The company business is organized by countries that are grouped in regional clusters. These clusters comprise the following five operating segments: **i) Asia Pacific**; **ii) Latin America**; **iii) Europe**; **iv) North America** and **v) Middle East Africa**.

Sales come from the following group's product lines:

- **Cement** (which comprises clinker and other cementitious materials): LHN provides a wide range of cement types for infrastructures, roads and also for selling through distributors and retailers. It produces masonry cement and mortars, high-level cement with different types of resistance, low CO2 emissions and other specific cement for industries like oil and gas.

- **Aggregates**: This product line consists in the production of natural and alternative aggregates that are mostly used to produce ready-mix concrete, asphalt as well as other specific applications like ballast for railways, decorative solutions, and urban drainage systems. Alternative aggregates consist in recycled concrete and secondary aggregates from industrial waste, such as mining, slag, and ash.

- **Ready-mix concrete** (which comprises concrete products, asphalt, constructions and paving, trading and others): The company produces a variety of ready-mix concrete products like self-consolidating, high strength, decorative as well as permeable and insulating concretes. It also produces asphalt solutions and prefabricated concrete products for housing, buildings, and other infrastructure applications.

By YE2015, LHN had a total cement production capacity[2] of around 374 Mt spread by 239 cement and grinding plants. It also had 661 aggregates production plants and 1577 ready-mix concrete production facilities.

In our valuation approach, we keep the same five operating segments. We forecast LHN sales for each of those regions and specify total revenues for each product line. More details on section 6 – Valuation.

Post-Merger Strategy to Meet the Future Construction Needs

As we saw, the historical growth strategy of both companies was similar. Their expansion was mostly due to **acquisitions and mergers** programs as well as establishing local partnerships. They had established operations in a wide range of geographies to smooth cyclical fluctuations in individual markets and stabilizing earnings. Generally, both maintained in the overall years a clear focus on their initial product and pursued the development of other very important complementary products like aggregates and ready-mix concrete, emerging as a vigorous vertical integrated building materials supplier.

Hence, the **merger rationale** was fundamental to improve operational efficiencies and growth market power to increase prices. With well-balanced revenues between mature versus emerging markets and the current cement capacity, the need for large acquisitions and heavy investments in the short/medium term is not expected to happen. Moreover, LHN expects to have more negotiation power to ensure better deals with its suppliers by concentrating its global purchases in one single entity.

As so, LHN long term strategy is set to:

i) Quickly track new trends in the construction sector; and
ii) Deliver synergies by improving performance/asset optimization.

At the same time, LHN will continue to maintain its efforts on the core business, preserving a global footprint to minimize local risks. Investments in R&D will continue

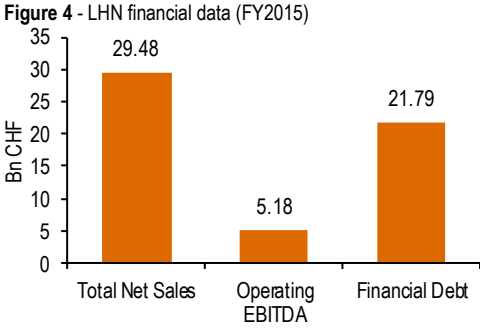
[2] The world's highest by YE2015.

Table 2 - LHN production capacity (YE2015)

LHN Production Capacity	2015	% in Total
Cement (Mt)	**373.8**	**100%**
India	68.2	18.2%
China	37.8	10.1%
Rest of Asia Pacific	55.6	14.9%
Latin America	40	10.6%
Europe	78	20.8%
North America	32	8.6%
Middle East Africa	63	16.7%
Total Aggregates (Facilities)	**661**	
Total Ready-Mix Concrete (Facilities)	**1.577**	

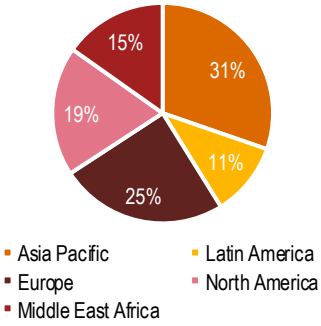
Source: Company data; The Author

Figure 4 - LHN financial data (FY2015)



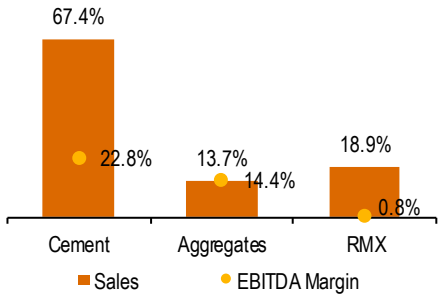
Source: Company data; The Author

Figure 5 - LHN sales by region (FY2015)



Source: Company data; The Author

Figure 6 - LHN % sales and EBITDA margin by product (FY2015)



Source: Company data; The Author

to be essential as the new company intends to face demand set by new tendencies in the construction industry.

The **construction industry** currently faces the following **key challenges**:

i) **Population growth and urbanization**: World population is expected to continue its growing from almost 7.500 million to around 9.700 million individuals in 2050 according to the 2015 Revision of World Population Prospects from the United Nations (UN). From this growth, nearly 87% come from emerging and less developed countries. At the same time, cities will continue to expand as more people start living in urban areas. According to Lafarge 2014 Annual Report, the number of megalopolises[3] will increase from current 28 to around 40 in 2025, mainly located in Asia – Figures 8 and 9.

ii) **Environmental friendly solutions**: Demand for greener and more efficient products are predictable to raise over the next years as environmental concerns become an important aspect in the industry and in its costumers. According to a industry study, "green cement" (low carbon cement) market share over total cement consumption is expected to grow from 3.5% in 2010 to 13% in 2020 – Figure 10. LHN has already a variety of cement and concrete products that aim to have higher durability and to efficiency. Another example is recycled aggregates that due to increasing urbanization, are forcing quarries to become more distant from their point of use, leading to an increase in costs of materials. Hence, the group already has numerous operations of aggregates recycling facilities (in mature and emerging markets) where natural sand and rock deposits are scarce and extraction is subject to strict regulations.

iii) **Innovation and affordable solutions**: Construction industry is divided into two segments: building (residential and non-residential) and infrastructure. The latter segment accounts for 32% of the global cement market, while the former stands for 34% each. Due to the combination of a growing population and rising per capita income in developing regions, buildings and infrastructures demand will continue to increase. Hence, one of the main challenges is to keep the basic price of materials affordable and accessible. In contrast, energy efficiency and more aesthetically materials becoming an important criteria for more mature regions.

For these reasons, it is important to LHN maintain a strong R&D attention and to be able to continue an innovative path. Following the merger, LHN brought together both companies' innovation teams to its main laboratory located in France and complemented by several Construction Development Labs (CDL) placed in local markets to serve specific needs. Today, LHN has the largest and most diversified patent portfolio in the industry[4] with about 160 active patent groups, representing approximately 1.750 granted national patents.

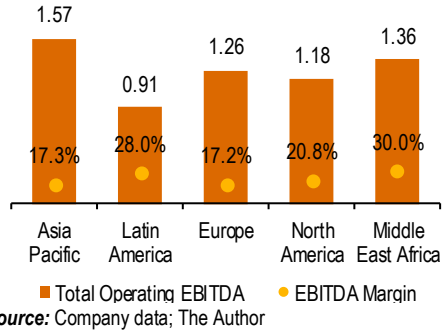
Some of the innovation examples are in the improving and manufacturing process. LHN is currently working on a new type of cement and concrete technology that could reduce CO2 emissions up to 70%. Another example was when LHN launch a new lightweight slurry cement specific for the oil and gas industry. Thus, the ability to secure its intellectual property and patent management is a crucial factor to LHN continuous innovation and ability to win important supply contracts for construction projects around the world.

Rebalancing Global Portfolio and Delivering Synergies

To rebalance LHN's assets network and to meet requirements from different antitrust authorities, the new company had to sell several operations around the world, especially in more mature markets – Europe and North America – where existed higher market overlap. All these selling operations had been conducted by a Divestment Committee set by both companies after the announcement of the merger deal.

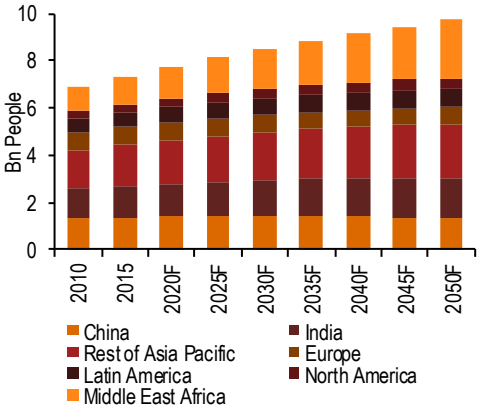
The main divestment agreement was the "CRH Divestment Business" which consisted of selling numerous assets to one of the industry competitors – CRH – for a total amount of CHF 6.400 million. Those assets belonged to Lafarge and Holcim and were located in Europe, USA, the Philippines, Brazil, and on the Island of La Réunion. In emerging markets like most of the Asia Pacific and the Middle East Africa, there was little market overlap between both companies. Although some divestments had to be made, in the end, the higher presence of Holcim in Asia Pacific and Latin America against Lafarge in Middle East Africa enable LHN to complement and reinforce its positions in faster-growing markets in the cement industry. All these assets disposals have impacted LHN's 2015 Annual Report. Net assets in connection with the operation were classified as held for sale in the consolidated statement of financial position (CHF 773 million) and as discontinued operations in the

Figure 7 - LHN Operating EBITDA and EBITDA margin by region (FY2015)



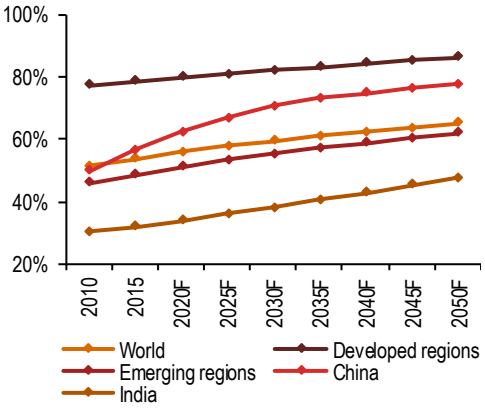
Source: Company data; The Author

Figure 8 - World population forecast



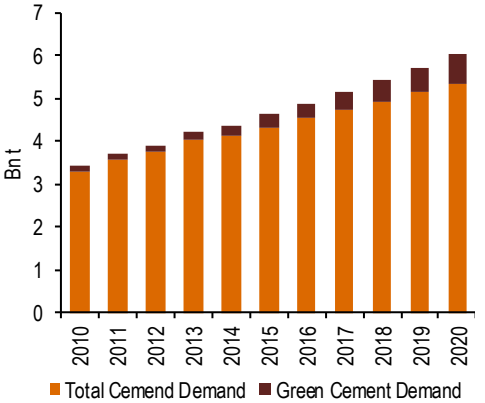
Source: UN; The Author

Figure 9 - World population living in urban areas



Source: UN; The Author

Figure 10 - Forecast demand for "green cement"



Source: Smithers Apex: The future of green cement to 2020; The Author

[3] Metropolitan areas with more than 10 million inhabitants.

[4] According to LHN 2015 Annual Report and Lafarge 2014 Annual Report.

consolidated statement of income (CHF 103 million) – Appendix G.

The new company expects significant synergies by implementing the best practices from both Holcim and Lafarge. The total expected cumulated synergies for the period 2016-2018 amounts to nearly CHF 1.700 million, both in operational and financial savings. According to 2016Q2 report, the company already achieved a total CHF 273 million in synergies and we are convinced that they are on track to meet their 2016 target of CHF 450 million.

The majority of synergies will come at the operational level (CHF 1.600 million). LHN expects savings in logistic and distribution channels as well as the elimination of duplicative functions in selling, distribution and administrative expenses (according to Holcim half-year 2015 results, the merger should result in a net reduction of administrative duplicative positions of 380 in Lafarge and 120 in Holcim in France and Switzerland). The company will also implement more centralized procurement for global suppliers to better negotiate future agreements. At the financial level, synergies are expected to reach CHF 490 million. These would come from more favorable financing rates (in 2016Q2, LHN issued bonds to refinance its short-term debt by a weighted average coupon rate of 2.64%, lower than the actual cost of debt stated in the company 2015 Annual Report), cash allocation and strict capital expenditures in new investments – Table 3.

Table 3 - LHN Expected merger synergies

Potential Synergies (Bn CHF)	
Operational Synergies	**1.20**
Logistics, Distribution, IT and energy consumption	0.24
Centralized procurement and economies of scale	0.41
Synergies in Selling, general and administrative expenses	0.30
Others synergies related with innovations and services portfolio	0.24
Others synergies	0.01
Financial and Cash-Flow Synergies	0.49
More favorable financing rates and synergies in cash allocation	0.24
Capital expenditure synergies	0.25
Total Target Synergies	**1.69**

Source: Company data; The Author

Shareholder Structure

Before the merger, there were no major institutional shareholders with common positions[5] on both companies. According to Holcim 2014 Annual Report, its major institutional shareholders counted for 41.81% of total capital with Schweizerische Cement-Industrie-Gesellschaft (Thomas Schmidheiny[6]) holding 20.11%. The next largest shareholder was Eurocement Holding AG[7]) with 10.82% of total capital. Other important investors were Harris Associates L.P. (4.94%), Harbour International Fund (3.01%) and BlackRock (2.93%).

As for Lafarge, in the 2014 Annual Report, its main shareholders were Groupe Bruxelles Lambert[8] (21.1%), NNS Holding Sàrl[9] (13.9%) and Dodge & Cox (7.3%). Other institutional stockholders counted for 47.5% of total share capital while individual investors held the remaining 10.2%.

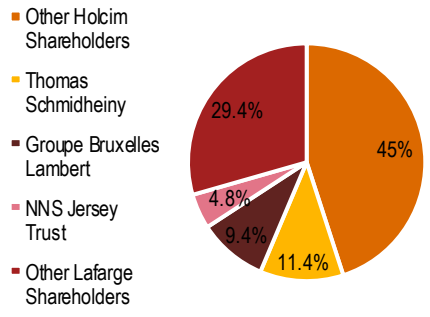
Currently, LHN has about 607 million outstanding shares[10], of which 73% are in free float. Since July 1, 2016, institutional shareholders surpassing more than 3% of total capital counted for 34.92% of total LHN shares. Schweizerische Cement-Industrie-Gesellschaft and Groupe Bruxelles Lambert were the single largest holders with 11.38% and 9.43% of total capital respectively – Figure 12.

Table 4 - LHN Debt rating

Rating Agencies	Rating
Standard & Poor's	
Long-term rating	BBB, outlook stable
Short-term rating	A-2
Moody's	
Long-term rating	Baa2, outlook negative
Short-term rating	P-2
Fitch	
Long-term rating	BBB, outlook stable
Short-term rating	F-3

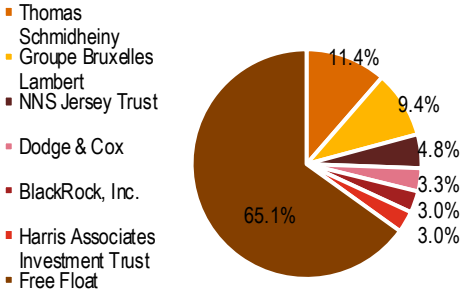
Source: Company data; Bloomberg

Figure 11 - Weight of Lafarge and Holcim shareholders in total LHN capital



Source: LHN data; Lafarge/Holcim data; The Author

Figure 12 - LHN current shareholder structure



Source: LHN data; Lafarge/Holcim data; The Author

Dividend Policy and Shares

The new company declares and pays dividends in Swiss Francs, however, it also has the option to pay dividends in Euros for investors holding their shares through the Euronext Paris stock exchange. Since there is no guarantee that LHN will pay dividends in Euros, shareholders whose main currency is not the Swiss Franc may bear exchange rate risk. LHN set a dividend payout ratio of 50% of the group net income attributable to common shareholders plus additional excess cash from its FCF operations. Nevertheless, LHN only plans to make these payments after ensuring that its financial ratios are in agreement with the current financial investment grade – Table 4.

[5] Holding more than 3% of total share capital.
[6] From Holcim family founders.
[7] Private owned Russian cement company. This company faced financial stress with the falling of energy commodities prices and subsequently Russian financial crises. Its main lender – the Russian bank Sberbank – made a margin call on a loan to Eurocement, which was secured by a 6.12% stake in the new company (LHN). After this, the Russian bank sold its LHN shares to a group of international investors.
[8] Second largest family holding in Europe. On March 31, 2016, it had an adjusted net asset of EUR 14.800 million and market capitalization of EUR 11.700 million. In LHN they are represented by Jacqueline Desmarais, André Desmarais, Paul Desmarais Jr. and Albert Frère.
[9] This company belongs to Mr. Nassef Sawaris and family and it was the major shareholder of Orascom Cement when Lafarge decided to buy it. After selling its cement company, Mr. Nassef reinvested part of the money into Lafarge becoming the second largest institutional investor with 11.4%.
[10] Each share represents one voting right.

3. Management and Corporate Governance

LHN follows the "Swiss Code of Best Practice for Corporate Governance" that was introduced in 2002 and is targeted mainly for Swiss public limited firms. This code provides recommendations on designing the corporate governance and information that go beyond what is stipulated by law. Despite this, the code is flexible enough to allow businesses to apply their own ideas for structuring and organization into practice. However, if their corporate practices deviate from the specified recommendations, the company would need to provide a suitable explanation – "comply or explain principle".

The management team is composed by the Board of Directors, Executive Committee, and three other Committees. **The Board of Directors (Board)** consists of 14 members, 13 of whom are independent[11]. Nine of these members were reelected by the Annual Shareholders Meeting of May 8th, 2015, for one-year-term extended until the completion of the next Annual Shareholder Meeting. **The Executive Committee** is composed by 10 members, all of whom formally appointed by the Board after the Exchange Offer. Additionally there are three **Committees**: i) **Nomination, Compensation, and Governance**; ii) **Finance & Audit** and iii) **Strategy & Sustainability** whose main duties are to support the Board in governance related matters, in conducting supervisory duties (especially financial and internal control) and to advise the Board for main strategic priorities (long-term strategy as well as sustainable and social responsibility).

In our opinion, LHN follows a strong corporate governance model. By employing the "Swiss Code" it ensures that shareholders afford several fundamental rights in particular: i) **the appointment and removal of directors and statutory auditors**; ii) **the approval or rejection of the annual business report**; iii) **the setting of dividends** and iv) **any amendment to the articles of association, including changes in the share capital**. Among this, major institutional shareholders control 31.19% of total LHN capital and with the high number of independent members of the Board it is possible for small investors to have a reasonable participation in the company's strategic decisions. Also, the existence of specialized committees helps to ensure that the Board takes more informative and better decisions regarding LHN most prominent issues.

Executive Compensation System

Holcim and Lafarge had different compensation policies before the merger. The annual incentives at Holcim were delivered in a mix of cash, shares, and stock options while in Lafarge these were entirely paid in cash. For long-term incentives, Lafarge used to provide a combination of stock options, performance shares, and cash, whereas Holcim didn't have any of these types of benefits.

In the new system, benefits from both companies were harmonized and they will now be delivered half in cash and half in shares. They also agreed on a performance share[12] plan, which rewards company performance over a 3-years period. The Board has a fixed compensation while the Executive Committee has a fixed and variable compensation. This variable part is dependent on the achievement of individual and/or targeted goals of the company in relation to the market or any other benchmarks. These compensations must be approved by the Annual Shareholders Meeting in accordance with the Swiss Federal Council Ordinance against Excessive Compensation.

We consider that this new compensation system allowed a balanced transition in the sense that it manage to deliver payment benefits in several forms. Also, by using performance shares it allows management to concentrate on delivering short and long-term value to shareholders.

Table 5 - LHN Board members

Name	Position
Wolfgang Reitzle	Co-Chairman (Statutory Chariman)
Beat Hess	Vice-Chairman
Bruno Lafont[3]	Co-Chairman[1]
Bertrand Collomb	Member[1]
Philippe Dauman	Member[1]
Paul Desmarais, Jr.	Member[1]
Oscar Fanjul	Member[1]
Alexander Gut	Member
Gérard Lamarche	Member[1]
Adrian Loader	Member
Jurg Oleas	Member[2]
Nassef Sawiris	Member[1]
Thomas Schmidheiny	Member[1]
Hanne B. Sørensen	Member
Dieter Spälti	Member
Anne Wade	Member[2]

Source: Company data
Notes: [1]As of July 10, 2015; [2]Until July 10, 2015; [3]By Dec. 31, 2015 Bruno LaFont was the only Member with Call Options with a total of 448.208.

Table 6 - LHN Executive Committee

Name	Position	Responsibility
Eric Olsen	CEO	
Ron Wirahadiraksa	CFO	
Urs Bleisch	Member	Performance and Cost
Alain Bourguingnon	Member	Region Head North America
Pascal Casanova	Member	Region Head Latin America
Jean-Jacques Gauthier	Member	Integration, Organization & Human Resources
Roland Köhler	Member	Region Head Europe
Gérard Kuperfarb	Member	Growth and Innovation
Saâd Sebbar	Member	Region Head Middle East Africa
Ian Thackwray	Member	Region Head Asia Pacific[1]

Source: Company data
Notes: [1]Excluding India, which is under direct responsibility of the CEO.

Table 7- LHN 2015 management compensation

Shares Held by Management	
Board of Directors	**25.58%**
of which:	
Thomas Schmidheiny	11.38%
Paul Desmarais Jr.	9.43%
Nassef Sawiris	4.77%
Executive Committee	**0.08%**
Executive Compensation FY2015 (Million CHF)	
Total Cash	3.817.361
# Shares	34.466
Shares Value	1.441.110
Pension contributions	73.823
Other	165.833
Total 2015	**5.532.593**

Source: Company data; The Author

[11] In agreement with the "Swiss Code", independent members are non-executive members of the Board who have never been a member of the executive Board or were members thereof more than three years ago, and who do not have comparatively minor business relations with the company.
[12] All of these shares are subject to a three-year vesting period.

4. Industry Overview and Competitive Position

Macroeconomic Summary

According to IMF latest forecast from the World Economic Outlook[13], **July 2016**, world GDP is expected to grow by 3.1% in 2016 and 3.4% in 2017. Advanced economies will maintain a modest grow of 1.8% for the next two years while emerging markets are projected to rise from 4.1% to 4.6% for the same time horizon. In the Euro area, growth is foreseen to be 1.6% for 2016 1.4% for 2017. Negative inflation, large debts overhangs in several countries and the Brexit are among the main concerns. For the USA, growth is anticipated to be higher (2.2% and 2.5% for 2016 and 2017, respectively). Lower oil prices and interest rates will support domestic demand USA, but further exchange rate appreciation could lead to a weaker export growth.

In China, growth is projected to slightly slow down from 6.6% this year to 6.2% in 2017. Services sector growth should become more robust as the economy continues to rebalance from investment to consumption. For India, GDP is expected to be 7.4% for the next two years, mostly driven by private consumption, which has benefited from lower energy prices and higher real incomes. In Latin America, the overall growth is expected to be negative (-0.4%) in 2016 and should turn to positive in 2017 (1.6%). In Brazil, output is expected to contract by -3.3% in 2016 and turning to positive values in 2017 (0.5%), while Mexico is predictable to continue to grow at 2.5% and 2.6% for the same time period. MENAP[14] region has weakened considerably because of further declines in oil prices and intensifying conflicts. The overall growth in the region is projected to be 3.4% and 3.3% in 2016 and 2017, respectively – Figure 13.

