Mergers and Acquisitions:

The Case of Cimpor and InterCement

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ABSTRACT

In June of 2012 Camargo Corrêa, the Brazilian Family Group that controlled the Brazilian cement producer InterCement, acquired 61% of the Portuguese cement production leader, Cimpor, with an offer price of 5.5 Euros, allowing Camargo Corrêa to take full control of Cimpor by owning 94% of the company.

Cement is an industry characterized by huge production scales and high initial investments, with an enduring trend of consolidation among cement's biggest international producers, and this deal comes at the tail-end of the 2008 financial crisis, which marked the European macroeconomic environment, particularly the sovereign treasury of the PIGS (Portugal, Ireland, Greece and Spain).

According to the model used in this work, Cimpor's share price at the time of the acquisition announcement is found to be undervalued, with 14.8% upside potential. Moreover, adding the forecasted synergies to the model implies a fair offer price of 6.14 Euros, which results in a 23% premium over Cimpor's closing price.

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List of Abreviations

APV	Adjusted Present Value
BCP	Banco Comercial Português
CAPM	Capital Asset Pricing Model
CAGR	Compound Annual Growth Rate
CGD	Caixa Geral de Depósitos
CAPEX	Capital Expenditures
CAPM	Capital Asset Price Model
Tc	Corporate Tax Rate
Rd	Cost of Debt
Re	Cost of Levered Equity
D&A	Depreciations and Amortizations
DCF	Discounted Cash Flow
EBIT	Earnings Before Interests and Taxes
EBITDA	Earnings Before Interests Taxes Depreciations and Amortizations
EV	Enterprise Value
FCFF	Free Cash Flows to the Firm
GDP	Gross Domestic Product
HTLs	High Leverage Transactions
Rm-Rf	Market Risk Premium
M&A	Merger and Acquisition
NOPAT	Net Operating Profit After Taxes
NWC	Net Working Capital
P/E	Price to Earnings ratio
PEG	Price to Earnings to Growth ratio
P/Sales	Price to Sales ratio
R&D	Research and Development
ROIC	Return on Invested Capital
Rf	Risk-free Rate
TGR	Terminal Growth Rate
TV	Terminal Value
US	United States
WACC	Weighted Average Cost of Capital

1. Introduction

The focus of this dissertation is on Mergers and Acquisitions (M&A). Its goal is to analyze the deal between Camargo Corrêa and Cimpor in June of 2012 and to present the possible financial and strategic reasons that may have justified it.

First of all, this work will begin with a deep analysis