Cement Industry and its Main Drivers

The cement business is characterized by being a mature, high capital and energy intensive industry. It is also a cyclical industry as it depends largely on the economic growth of the country and in part on weather conditions[15]. Cement is basically a powder binding substance that is largely used in the construction sector, and when mixed with other materials (aggregates) and water it can withstand a diversity of environmental conditions. According to PCA (Portland Cement Association, USA), about 75% of total cement production is used to produce ready-mix concrete for construction sites. The remaining 25% are used for making concrete products, paving roads, extracting oil[16] and others – Table 8.

Cement is considered a homogeneous product with few different types and classes, which can be interchanged easily from different producers. It is a heavy material with low value in relation to its weight, making it economically unviable for land transportation in a ratio greater than 200-300Km. The percentage of internationally traded cement on total cement production has been stable over the years with an average rate of 5% to 7%, meaning that most of the production exist to satisfy local consumption – Table 8.

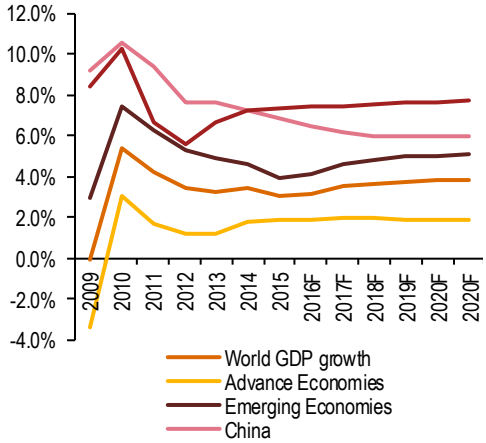
The manufactory process requires high energy consumption with fuel costs accounting nearly 30% of the price when cement is sold. According to our estimates, the two highest's production costs are energy and raw materials extraction counting for around 65% to 70% of total COGS[17] . The main energy sources used are coal, coke/petro coke, heavy fuel oil, natural gas and more recently alternative fuels like waste and biomass. Nevertheless, it is usual for cement producers to apply a fuel-mix strategy, combining several sources to reduce overall costs (oil and coal have big prices fluctuations) and decrease CO2 emissions – Table 8.

Because cement production causes negative environmental impacts, strict regulatory policies play an important factor in the industry (mainly in mature markets). Only the key ingredient of cement – clinker – was responsible for nearly 4.1% of total global CO2 emissions in 2014[18]. Other environmental effects account for solid wastes from the production process and mining activities like the dust, noise, and destruction of large vegetation areas that impact local ecosystem.

In mature markets like Europe, this industry falls within the scope of several

[13] In the aftermath of the U.K. referendum.
[14] Middle East, North Africa, Afghanistan and Pakistan.
[15] Poor weather conditions can affect a construction project in several ways. For instance, ready-mix concrete does not set below a certain temperature or if temperatures are too high they can cause the water in concrete to evaporate too fast.
[16] A special type of cement called "oil-well" used for oil extraction that can withstand high-pressure levels.
[17] Computed with historical information from Lafarge, Holcim, LHN (in 2015) and its peers.
[18] According to "Trends in Global CO2 Emissions" 2015 Report from PBL Netherlands Environmental Assessment Agency.

Figure 13 - World GDP forecasts



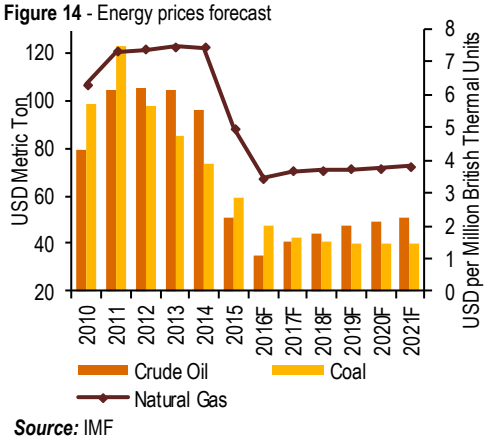
Source: IMF World Economic Outlook July 2016

Table 8 - Cement industry key metrics

Metric	Values/Comment
Main COGS	
Energy	34%
Raw Materials	38%
Average Plant Cost	Around 150M EUR per Mt of annual capacity
Land transportation	Maximum 200-300Km ratio
Energy Consumption	60-130Kg per Ton of cement
Electricity Consumption	~110KWh per Ton of cement
Main Fuel Sources	~ 41.7% Petcoke and Fuel Oil ~ 34.6% Coal and Petcoal ~ 5.8% Natural Gas and Others ~ 17.9% Alternative Fuels
Top End Users	~72% for ready-mix concrete ~13% for concrete products ~6.1% for contractors

Source: Company data; Lafarge/Holcim; Peers; US Geological survey; European Commission;

Figure 14 - Energy prices forecast



Source: IMF

environmental legislation, particularly the Directives on Emissions Trading System[19], waste incineration and management through the Mining and Waste Directive. These regulatory concerns lead to competitive disadvantages comparing with other geographies (namely Asia Pacific and Middle East Africa) due to higher capital requirement and operational costs. This has a strong effect on the industry because it makes more difficult to compete with the already small export market and consequently improving its overall utilization rates (59.6% in 2014) which are the lowest among all regions in the world.

Competition and Pricing

The **market structure** for the cement industry tends to be **oligopolistic** with competitors that can be generally divided into two groups: regional and multiregional like the case of LHN. Typically, both groups operate in a vertical integration system by producing cement, aggregates, and ready-mix concrete. LHN as a vertically integrated company controls the entire production chain, from the quarry to final consumer. This means that it is positioned in the market as a price setter and have higher bargaining power over clients. At the same time that it is less dependent on key suppliers for raw materials/secondary materials (like clinker and aggregates) ensuring a more secure cement selling channels (through their own ready-mix concrete plants for instance).

Currently, **LHN main competitors** are HeidelbergCement (Germany), Cemex (Mexico), Italcementi, Buzzi Unicem (Italy) and CRH[20] (Ireland) all of them operating in more than 20 countries. Other competitors like Anhui Conch and CNBM Sinoma only operate in China, often with large subsidies from the local government and a presenting a very confined competition. The acquisition by CRH of several Lafarge and Holcim's assets enabled the company to jump its annual cement production capacity from 19 Mt to 42 Mt and to become leader/or with significant position in several regional markets, especially in Europe where competition is already fierce – Table 10.

Between 2008 and 2014, M&A activity in the industry was not significant as the majority of cement producers were focused on deleveraging and increasing operational efficiency. Yet, after the announcement of Lafarge and Holcim merger operation, activity has changed. In response, HeidelbergCement announced on July 28, 2015, the intention of buying a 45% stake on Italcementi by EUR 1.670 million, with further plans to acquire the remaining shares. Combining both producers' capacity by the end 2015, the new company will become the second-largest player in the industry with an annual capacity of nearly 190 Mt, way ahead of Cemex and Buzzi Unicem (93 Mt and 45 Mt respectively).

Although this is a mature industry, the global concentration degree is not as high as in other mature sectors. In 2015, the top five players accounted for nearly 17% of market capacity (including China), with LHN accounting for about 6.5% (table – 9). Hence, with markets prospects still low for mature regions as well as the overall excess capacity (especially in Europe), we expect an increasing number of industry players that will move towards concentration to optimize their current asset network and managing operational expenditures.

Pricing in the cement industry can vary a lot from different markets because the product is not traded globally like other well-known commodities. According to a report on the industry[21], one can divide cement prices into two regional categories: Asian cement and European and North American cement. The authors found that for North American and most of the European importers, cement prices are on average USD 71 per ton while in Singapore is about USD 42 per ton. Another example is the case of Chinese exports that were being sold for roughly USD 32 per ton, in contrast with Germany and Canadian cement that were sold for USD 71 and USD 66 per ton, respectively. Dissimilarities in prices show us that Asian countries have strong comparative advantages that come from a variety of factors such as lower labor costs and environmental regulations, large subsidies, and low machinery prices.

According to LHN 2015 Annual Report, cement prices decreased in China and India in 2015 due to a combination of excess supply, a more competitive environment, and subdue economic growth (China). Other countries in the region had a better performance like the Philippines, Vietnam, Sri Lanka, and South Korea. In Latin America, most countries saw an increase in cement prices, except in Brazil and Ecuador. In Europe, construction slowed down and higher import volumes had negative impacts on prices. As for North American and Middle East Africa regions,

Table 9 - Cement industry concentration rate (YE2015)

Market Competitors	Production Capacity (Mt)
LafargeHolcim	374
Anhui Conch (China)	217
CNBM (Sinoma) (China)	172
HeidelbergCement	129
Cemex	93
China Resources (China)	71
Taiwan Cement	64
Italcementi	60
Eurocement	45
Votorantim	45
Buzzi Unicem	45
CRH	42
Total Capacity	1,349
World Capacity	5,695
Concentration Rate	**23.7%**
Excluding China	
Total Capacity	889.1
World Capacity	2,535
Concentration Rate	**35.1%**

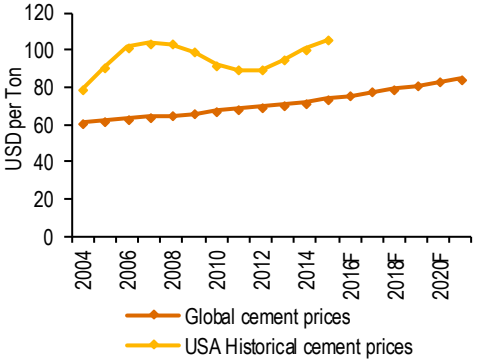
Source: Company data; Global Cement Magazine; CemNet; The Author

Table 10 - CRH market position after acquisition of LHN assets (YE2015)

Country	Product	Market Position
Canada	Cement, Aggregates, RMX and Asphalt	Regional #1
Western Europe		
Great Britain	Cement, Aggregates, RMX and Asphalt	#1
France	Cement, Aggregates, RMX and Asphalt	#3
Germany	Cement and RMX	Regional leader
Eastern Europe		
Romania	Cement, Aggregates, RMX and Asphalt	#3
Slovakia	Cement, Aggregates, RMX and Asphalt	#1
Hungary	Cement and RMX	#2
Serbia	Cement and RMX	#2
Emerging Markets		
The Philippines	Cement and Aggregates	#2
Brazil	Cement and RMX	Regional leader

Source: Company data; CRH; The Author

Figure 15 - Historical and forecast cement prices



Source: The Freedonia Group; US Geological Survey; The Author

[19] Industrial Emissions Directive

[20] After acquiring the "CRH Divestment Business".

[21] Global Cement Industry: Competitive and Institutional Dimensions" published in June 2010.

prices improved except in high volatile countries like Syria, Iraq, and Lebanon.

Part of LHN strategy is to implement price increases in all of its present locations and according to 2016Q2 Report, the company had already successfully reached about 2/3 of this target. Since 2015Q4 to 2016Q2 cement prices have been increasing on a quarter-on-quarter basis (2015Q4 from 2016Q1 it raised by 2.1% and 2016Q1 versus 2016Q2 it raised by 2.2%). For the foreseen years, cement prices[22] at global level should increase by an annual rate of 2.8% until 2021, from USD 68 in 2016F to USD 79 per ton in 2021F – Figure 15.

Cement Demand & Supply Outlook

Cement consumption is expected to grow on average by 4.2% a year, reaching a total volume of 5.300 Mt by 2021F as forecasted by "World Cement" survey released in August 2015 by The Freedonia Group. Despite the economic slowdown, China will continue to be the largest single cement market with nearly 60% of total world consumption. On the supply side, global capacity has grown by 30.3% since 2010, reaching a total volume of 5.695 Mt in 2014. At the same time, the demand raised at a slower rate (25%) leading to an excess capacity of around 38% resulting in more pressure on prices – Appendix H.

Mature Markets: Recovery ahead, but at different speeds

In **Western Europe**, cement market is projected to slowly continue its recovery started in 2014 when it reached the minimum (146 Mt) since 2009 peak (189 Mt). The anticipated growth rate will be around 2.4% on a YoY basis, accounting for roughly 40.7% of total consumption in the continent. For **Eastern Europe**, demand is expected to rise around 3% per year until 2021F, reaching total volume of 248 Mt. Despite this, LHN reported in 2016Q2 a negative increase of cement sales volume of -2.7% (like-for-like basis), mostly due to uncertainty caused by the U.K. referendum and low oil and gas prices that affected negatively the Russian and Azerbaijan markets.

On the supply side, total European cement capacity had grown nearly 6% from 588 Mt in 2010 to 621 Mt in 2014 and utilization rates practically remained flat at 60%. However, big differences arise between the Western and Eastern side. On one hand, total capacity in the **Western** area decreased by -4.6% from 2010 to 2014 while production was cut ever further at -12.6% in the same period. With this, utilization rates fell from 56.6% to 52% in 2014. In the **Eastern** region, capacity and production jumped by 18% and 22% respectively for the same time horizon, leading to an increase of 2.1% in utilization rates (from 65% in 2010 to 67.1% in 2014).

Total cement production is forecasted to grow by 2.4% until 2021F reaching 442 Mt compared with the estimated total consumption in the region of 417 Mt. This surplus is sustained by cement companies turning focus for export markets to increase their overall production rates. As an example, since 2010 volumes from the six highest cement exporting countries[23] jumped by 39% from 23 Mt to 31 Mt in 2014, accounting 15.5% of all cement exports in the world – Figure 17.

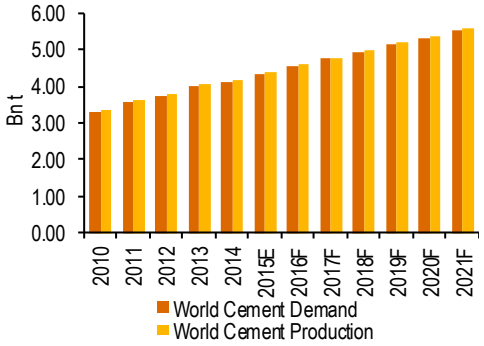
The **North American** market has been consistently growing since 2009 when financial crises reached its peak. The USA represents 90% of total cement demand in the region and is predicted to grow on average by 4.3% until 2021F reaching volumes in order of 120 Mt. In line with this forecast, in the 2016Q2 report, LHN presents a growth of 5.8% in cement volumes on a like-for-like basis. According to the CIC[24], the country construction industry is foreseen to accelerate 3.1% over the next years with investments to modernize infrastructure and growing population that demands higher levels of cement consumption.

In terms of production, in North America and especially USA volumes increased from 66 Mt in 2010 to 83 Mt in 2014 reaching good utilization rates of 84%. Due to the severe financial crisis, cement consumption dropped sharply nullifying any necessity of increase capacity. Hence, total capacity had remained flat around 97 to 99 Mt for the same period. As future prospects improved, "Global Cement" survey forecasts a rise in capacity with production expanding by 4% a year to 109 Mt in 2021F. Despite this, there will be still a production deficit of around -8% to satisfy local demand – Figure 18.

Emerging Markets: Solid future demand

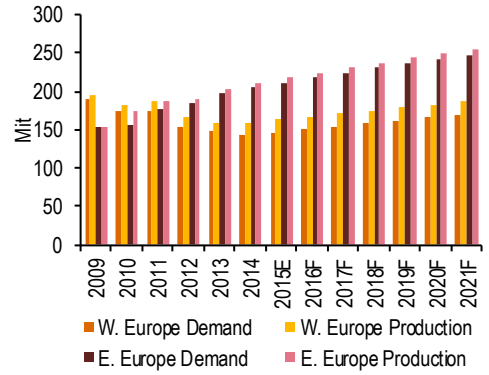
The **Asia Pacific** region will continue to be the main cement market representing around 75% of total world consumption. As forecasted by the industry survey, the whole region is expected to grow on average by 4.2% until 2021F. According to LHN

Figure 16 - World cement demand and production



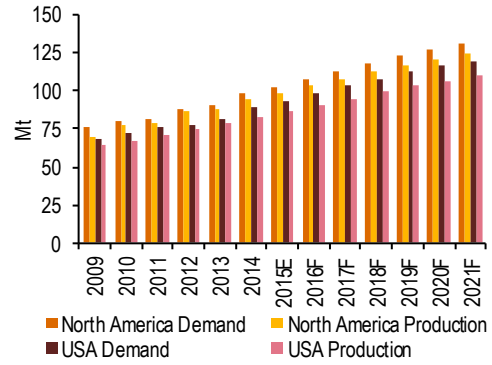
Source: CemNet; The Freedonia Group; The Author

Figure 17 - Europe cement market prospects



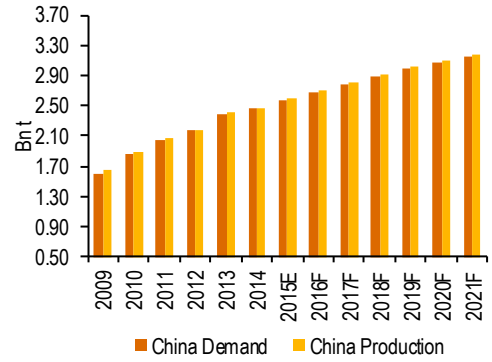
Source: CemNet; The Freedonia Group; the Author

Figure 18 - North America and USA cement market prospects



Source: CemNet; The Freedonia Group; The Author

Figure 19 - China cement market prospects



Source: CemNet; The Freedonia Group; The Author

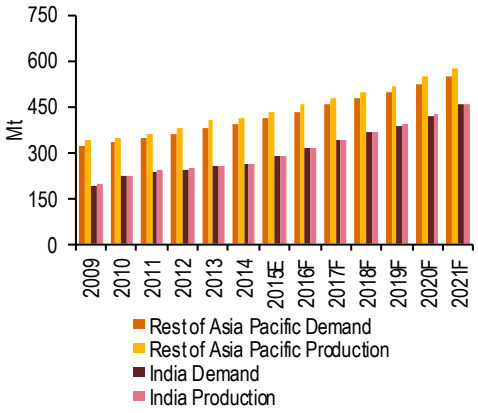
[22] According to the industry study "World Cement" from The Freedonia Group.
[23] Spain, Greece, Germany, Portugal, Italy and Belgium as of December 31, 2014.
[24] Timetric's Construction Intelligence Center.

2016Q2, cement sales in volumes had grown by 2.6% on a like-for-like basis. In China, economic slowdown brought a fall in the real estate market for the first time in many years. In addition a new political reorientation of the economy from manufacturing towards consumption and services will cause some uncertainty in the construction sector. However, officials in the government said they will continue to push major infrastructure projects through the country to pursue economic development and stimulate investor's confidence. Hence, according to the "World Cement" survey, the industry volumes are expected to grow by 3.5% in the next years, but below the entire region average (4.2%).

In contrast, the faster-growing market is attributable to India with a YoY average of 7.9% for the 2016F-2021F period. A fast increasing population and urbanization rate, as well as highly positive GDP evolution, will help to sustain cement demand by 57.58% from 290 Mt in 2016F to 457 Mt in 2021F. Other markets like Malaysia, Vietnam, and the Philippines will also experience steady economic growth, leveraging demand for real estate and government speeding's in infrastructure.

Cement capacity in the region had grown 36.6% (3.000 Mt to 4.099 Mt) between 2010 and 2014 while production raised by 28.6% (2.453 Mt to 3.154 Mt) resulting in an overall decrease of utilization rates from 81.7% to 77%. Top-producing nations like China saw their capacity increasing by 39% since 2010 at the same time that production increased at a lower rhythm (32%). In India, capacity increased over the last 5 years being higher (55%) than production (18%). Both countries assisted to a drop in overall utilization rates, with China decreasing from 83% to 78.4% and India from a healthy 93% to 71%. To reduce excess capacity, the Chinese government decided to promote a supply-side reform at end of 2015. Thus, eliminate outdated capacity is a top priority with the government targeting at least 500 Mt of low-grade cement to be phased out. The overall production growth in the Asia Pacific region is forecasted to be the same as demand (4.2%) until 2021F but production will still overtake local demand, with the majority of the surplus be exported to Africa – Figure 19 and 20**.**

Figure 20 - India and Rest of Asia-Pacific cement market prospects

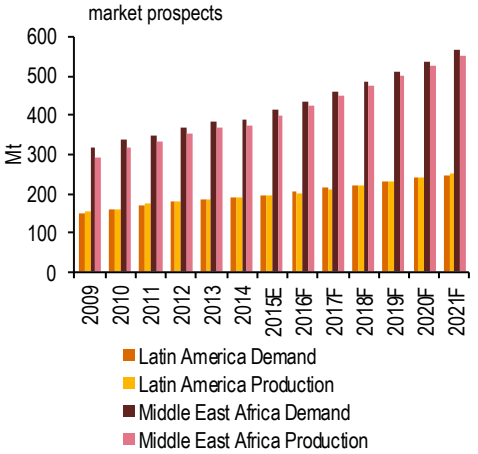


Source: CemNet; The Freedonia Group; The Author

For **Latin America**, cement consumption is expected to continue its growth which started in 2010. Total demand should present an overall YoY growth of 4.1% from 2016F to 2021F, reaching a total amount of 248 Mt in contrast with 196 Mt registered in 2015. The three largest consumers in the region accounted for almost 65% of total consumption in 2014. Of these, only Brazil is expected to remain with negative GDP growth for 2016F (-3.3%). However, Mexico and Colombia face positive trends. IMF forecasts strong GDP growth for both and for other Central American countries in the coming years as they are largely exposed to the USA economy. By 2016Q2, LHN reported a decrease of -13.2% on total cement sales volumes (13.6 Mt vs 11.8 Mt) on a like-for-like basis suffering a heavy impact on the Brazilian market.

For the period 2016F-2021F total cement production should rise on average by 4.1% matching the rate of local demand. Volumes produced are predicted to reach 249 Mt, basically the same as local demand. Total cement capacity had a cumulated growth of by 12.5% (273 Mt) while production increased 17% since 2010 until 2014. This lead to a small increase (2.6%) in utilization rates, reaching 70% in 2014. Brazil, as the biggest market in the region, accounted for 34% followed by Mexico with 22% of installed capacity in the same year – Figure 21.

Figure 21 - Latin America and Middle East Africa cement market prospects

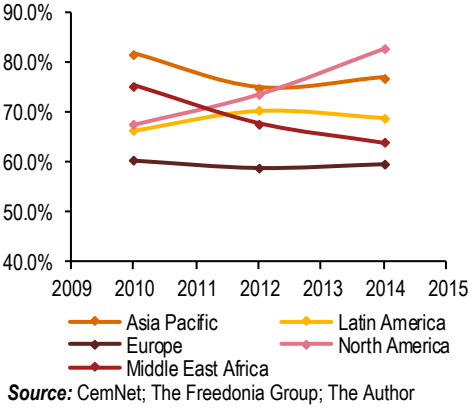


Source: CemNet; The Freedonia Group; The Author

In the **Middle East Africa** region, the upward trend for cement demand is foreseen to continue. Between 2016F and 2021F the expected annual growth rate should be 5.4% reaching 564 Mt. In 2014, Saudi Arabia, Egypt and Algeria represent roughly 35% of total demand. Even with low oil prices, local governments (especially in the Gulf peninsula) are expected to spend on infrastructure and capital projects as a way to diversify their oil base economy. According to LHN 2016Q2 report, cement sales by volumes have increased only by 0.3% on a like-for-like basis. Although the strong contribution of Algeria, Egypt, Lebanon, and Morocco, they were offset by Nigeria severe gas shortages caused by attacks on pipelines, which caused LHN cement production to decrease. However, the company expects to adapt its current equipment until the YE2016 to be able to use other sources of energy.

The "Global Cement" survey forecasts that production will continue to grow by an average of 5.7% for the same period, reaching a total volume of 553 Mt. Despite this, the region as a whole will continue to have a deficit around 10 Mt to satisfy local demand. Over the years, global utilization rates decreased by -11.3%, reaching 64% in 2014. One of the reasons for this negative impact is due to Egypt instability (10th largest producer in the world by 2014). A combination of fuel shortages which leads to lower production rates plus an increase in installed capacity of 78%, resulted in an abrupt decline in utilization rates from 98% in 2010 to 58% in 2014 – Figure 21.

Figure 22 - Historical utilization rates by region



Source: CemNet; The Freedonia Group; The Author

Export/Import Markets

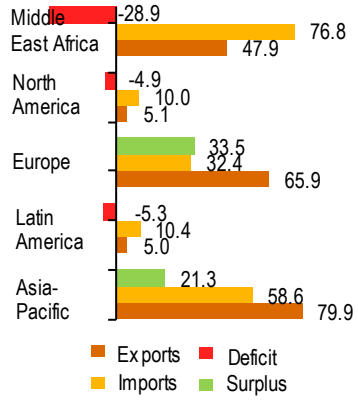
LHN has also a trading service with a wide range of marine and logistics terminals. The company provides clinker, cement and other industry related materials for

several clients but also for its own manufacturing facilities. Although cement is typically a product of local production and consumption, LHN owns several cement plants with a particular marine terminal that can deliver an easy way to export if there is a downturn in local markets. Also, with the numerous logistics terminals, the company can easily shift cargo from where demand peaks arise. Before the merger, Lafarge and Holcim had a combined 245 import/export facilities, representing 19% of world's total facilities and a market share of 22% of total global cement trade – Appendix I.

Since the financial crises in 2009 when global cement export decreased by -7.7%, global cement trade has been growing on average by 4.8% (by end 2014). Top 10 export countries accounted for 122 Mt, representing 60% of total traded volumes. Asia Pacific region was the main exporter, followed by Europe with 39% and 32%, respectively. China exports stood at 15 Mt in 2014 but still far from the 35 Mt record registered in 2006.

Imports have shown similar behavior over time. After the financial crises, volumes of cement and clinker have increased by an average of 6.1% until 2014. Middle East Africa was the main importer region with 41% of total global. Fuel shortages in Egypt, supplies routes cut due to conflicts and peak demands in local markets like Algeria are among the main reasons.

Figure 23 - World cement trading volumes - 2014



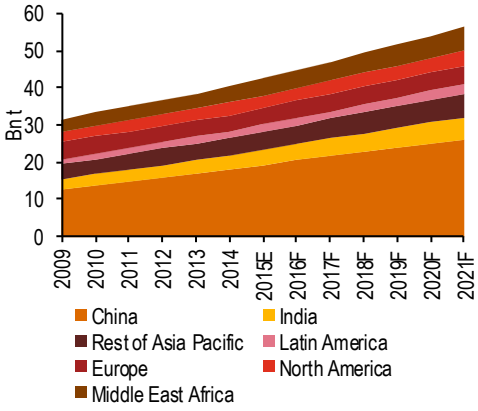
Source: CemNet; The Author
Note: Values in Mt

Aggregates and Ready-Mix Concrete: Industry and future prospects

As part of LHN vertical strategy, the company produces a wide variety of aggregates and ready-mix concretes. Aggregates include crushed stone, gravel and sand and is largely used for ready-mix manufacturing, concrete precast products, and asphalt. Ready-mix concrete is the second most consumed material after water and it is an essential product for the construction industry. It is a heavy (1m³ weights about 2.5 tons) and perishable material that needs to be delivered within 60 to 90 minutes after its production. Up to 60% to 75% of the ready-mix volume are aggregates and on average each m³ uses 290 kg of cement.

Typically, the market structure for both industries are local oligopolies and the few global competitors are the same as in the cement industry. Most of the cement companies pursue this vertical integration to ensure that its main product (cement) is supplied with quality. According to the survey "World Construction Aggregates" from The Freedonia Group, total demand for aggregates will grow on average by 4.8% from 2016F to 2021F with prices increasing at a lower rate of 2.3% (Appendix J). For our valuation, we used this information as a proxy for ready-mix concrete demand as both industries are highly interrelated.

Figure 24 - World aggregates demand by regions



Source: CemNet; The Freedonia Group; The Author

LHN Competitive Positioning

To evaluate LHN's strategic position in the cement market and within its competitors, we performed an Extended Porter's Five Forces Analysis[25] and a SWOT analysis. Moreover, to study LHN's submarkets and their characteristics, we also made a Market Segmentation Analysis.

Extended Porter's Five Forces Analysis

- **Industry rivalry (High)**: Given the oligopolistic structure of cement market, we consider that LHN is subject to a high industry rivalry. Market competition arises from local producers and global competitors and due to the homogeneity of the product, the main factor of differentiation is price and only after comes quality and service. Knowing that cement is a mature industry and the degree of concentration is still low, we believe that future M&A deals will further increase making the market even more competitive.

- **Threats of new entrants (Low)**: Because the industry is capital intensive with very specific assets that cannot be easily turned into another industry, the threat of new competitors is low. Also, due to the current cement production process, a vast amount of CO2 are expelled and therefore government tends to limit the number of new competitors and apply strict environmental regulation. Moreover, if a new company arises and it only has a single plant location, due to the fixed supply capacity and volatile demand, it may face large sunk costs that could determine the failure of the new producer.

- **Bargaining power of suppliers (Medium)**: As the majority of cement companies

[25] The Porter framework identifies the suppliers of substitute as one of the forces of competition that threats a firm position within an industry. However, economic theory identifies two types of relationship between different products: **substitutes** and **complements**. Despite the first one leads to a decrease in the product value, the presence of complements have the opposite effect of substitutes and the simplest way to study this impact is to add a sixth force to Porter's framework (Grant, 2016). Thus, given the importance of complements to LHN main product (cement), our analysis of the company competitive environment will take this issue into account.

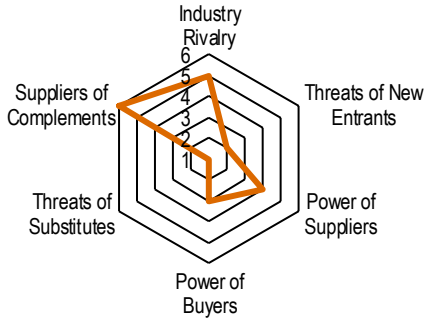
has their own mining reserves there is no supplier in this area. However, the industry is dependent on large amounts of fuels sources and transportation companies (road, rail, and marine) with specially designed cargo capabilities to distribute the product. With this, suppliers may be able to exercise pressure on prices and/or affecting producer's operational margins.

- **Bargaining power of buyers (Medium Low)**: Buyers in the industry are limited by the small number of producers in the region and more important, due to lack of substitutes. Demand is inelastic as there is always need for the product no matter the price. Yet, switching costs are very low given the lack of product differentiation.

- **Threats of substitutes (Low)**: Cement has no substitute. Firms can use less cement in exchange for using other materials like steel, aluminum or wood, but the overall substitution effect is negligible in the industry. The relative abundance of natural resources to make cement and aggregates make the final product very cheap in comparison with other materials.

- **Suppliers of complements (Very High)**: Although cement is widely used in construction, the product alone is not useful in the majority of times. Complements like aggregates and chemicals must be added to produce ready-mix concrete, asphalt, and concrete products. Also, ready-mix concrete must be used with steel in some types of constructions to make the final structure stronger. Thus, because cement is a kind of base product and there are several suppliers of complements (including LHN), the cement industry is able to increase its usefulness and therefore, its value.

Figure 25 - Extended Porter's five forces



Source: The Author

Table 11 - SWOT analysis

Strengths	Weaknesses
● Market leader in cement industry; ● Largely geographically diversified; ● Balanced revenues between mature and emerging markets; ● Vertical integrated company; ● R&D focused.	● Uncertain environmental legislation; ● Dependency on weather conditions; ● Antitrust and environmental legal cases.
Opportunities	**Threats**
● Exposure to fast growing markets; ● Merger synergies; ● Strengthening financial positions; ● Higher market power to increase prices.	● Political instability and conflicts in some markets; ● Volatility in energy prices; ● Fail to meet forecasted economies of scale (following the merger); ● Rising competition.

Source: The Author

Table 12 - LHN market segmentation analysis

Market Segment	Characteristics of the Buyers	Characteristics of the Products
Infrastructure	Large national/international contractors	Highly sophisticated and complex products; Need for specific and tailor made solutions.
Buildings	Small to large contractors (architects, engineers and real estate investors)	Focus on energy and environmental efficiency solutions, combined with durable, aesthetic and innovative products.
Affordable Housing	Individuals, NGO's and public organizations responsible for housing (mainly in emerging markets)	Not highly sophisticated nor complex products; Need for cost-effective and local made products/solutions.
Distributions & Retail	Small to large building materials dealers and DIY stores	Need for marketing and dedicated teams for product knowledge and one-on-one relationship with individual store owners to large dealers.
Oil & Gas	Large oil and gas contractors	Requirements for certified products and consistency in quality and supply; Need for specific solutions and timeliness availability of materials.

Source: The Author

5. Investment Summary

The final recommendation for LHN stands for **HOLD.** This recommendation derives from our target price of **CHF 59.80** per share for YE2016 associated with a medium risk assessment and an **upside potential of 13.9%**.

The exposure on fast-growing markets like Asia Pacific, Middle East Africa, and Latin America will help boost revenues for the coming years as demand for housing and social infrastructure are expected to increase. Additionally, the North American market continues its recovery from the financial crises and we anticipate that cement consumption will approximate the same pre-crises level from 2019F onwards. As for Europe, cement market is foreseen to increase but still far from the record levels registered in 2007 peak.

LHN should return to profits around CHF 1.560 million in FY2016 after the 2015 loss of CHF -1.362 million. The expected synergies from the merger will play an important role in increasing EBITDA margins for the forecast period. Total present value of synergies from the 2016F-2021F period is estimated to reach CHF 4.973 million. According to the 2016Q2 report, synergies targeted for the current 2016F year are above expectation and we are confident that for the foreseen years they will achieve its target.

At the same time, we estimate a stronger position on LHN financial ratios, which should be enough to maintain the current market ratings. Debt to Equity ratio should decrease from 0.61 in 2015 to 0.46 in 2021F with significant short-term debt being refinanced for longer maturities (more than 7 years). Also, DPS should present a rising path from CHF 1.5 in 2015 to CHF 3.88 in 2021F as a result of low capital expenditures, strong cash flow from operations and the policy of returning excess cash to shareholders.

Valuation Methods
Our final price target of CHF 59.80 was computed using the Discounted Cash Flow (DCF) through Free Cash Flow to the Firm (FCFF) as the main valuation method. Beside this, we also used two other methodologies – Three Stage Dividend Discount Model (DDM) and Market Multiples as a complement to our initial target price.

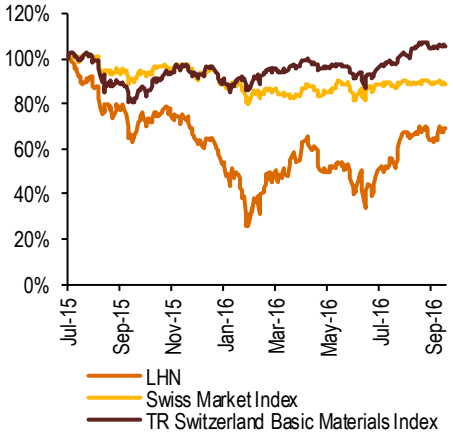
EBITDA and Free Cash Flows will be the main KPI's
Because LHN doesn't have historical values on its main costs (COGS and Distribution, Selling and Other Expenses) we assume them by the average of its peers from the past 5 years. We also included the last 4 years values from Holcim and Lafarge before the merger and this year numbers from LHN. Thus, our forecasted EBITDA margin is the result of the industry average plus the expected synergies from the merger. Therefore, we forecast EBITDA margin to grow over the valuation period from 15.6% in 2015 to 17.2% in 2021F.

We project that FCF should reach a cumulative value of CHF 12.907 million between 2016F-2018F in line with current LHN estimates of at least CHF 10.000 million by end of the same period. These will be most driven by the divestment program of CHF 3.500 to be reached until the 2016F and at the same time low CAPEX values for the 2016F-2021F period. For 2016F and 2017F, CAPEX should be around CHF 1.750 million per year, increasing to CHF 2.000 million at the end of the valuation period.

Restructuring Short-Term Debt
As result of LHN strategy, the short-term debt will be mostly refinanced for longer maturities. By the end of 2016Q2, the company had successfully refinanced an amount of CHF 1.950 million. In our valuation short-term liabilities is set to decrease from CHF 6.866 million to CHF 3.233 million in 2016F due to the combination of cash surplus (CHF 133 million) and the divestment program of CHF 3.500 million. We assume that the remaining value these liabilities will be refinanced with maturities above 7 years.

Investments Risks
The investor should be aware than LHN is subject to several risks that cannot be controlled by the management like economic, market and operational risks. Moreover, we perform several sensitivity analysis to access the impact of changing numerous variables that affect the inputs for the DCF valuation. We also did a similar work on the variables that could affect our forecasts such as sales growth, synergies, and other expenses. Thus, a deeper analysis of LHN main risks is detailed in the Investment Risk section.

Figure 26 - LHN vs market index cumulative returns



Source: Thomson Reuters; The Author

Table 13 - Target price by method

Price Target by Method	CFH
DCF	59.80
DDM	58.41
Multiples	50.98
EV/Sales	45.74
EV/EBITDA	39.65
EV/CFO	67.54

Source: The Author

Table 14 - DCF Valuation

Enterprise Value (Bn CHF)	52.61
Net Debt (Bn CHF)	16.32
# Outstanding Shares (Million)	606.91
Price Target YE2016	59.80
Upside Potential	**13.9%**

Source: The Author

6. Valuation

The equity value per share was estimated with the **DCF** through the FCFF. This was our main valuation method as our objective is to focus on long-term value for investors and it drives us to understand the underlying characteristics of the company, its business model and therefore its opportunities and threats. Despite this, we also made two other valuations as a way to complement and to corroborate or initial analysis – **Dividend Discount Model (DDM)** and **Market Multiples**. Thus our valuation approaches and especially the DCF used are deeply sensitive to the several following factors:

Revenue
To forecast revenues for the valuation period, we keep the same five operating segments that LHN uses to present its results: **i) Asia Pacific**; **ii) Latin America**; **iii) Europe**; **iv) North America** and **v) Middle East Africa**. Then, in each of these operating segments, we divide their sales into two product lines: **i) cement** and **ii) aggregates and ready-mix concrete.**

To reach total revenue for each operating segment, we apply different revenue growth rates for each of the products lines. We used as the initial sales in 2016F, the LHN 2015 Annual Report - **Pro Forma Statement of Income**, which reflects a hypothetical situation of the merger if it had occurred on January 1, 2015.

The initial revenue growth rates projected for LHN for both product lines were the same as those projected from market surveys used in the "Industry Overview and Competitive Position" section. However, because the cement survey was released by mid-2015, it was based on certain GDP and market projections that we currently see as too optimistic. Thus, the final growth rate used for computing LHN revenues for the entire valuation period is 40% lower than the used in the initial survey for the following reasons:

- In the "World Economic Outlook – July 2015", the IMF had projected a global GDP growth rate for 2016 of 3.8%, however, one year after, the IMF decreased its estimations to 3.1% ("World Economic Outlook – July 2016") for the same year, resulting in a decrease of -18% in the estimated world GDP growth. For the same time period, IMF anticipates advance economies to grow by 2.4% and currently they are growing 1.8%, less 25% than expected. Emerging and developing economies were projected to rise by 4.7% and currently they are growing 4.6% (less -2.1% than estimated). Because cement market is highly dependent on GDP growth, in our opinion these new growth estimates are likely to impact cement demand and therefore reduce LHN potential to increase sales.

- In the surveys used, cement consumption was estimated based on volumes and not on prices which means that an increase in sales volumes (Mt) does not necessary represent an increase in sales revenues. As an example, according to LHN 2016Q2 Report, cement sales volumes increased by 2.6% on a like-for-like basis while net sales only increased by 0.4%. Again, in the North America market, cement volumes increased by 5.8% but net sales increased at a slower rate of 3.9%. This was primarily due to excess supply and increase competition based on prices.

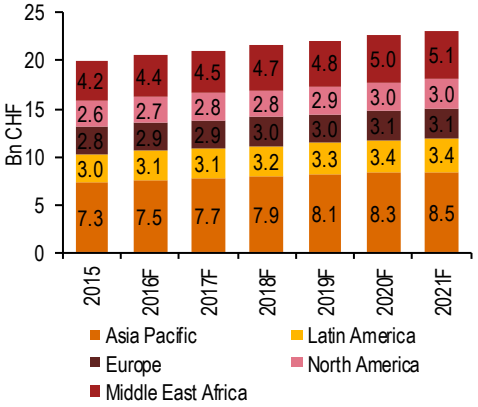
- The industry will face higher competition in the foreseen years, as consolidation trends continue to move forwards. CRH, now a major player in the industry (especially in Europe and North America) and the acquisition of Italcementi by HeidelbergCement is turning the industry even more competitive, especially at the pricing level given the nature of product.

Although this is a cyclical industry, we did not normalized earnings (EBITDA) in our valuation. This assumption was based on the fact that LHN operates in a large wide of countries, offsetting local markets downturns or losses with other markets gains.

Main Costs
To project COGS and Distribution, Selling and Other Expenses over the forecasting period, we used data from LHN's peers between 2011-2015, Lafarge and Holcim from 2011 until 2014 (before the merger) and LHN from 2015 annual report. We followed this approach since we do not have any historical values for the new company and because the nature of operations in the industry is similar between players. Thus, we assumed that LHN costs structure should follow the industry average. Comparing the final values reached for our valuation, we consider these differences to be residual (53.24% for COGS and 31.14% for Distribution, Selling and Other Expenses for LHN against 55.27% and 31.04% respectively in our assumptions).

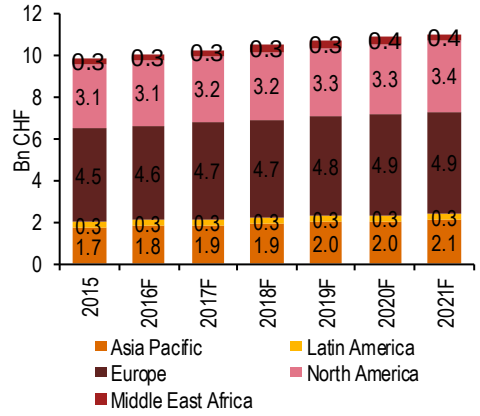
Synergies Impact
We also consider the impact on EBITDA from the expected synergies regarding the

Figure 27 - Cement forecasted sales



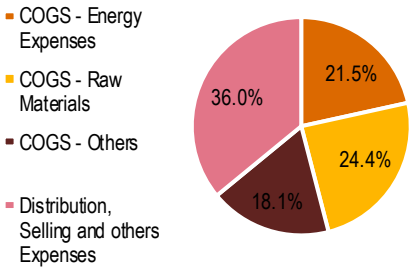
Source: The Author

Figure 28 - Aggregates and ready-mix forecasted sales



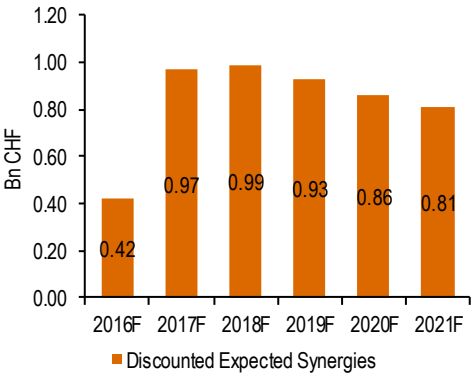
Source: The Author

Figure 29 - LHN Estimated cost structure



Source: The Author

Figure 30 - Present value forecasted synergies



Source: The Author

period 2016F-2021F. As stated previously, according to 2016Q2 Report, LHN has already met 60.6% of savings for the current year (CHF 273 million of CHF 450 million targeted). In 2015, the company exceeded by 30% its expected synergies, from an initial CHF 100 million to CHF 130 million. Therefore, in our valuation, we assume the company will be able to deliver all expected savings for the coming years, reaching the final estimated value of CHF 1.200 million in 2018F. As a result, our present value for expected synergies amounts to CHF 4.973 million at EBITDA level. We do not consider any more restructuring costs for the merger, as they largely occur in 2015 (around CHF 502 million in merger-related implementation costs and CHF 280 million in transaction and integration expenditures) – Figure 30.

CAPEX, D&A and Impairment

LHN plans to have an accumulated CAPEX of CHF 3.500 million for the 2016F-2017F period and afterward it plans to increase to CHF 2.000 million on a yearly basis. Given that this is one of LHN's key objectives, we assume the same values for our forecasting period. These expenditures are mainly related to maintenance and expansion investments (some of these projects are expected to be fully operational by YE2016 and YE2017) – Figure 31.

As for D&A values, we apply the same percentage of D&A over Property, Plant and Equipment (PPE) from LHN 2015 results. The combination of strict capital expenditures and the total amount of depreciation result in a decrease over the forecasting period of the Net Book Value of PPE. In 2015, total LHN impairments amounted CHF 2.697 million, of which CHF 1.556 were related to PPE. This was caused by plants overlaps arising in certain countries due to overcapacity as a consequence of the merger and the weaker outlook for the macroeconomic environment, especially in China and Brazil. For our forecast period, we do not assume any more impairment losses as historically Holcim and Lafarge did not have materialistic values.

Debt Strategy

As part of the new strategy for debt levels, management has two key objectives to make LHN financially strong and therefore maintain its current credit rating. The first one is to present an overall decrease of total net debt over the next years at the same time that it restructures its short-term liabilities by issuing new bonds/loans with longer maturities.

In our valuation, we forecast a total debt decrease of CHF 1.274 million between 2015 and 2016F, which leads to a total net debt of CHF 16.317 million in the same year. Considering only total long-term net debt, this value decreases approximately to closely CHF 13.084 million. By 2021F we estimate that LHN total net debt should decrease to CHF 12.301 million. By 2015, total LHN's short-term liabilities amount to CHF 6.866 million and we expect them to decrease to CHF 3.233 million mostly due to cash surplus from the divestment program (CHF 3.500 million). Thus, in line with the company policy on the debt restructuring program, we assume that LHN will refinance its short-term debt over the years during the whole valuation period – Figure 32.

WACC Assumptions

To discount the forecasted FCFF we use the WACC method. The initial discount rate for 2016F is 6.57%, rising over the years to 6.90% in 2021F due to changes in the leverage ratios – Appendix L

Cost of Equity (Ke) was computed using a multi-factor model in which we add an industry risk premium. We choose this model as a way to deal with current negative interest rates (10-year and 30-year Swiss AAA Government Bonds). To estimate LHN's Cost of Debt (Kd) we use the weighted average nominal interest rate on financial liabilities according to the LHN 2015 Annual Report. These liabilities comprise bonds, commercial paper notes, and loans from financial institutions – Table 16.

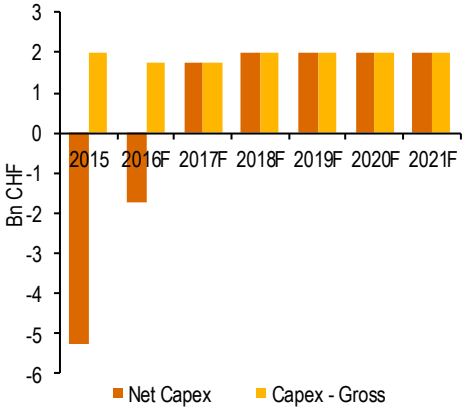
Terminal Value Assumptions

Terminal value has a huge impact on the final stock price. Using the DCF approach it counts for 70.6% of total LHN's enterprise value. In our view, to find the most suitable value for this rate we followed several steps using information about terminal growth rates used for impairment tests from LHN 2015 Annual Report and its peers. We use the weighted average of LHN sales by region in 2021F multiplied by a discount rate of 40%. The final rate realized was 2.06% which in our opinion is more conservative and realistic given current market conditions than the initial value (3.44%) – Table 17.

Dividend Discount Model

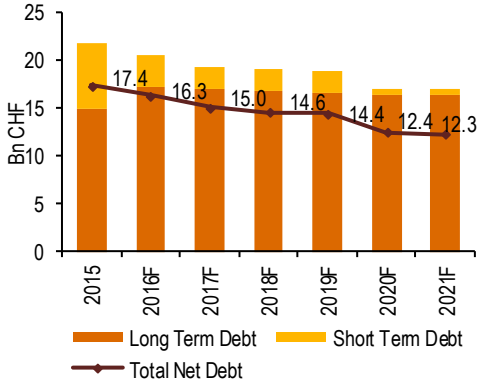
We use another absolute valuation methodology – Three Stage Dividend Discount Model – to access LHN's intrinsic share value and compare it with our DCF final price.

Figure 31 - LHN Capital expenditures



Source: The Author

Figure 32 - LHN Debt evolution



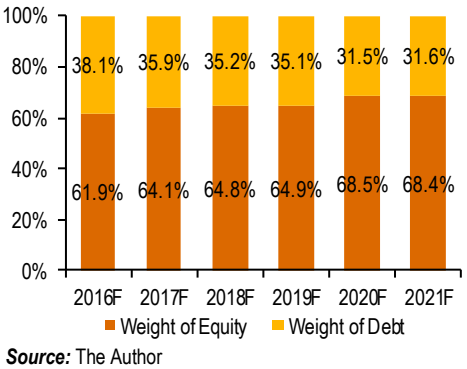
Source: The Author

Table 15 - WACC assumptions

WACC	
Cost of Equity (Ke)	
Risk-Free Rate (Rf) - 10y Swiss Gov Bond	-0.35%
Industry Risk Premium (IRP)	2.01%
Market Risk Premium (MRP)	6.00%
Beta (β)	1.08
Cost of Equity (Ke)	8.11%
Cost of Debt (Kd)	
Cost of Debt	5.1%
Effective Tax Rate	20.5%
After-Tax Cost of Debt	4.1%
Weight of Equity	61.9%
Weight of Debt	38.1%
WACC 2016F	**6.57%**

Source: The Author

Figure 33 - LHN capital structure evolution



Source: The Author

Using this approach, the new target price is -2.38% (58.41) lower compared with the DCF method. The key reasons that lead us to choose this valuation method are the following:

- LHN has a clear policy of paying dividends for shareholders. It has targeted to reach a payout ratio of 50% of its net income attributable to its shareholders in the coming years. Thus, dividends are linked to company's earnings. In our valuation, we assume a payout ratio starting in 30% for 2016F.

- The company will also pay in dividends the excess cash of cash flow from its operations. Thus, we assume that LHN will hold a maximum of 13.89% of its total net sales in cash and cash equivalents with the remaining to be paid to shareholders. This ratio was computed using information of LHN 2015 Annual Report, historical values from Lafarge and Holcim and its peers.

- Historically, both Lafarge and Holcim had always paid dividends for its shareholders. Even with negative EPS in 2015 (CHF -2.24), LHN paid a dividend of CHF 1.50 per share. Historically (2009-2014) the ratio for DPS/EPS has been on average 61.8% for Lafarge and 52.4% for Holcim.

Although this model requires a much larger number of inputs like specific payout ratios, growth rates, and betas, it allows more flexibility than other models like the Two Stage DDM, The Gordon Growth Model, and the H Model. Some of their limitations are on specific growth rates that drastically drop and constant payout ratios which do not happen in the case of LHN – Appendix N.

Multiples Valuation

A relative valuation was also made to compare LHN market share price with similar companies. Using this methodology, we reach a final price target of CHF 50.98 per share (-17.31% than the DCF model), revealing that LHN is currently overvalued in comparison with its peers – Appendix P.

In this valuation we chose the following enterprise-value multiples: i) **EV/Sales**; ii) **EV/EBITDA**; and iii) **EV/CFO**. The key reason to select these ratios is because our intention is to focus on LHN's operational performance in comparison with its main competitors and not on different capital structures.

Yet, it is our opinion that this is the least reliable valuation model due to following reasons:

- We followed several steps to find the most suitable comparable companies however, LHN is by far the leading company in the sector with an unmatched production capacity and presence in a wide variety of countries. This results inevitably in comparing firms with inconsistent estimates of value where key variables such as risk, growth or cash flow potential are ignored.

- Multiples reflect the market mood which implies that using this type of valuation may result in values that are too high when the market is overvaluing comparable firms or too low when it is undervaluing these same firms.

- While there is scope for bias in any type of valuation, the lack of transparency regarding the underlying assumptions in this model makes them particularly vulnerable to manipulation.

Table 16 - LHN cost of debt

Cost of Debt			
Currency	**Million CHF**	**In %**	**Interest rate[1]**
EUR	8,006	36.7%	4.4%
USD	4,973	22.8%	5.3%
CHF	2,923	13.4%	2.2%
CNY	1,276	5.9%	5.6%
GBP	715	3.3%	7.7%
AUD	679	3.1%	4.3%
BRL	506	2.3%	10.6%
Others	2,713	12.5%	9.0%
Total	**21,791**	**100.0%**	**5.1%**

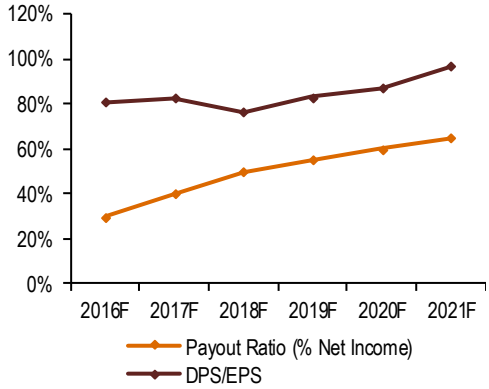
Source: Company data; The Author

Table 17 - Terminal growth rate

Region	Initial Terminal g	Conservative g
Asia Pacific	4.33%	2.60%
Latin America	3.88%	2.33%
Europe	2.46%	1.48%
North America	2.27%	1.36%
Middle East Africa	4.26%	2.56%
Weighted Average g		**2.07%**

Source: The Author

Figure 34 - Forecasted dividend payout ratios



Source: The Author

Table 18 - LHN's peers

Company	Private/State Owned	Business Structure	International Diversification	Peer?
Anhui Conch	✗	✓	✗	NO
Buzzi Unicem	✓	✓	✓	**YES**
Cemex	✓	✓	✓	**YES**
China Resources	✓	✓	✗	NO
CNBM (Sinoma)	✗	✓	✗	NO
CRH	✓	✓	✓	**YES**
Eurocement	✗	✓	✓	NO
HeidelbergCement	✓	✓	✓	**YES**
Italcementi	✓	✓	✓	**YES**
Taiwan Cement	✓	✓	✗	NO
Votorantim	✗	✗	✓	NO

Source: The Author

7. Financial Analysis

Profit & Loss

On the first year of operation, LHN registered a net loss income of CHF -1.362 million despite presenting a small increase of its total sales[26] (growth of 0.1% to CHF 29.483 million). This loss registered in FY2015 was mainly due to costs related to the merger, restructuring and other one-offs of CHF 1.106 million, a strong appreciation of the Swiss Franc against the Euro[27] and the depreciation of some emerging market currencies. Besides this, weaker cement prices due to overcapacity in regions like Asia-Pacific and Europe and a slowdown in important markets like China and Brazil led to LHN results to negative fields.

Thus, our forecasts are considerably more conservative than the ones presented by our sources for the reasons already explained in part 6. Valuation. We expect annual net sales to increase at a CAGR of 1.97% for the valuation period. Assuming the 2015 Pro Forma Values, we anticipate total net sales of CHF 30.239 million in 2016F growing to CHF 33.788 million in 2021F. Net profits should also return to positive values in 2016F (CHF 1.560 million), largely due to the decrease in merger and other restructuring costs, no impairment losses, and achievement of targeted synergies (CHF 450 million in 2016F). Consequently, net profit margins (NPM) are expected to rise from -5.8% in 2015 to 5.2% in 2016F reaching 7.2% in the last year of our forecast period. The incorporation of the full merger synergies presents a net present value of CHF 4.973 million that will impact largely on EBITDA margin and consequently LHN's ability to deliver higher profitability and free cash flow to investors.

Total COGS are projected to stay flat at 55.27% of total net sales for the whole period as a result of our valuation methodology. Energy and raw materials costs represent nearly 72% of production expenses and 40% of total net sales. It is important to keep in mind that although we got these values from LHN's peers, they do not differ much of those presented by the company.

DuPont Analysis

LHN is foreseen to back to positive trends in ROA and ROE over the next years recovering from 2015 net losses. In this sense, the management strategy of limiting capex intends to increase the total utilization rates impact positively on LHN asset turnover thus increasing efficiency. LHN's interest burden will increase from 78.10% in 2016F to 90.29% in 2021F meaning that interest expenses will gradually have a lower weight on LHN's EBIT margin over the years as result of its debt restructuring strategy – Appendix Q.

Liquidity Ratios and Leverage

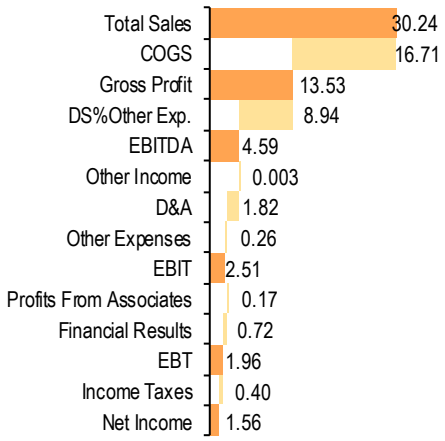
LHN's liquidity ratios are estimated to present an increase on a YoY basis between 2016F and 2021F (current ratio: 0.90 in 2015 to 1.52 in 2021F and quick ratio: 0.69 in 2015 to 1.13 in 2021F). Moreover, the EBITDA Interest Coverage Ratio will present the same growing trend, from 4.90 in 2015 to 7.74 in 2021F, ensuring that the company will become more financially capable of paying back is financial obligations.

As a result of LHN refinancing of its short-term debt, total D/E should increase slightly from 0.61 in 2015 to 0.62 in 2016F but then decreases gradually by 2021F to 0.46. This increase from 2015 to 2016F is due to the combination of negative capex plus higher D&A values, which leads to a net reduction in total assets. In the same time period, total liabilities face an overall reduction of CHF 1.274 million.

Dividends Payments

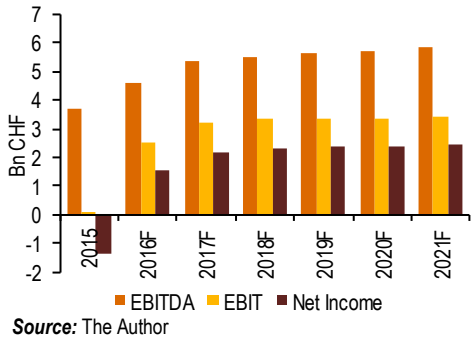
We expect a growing DPS paid to investors over the valuation period. In 2015, LHN's EPS were negative at CHF -2.24 and the company was able to pay a dividend of CHF 1.50 per share. With the combination of positive net results and strong cash flows, we do not anticipate a change in this policy. As so, our estimates point for a DPS of CHF 2.07 for 2016F, resulting in a dividend yield of 3.47%. Thus, the total amount of dividends paid should rise from CHF 910 million in 2015 to CHF 1.258 million in 2016F and 2.355 million in 2021F – Figure 38.

Figure 35 - Net profit breakdown - 2016F



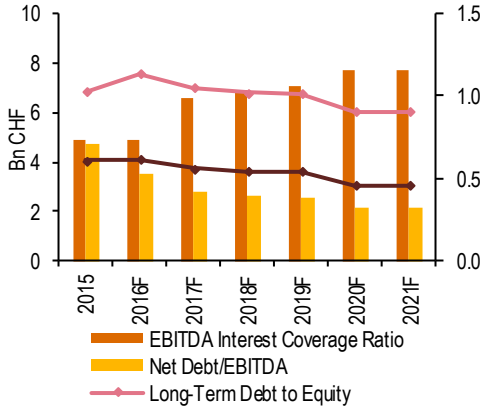
Source: The Author

Figure 36 - EBITDA, EBIT and Net Income evolution



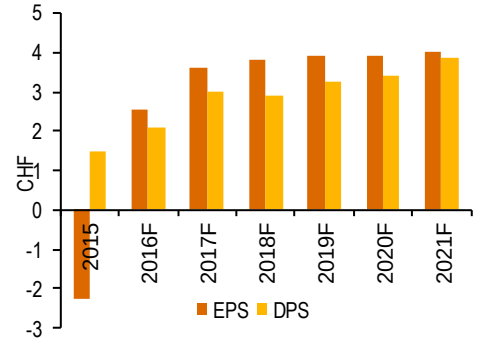
Source: The Author

Figure 37 - Capital structure



Source: The Author

Figure 38 - Forecasted earnings per share



Source: The Author

[26] On a Pro Forma Basis

[27] As result of Swiss National Bank policy to abandon the three-year old cap on the Swiss Franc against the Euro.

8. Investment Risks

Economic and Market Risks:
GDP Growth (EMR1)
Given the nature of goods that LHN produces, the company is mainly dependent on the level of activity from the construction sector (residential, commercial and infrastructure) in each country. As this industry is very sensitive to GDP growth, an eventual economic downturn could have a negative impact on LHN results. Moreover, the growing exposure of LHN sales to emerging markets could bring additional uncertainty on the company prospects as these countries face higher volatility than mature markets.

Concentration in the Industry (EMR2)
In the industry that LHN operates, competition occurs between numerous small and local producers and some global competitors and it is largely based on price. In addition, the company may face competition from local importers of foreign products that may result in an increase of local supply and consequently add pressure to further reduce prices and margins.

Exchange Rate Risk (ERM3)
LHN is exposed to a wide variety of foreign exchange risks. When the conversion is made from foreign operations to LHN reporting currency, it could lead to negative impacts on the group results. Also, given the nature of the business, many of the group company's income are primarily in local currency, whereas debt servicing and capital expenditures may be in foreign currency. Thus, to reduce the exchange rate risk, LHN may enter into derivate contracts to hedge cash flows and investments – Figure 40.

Interest Rate Risk (EMR4)
Change in interest rates could affect LHN financial results and market value of its financial instruments. Almost 75% of LHN liabilities are in Euros, USD, and CHF, and the group has an equally divided interest rate structure between liabilities at fixed and floating rates. Hence, to manage this risk the company may enter into interest swap agreements – Figure 41.

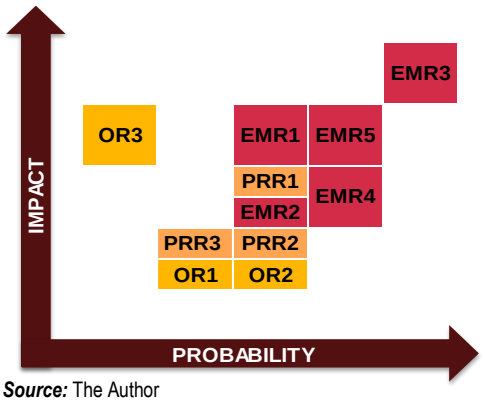
Commodities Price Increase (EMR5)
LHN requires a large quantity of energy to produce cement making this one of the main components of its operational costs. Therefore, it is subject to the volatility of international commodities prices like natural gas, coal, and oil. Moreover, given the trading activity the group has, it is also subject to international sea freight prices. The operational results can be significantly affected by large price movements in energy prices, as they account for nearly 33% of total COGS.

Political and Regulatory Risks:
Political Instability (PRR1)
The growing exposure among emerging markets represents additional risks for the group that it does not face in more mature economies. Political and legal instability, social uncertainties, terrorism, civil war and unrest are amongst the main risks. Also, this instability may lead to restrictions on currency movement, which may adversely affect the ability of emerging markets operating subsidiaries to pay dividends. Other potential risks include nationalization and expropriation of assets, price and exchange controls and disruption of LHN operations due to civil disturbances. As an example, by April 2008 the Venezuelan government announced the nationalization of all CEMEX cement plants. More recently, LHN (previous Lafarge) had decided to shut down all its operations in Syria after the cement plant stopped operating in September 2014. This plant had a production capacity of 3 Mt and supplied approximately one-third of the Syrian market.

Environmental Regulation (PRR2)
Cement and aggregates industry are subject to a wide variety of national and international environmental, health and safety regulations including the control of discharge materials into the nature, removal, and clean-up environmental contaminations, labor and training standards, among others. A violation of existing environmental rules could imply substantial fines and sanctions and may require additional investments and upgrades of equipment to ensure the compliance of regulations. In 2015, a subsidiary of HeidelbergCement reached an agreement with U.S. Environmental Protection Agency to pay USD 7.50 million from discharging wastewater containing high levels of selenium. Moreover, the company will have to spend and additional USD 5.00 million to install an advanced wastewater treatment plant and pay USD 2.55 million in civil penalties to the government.

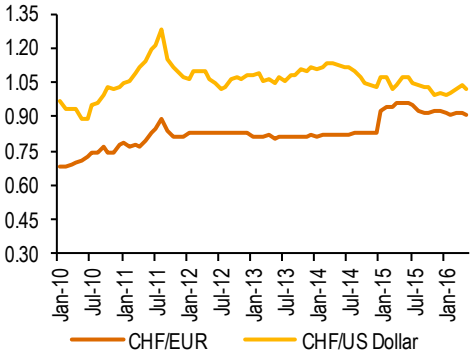
Competition and Regulation (PRR3)
Currently, the EU Commission and other competition authorities are investigating cement companies on suspicion that they may have violated competition laws,

Figure 39 - LHN Risk matrix



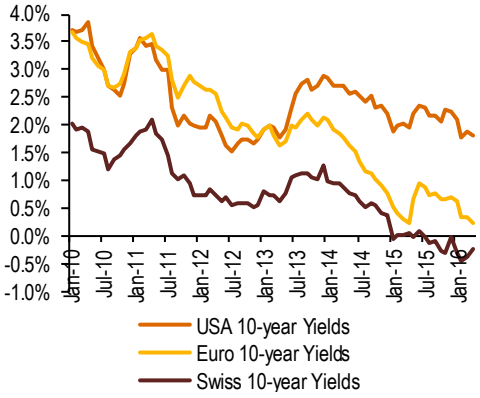
Source: The Author

Figure 40 - Historical exchange rates



Source: Thomson Reuters

Figure 41 - Historical 10-year yields



Source: Thomson Reuters

prohibited illicit agreements and/or abuse of dominant market position. Consequently, LHN cannot predict the outcome of these pending investigations or that any of its subsidiaries will not be subject to future investigations by authorities. A successful competition law against LHN could lead to substantial fines, forced divestments and significant changes in business practices that may lead to a reduction of revenue affecting the group operational and financial results.

Operational Risks

Operational and Financial Synergies (OR2)

The merger of two considerable sized and complex groups may be more challenging than initially anticipated. The expected gains in synergies can be offset by several reasons such as the organization and harmonization of different methods and procedures could take longer than expected, inconsistencies between the standards, controls, rules, business culture as well as lack of attention by the management in the overall integration process.

Production Instability (OR2)

The manufacturing process of cement depend on critical pieces of equipment like cement kilns, crushers, grinders and others. This equipment may be out of service due to periodic maintenance, strikes, unanticipated failures and accidents and can result in a significant decrease in productivity and operational results during the affected period.

Availability of Raw Materials (OR3)

LHN operations are dependent on the availability at a reasonable cost of certain raw materials like limestone and aggregates. If limitations occur in the supply of these materials for instance, lack of reserves or a supplier ceases activity, it could have adverse effects on the operational performance. Furthermore, LHN may be unable to increase its selling prices due to competition in response to an increase in raw materials costs, which may sacrifice its operational results.

Risks to Price Target

We perform a sensitivity analysis to access the impact of several investment risks on LHN final price target. These risks comprise changes in key components of the DCF valuation model – Terminal Growth Rate, WACC, Market Risk Premium and Beta – as well as other main drivers for LHN business – Target Synergies, Sales Growth and Energy and Raw Materials Expenses. We also study the impact of the Discount Rate over Sales that we apply in the DCF valuation.

As we can see in table 20, LHN is sensitive to changes in terminal value and WACC as shares value can drop by -27.5% (CHF 43.4) or rise by 52.5% (CHF 91.2) in the worst and best case scenario, respectively. Although terminal value represents 70.6% of total LHN's enterprise value, changes in WACC produce higher volatility in prices. This is important since variations can be caused by changes in risk-free rates that are at historically low levels – Ceteris Paribus.

Table 20 - Sensitivity analysis: Terminal growth rate vs WACC

Change in WACC	Change in Terminal Growth Rate						
	1.32%	1.57%	1.82%	**2.07%**	2.32%	2.57%	2.82%
6.15%	**62.4** 4.4%	**65.9** 10.2%	**69.8** 16.7%	**74.2** 24.0%	**79.1** 32.3%	**84.7** 41.7%	**91.2** 52.5%
6.40%	**58.4** (2.3%)	**61.5** 2.9%	**65.0** 8.7%	**68.8** 15.1%	**73.1** 22.3%	**78.0** 30.4%	**83.5** 39.7%
6.65%	**54.8** (8.3%)	**57.6** (3.7%)	**60.7** 1.4%	**64.1** 7.1%	**67.8** 13.4%	**72.1** 20.5%	**76.9** 28.5%
6.90%	**51.6** (13.8%)	**54.1** (9.6%)	**56.8** (5.0%)	**59.8** 0.0%	**63.1** 5.6%	**66.9** 11.8%	**71.0** 18.8%
7.15%	**48.6** (18.7%)	**50.8** (15.0%)	**53.3** (10.9%)	**56.0** (6.4%)	**58.9** (1.4%)	**62.2** 4.1%	**65.9** 10.2%
7.40%	**45.9** (23.3%)	**47.9** (19.9%)	**50.1** (16.2%)	**52.5** (12.2%)	**55.2** (7.7%)	**58.1** (2.8%)	**61.4** 2.6%
7.65%	**43.4** (27.5%)	**45.2** (24.4%)	**47.2** (21.0%)	**49.4** (17.4%)	**51.8** (13.4%)	**54.4** (9.0%)	**57.3** (4.2%)

Source: The Author

Note: The percentage refers to the price change.

In Table 21, we perform a sensitivity analysis to LHN's beta and MRP. As we can see, MRP impacts the company final share price but with a limited amount (-8.9% and 10.2%). Given the historical MRP for Switzerland, we do not expect major changes in these value in the near future. However, changes in LHN's beta produce higher prices ranges, from CHF 81.1 (35.7%) to CHF 45.8 (-23.4%). When estimating the levered beta, we assumed a D/E target ratio of 0.50 by opposition to the D/E of

Table 19 - Risk classification

	Low Risk	Medium Risk	High Risk
Buy	> 15%	> 20%	> 30%
Hold	> 5% and 15% <	> 10% and 20% <	> 15% and 30% <
Reduce	> -10% and 5% <	> -10% and 10% <	> -15% and 15% <
Sell	< -10%	< -10%	< -10%

Source: BPI rating scheme

our 2021F of 0.46. Thus, a change in the company's policy regarding its leverage ratios could impact negatively its share price – Ceteris Paribus.

Table 21 - Sensitivity analysis: MRP vs Beta

Change in Beta	Change in Market Risk Premium						
	5.55%	5.70%	5.85%	**6.00%**	6.15%	6.30%	6.45%
0.84	**88.7**	**86.0**	**83.5**	**81.1**	**78.8**	**76.7**	**74.6**
	48.3%	43.9%	39.7%	35.7%	31.8%	28.2%	24.7%
0.92	**79.9**	**77.4**	**75.1**	**72.9**	**70.8**	**68.7**	**66.8**
	33.6%	29.5%	25.6%	21.9%	18.3%	14.9%	11.7%
1.00	**72.4**	**70.1**	**67.9**	**65.9**	**63.9**	**62.0**	**60.2**
	21.0%	17.2%	13.6%	10.1%	6.8%	3.7%	0.6%
1.08	**65.9**	**63.8**	**61.7**	**59.8**	**58.0**	**56.2**	**54.5**
	10.2%	6.6%	3.2%	0.0%	-3.1%	-6.0%	-8.9%
1.16	**60.3**	**58.3**	**56.4**	**54.5**	**52.8**	**51.1**	**49.6**
	0.8%	-2.6%	-5.8%	-8.8%	-11.7%	-14.5%	-17.1%
1.24	**55.3**	**53.4**	**51.6**	**49.9**	**48.3**	**46.7**	**45.2**
	-7.5%	-10.7%	-13.7%	-16.5%	-19.3%	-21.9%	-24.4%
1.32	**50.9**	**49.1**	**47.4**	**45.8**	**44.3**	**42.8**	**41.4**
	-14.8%	-17.8%	-20.7%	-23.4%	-26.0%	-28.4%	-30.8%

Source: The Author

Note: The percentage refers to the price change.

In the following table, we can observe how LHN's share price behaves when changing the key operational components. Regarding targeted synergies, final share can vary from CHF 47.1 (-21.3%) to CHF 72.5 (21.3%) if LHN fails or overcame its operational targets respectively. In our valuation we assume that LHN will meet its initial targets. By mid-2016 it has already reached 60.6% of this year target and in the previous year it was even able to overcome it by 30% (section 6. Valuation). Therefore, we believe that LHN management should continue to focus on this strategic variable as it can trigger higher value to the firm, and consequently to its investors – Ceteris Paribus.

Table 22 - Sensitivity analysis: synergies; energy expenses and raw materials expenses

Change in Target Synergies						
55.0%	70.0%	85.0%	**100.0%**	115.0%	130.0%	145.0%
47.1	**51.3**	**55.6**	**59.8**	**64.1**	**68.3**	**72.5**
(21.3%)	(14.2%)	(7.1%)	0.0%	7.1%	14.2%	21.3%
Change in Energy Expenses						
-3.0%	-2.0%	-1.0%	**0.0%**	1.0%	2.0%	3.0%
84.2	**76.1**	**67.9**	**59.8**	**51.6**	**43.5**	**35.3**
40.9%	27.3%	13.6%	0.0%	(13.6%)	(27.3%)	(40.9%)
Change in Raw Materials Expenses						
-1.5%	-1.0%	-0.5%	**0.0%**	0.5%	1.0%	1.5%
72.0	**67.9**	**63.9**	**59.8**	**55.7**	**51.6**	**47.6**
20.4%	13.6%	6.8%	0.0%	(6.8%)	(13.6%)	(20.5%)

Source: The Author

Note: The percentage refers to the price change.

As stated in the table above, Change in Energy and Raw Materials Expenses can cause significant impacts on the company share price. Given the historical volatility of energy prices (with consequent impacts on raw materials expenses, e.g. due to quarrying operations) and the need for vast amounts of energy to produce cement, LHN may face stressful periods in the future. As stated in section 4. IO&CP, the company currently applies fuel-mix strategies to decrease its dependence on a single energy source and it is continuously increasing on a YoY basis the amount of alternative fuels used in its operations.

We also access the performance of LHN sales growth in the markets where it operates. If sales in several regions drop or rise evenly between -3% and 3%, the company share price is mostly affected by the Asia Pacific region (+- 12.4%) and Europe (+-9.6%) as they represent around 55% of total sales (30.8% for Asia Pacific and 24.7% for Europe). Latin America and Middle East Africa have limited impacts of (+-4.4%) and (+-6.4%) on total share value as they represent less than one-third of the entire LHN sales – Table 23.

Table 23 - Sensitivity analysis: sales growth

	Change in Sales Growth						
	-3%	-2%	-1%	0%	1%	2%	3%
Asia-Pacific	**52.4**	**54.9**	**57.3**	**59.8**	**62.3**	**64.7**	**67.2**
	(12.4%)	(8.3%)	(4.1%)	0.0%	4.1%	8.3%	12.4%
Latin America	**57.2**	**58.0**	**58.9**	**59.8**	**60.7**	**61.6**	**62.4**
	(4.4%)	(2.9%)	(1.5%)	0.0%	1.5%	2.9%	4.4%
Europe	**54.0**	**56.0**	**57.9**	**59.8**	**61.7**	**63.6**	**65.6**
	(9.6%)	(6.4%)	(3.2%)	0.0%	3.2%	6.4%	9.6%
North America	**55.3**	**56.8**	**58.3**	**59.8**	**61.3**	**62.8**	**64.3**
	(7.6%)	(5.0%)	(2.5%)	0.0%	2.5%	5.0%	7.6%
Middle East Africa	**56.0**	**57.3**	**58.5**	**59.8**	**61.1**	**62.3**	**63.6**
	(6.4%)	(4.2%)	(2.1%)	0.0%	2.1%	4.2%	6.4%

Source: The Author

Note: The percentage refers to the price change.

In our valuation, we apply a discount rate over the market growth to forecast LHN sales in order to update for current market conditions and competition in the industry (section 6. Valuation). Thus, varying this rate will not critically change LHN equity value – Table 24.

Table 24 - Sensitivity analysis: discount sales rate

Change in Discount Sales Rate						
10.0%	20.0%	30.0%	**40.0%**	50.0%	60.0%	70.0%
66.8	**64.4**	**62.1**	**59.8**	**57.6**	**55.4**	**53.2**
11.7%	7.7%	3.8%	0.0%	(3.7%)	(7.4%)	(11.0%)

Source: The Author

Note: The percentage refers to the price change.

Monte Carlo Simulation

In addition to the previous sensitivity analysis, we perform a Monte Carlo Simulation using the Crystal Ball Software (covering 100.000 simulations). We assume a normal distribution and respective standard deviation for the following variables: terminal growth rate (0.21%), MRP (0.42%), IRP (0.14%), and targeted synergies (10%) that we believe could impact LHN target price the most.

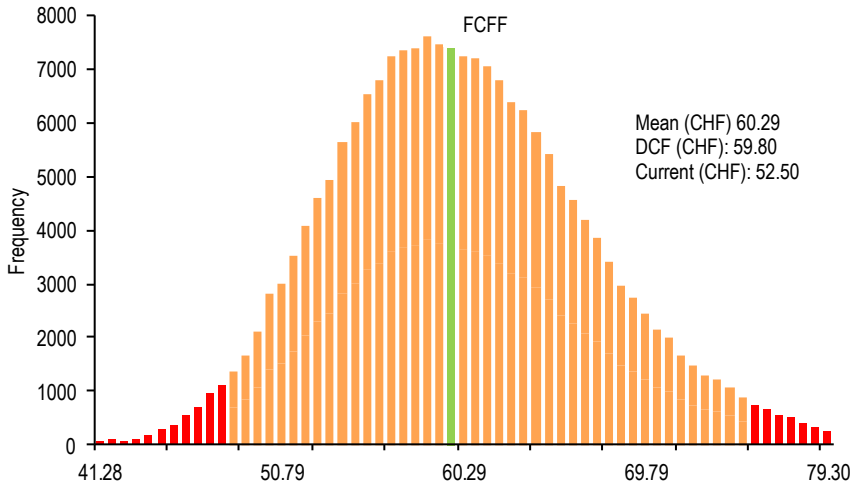
The results show a mean price of CHF 60.29 in comparison with DCF target of CHF 59.80 and a standard deviation of CHF 6.90 – Table 25. Thus, with 95% probability the price target is expected to be between CHF 48.17 and CHF 75.22 and there is a 29.85% probability of our HOLD recommendation being correct. HOLD plus BUY recommendation probability account for 62.10% and the remaining 37.90% probability stands for REDUCE and SELL recommendation

Table 25 - Monte Carlo statistics

MC Statistics	
No. of trials	100.000
Base case	59.80
Mean	60.29
Standard deviation	6.90
10th percentile	51.9
90th percentile	69.31

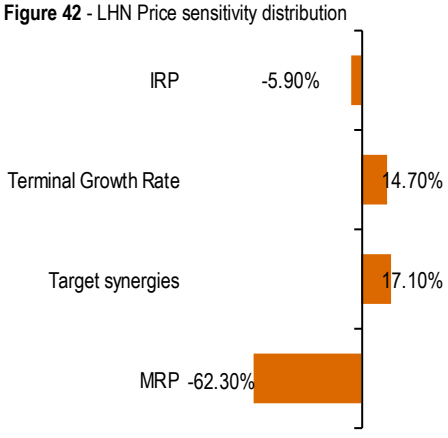
Source: The Author

Figure 43 - Monte Carlo simulation



Source: The Author

Figure 42 - LHN Price sensitivity distribution



Source: The Author

Appendix A: Statement of Financial Position

Table 26 - Balance sheet

Balance Sheet (Million CHF)	2015	2016F	2017F	2018F	2019F	2020F	2021F
Cash and cash equivalents	4.393	4.199	4.302	4.405	4.505	4.600	4.693
Accounts receivable	4.222	4.061	4.161	4.259	4.356	4.447	4.537
Inventories	3.060	3.473	3.559	3.643	3.726	3.804	3.881
Prepaid expenses and other current assets	884	735	753	771	788	805	821
Assets classified as held for sale	772	1.064	1.060	1.061	1.061	1.058	1.053
Total Current Assets	13.331	13.532	13.835	14.139	14.435	14.713	14.985
Long-term financial assets	770	770	770	770	770	770	770
Investments in associates and joint ventures	3.172	3.172	3.172	3.172	3.172	3.172	3.172
Property, plant and equipment	36.747	33.181	33.054	33.107	33.090	33.003	32.846
Goodwill	16.490	16.490	16.490	16.490	16.490	16.490	16.490
Intangible assets	1.416	1.416	1.416	1.416	1.416	1.416	1.416
Deferred tax assets	764	764	764	764	764	764	764
Other long-term assets	608	612	611	615	621	627	634
Total Long-Term Assets	59.967	56.405	56.278	56.334	56.323	56.242	56.092
TOTAL ASSETS	**73.298**	**69.937**	**70.112**	**70.473**	**70.758**	**70.956**	**71.076**
Trade accounts payable	3.692	3.926	4.023	4.118	4.211	4.300	4.387
Current financial liabilities	6.866	3.233	2.277	2.224	2.404	675	700
Current income tax liabilities	598	740	740	755	773	790	807
Other current liabilities	3.074	3.127	3.126	3.191	3.267	3.339	3.409
Short-term provisions	602	495	507	519	531	542	553
Total Current Liabilities	14.832	11.522	10.674	10.808	11.187	9.646	9.857
Long-term financial liabilities	14.925	17.284	17.051	16.774	16.550	16.346	16.294
Defined benefit obligations	1.939	1.952	1.950	1.961	1.981	2.001	2.021
Deferred tax liabilities	3.840	3840	3840	3840	3840	3840	3840
Long-term provisions	2.041	1.993	2.042	2.090	2.137	2.182	2.226
Total Long-Term Liabilities	22.745	25.068	24.882	24.665	24.508	24.369	24.381
TOTAL LIABILITIES	**37.577**	**36.590**	**35.556**	**35.473**	**35.695**	**34.015**	**34.238**
Share capital	1.214	1.214	1.214	1.214	1.214	1.214	1.214
Capital surplus	26.430	26.430	26.430	26.430	26.430	26.430	26.430
Treasury shares	(86)	(86)	(86)	(86)	(86)	(86)	(86)
Reserves	3.807	1.433	2.642	3.087	3.149	5.027	4.925
Total Equity Attributable to Shareholders of LafargeHolcim Ltd	31.365	28.991	30.200	30.645	30.707	32.585	32.483
Non-controlling interest	4.356	4.356	4.356	4.356	4.356	4.356	4.356
Total Shareholders' Equity	35.721	33.347	34.556	35.001	35.063	36.941	36.839
TOTAL LIABILITIES AND SHAREHOLDER'S EQUITY	**73.298**	**69.937**	**70.112**	**70.474**	**70.758**	**70.956**	**71.076**

Source: Company data; The Author

Note: The assets and liabilities of each Group's companies are measured using the currency of the primary economic environment in which the entity operates – **"The Functional Currency"**. Statements of income of foreign entities are translated into the Group's **"Reporting Currency (CHF)"** at the average exchange rates for the year and statements of financial position are translated at the exchange rates prevailing on December 31st. For the purpose of this valuation, we will use the Reporting Currency (CHF). The main reasons are: i) there is not enough information on each of those Functional Currencies and ii) LHN operates on a wide range of countries making it difficult to proper forecast each of the necessary exchange rates for our projections.

Appendix A: Statement of Financial Position

Table 27 - Balance sheet - common size

Balance Sheet (Common size)	2015	2016F	2017F	2018F	2019F	2020F	2021F
Cash and cash equivalents	6.0%	6.0%	6.1%	6.3%	6.4%	6.5%	6.6%
Accounts receivable	5.8%	5.8%	5.9%	6.0%	6.2%	6.3%	6.4%
Inventories	4.2%	5.0%	5.1%	5.2%	5.3%	5.4%	5.5%
Prepaid expenses and other current assets	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.2%
Assets classified as held for sale	1.1%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Total Current Assets	18.2%	19.3%	19.7%	20.1%	20.4%	20.7%	21.1%
Long-term financial assets	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Investments in associates and joint ventures	4.3%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Property, plant and equipment	50.1%	47.4%	47.1%	47.0%	46.8%	46.5%	46.2%
Goodwill	22.5%	23.6%	23.5%	23.4%	23.3%	23.2%	23.2%
Intangible assets	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Deferred tax assets	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other long-term assets	0.8%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
Total Long-Term Assets	81.8%	80.7%	80.3%	79.9%	79.6%	79.3%	78.9%
TOTAL ASSETS	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Trade accounts payable	5.0%	5.6%	5.7%	5.8%	6.0%	6.1%	6.2%
Current financial liabilities	9.4%	4.6%	3.2%	3.2%	3.4%	1.0%	1.0%
Current income tax liabilities	0.8%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other current liabilities	4.2%	4.5%	4.5%	4.5%	4.6%	4.7%	4.8%
Short-term provisions	0.8%	0.7%	0.7%	0.7%	0.8%	0.8%	0.8%
Total Current Liabilities	20.2%	16.5%	15.2%	15.3%	15.8%	13.6%	13.9%
Long-term financial liabilities	20.4%	24.7%	24.3%	23.8%	23.4%	23.0%	22.9%
Defined benefit obligations	2.6%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Deferred tax liabilities	5.2%	5.5%	5.5%	5.4%	5.4%	5.4%	5.4%
Long-term provisions	2.8%	2.8%	2.9%	3.0%	3.0%	3.1%	3.1%
Total Long-Term Liabilities	31.0%	35.8%	35.5%	35.0%	34.6%	34.3%	34.3%
TOTAL LIABILITIES	**51.3%**	**52.3%**	**50.7%**	**50.3%**	**50.4%**	**47.9%**	**48.2%**
Share capital	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
Capital surplus	36.1%	37.8%	37.7%	37.5%	37.4%	37.2%	37.2%
Treasury shares	(0.1%)	(0.1%)	(0.1%)	(0.1%)	(0.1%)	(0.1%)	(0.1%)
Reserves	5.2%	2.0%	3.8%	4.4%	4.5%	7.1%	6.9%
Total Equity Attributable to Shareholders of LafargeHolcim Ltd	42.8%	41.5%	43.1%	43.5%	43.4%	45.9%	45.7%
Non-controlling interest	5.9%	6.2%	6.2%	6.2%	6.2%	6.1%	6.1%
Total Shareholders' Equity	48.7%	47.7%	49.3%	49.7%	49.6%	52.1%	51.8%
TOTAL LIABILITIES AND SHAREHOLDER'S EQUITY	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: The Author

Appendix B: Income Statement

Table 28 - Income statement

Income Statement (Million CHF)	2015	2016F	2017F	2018F	2019F	2020F	2021F
Total sales	23.584	30.239	30.984	31.716	32.436	33.117	33.788
Production cost of goods sold	12.557	16.714	17.125	17.530	17.928	18.304	18.675
Gross Profit	**11.027**	**13.526**	**13.859**	**14.186**	**14.508**	**14.813**	**15.113**
Distribution, selling and others expenses	7.344	8.936	8.517	8.644	8.868	9.079	9.287
EBITDA	**3.683**	**4.590**	**5.342**	**5.542**	**5.641**	**5.734**	**5.826**
Total Other Income	**1.219**	**3**	**3**	**3**	**3**	**3**	**3**
Net gain on disposal before taxes	706	0	0	0	0	0	0
Revaluation gain on previously held interest	510	0	0	0	0	0	0
Other income	3	3	3	3	3	3	3
Total Other expenses	**4.837**	**2.080**	**2.141**	**2.213**	**2.286**	**2.358**	**2.431**
D&A	1.877	1.816	1.877	1.947	2.017	2.087	2.157
Impairment	2.697	0	0	0	0	0	0
Others	263	265	264	266	269	271	274
EBIT	**65**	**2.513**	**3.203**	**3.332**	**3.358**	**3.379**	**3.398**
Share of profit of associates and joint ventures	157	165	174	183	192	202	213
Total Financial Income	**154**	**247**	**236**	**241**	**247**	**253**	**258**
Interest earned on cash and cash equivalents	126	161	154	158	161	165	168
Other financial income	28	86	82	84	86	88	90
Total Financial expenses	**1.060**	**962**	**848**	**844**	**812**	**834**	**801**
Interest expenses	751	934	816	803	801	747	753
Other financial expenses	309	28	32	41	11	87	48
Net (Loss) Income Before Taxes	**(684)**	**1.962**	**2.765**	**2.913**	**2.986**	**3.000**	**3.068**
Income Taxes	781	402	567	597	612	615	629
Net (Loss) Income From Continuing Operations	(1.465)	1.560	2.198	2.316	2.374	2.385	2.439
Net income from discontinued operations	103	0	0	0	0	0	0
Net (Loss) Income	**(1.362)**	**1.560**	**2.198**	**2.316**	**2.374**	**2.385**	**2.439**
Net (Loss) income attributable to:							
Shareholders of LafargeHolcim, Ltd	(1.469)	1.436	2.024	2.132	2.185	2.196	2.245
Non-controlling interest	108	124	175	184	188	189	194

Source: Company data; The Author

Table 29 - Income statement - common size

Income Statement (Common size)	2015	2016F	2017F	2018F	2019F	2020F	2021F
Total sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Production cost of goods sold	53.2%	55.3%	55.3%	55.3%	55.3%	55.3%	55.3%
Gross Profit	**46.8%**	**44.7%**	**44.7%**	**44.7%**	**44.7%**	**44.7%**	**44.7%**
Distribution, Selling and others expenses	31.1%	29.6%	27.5%	27.3%	27.3%	27.4%	27.5%
EBITDA	**15.6%**	**15.2%**	**17.2%**	**17.5%**	**17.4%**	**17.3%**	**17.2%**
Total Other Income	**5.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Net gain on disposal before taxes	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Revaluation gain on previously held interest	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other income	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Other expenses	**20.5%**	**6.9%**	**6.9%**	**7.0%**	**7.0%**	**7.1%**	**7.2%**
D&A	8.0%	6.0%	6.1%	6.1%	6.2%	6.3%	6.4%
Impairment	11.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Others	1.1%	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%
EBIT	**0.3%**	**8.3%**	**10.3%**	**10.5%**	**10.4%**	**10.2%**	**10.1%**
Share of profit of associates and joint ventures	0.7%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%
Total Financial Income	**0.7%**	**0.8%**	**0.8%**	**0.8%**	**0.8%**	**0.8%**	**0.8%**
Interest earned on cash and cash equivalents	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Other financial income	0.1%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Total Financial expenses	**4.5%**	**3.2%**	**2.7%**	**2.7%**	**2.5%**	**2.5%**	**2.4%**
Interest expenses	3.2%	3.1%	2.6%	2.5%	2.5%	2.3%	2.2%
Other financial expenses	1.3%	0.1%	0.1%	0.1%	0.0%	0.3%	0.1%
Net (Loss) Income Before Taxes	**(2.9%)**	**6.5%**	**8.9%**	**9.2%**	**9.2%**	**9.1%**	**9.1%**
Income Taxes	3.3%	1.3%	1.8%	1.9%	1.9%	1.9%	1.9%
Net (Loss) Income From Continuing Operations	(6.2%)	5.2%	7.1%	7.3%	7.3%	7.2%	7.2%
Net income from discontinued operations	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Net (Loss) Income	**(5.8%)**	**5.2%**	**7.1%**	**7.3%**	**7.3%**	**7.2%**	**7.2%**
Net (Loss) income attributable to:	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Shareholders of LafargeHolcim, Ltd	(6.2%)	4.7%	6.5%	6.7%	6.7%	6.6%	6.6%
Non-controlling interest	0.5%	0.4%	0.6%	0.6%	0.6%	0.6%	0.6%

Source: Company data; The Author

Appendix B: Income Statement

Table 30 – LafargeHolcim Pro Forma Statement of Income for year ended December 31, 2015

CHF Million	LafargeHolcim published information for the year ended December 31, 2015	Lafarge pro forma information for the period from January 1, 2015 to July 10, 2015	Fair value adjustments	Scope effect (China, Nigeria)	Divestments	2015 LafargeHolcim Pro Forma Information
Net Sales	**23,584**	**6,955**	**-**	**784**	**-1,841**	**29,483**
Operating EBITDA	**3,682**	**1,081**	**-**	**147**	**-356**	**4,555**
Depreciation, amortization and impairment of operating assets	-4,421	-530	-194	-83	142	-5,087
Operating Profit (Loss)	-739	551	-194	64	-214	-533
Net Loss	**-1,361**	**-415**	**-40**	**-25**	**-243**	**-2,085**

Source: Company data; The Author

Appendix C: Cash Flow Statement

Table 31 - Cash flow statement

Cash-Flow Statement (Million CHF)	2016F	2017F	2018F	2019F	2020F	2021F
Operating Activities						
EBIT	2.513	3.203	3.332	3.358	3.379	3.398
D&A	1.877	1.816	1.877	1.947	2.017	2.087
Dividends received	165	174	183	192	202	213
Change in NWC	(184)	108	40	28	26	26
Income tax	(402)	(567)	(597)	(612)	(615)	(629)
Total Cash Flow from Operations	4.337	4.518	4.754	4.858	4.957	5.043
Investing Activities						
Capex - Maintenance	(875)	(875)	(1.000)	(1.000)	(1.000)	(1.000)
Capex - Investments for expansion	(875)	(875)	(1.000)	(1.000)	(1.000)	(1.000)
Divestments	3.500	0	0	0	0	0
Total Cash Flow from Investing	1.750	(1.750)	(2.000)	(2.000)	(2.000)	(2.000)
Financing Activities						
New loans	2.500	3.000	2.000	2.000	2.200	800
Financial income and others	247	236	241	247	253	258
Dividend payments	(468)	(879)	(1.158)	(1.306)	(1.431)	(1.585)
Cash dividend	(790)	(941)	(615)	(664)	(646)	(770)
Financial expenses	(962)	(848)	(844)	(812)	(834)	(801)
Loan payments	(6.807)	(3.233)	(2.277)	(2.224)	(2.404)	(852)
Total Cash Flow from Financing	(6.280)	(2.665)	(2.652)	(2.758)	(2.862)	(2.950)
Net change in cash	(194)	103	103	100	95	93
Beginning balance of cash	4.393	4.199	4.302	4.405	4.505	4.600
Ending balance of cash	4.199	4.302	4.405	4.505	4.600	4.693

Source: The Author

Appendix D: Key Financial Ratios

Table 32 - Key financial ratios

Ratios	Unit	2015	2016F	2017F	2018F	2019F	2020F	2021F
Profitability Ratios								
Gross profit margin	%	46.76%	44.73%	44.73%	44.73%	44.73%	44.73%	44.73%
EBITDA margin	%	15.62%	15.18%	17.24%	17.47%	17.39%	17.31%	17.24%
EBIT margin	%	0.3%	8.3%	10.3%	10.5%	10.4%	10.2%	10.1%
Net profit margin	%	(5.8%)	5.2%	7.1%	7.3%	7.3%	7.2%	7.2%
ROA	%	(1.9%)	2.2%	3.1%	3.3%	3.4%	3.4%	3.4%
ROE	%	(3.8%)	4.7%	6.4%	6.6%	6.8%	6.5%	6.6%
ROCE	%	0.1%	4.7%	5.9%	6.2%	6.2%	6.3%	6.3%
Efficiency Ratios								
Receivable turnover	times	5.59	7.45	7.45	7.45	7.45	7.45	7.45
Days sales outstanding (DSO)	Days	65.3	49.0	49.0	49.0	49.0	49.0	49.0
Inventory turnover	times	4.10	4.81	4.81	4.81	4.81	4.81	4.81
Days inventory outstanding (DIO)	Days	88.9	75.9	75.9	75.9	75.9	75.9	75.9
Payables turnover	times	5.39	6.53	6.37	6.36	6.36	6.37	6.37
Days payable outstanding (DPO)	Days	67.7	55.9	57.3	57.4	57.4	57.3	57.3
Operating cycle	Days	154.3	124.9	124.9	124.9	124.9	124.9	124.9
Cash conversion cycle	Days	86.6	69.0	67.6	67.4	67.5	67.6	67.6
Fixed asset turnover	times	0.64	0.91	0.94	0.96	0.98	1.00	1.03
Total asset turnover	times	0.32	0.43	0.44	0.45	0.46	0.47	0.48
Liquidity Ratios								
Current ratio	times	0.90	1.17	1.30	1.31	1.29	1.53	1.52
Quick ratio	times	0.69	0.87	0.96	0.97	0.96	1.13	1.13
Cash ratio	times	0.30	0.36	0.40	0.41	0.40	0.48	0.48
Capital Structure								
Total Debt to Total Equity	times	0.61	0.62	0.56	0.54	0.54	0.46	0.46
Total Debt to Total Capital	times	0.38	0.38	0.36	0.35	0.35	0.32	0.32
Total Debt to Total Assets	times	0.30	0.29	0.28	0.27	0.27	0.24	0.24
EBITDA interest coverage ratio	times	4.90	4.91	6.55	6.91	7.05	7.68	7.74
EBIT interest coverage ratio	times	0.09	2.69	3.93	4.15	4.19	4.53	4.51
Long-Term Debt to Equity	times	0.42	0.52	0.49	0.48	0.47	0.44	0.44
Long-Term Debt to Total Capital	times	0.26	0.32	0.32	0.31	0.31	0.30	0.30
Long-Term Debt to Assets	times	0.20	0.25	0.24	0.24	0.23	0.23	0.23

Source: The Author

Appendix E: Forecasting Assumptions

Table 33 - Income statement assumptions

Income Statement	Unit	2016F	2017F	2018F	2019F	2020F	2021F	Description
General								
Inflation rate	%	0.65%	(0.08%)	0.59%	1.00%	1.00%	1.00%	Switzerland expected inflation rate by IMF.
CHF/Euro	Euro	0.912	0.894	0.917	0.917	0.917	0.917	Average annual Euro/Swiss Franc forecast by The Economy Forecast Agency.
Revenue								Detailed in the appendix below.
Other Income								
Net gain on disposal before taxes	%	0%	0%	0%	0%	0%	0%	These gains derive mostly by selling operations due to the merger process, therefore we do not assume any gains in the future.
Revaluation gain on previously held interest	%	0%	0%	0%	0%	0%	0%	These revaluations gains consist in assets that LHN had before it sold and reclassification of foreign exchange loss for the same assets. Thus, we do not consider any gains or losses in the near future.
Other income	%	0.65%	(0.08%)	0.59%	1.00%	1.00%	1.00%	Equal to the 2015 nominal value and adjusted for expected inflation rate.
Share of profit of associates and joint ventures	%	5.20%	5.20%	5.20%	5.20%	5.20%	5.20%	This item is mainly from two publicly traded companies: Huaxin Cement (China) and Lafarge Ciments (Morocco). The group holds 41.8% and 34.9% respectively. Since we do not have information regarding future plans for these companies we assume a constant growth over the years based on their forecast growth by Reuters.
Financial Income								
Interest earned on cash and cash equivalents	%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	Based on the 4-year historical average and last year LHN, Holcim and Lafarge cash and cash equivalents held.
Other financial income	%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	Based on the 4-year historical average and last year LHN, Holcim and Lafarge cash and cash equivalents held.
Net income from discontinued operations	%	0%	0%	0%	0%	0%	0%	As part of rebalancing the global portfolio, LHN has disposed several assets to sales, mainly including property, plant and equipment and long-term liabilities. We assume no values after the merger.
Net (loss) income attributable to LHN shareholders	%	92%	92%	92%	92%	92%	92%	Based on 2015 percentage of nominal value.
Net (Loss) income attributable to Non-controlling interest	%	8%	8%	8%	8%	8%	8%	Based on 2015 percentage of nominal value.
Main Costs								Detailed in the appendix below.
Other expenses								
Amortization, Depreciation and Impairment								Detailed in the appendix below.
Others	%	0.65%	(0.08%)	0.59%	1.00%	1.00%	1.00%	Equal to the 2015 nominal value and adjusted for expected inflation rate.
Financial expenses								Detailed in the appendix below.
Income Taxes	%	20.5%	20.5%	20.5%	20.5%	20.5%	20.5%	Based on the Swiss corporate tax rate (8.5% on Federal Tax plus 12% on St. Gallen (Jona - LHN headquarters).
Capex								Detailed in the appendix below.
Net (loss) income attributable to LHN shareholders	%	92.06%	92.06%	92.06%	92.06%	92.06%	92.06%	Based on 2015 percentage of nominal value.
Net (Loss) income attributable to Non-controlling interest	%	7.94%	7.94%	7.94%	7.94%	7.94%	7.94%	Based on 2015 percentage of nominal value.

Source: The Author

Appendix E: Forecasting Assumptions

Table 34 - Balance sheet assumptions - Assets

Balance Sheet	Unit	2016F	2017F	2018F	2019F	2020F	2021F	Assumption
Current Assets								
Cash and cash equivalents	%	13.89%	13.89%	13.89%	13.89%	13.89%	13.89%	Maximum of 13.89% of total revenues based on a 5-year historical average of industry peers and was also included Holcim and Lafarge before the merger. Cash surplus will be returned to shareholders as planned by the company.
Accounts receivable	%	13.43%	13.43%	13.43%	13.43%	13.43%	13.43%	Based on the percentage of the 5-year historical average of industry peers. It was also included Holcim and Lafarge before the merger
Inventories	%	11.49%	11.49%	11.49%	11.49%	11.49%	11.49%	Based on the percentage of the 5-year historical average of industry peers. It was also included Holcim and Lafarge before the merger
Prepaid expenses and other current assets	%	2.43%	2.43%	2.43%	2.43%	2.43%	2.43%	Based on the percentage of total sales of LHN from last year and Holcim historical average from 2013 to 2014.
Assets classified as held for sale	%	3.21%	3.21%	3.21%	3.21%	3.21%	3.21%	Based on the percentage of property, plant and equipment of LHN from last year and Holcim historical average from 2013 to 2014.
Long-Term Assets								
Long-term financial assets	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value. This item is composed by Financial investments - third parties; Long-term receivables - associates, joint ventures and third parties and Derivative assets. Because we do not have any more information we will assume an equal value in the following years.
Investments in associates and joint ventures	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Property. plant and equipment								Detailed in the appendix below.
Goodwill	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value. Due to the merger LHN recognized a provisional goodwill of CHF 11.611 (70% of total Goodwill recognized in 2015) which is subject to change upon the finalization of the accounting of the business combination. Because we do not have any more information we assume the same value.
Intangible assets	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value. This item mainly consists in mining rights, trademarks and brands.
Deferred tax assets	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Other long-term assets	%	0.65%	-0.08%	0.59%	1.00%	1.00%	1.00%	Equal to the 2015 nominal value and adjusted for expected inflation rate.

Source: The Author

Appendix E: Forecasting Assumptions

Table 35 - Balance sheet assumptions - Liabilities and Equity

Balance Sheet	Unit	2016F	2017F	2018F	2019F	2020F	2021F	Assumption
Current Liabilities								
Trade accounts payable	%	23.49%	23.49%	23.49%	23.49%	23.49%	23.49%	Based on the percentage of the 5-year historical average of industry peers COGS. It was also included Holcim and Lafarge before the merger.
Current financial liabilities	%							Detailed in the appendix below.
Current income tax liabilities	%	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%	Based on the percentage of COGS and Distribution, Selling and Administration expenses of LHN from last year and Holcim from 2013 to 2014.
Other current liabilities	%	12.19%	12.19%	12.19%	12.19%	12.19%	12.19%	Based on the percentage of COGS and Distribution Selling and Administration expenses of LHN from last year and Holcim from 2013 to 2014.
Short-term provisions	%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	Based on the percentage of total sales of LHN from last year and Holcim historical average from 2013 to 2014. These provisions are mainly related with site restorations and other environmental issues and also with business specific risks like litigation and restructuring costs during the normal course of the business.
Liabilities directly associated with assets classified as held for sale	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Dividend Payout Ratio	%	30%	40%	50%	55%	60%	65%	The company expects a growing payout ratio reaching 50% in the becoming years (2018). We assume that the company will continue to increase its payout ratio due to availability of cash and restrained Capex.
Long-Term Liabilities								
Long-term financial liabilities								Detailed in the appendix below.
Defined benefit obligations	%	0.65%	-0.08%	0.59%	1.00%	1.00%	1.00%	Equal to the 2015 nominal value and adjusted for expected inflation rate.
Deferred tax liabilities	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Long-term provisions	%	6.59%	6.59%	6.59%	6.59%	6.59%	6.59%	Based on the percentage of total sales of LHN from last year and Holcim historical average from 2013 to 2014. These provisions are mainly related with site restorations and other environmental issues and also with business specific risks like litigation and restructuring costs during the normal course of the business.
Equity								
Share capital	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Capital surplus	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Treasury shares	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value.
Non-controlling interest	%	0%	0%	0%	0%	0%	0%	Equal to the 2015 nominal value. This item is from two companies based in India and in the absence of more information we will assume an equal value in the following years.

Source: The Author

Appendix F: Sales and Costs Breakdown Structure

Table 36 - Forecast cement growth: sector vs LHN

Forecast Sector Growth vs Assumed LHN Sales Growth												
Product/Region	**Unit**	**2016F**		**2017F**		**2018F**		**2019F**		**2020F**		**2021F**	
		Sector	**LHN**	**Sector**	**LHN**	**Sector**	**LHN**	**Sector**	**LHN**	**Sector**	**LHN**	**Sector**	**LHN**
Cement													
Asia Pacific	%	4.7%	2.8%	4.5%	2.7%	4.3%	2.6%	4.1%	2.5%	3.6%	2.1%	3.4%	2.1%
Latin America	%	4.3%	2.6%	4.1%	2.5%	4.0%	2.4%	3.8%	2.3%	4.0%	2.4%	3.8%	2.3%
Europe	%	2.7%	1.6%	2.7%	1.6%	2.7%	1.6%	2.6%	1.6%	2.4%	1.5%	2.4%	1.4%
North America	%	5.0%	3.0%	4.8%	2.9%	4.6%	2.7%	4.4%	2.6%	3.0%	1.8%	2.9%	1.7%
Middle East Africa	%	5.8%	3.5%	5.5%	3.3%	5.2%	3.1%	4.9%	3.0%	5.4%	3.3%	5.2%	3.1%
Aggregates and Ready-Mix													
Asia Pacific	%	6.1%	3.7%	5.7%	3.4%	5.4%	3.3%	5.1%	3.1%	4.8%	2.9%	4.5%	2.7%
Latin America	%	4.6%	2.7%	4.4%	2.6%	4.2%	2.5%	4.0%	2.4%	4.5%	2.7%	4.3%	2.6%
Europe	%	2.7%	1.6%	2.6%	1.6%	2.6%	1.5%	2.5%	1.5%	2.3%	1.4%	2.2%	1.3%
North America	%	2.9%	1.8%	2.9%	1.7%	2.8%	1.7%	2.7%	1.6%	2.3%	1.4%	2.2%	1.3%
Middle East Africa	%	6.0%	3.6%	5.7%	3.4%	5.4%	3.2%	5.1%	3.0%	5.5%	3.3%	5.3%	3.2%

Source: The Freedonia Group; The Author

Table 37 - Detailed LHN sales by region

LHN Forecast Sales by Market and Product (Million CHF)							
Product	**2015**	**2016F**	**2017F**	**2018F**	**2019F**	**2020F**	**2021F**
Cement							
Asia Pacific	7.320	7.527	7.731	7.931	8.127	8.301	8.472
Latin America	2.976	3.053	3.128	3.203	3.276	3.354	3.431
Europe	2.848	2.895	2.943	2.990	3.037	3.081	3.125
North America	2.614	2.693	2.771	2.847	2.922	2.974	3.025
Middle East Africa	4.234	4.382	4.526	4.667	4.806	4.963	5.116
Total	**19.992**	**20.550**	**21.099**	**21.638**	**22.168**	**22.672**	**23.169**
Aggregates and Ready-Mix							
Asia Pacific	1.728	1.791	1.853	1.913	1.972	2.028	2.084
Latin America	265	273	280	287	294	302	309
Europe	4.508	4.581	4.653	4.725	4.796	4.861	4.926
North America	3.064	3.118	3.171	3.224	3.277	3.321	3.365
Middle East Africa	302	313	323	334	344	355	366
Total	**9.867**	**10.075**	**10.280**	**10.482**	**10.682**	**10.867**	**11.050**
Corporate/Eliminations	-376	-386	-395	-404	-414	-422	-431
Group Total Net Sales	**29.483**	**30.239**	**30.984**	**31.716**	**32.436**	**33.117**	**33.788**

Source: The Author

Table 38 - LHN Detailed cost structure

Costs	2016F	2017F	2018F	2019F	2020F	2021F
COGS – Detailed						
Energy Expenses[1]	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%
Raw Materials	38.2%	38.2%	38.2%	38.2%	38.2%	38.2%
Other costs	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%
COGS	55.3%	55.3%	55.3%	55.3%	55.3%	55.3%
Distribution, Selling and others expenses	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%

Source: The Author
Note: [1] Includes fuel and electricity expenses

Table 39 - LHN Detailed costs

Costs (Million CHF)	2016F	2017F	2018F	2019F	2020F	2021F
COGS	16.714	17.125	17.530	17.928	18.304	18.675
Energy Expenses	5.623	5.761	5.897	6.031	6.158	6.282
Raw Materials	6.377	6.534	6.689	6.840	6.984	7.126
Other costs	4.714	4.830	4.944	5.056	5.163	5.267
Distribution, Selling and others expenses	9.386	9.617	9.844	10.068	10.279	10.487
Total Costs	26.099	26.742	27.374	27.995	28.583	29.163

Source: The Author

Appendix F: Sales and Costs Breakdown Structure

Table 40 - LHN Detailed sales in volumes and utilization rates

LHN Cement Sales by Volume, Future Capacity and Utilization Rate								
Product	**Unit**	**2015**	**2016F**	**2017F**	**2018F**	**2019F**	**2020F**	**2021F**
Cement								
Asia Pacific								
Sales	Mt	123	127	130	133	137	140	142
Future Capacity	Mt	162	166	170	174	178	183	188
Utilization Rate	%	76.1%	76.4%	76.5%	76.6%	76.6%	76.3%	76.0%
Latin America								
Sales	Mt	28	29	29	30	30	31	32
Future Capacity	Mt	40	40	41	43	44	45	46
Utilization Rate	%	70.6%	70.7%	70.7%	70.1%	69.9%	69.8%	69.7%
Europe								
Sales	Mt	42	43	43	44	45	46	46
Future Capacity	Mt	78	78	79	79	79	80	80
Utilization Rate	%	54.1%	54.7%	55.4%	56.0%	56.6%	57.1%	57.6%
North America								
Sales	Mt	22	22	23	24	24	25	25
Future Capacity	Mt	32	33	33	34	34	34	35
Utilization Rate	%	67.5%	68.7%	69.8%	70.8%	71.8%	72.2%	72.5%
Middle East Africa								
Sales	Mt	43	45	46	48	49	51	52
Future Capacity	Mt	63	64	66	67	69	71	73
Utilization Rate	%	69.3%	70.0%	70.5%	71.0%	71.3%	71.8%	72.2%
Total Cement Sales	Mt	253	260	267	274	281	287	293
Future Capacity	**Mt**	**374**	**381**	**389**	**397**	**404**	**413**	**421**
Global Utilization Rate	**%**	**67.7%**	**68.3%**	**68.8%**	**69.1%**	**69.4%**	**69.6%**	**69.7%**
Aggregates								
Asia Pacific		35	36	37	39	40	41	42
Latin America		8	8	8	9	9	9	9
Europe	Mt	123	125	127	129	131	133	134
North America		115	117	119	121	123	125	127
Middle East Africa		11	12	12	12	13	13	14
Total		**292**	**298**	**304**	**310**	**315**	**321**	**326**
Ready-Mix								
Asia Pacific		16	16	17	18	18	19	19
Latin America		7	8	8	8	8	8	9
Europe	Mm3	19	19	19	20	20	20	20
North America		9	9	10	10	10	10	10
Middle East Africa		6	6	6	6	6	7	7
Total		**57**	**58**	**60**	**61**	**62**	**64**	**65**

Source: The Author

Table 41 - LHN Ongoing investment projects

Country	Project	Capacity Increased (Mt)
Brazil	Second kiln installation at the Barroso plant and it is expected to be commissioned in the second quarter of 2016.	2.3
India	New cement plant at Jamul is expected to go on stream in the first half of 2016. The production is planned to start in April of the same year.	2.8
Algeria	Construction of a new cement plant began in November 2013 in the region of Biska. The cement production is scheduled to start by March 2016.	2.7
USA	New clinker and cement production line in Ravena located in the northeast of the United States. The production is scheduled to start by the fourth quarter of 2016.	1.9
Nigeria	Second line of clinker and a new cement production line are being built at the Unicem Mfamosing plant. The production is planned to start by the end of 2016.	2.5
Total capacity from the main projects		**12.2**

Source: The Author

The total capacity of these projects is projected to be around 12.2 million tons a year. This increase in capacity corresponds to around 3.26% of the current capacity. In addition, of these 5 projects, only one occurs in a mature market (USA). We assume that in emerging markets the production capacity will grow at a slower rate **(2.5%)** per year for the next five years due to higher growing rates. As for Europe, given the lower utilization rate in comparison with other markets we assume a **0.5%** increase in capacity mostly driven by improving efficiencies. In the case of the USA, we assume that production capacity will grow but at a half rate of those in emerging markets **(1.5%)**. The US utilization rate is the second lower in the entire group but because the market is more dynamic than the European we believe that the capacity will steady increase over time.

Appendix G: LHN Post Merger Portfolio

In the following table, we perform an analysis of total Lafarge and Holcim production assets as of December 31, 2014 (before the merger operation) and compare with the current LHN production facilities. We observe that in mature markets (Europe and North America) there are significant market overlaps. The most substantial are in Europe. From a combined 80 cement production facilities (with 101.7 Mt capacity), the new company has only 55 (with 77.9 Mt capacity).

In emerging markets, the number of disposal assets is not significant if we compare total LHN productions facilities with combined Lafarge and Holcim. The low presence of Lafarge/Holcim in some markets compared with a stronger one in other markets enables the new company to increase its overall market position in high demand regions. This is, therefore, one of the main reasons why LHN has a wider network or cement plants sufficiently diversified that are adequate to respond to local demands without the need of additional large investments.

Table 42 - Pre and Post Merger global production facilities

Region	Lafarge	Holcim	Combined[1]	LafargeHolcim[2]
Asia Pacific				
Cement and Grinding Plants	47	54	101	93
Production Capacity Cement (Mt)	77	96.4	173.4	161.6
Sales of cement (Mt)	**31.9**	**71.2**	**103.1**	**123.1**
Aggregates Plants	7	72	79	70
Sales of Aggregates (Mt)	**8.5**	**24.8**	**33.3**	**34.8**
Ready-Mix Concrete Plants	105	290	395	378
Sales of Ready-Mix Concrete (MM³)	**4.7**	**10.8**	**15.5**	**15.9**
Latin America				
Cement and Grinding Plants	8	27	35	33
Production Capacity Cement (Mt)	7.1	35.3	42.4	39.5
Sales of cement (Mt)	**7.3**	**24.6**	**31.9**	**27.9**
Aggregates Plants	4	12	16	15
Sales of Aggregates (Mt)	**3**	**7.5**	**10.5**	**7.9**
Ready-Mix Concrete Plants	63	109	172	145
Sales of Ready-Mix Concrete (Mm³)	**1.4**	**6.4**	**7.8**	**7.3**
Europe				
Cement and Grinding Plants	46	34	80	55
Production Capacity Cement (Mt)	54.9	46.8	101.7	77.9
Sales of cement (Mt)	**23.9**	**26.4**	**50.3**	**42.1**
Aggregates Plants	250	188	438	276
Sales of Aggregates (Mt)	**54.7**	**73.1**	**127.8**	**123**
Ready-Mix Concrete Plants	475	373	848	595
Sales of Ready-Mix Concrete (Mm³)	**9.3**	**11.9**	**21.2**	**18.7**
North America				
Cement and Grinding Plants	17	17	34	25
Production Capacity Cement (Mt)	16.5	21.9	38.4	32.3
Sales of cement (Mt)	**11.7**	**13**	**24.7**	**21.8**
Aggregates Plants	142	86	228	263
Sales of Aggregates (Mt)	**85.5**	**45.7**	**131.2**	**115.3**
Ready-Mix Concrete Plants	186	148	334	247
Sales of Ready-Mix Concrete (Mm³)	**5.5**	**7.2**	**12.7**	**9.3**
Middle East Africa				
Cement and Grinding Plants	31	12	43	43
Production Capacity Cement (Mt)	59.2	11	70.2	62.5
Sales of cement (Mt)	**41.6**	**8.3**	**49.9**	**43.4**
Aggregates Plants	34	5	39	37
Sales of Aggregates (Mt)	**9.7**	**2**	**11.7**	**11.2**
Ready-Mix Concrete Plants	197	15	212	212
Sales of Ready-Mix Concrete (Mm³)	**5.5**	**0.7**	**6.2**	**5.6**

Source: Company data; The Author
Notes: [1] Sum of both Lafarge and Holcim assets as of December 31, 2015;
[2] Current LHN assets according to the company 2015 Annual Report.

Appendix G: LHN Post Merger Portfolio

The following table presents the main divestments required by the several competition authorities as well as LHN plan to reorganize its global production facilities.

Table 43 - LHN main divestments assets

Country	Comments
France	In metropolitan France, all of Holcim's assets except one cement plant in Altkirch and some aggregates and ready-mix plants in the Haut-Rhin region; A grinding station of Lafarge in Saint-Nazaire; Lafarge's assets on La Réunion island, except for its shareholding in Ciments de Bourbon;
Germany	All of Lafarge's assets (2 cement plants plus 1 grinding plant).
Hungary	All of Holcim's operating assets (16 branch offices).
Romania	All of Lafarge's assets (2 cement plants, 1 grinding plant, 14 aggregates and 34 ready-mix concrete production facilities).
Serbia	All of Hocim's assets (1 cement plant, 2 aggregates and 1 ready-mix concrete production facility).
Slovakia	All of Holcim's assets (2 cement plants, 4 aggregates and several ready-mix concrete production facilities).
UK	Lafarge Tarmac, excluding the Cauldon cement plant and related assets. Also, the Cookstown cement plant will continue to be retained by LHN.
Canada	All of Holcim's assets (2 cement plants, 13 grinding plants, 25 aggregates and 50 ready-mix concrete production facilities).
USA	Holcim's Trident cement plant (Montana) and some terminals in the Great Lakes area.
The Philippines	The shares of Lafarge Republic Inc. (LRI) except LRI's investment in: i) Lafarge Iligan, Inc.; ii) Lafarge Mindanao, Inc.; iii) Lafarge Republic Aggregates, Inc.; and iv) Star Terminal at the Harbour Center, Manila.
Brazil	Assets from both companies, which include three integrated cement plants and two grinding stations (total 3.6Mt cement capacity) as well as some ready-mix located in the Southeastern region of Brazil.
All of the above assets were part of the main divestment business, the **"CRH Divested Businesses".** Total **production capacity** of these assets as of December 31, 2014 was **36.0Mt**. In the same year, **these assets sold 18.1Mt of cement, 27.1Mt of aggregates and 7.3Mm³ of ready-mix concrete**. Moreover, these assets also produce asphalt and other products and conduct road contracting and other construction activities primarily in Canada and UK. CRH paid a total amount of **CHF 6.800 million** in cash in a combination of Euro, Sterling and Canadian Dollars. LHN used most of these **proceeds to repayment of financial liabilities** in order to meet its financial ratios requirements for a solid investment grade credit rating.	
India	Assets from both companies, especially Sonadih cement plant and the Jojobera grinding station from Lafarge (with 5Mt cement capacity) in Eastern India.
USA	Besides assets from the CRH Divested Businesses, Lafarge sold: Davenport cement plant (Iowa) with 1.1Mt cement capacity and 7 terminals along the Mississippi River for a total of USD 450 million. Holcim sold: 3 terminals in Michigan and Illinois to Buzzi Unicem; Holcim Skyway 600 Kt slag grinding station in Illinois to Eagle Materials and Holcim Camden 700 Kt slag grinding station in New Jersey plus a terminal in Massachusetts to Essroc/Italcementi.
Mauritius	All of Holcim's assets (2 grinding plants plus 3 aggregates production facilities).

Source: Company data; The Author

Approvals required by competition authorities have been met before the closing of the deal. Therefore, with a wide variety of assets sold, both companies have obtained clearance for the merger in the following jurisdictions: Brazil, Canada, COMESA (Common Market for Eastern and Southern Africa), EU, India, Kenya, Mexico, Morocco, Russia, Serbia, Singapore, South Africa, Tanzania, Turkey, Ukraine and US.

Appendix H: Cement Market and Future Prospects

Table 44 - Detailed cement demand, production and utilization rates

Region	2009	2010	2011	2012	2013	2014	2015E	2016F	2017F	2018F	2019F	2020F	2021F
World Demand	3.000	3.312	3.585	3.746	4.034	4.140	4.341	4.543	4.745	4.947	5.149	5.338	5.526
World Demand YoY	**-**	**10.4%**	**8.3%**	**4.5%**	**7.7%**	**2.6%**	**4.9%**	**4.7%**	**4.4%**	**4.3%**	**4.1%**	**3.7%**	**3.5%**
World Production	3.050	3.365	3.639	3.783	4.075	4.181	4.382	4.585	4.789	4.993	5.197	5.388	5.579
World Production YoY	**-**	**10.3%**	**8.1%**	**4.0%**	**7.7%**	**2.6%**	**4.8%**	**4.7%**	**4.4%**	**4.3%**	**4.1%**	**3.7%**	**3.5%**
World Capacity	-	4.371	-	5.244	-	5.695	-	-	-	-	-	-	-
World Utilization Rate	-	**77.0%**	-	**72.1%**	-	**73.4%**	-	-	-	-	-	-	-
Asia Pacific													
Demand	2.114	2.403	2.634	2.775	3.034	3.117	3.272	3.426	3.581	3.735	3.889	4.028	4.166
YoY Demand	**-**	**13.7%**	**9.6%**	**5.4%**	**9.3%**	**2.8%**	**5.0%**	**4.7%**	**4.5%**	**4.3%**	**4.1%**	**3.6%**	**3.4%**
Production	2.185	2.453	2.680	2.809	3.073	3.154	3.310	3.465	3.621	3.776	3.932	4.071	4.211
YoY Production	**-**	**12.2%**	**9.3%**	**4.8%**	**9.4%**	**2.7%**	**4.9%**	**4.7%**	**4.5%**	**4.3%**	**4.1%**	**3.6%**	**3.4%**
Capacity	-	3.000	-	3.745	-	4.099	-	-	-	-	-	-	-
Utilization Rate	-	**81.7%**	-	**75.0%**	-	**77.0%**	-	-	-	-	-	-	-
China Demand	1.600	1.850	2.050	2.171	2.400	2.462	2.570	2.678	2.786	2.893	3.001	3.080	3.159
China Demand YoY	**-**	**15.6%**	**10.8%**	**5.9%**	**10.5%**	**2.6%**	**4.4%**	**4.2%**	**4.0%**	**3.9%**	**3.7%**	**2.6%**	**2.6%**
China Production	1.646	1.880	2.080	2.184	2.414	2.476	2.585	2.694	2.803	2.912	3.021	3.101	3.181
China Production YoY	**-**	**14.2%**	**10.6%**	**5.0%**	**10.5%**	**2.6%**	**4.4%**	**4.2%**	**4.0%**	**3.9%**	**3.7%**	**2.6%**	**2.6%**
China Capacity	-	2.269	-	2.950	-	3.160	-	-	-	-	-	-	-
China Utilization Rate	-	**82.9%**	-	**74.0%**	-	**78.4%**	-	-	-	-	-	-	-
India Demand	193	221	237	242	254	264	289	314	339	364	389	422	455
India Demand YoY	**-**	**14.8%**	**7.2%**	**2.1%**	**5.0%**	**4.0%**	**9.5%**	**8.6%**	**7.9%**	**7.4%**	**6.9%**	**8.5%**	**7.8%**
India Production	196	225	241	247	256	265	290	315	340	365	390	424	457
India Production YoY	**-**	**14.7%**	**7.0%**	**2.6%**	**3.7%**	**3.7%**	**9.5%**	**8.6%**	**8.0%**	**7.4%**	**6.9%**	**8.5%**	**7.8%**
India Capacity	-	242	-	300	-	375	-	-	-	-	-	-	-
India Utilization Rate	-	**92.9%**	-	**82.3%**	-	**70.7%**	-	-	-	-	-	-	-
Latin America													
Demand	150	159	170	179	184	188	196	205	213	222	230	239	248
YoY Demand	**-**	**6.6%**	**6.9%**	**4.9%**	**2.8%**	**2.2%**	**4.5%**	**4.3%**	**4.1%**	**4.0%**	**3.8%**	**4.0%**	**3.8%**
Production	152	161	172	179	184	188	194	203	211	220	229	239	249
YoY Production	**-**	**5.9%**	**7.0%**	**3.9%**	**2.6%**	**2.5%**	**2.9%**	**4.6%**	**4.4%**	**4.2%**	**4.0%**	**4.3%**	**4.1%**
Capacity	-	243	-	255	-	273	-	-	-	-	-	-	-
Utilization Rate	-	**66.3%**	-	**70.3%**	-	**68.9%**	-	-	-	-	-	-	-
Europe													
Demand	342	331	351	337	342	347	357	367	377	388	398	407	417
YoY Demand	**-**	**-3.2%**	**6.1%**	**-4.1%**	**1.5%**	**1.5%**	**2.9%**	**2.8%**	**2.7%**	**2.7%**	**2.6%**	**2.4%**	**2.4%**
Production	350	355	376	355	362	370	381	391	401	412	422	432	442
YoY Production	**-**	**1.5%**	**5.9%**	**-5.5%**	**1.9%**	**2.2%**	**2.8%**	**2.7%**	**2.6%**	**2.6%**	**2.5%**	**2.4%**	**2.4%**
Capacity	-	588	-	605	-	621	-	-	-	-	-	-	-
Utilization Rate	-	**60.4%**	-	**58.7%**	-	**59.6%**	-	-	-	-	-	-	-
W. Europe Demand	189	175	175	154	147	143	147	150	154	158	161	165	169
W. Europe Demand YoY	**-**	**-7.2%**	**0.1%**	**-12.3%**	**-4.5%**	**-2.6%**	**2.5%**	**2.5%**	**2.4%**	**2.4%**	**2.3%**	**2.4%**	**2.3%**
W. Europe Production	196	181	188	166	159	159	163	167	171	175	179	183	187
W. Europe Production YoY	**-**	**-7.4%**	**3.8%**	**-12.1%**	**-3.8%**	**-0.5%**	**2.6%**	**2.5%**	**2.4%**	**2.4%**	**2.3%**	**2.4%**	**2.3%**
W. Europe Capacity	-	320	-	300	-	306	-	-	-	-	-	-	-
W. Europe Utilization Rate	-	**56.6%**	-	**55.2%**	-	**51.9%**	-	-	-	-	-	-	-
E. Europe Demand	153	156	176	183	197	204	211	217	224	230	236	242	248
E. Europe Demand YoY	**-**	**1.7%**	**12.9%**	**4.0%**	**7.7%**	**3.4%**	**3.2%**	**3.1%**	**3.0%**	**2.9%**	**2.8%**	**2.4%**	**2.4%**
E. Europe Production	154	174	188	190	203	212	218	224	230	237	243	249	255
E. Europe Production YoY	**-**	**12.8%**	**8.1%**	**1.0%**	**7.0%**	**4.3%**	**3.0%**	**2.9%**	**2.8%**	**2.7%**	**2.7%**	**2.4%**	**2.4%**
E. Europe Capacity	-	268	-	305	-	316	-	-	-	-	-	-	-
E. Europe Utilization Rate	-	**64.9%**	-	**62.2%**	-	**67.0%**	-	-	-	-	-	-	-
North America													
Demand	77	80	81	87	91	98	103	108	113	118	124	127	131
YoY Demand	**-**	**4.1%**	**1.3%**	**7.8%**	**3.9%**	**8.2%**	**4.7%**	**5.0%**	**4.8%**	**4.6%**	**4.4%**	**3.0%**	**2.9%**
Production	70	77	79	87	88	94	99	103	108	112	117	121	124
YoY Production	**-**	**10.3%**	**2.0%**	**9.6%**	**1.8%**	**7.1%**	**4.6%**	**4.6%**	**4.4%**	**4.2%**	**4.1%**	**2.9%**	**2.9%**
Capacity	-	115	-	118	-	114	-	-	-	-	-	-	-
Utilization Rate	-	**67.5%**	-	**73.7%**	-	**82.9%**	-	-	-	-	-	-	-
US Demand	69	72	76	78	82	89	93	98	103	108	113	116	120
US Demand YoY	**-**	**4.9%**	**4.7%**	**2.6%**	**5.0%**	**9.1%**	**4.8%**	**5.2%**	**5.0%**	**4.7%**	**4.5%**	**3.0%**	**2.9%**
US Production	64	68	71	75	79	83	87	91	95	99	104	107	110
US Production YoY	**-**	**5.8%**	**5.5%**	**5.2%**	**4.9%**	**4.7%**	**5.1%**	**4.8%**	**4.6%**	**4.4%**	**4.2%**	**3.0%**	**2.9%**
US Capacity	-	97	-	99	-	98	-	-	-	-	-	-	-
US Utilization Rate	-	**69.7%**	-	**75.6%**	-	**83.9%**	-	-	-	-	-	-	-
Middle East Africa													
Demand	318	338	349	368	383	389	413	437	461	485	509	536	564
YoY Demand	**-**	**6.4%**	**3.1%**	**5.5%**	**4.2%**	**1.4%**	**6.2%**	**5.8%**	**5.5%**	**5.2%**	**4.9%**	**5.4%**	**5.2%**
Production	292	319	331	353	368	374	399	424	448	473	498	525	553
YoY Production	**-**	**9.0%**	**3.9%**	**6.7%**	**4.3%**	**1.7%**	**6.6%**	**6.2%**	**5.8%**	**5.5%**	**5.2%**	**5.5%**	**5.3%**
Middle East Africa Capacity	-	423	-	520	-	585	-	-	-	-	-	-	-
Middle East Africa Utilization Rate	-	**75.3%**	-	**67.8%**	-	**64.0%**	-	-	-	-	-	-	-

Source: CemNet; The Freedonia Group; The Author
Note: Demand and Production are in Mt

Appendix I: Global Cement Trading

Table 45 - Historical cement trading volumes

Cement Trading (Mt)					
Year	**2010**	**2011**	**2012**	**2013**	**2014**
Asia Pacific					
Export	80.3	73.7	70.9	77.5	79.9
Import	45.4	50.6	54.2	56.3	58.6
Net Balance	**34.9**	**23.1**	**16.7**	**21.2**	**21.3**
Latin America					
Export	3.3	3.8	5.0	5.2	5.0
Import	5.2	6.0	10.3	10.2	10.4
Net Balance	**-1.9**	**-2.2**	**-5.3**	**-5.1**	**-5.3**
Europe					
Export	56.8	54.8	57.2	61.4	65.9
Import	30.6	31.1	35.1	36.0	32.4
Net Balance	**26.3**	**23.7**	**22.1**	**25.4**	**33.5**
North America					
Export	4.6	5.2	5.9	5.2	5.1
Import	7.9	8.1	8.9	8.9	10.0
Net Balance	**-3.4**	**-2.9**	**-3.1**	**-3.8**	**-4.9**
Middle East Africa					
Export	31.0	36.9	41.0	47.3	47.9
Import	59.9	52.2	62.9	72.3	76.8
Net Balance	**-28.9**	**-15.3**	**-21.9**	**-25.0**	**-28.9**

Source: CemNet; The Author

Table 46 - Lafarge/Holcim Cement terminals - 2014

Company	Cement Plants	Grinding Plants	Cement Terminals	Total	Concentration Rate
Lafarge	23	16	89	**128**	**10.1%**
HeidelbergCement	11	19	88	**118**	**9.3%**
Holcim	20	20	77	**117**	**9.2%**
Cemex	19	3	71	**93**	**7.3%**
Italcementi	10	7	21	**38**	**3.0%**
Total	**83**	**65**	**346**	**494**	**38.9%**
Concentration Rate	**38.2%**	**33.3%**	**40.4%**	**38.9%**	-
LafargeHolcim*	**43**	**36**	**166**	**245**	**19.3%**
Concentration Rate	**19.8%**	**18.5%**	**19.4%**	**19.3%**	-

Source: Cement Distribution Consultants; The Author
Note: [1] Sum of both Lafarge and Holcim assets as of December 31, 2014

Appendix J: Aggregates Market and Future Prospects

Table 47 - Detailed aggregates demand

Region	2009	2010	2011	2012	2013	2014	2015E	2016F	2017F	2018F	2019F	2020F	2021F
World Demand	31.480	33.226	34.972	36.718	38.464	40.210	42.508	44.806	47.104	49.402	51.700	53.980	56.260
World Demand YoY	-	5.5%	5.3%	5.0%	4.8%	4.5%	5.7%	5.4%	5.1%	4.9%	4.7%	4.4%	4.2%
Asia Pacific													
Demand	19.300	20.750	22.200	23.650	25.100	26.550	28.270	29.990	31.710	33.430	35.150	36.820	38.490
YoY Demand	-	7.5%	7.0%	6.5%	6.1%	5.8%	6.5%	6.1%	5.7%	5.4%	5.1%	4.8%	4.5%
China Demand	12.725	13.790	14.855	15.920	16.985	18.050	19.230	20.410	21.590	22.770	23.950	24.960	25.970
China Demand YoY	-	8.4%	7.7%	7.2%	6.7%	6.3%	6.5%	6.1%	5.8%	5.5%	5.2%	4.2%	4.0%
India Demand	2.720	2.931	3.142	3.353	3.564	3.775	4.076	4.377	4.678	4.979	5.280	5.664	6.048
India Demand YoY	-	7.8%	7.2%	6.7%	6.3%	5.9%	8.0%	7.4%	6.9%	6.4%	6.0%	7.3%	6.8%
Latin America													
Demand	1.445	1.511	1.577	1.643	1.709	1.775	1.860	1.945	2.030	2.115	2.200	2.299	2.398
YoY Demand	-	4.6%	4.4%	4.2%	4.0%	3.9%	4.8%	4.6%	4.4%	4.2%	4.0%	4.5%	4.3%
Europe													
Demand	4.590	4.537	4.484	4.431	4.378	4.325	4.445	4.565	4.685	4.805	4.925	5.037	5.149
YoY Demand	-	-1.2%	-1.2%	-1.2%	-1.2%	-1.2%	2.8%	2.7%	2.6%	2.6%	2.5%	2.3%	2.2%
W. Europe Demand	2.825	2.731	2.637	2.543	2.449	2.355	2.413	2.471	2.529	2.587	2.645	2.701	2.757
W. Europe Demand YoY	-	-3.3%	-3.4%	-3.6%	-3.7%	-3.8%	2.5%	2.4%	2.3%	2.3%	2.2%	2.1%	2.1%
E. Europe Demand	1.765	1.806	1.847	1.888	1.929	1.970	2.032	2.094	2.156	2.218	2.280	2.336	2.392
E. Europe Demand YoY	-	2.3%	2.3%	2.2%	2.2%	2.1%	3.1%	3.1%	3.0%	2.9%	2.8%	2.5%	2.4%
North America													
Demand	2.915	2.985	3.055	3.125	3.195	3.265	3.364	3.463	3.562	3.661	3.760	3.845	3.930
YoY Demand	-	2.4%	2.3%	2.3%	2.2%	2.2%	3.0%	2.9%	2.9%	2.8%	2.7%	2.3%	2.2%
US Demand	2.105	2.160	2.215	2.270	2.325	2.380	2.454	2.528	2.602	2.676	2.750	2.810	2.870
US Demand YoY	-	2.6%	2.5%	2.5%	2.4%	2.4%	3.1%	3.0%	2.9%	2.8%	2.8%	2.2%	2.1%
Middle East Africa													
Demand	3.230	3.443	3.656	3.869	4.082	4.295	4.569	4.843	5.117	5.391	5.665	5.979	6.293
YoY Demand	-	6.6%	6.2%	5.8%	5.5%	5.2%	6.4%	6.0%	5.7%	5.4%	5.1%	5.5%	5.3%

Source: The Freedonia Group; The Author
Note: Demand in Mt

Appendix K: Valuation Methodologies

LHN's final stock price was forecasted using the **Discounted Cash Flow Method (DCF)** as the main model. Moreover, we also apply a **Dividend Discount Model** as well as a **Relative Valuation** to compare with our initial target price.

Discounted Cash Flow Model: The fair market value of a business can be obtained by discounting FCFF and it is more regularly used than FCFE because it does not require the estimation of principal repayments and preferred dividend, making the model more suited when a company's level of future borrowing is expected to change during the forecasting period (DePamphilis, 2010). In addition, the FCFF can be applied for valuing entire firms or just individual operations. DePamphilis (2010) also states that FCFE is best suited for unusual operations such as for valuing financial institutions and leveraged buyouts.

FCFF represents the cash available to satisfy all investors holding claims against the firm's resources. These claim holders include common stockholders, lenders, and preferred stockholders. This model assumes implicitly that the company can always get financing if it can generate sufficient future cash flows to meet or exceed minimum returns required by investors and lenders. However, the firm's financial structure may affect its cost of capital and therefore its value. FCFF can be computed as follows:

$$FCFF = EBIT \times (1 - Tax\ Rate) + D\ \&\ A - CaPEX - \Delta NWC$$

Thus, under this definition, only cash flows from operating and investment activities are considered. The tax rate refers to the firm's marginal tax rate (or sometimes the effective tax rate) and NWC is defined as current operating assets less cash balances and current operating liabilities.

Weighted Average Cost of Capital (WACC): This discount rate is nothing more than the weighted average after-tax of returns expected by different classes of capital that a firm uses (Equity and Debt) over the valuation period. It is the broadest measure of a company's cost of fund and represents the return that a firm must earn to induce investors to buy its common and preferred stock and bonds. WACC is determined using the following formula:

$$WACC = Ke \times \frac{E}{E+D} + Kd \times \frac{D}{E+D} \times (1 - Tax\ Rate)$$

Where,

Cost of Equity (Ke): It is the minimum required rate of return to persuade investors to purchase a firm's equity. This rate can also be seen as an opportunity cost as it represents the rate of return investors should earn by investing in equities of comparable firms. The Cost of Equity can be estimated using the Capital Asset Pricing Model (CAPM) which measures the relationship between expected risk and expected return. It postulates that investors demand higher return rates in order to accept higher levels of risk, more specifically, that the expected return on a security is equal to a risk-free rate plus a risk premium. In our work, we used a multi-factor model, in which we add one more component – Industry Risk Premium – to update for current market conditions. We use the following:

$$Ke = Rf + \beta \times (Rm - Rf) + IRP$$

- **Risk-Free Rate (Rf)**: This rate should reflect the theoretical return for an investor which invests in riskless assets. Moreover, the risk-free rate depends on how long the investor intends to hold the investment. Consequently, the investor who anticipates holding an investment for 5 to 10 years need to use either a 5- or a 10-year riskless rate. Thus, in our work we intend to determine LHN's value for investors pursuing long-term investments and therefore we use the YTM on the Swiss Confederation Triple-A Bonds for a 10-year maturity as a proxy for a riskless investment for Swiss investors at current market conditions.

- **Beta (β)**: The beta coefficient specifies if an investment is more or less volatile than the market. When bigger than 1, it indicates the firm is more volatile than the market and if less than 1 it is the opposite way. A most common method to estimate beta is to regress the stock return against market return. However, we did not follow this methodology due to: **i)** this reflects the firm's business mix over the period of the regression and not the current mix; and **ii)** it reflects the firm's average financial leverage over the period rather than the current leverage. Because LHN is a relatively new company and we do not have historical data we follow a bottom-up approach in which we estimate the current business and financial leverage of the firm. We use the subsequent formulas:

$$B\ell = B\mu \times \left[1 + \left((1 - Tax\ Rate) \times \frac{D}{E}\right)\right] \qquad B\mu = \frac{B\ell}{\left[1 + \left((1 - Tax\ Rate) \times \frac{D}{E}\right)\right]}$$

The beta coefficient was computed using the average of LHN's peer's regression betas. To unlever this previously beta, we also use the average D/E ratios and effective tax rates from all the peers. The LHN levered beta was then calculated by using the targeted D/E ratio with the assumed effective tax rate for the valuation period.

- **Market Risk Premium (MRP)**: The MRP reflects the incremental premium required by investors relative to a risk-free asset (Rm-Rf). From a macroeconomic perspective, the MRP reflects the broader outlook on the whole economy. Factors influencing investors' views on market risk include outlooks for economic growth, consumer demand, inflation, interest rates and geopolitical risks. Therefore, the MRP is a single metric that reflects all these inputs in the expected returns of various assets classes. In our valuation, we use Damodaran's database to access the MRP for Switzerland.

- **Industry Risk Premium (IRP)**: IRP is described as the risk premium by which investors expect a future return of the industry to exceed the market as a whole (Hitchner, 2011). Thus, this rate can be estimated using the Ibbotson formula:

$$IRP = (Ri \times ERP) - ERP$$

Where,

- **Risk Index (Ri)**: Stands for Risk Index for the industry, where we used the average of the leverage betas from LHN's peers. We decided to apply this IRP to deal with negative interest rates. Although these negative rates could be counter-intuitive, we still can use them but we should update our assumptions (nominal growths and risk premiums) to reflect these negative yields (Damodaran A. , Blogger, 2016).

- **Equity Risk Premium (ERP)**: According to Damodaran's calculations as of January 2016.

Effective Tax Rate: Since we do not have historical effective tax rates for LHN, we consider the current Swiss Law on corporate tax rates. The law states that a company pays a federal corporate tax rate equal for all cantons plus a specific canton corporate tax rate where the company is headquarters. The final rate used was 20.5%, where 8% refers to the federal level and 12% for the specific canton area (Jona. St. Gallen).

Cost of Debt (Kd): We assume LHN's cost of debt as the weighted average nominal interest rate on financial liabilities according to 2015 Annual Report. These financial liabilities include all outstanding bonds, commercial paper notes and loans from financial institutions from all regions where the group operates.

Terminal Value: It aims to capture the value of the business beyond the projection period in the DCF analysis. This allows models to reflect returns that will occur so far in the future making them very difficult to forecast. Our final rate is obtained with the several impairments tests terminal rates used in different regions/countries from LHN and its peers. Then we apply a weighted average according to the firm sales by region in 2021F. The initial rate we considered as too high (3.44%) for current market conditions. Thus, we apply a discount of 40% over the initial rate leading us to a more conservative value of 2.07%.

Valuation Period: Our forecasts are from December 31, 2016, to December 31, 2021, adding after this period the projected terminal value.

Dividend Discount Model: When investors buy a stock, the only cash flow received from the firm are dividends. Thus, the simplest model for valuing equity is using a dividend discount model which states that the value of a stock is the present value of expected dividends (Damodaran, 2012). We decide to use this model to evaluate LHN's stock price because historically, Lafarge and Holcim have always paid dividends and the new company intends to pursue the same policy. We specifically choose the **"Three-Stage Dividend Discount Model"** because it combines the features of the two-stage model and H-model, allowing more flexibility. Thus, it is useful for valuing any firm, which in addition to changing growth rates over time it is expected to change in other dimensions, particularly in payout policies (Damodaran, 2012).

Since this model removes many of the constraints imposed by others, it requires a much larger number of inputs such as year-specific payout ratios, growth rates, and betas. However, in our case, we already have all of this information when applying the DCF model and therefore this issue does not apply. We use the following formula:

$$Stock\ Value = \frac{D_1}{(r+1)^1} + \frac{D_2}{(r+1)^2} + \frac{D_3}{(r+1)^3} + \ldots + \frac{D_n}{(r+1)^n} + \frac{\left(D_n \times (1+G_2) + D_n \times H \times (G_1 - G_2)\right)}{\frac{(r-G_2)}{(r+1)^n}}$$

Where,

- $D_1, D_2, .., D_N$: are the expected DPS for the forecasting period;
- **r**: is the discount rate (cost of equity). We assume the same cost over the entire period;
- G_1: represents the expected dividend growth rate. Computed by ROE*(1-payout ratio), where the payout ratio is 30%.
- G_2: represents the final stable dividend growth rate. As specified by Damodaran, world GDP growth rate was used as a proxy.
- **H**: represents one-half of the duration of the transitionary period.

Relative Valuation: In this method, instead of value the firm's cash flows directly, we estimate the company's value based on the value of other comparable firms or investments that we expect will generate very similar cash flows in the future (Berk & DeMarzo, 2014). In this approach, we use valuation multiples based on the firm's enterprise value (EV), because it represents the total value of the company underlying business rather than just the value of equity. Using the EV is also advantageous if we want to compare firms with different amount of leverage, which is our case. The multiples we consider are: **EV to Sales**, **EBITDA** and **Cash Flow from Operations (CFO)**. With these multiples, we are able to compare LHN's operational performance at the same time that they are less susceptible to changes in capital structure giving us less biased results.

Nevertheless, this method has some limitations. First, the usefulness of a valuation multiple depends on the nature of the differences between firms and the sensitivity of the multiples to these differences. Thus, these differences arise mostly due to variances in their expected future growth rates, profitability, risk (and therefore cost of capital) and in some cases, accounting conventions. Second, the other limitation of the model is that it only provides information regarding the value of the firm relative to other firms that are being compared and therefore using multiples will not let us determine if an entire industry is overvalued or undervalued.

We performed a 4-step analysis to find the firms that best compare with LHN business model since identical firms do not exist. These steps are detailed in Appendix O. We use our estimates to forecast LHN multiples for 2016F while for its peers we use values from Thomson Reuters for the same year. The final value of LHN's stock price is reached by averaging the three stock prices from the different multiples.

Appendix L: Discounted Cash Flow Assumptions

Table 48 - WACC assumptions

Weighted Average Cost of Capital (WACC)		
Risk-Free Rate (Rf)	-0.35%	Spot 10-year Swiss government bond as of September 16, 2016.
Industry Risk Premium (IRP)	2.01%	Computed by the Ibbotson through the following formula: (RI*ERP)-ERP, in which RI stands for Risk Index for the Industry and ERP for expected Equity Risk Premium.
Market Risk Premium (MRP)	6.00%	Aswath Damodaran calculations as in January 2016.
Beta (β)	1.08	Detailed below.
Cost of Equity (Ke)	8.11%	**Computed by the CAPM formula: Ke=Rf+β*MRP+IRP**
Cost of Debt	5.1%	Given by the company as the weighted average nominal interest rate on financial liabilities at December 31, 2015.
Corporate Tax Rate	20.5%	According to the current Swiss law on corporate taxes.
After-Tax Cost of Debt	**4.1%**	
Capital Structure	-	Detailed below.
Terminal Growth Rate	2.07%	

Source: The Author

LHN plans to invest an accumulated amount of CHF 3.500 million until 2017 and thereafter it plans to maintain a target of CHF 2.000 million annually. We assume these expenditures will be 50% for each items: Maintenance and Investments in property, plant and equipment like in historical values from Holcim. To compute the Terminal Value, we adjust Capex to the 2.157 (equal to 2021F D&A expenses), because in the limit the company wouldn't have any assets in the future.

Table 49 - Detailed LHN Capex

Item	2015	2016F	2017F	2018F	2019F	2020F	2021F
Capex							
Investments in maintenance	981	875	875	1.000	1.000	1.000	1.000
Investments in property, plant and equipment for expansion	1.007	875	875	1.000	1.000	1.000	1.000
Divestments	7.222	3.500	0	0	0	0	0
Capex Net	**(5.234)**	**(1.750)**	**1.750**	**2.000**	**2.000**	**2.000**	**2.000**
Amortization, Depreciation and Impairment							
D&A Operating assets	1.863	1.802	1.863	1.933	2.002	2.072	2.141
D&A Non-operating assets	14	14	14	15	15	16	16
Impairments	2.697	0	0	0	0	0	0
Total D&A and Impairment	**4.574**	**1.816**	**1.877**	**1.947**	**2.017**	**2.087**	**2.157**
Property, Plant and Equipment							
At cost of acquisition	53.597	51.847	53.597	55.597	57.597	59.597	61.597
Accumulated depreciation/impairment	16.850	18.666	20.543	22.490	24.507	26.594	28.751
Net Book Value	**36.747**	**33.181**	**33.054**	**33.107**	**33.090**	**33.003**	**32.846**

Source: Company data; The Author

As part of LHN strategy to refinance its debt, we assume that in 2016F the company will decrease its short-term liabilities by CHF 3.633, in part from the CHF 3.500 divestment plan and the remaining with cash surplus. For the rest of the period, we also assume the firm will refinance mostly of their short-term debt to longer maturities.

Table 50 - LHN Loans schedule

Loan Schedule (Million CHF)	2015	2016F	2017F	2018F	2019F	2020F	2021F
Loans from financial institutions	4.886	2.053	1.156	760	401	166	14
Bonds and private placements	15.447	12.731	10.395	8.514	6.649	4.480	3.780
Commercial paper notes	1.258						
New Loans	-	2500	3.000	2.000	2.000	2.200	800
Cumulative new loans	-	2500	5.500	7.500	9.500	11.700	12.500
Total Loans and Bonds (end year)	**21.591**	**17.284**	**17.051**	**16.774**	**16.550**	**16.346**	**16.294**
Total short-term financial liabilities	**6.866**	**3.233**	**2.277**	**2.224**	**2.404**	**675**	**700**
Total long-term financial liabilities	**14.925**	**17.284**	**17.051**	**16.774**	**16.550**	**16.346**	**16.294**
Total financial liabilities	**21.791**	**20.517**	**19.328**	**18.998**	**18.954**	**17.021**	**16.994**

Source: Company data; The Author

Table 51 - LHN Loans payments schedule

Debt payments (Million CHF)	2016F	2017F	2018F	2019F	2020F	2021F	Thereafter
Loans from financial institutions	2.833	897	396	359	235	152	14
Bonds, private placements and commercial paper notes	3.974	2.336	1.881	1.865	2.169	700	3048
Current loans payments	**6.807**	**3.233**	**2.277**	**2.224**	**2.404**	**852**	**3.062**

Source: The author

Appendix M: Discounted Cash Flow Analysis

Table 52 - DCF analysis

DCF Analysis	2016F	2017F	2018F	2019F	2020F	2021F	Perpetuity
Cost of Equity							
Risk-Free Rate (Rf)	-0.35%	-0.35%	-0.35%	-0.35%	-0.35%	-0.35%	-0.35%
Industry Risk Premium (IRP)	2.01%	2.01%	2.01%	2.01%	2.01%	2.01%	2.01%
Market Risk Premium (MRP)	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Beta (β)	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Cost of Equity (Ke)	8.11%	8.11%	8.11%	8.11%	8.11%	8.11%	8.11%
Cost of Debt							
Cost of Debt	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
Corporate Tax Rate	20.50%	20.50%	20.50%	20.50%	20.50%	20.50%	20.50%
After-tax Cost of Debt	4.05%	4.05%	4.05%	4.05%	4.05%	4.05%	4.05%
WACC							
Weight of Equity	61.91%	64.13%	64.82%	64.91%	68.46%	68.43%	70%
Weight of Debt	38.09%	35.87%	35.18%	35.09%	31.54%	31.57%	30%
WACC	6.57%	6.66%	6.69%	6.69%	6.83%	6.83%	6.90%

Source: The Author

Table 53 - FCFF

Millions CHF	2016F	2017F	2018F	2019F	2020F	2021F	Terminal
EBIT(1-Corporate Tax Rate)	1.998	2.547	2.649	2.670	2.686	2.701	2.701
D&A	1.877	1.816	1.877	1.947	2.017	2.087	2.087
Net Increase in NWC	(184)	108	40	28	26	26	26
Capex	(1.750)	1.750	2.000	2.000	2.000	2.000	2.087
FCFF	**5.809**	**2.505**	**2.486**	**2.589**	**2.677**	**2.763**	**2.675**

Source: The Author

Table 54 - LHN Forecasted EV

Enterprise Value	
Terminal Growth Rate	2.07%
Perpetuity WACC	6.90%
Terminal Value (Million CHF)	55.398
PV of Terminal Value (Million CHF)	37.131
NPV of FCFF (Million CHF)	15.480
Enterprise Value (Million CHF)	**52.611**

Source: The Author

Table 55 - DCF price target

Price Target	
Enterprise Value (Million CHF)	52.611
Net Debt (Million CHF)	16.318
Value of Equity (Million CHF)	36.294
No. Of Shares Outstanding (Million)	606.9
Price at the YE2016 (CHF per share)	**59.80**
Price at September, 30th 2016	52.50

Source: The Author

Appendix N: Dividend Discount Model Analysis

Table 56 - Three Stage DDM assumptions

Three Stage Dividend Discount Model		
High Growth Period		
Cost of Equity (Ke)	8.11%	Equal to Ke used in the DCF method.
Expected growth rate (G_1)	3.27%	Computed using the following formula: ROE*(1-Payout Ratio), in which the Payout Ratio is 30% as initially assumed for the 2016F year.
Transition Stage (H)	4	We assume a 4-year transition stage.
Stage Growth Period		
Cost of Equity (Ke)	8.11%	Equal to Ke used in the DCF method.
Growth rate of economy (G_2)	2.31%	According to Damodaran, we use as a proxy the economy GDP growth rate. Because LHN has business at global level, we choose the world GDP growth rate forecasted by the IMF for 2021F. Moreover, we apply a 40% discount over that rate to update for current market conditions enabling us to achieve a more conservative value.

Source: The Author

Table 57 - Total dividends paid

Million CHF	**2016F**	**2017F**	**2018F**	**2019F**	**2020F**	**2021F**
Net Income	1.560	2.198	2.316	2.374	2.385	2.439
Dividends	468	879	1.158	1.306	1.431	1.585
Cash Dividend	790	941	615	664	646	770
Total Dividends Paid	**1.258**	**1.820**	**1.773**	**1.970**	**2.077**	**2.355**

Source: The Author

Table 58 - Three Stage DDM price target

Year	**EPS**	**DPS**	**Ke**	**PV Dividends**
2016F	2.57	2.07	8.11%	1.92
2017F	3.62	3.00	8.11%	2.57
2018F	3.82	2.92	8.11%	2.31
2019F	3.91	3.25	8.11%	2.38
2020F	3.93	3.42	8.11%	2.32
2021F	4.02	3.88	8.11%	2.43
Sum PV Dividends				**13.92**
Terminal Price				71.05
PV Terminal Price				44.49
PV Dividends + PV Terminal Price				**58.41**

Source: The Author

Appendix O: Comparable Companies

In order to find the best suitable comparable companies, we follow a 4-step process, in which in every of those steps we eliminate a firm if it do not fulfill the pre-specific eligibility criteria. Because LHN operates in the construction materials sector and more specifically the sub-sector of cement, concrete and aggregates, our base sample is taken from the Global Cement Directory 2016 and from Thomson Reuters and only includes companies with business in these areas. There are other sub-sectors of the construction material industry such as steel, glass and other high performance materials that were initially excluded.

1st Step: Initial sample

The initial sample has 12 companies taken from both sources. As stated above, we only include companies operating in the same sub-sector as LHN because they tend to have similar production and business structures. The initial sample did not include CRH because their cement production capacity was not updated by the values after the acquisition of several assets from Lafarge and Holcim. However, the fact that CRH had become a major player in the industry after the deal lead us to include the company in the initial sample.

Table 59 - Peers: Initial sample

Companies	Production Capacity (Mt) - 2015
Anhui Conch	217.2
Buzzi Unicem	45.1
Cemex	92.9
China Resources	79.3
CNBM (Sinoma)	176.2
CRH	42.0
Eurocement	45.1
HeidelbergCement	129.0
Italcementi	60.0
Taiwan Cement	63.7
Votorantim	45.0
Combined Production Capacity (Mt)	**995.5**
World Production 2015	**4180**
% of world production from the initial sample	**23.8%**

Source: Global Cement Magazine; Thomson Reuters; The Author

The combined cement capacity of the selected companies represented nearly 23.6% of total cement production worldwide in 2015. Because this industry does not have a high concentration degree like other mature industries, we believe the initial sample is a good proxy for the whole market.

2nd Step: Exclude non-traded and state owned companies

LHN is a publicly traded company and therefore it needs to comply with several legal requirements such as audited financial information and governance. We only choose publicly traded companies since some of private companies identified in table - 60 do not reveal important information for our analysis.

Fully state owned companies (e.g. China) are also excluded because we believe that they do not compete in a fairly and open market. As such, most of Chinese companies depend on allowances and subsidies from central governments and are protected from foreign competitors.

Table 60 - Peers: Non-traded/state owned

Companies	Free-Float	Investors	Peer?
Anhui Conch	**-**	**State Owned**	**NO**
Buzzi Unicem	43.2%	Private	YES
Cemex	100.0%	Private	YES
China Resources	26.6%	State Owned/Private	YES
CNBM (Sinoma)	**-**	**State Owned**	**NO**
CRH	100.0%	Private	YES
Eurocement	**-**	**Private**	**NO**
HeidelbergCement	73.8%	Private	YES
Italcementi	55.2%	Private	YES
Taiwan Cement	88.5%	State Owned/Private	YES
Votorantim	**-**	**Private**	**NO**

Source: Thomson Reuters; Companies data; The Author

3rd Step: Similar Business Structure

The main revenue source of LHN is the cement with around 66% of total sales and the other two segments - aggregates and ready-mix concrete - report for 14% and 32% respectively. Thus, we consider that proper comparable companies should present a similar sales structure. As so, we target that at least of 40% of their sales should come from cement and 30% from aggregates and ready-

mix concrete. Moreover, if a company only produces cement and not the other two main products, they are not excluded as they continue to compete with LHN main product.

Table 61 - Peers: Similar business structure

Companies	Cement	Aggregates	Read-Mix	Others	Peer?
Buzzi Unicem	64%	18%	18%	-	YES
Cemex	46%	15%	39%	-	YES
China Resources	83%	-	17%	-	YES
CRH		52.60%		47.40%	YES
HeidelbergCement	41%	17%	30%	12%	YES
Italcementi	66.50%	27.2%		6.30%	YES
Taiwan Cement	73%	-	-	26%	YES

Source: Thomson Reuters; Companies data; The Author

In the case of **CRH**, the company operates in three segments:
- Heavyside Materials – This segment comprises the cement, aggregates and ready mix and other heavy construction materials. LHN assets that were sold to CRH are already comprised in this segment.
- Lightside Materials – Sell construction accessories, shutters, awnings, fences, and others.
- Distribution – Engages in the distribution of construction materials mainly to small and medium-sized builders.

We consider that the company has the minimum requirements to pass to the final phase since it does not disclosure the percentage of cement, aggregates and ready-mix sales of the total Heavyside segment. Additionally, with the acquisition of LHN assets their cement production capacity almost double (19 to 42 million tons) and therefore become one of the main players of the industry.

As for **Italcementi**, the company does not separate the revenues from aggregates and ready-mix and therefore we do not have the specific information on either segments.

4th Step: International Diversification

This criteria will exclude companies that are concentrated only in one geographic area. Given that LHN operates globally, we consider that the strongest competitors are the ones who are able to compete for the same local markets and have a global network of production facilities.

Table 62 - Peers: International diversification

Companies	Europe	Americas	Asia-Pacific	Middle East Africa	Peer?
Buzzi Unicem	66.0%	34.0%	-	-	YES
Cemex	24.8%	62.6%	4.9%	7.7%	YES
China Resources	**-**	**-**	**100%**	**-**	**NO**
CRH	44.6%	55.4%	-	-	YES
HeidelbergCement	41.3%	29.2%	21.6%	7.9%	YES
Italcementi	47.7%	13.8%	14.6%	23.8%	YES
Taiwan Cement	**-**	**-**	**100%**	**-**	**NO**

Source: Thomson Reuters; Companies data; The Author

The following table summarizes the firms that fulfil all our pre-specified conditions to be considered a proper comparable company.

Table 63 - Final peers selection

Companies	Peer?
Buzzi Unicem	YES
Cemex	YES
CRH	YES
HeidelbergCement	YES
Italcementi	YES

Source: The Author

Appendix P: Multiples Valuation

Table 64 - Peers multiples 2016F

Peers Multiples 2016F			
Multiple	**EV/SALES**	**EV/EBITDA**	**EV/CFO**
Buzzi Unicem	1.35	7.06	10.34
Cemex	1.80	9.73	16.05
CRH	0.99	8.85	11.98
HeidelbergCement	1.65	8.42	12.71
Italcementi	1.50	9.93	14.99
1st Quartile	1.17	7.74	11.16
Median	1.50	8.85	12.71
Mean	1.46	8.80	13.21
3rd Quartile	1.72	9.83	15.52
LHN Multiples	1.74	11.46	12.13
% Dif. using median	16.3%	29.4%	-4.5%
% Dif. using mean	19.4%	30.3%	-8.2%
Average Mean % Dif.		**13.8%**	

Source: Thomson Reuters; The Author

Table 65 - LHN price target - Multiples

Multiple Valuation			
Enterprise Value Multiple	**EV/SALES**	**EV/EBITDA**	**EV/CFO**
Multiple	1.46	8.80	13.21
Enterprise Value (Million CHF)	**44,078**	**40,379**	**57,309**
Net Debt (Million CHF)	16,318	16,318	16,318
Equity (Million CHF)	27,760	24,062	40,992
Target Price	45.74	39.65	67.54
Average Target Price (CHF)		**50.98**	

Source: The Author

Appendix Q: DuPont Identity

Table 66 - DuPont Identity

Million CHF	2015	2016F	2017F	2018F	2019F	2020F	2021F
Net Income	-1.362	1.560	2.198	2.316	2.374	2.385	2.439
Total Sales	23.584	30.239	30.984	31.716	32.436	33.117	33.788
Net Profit Margin	-5.78%	5.16%	7.10%	7.30%	7.32%	7.20%	7.22%
Net Income	-1.362	1.560	2.198	2.316	2.374	2.385	2.439
EBT	-684	1.962	2.765	2.913	2.986	3.000	3.068
Tax Burden (1-tax rate)	199.12%	79.50%	79.50%	79.50%	79.50%	79.50%	79.50%
EBT	-684	1.962	2.765	2.913	2.986	3.000	3.068
EBIT	65	2.513	3.203	3.332	3.358	3.379	3.398
Interest Burden	-1052.31%	78.10%	86.33%	87.42%	88.92%	88.80%	90.29%
EBIT	65	2.513	3.203	3.332	3.358	3.379	3.398
Total Sales	23.584	30.239	30.984	31.716	32.436	33.117	33.788
EBIT Margin	0.28%	8.31%	10.34%	10.51%	10.35%	10.20%	10.06%
Total Sales	23.584	30.239	30.984	31.716	32.436	33.117	33.788
Total Assets	73.298	69.937	70.112	70.473	70.758	70.956	71.076
Asset Turnover	32.18%	43.24%	44.19%	45.00%	45.84%	46.67%	47.54%
Total Assets	73.298	69.937	70.112	70.473	70.758	70.956	71.076
Shareholder's Equity	35.721	33.347	34.556	35.001	35.063	36.941	36.839
Leverage Ratio	2.05	2.10	2.03	2.01	2.02	1.92	1.93
Return on Equity - 5 Step	-3.81%	4.68%	6.36%	6.62%	6.77%	6.46%	6.62%

Source: The Author

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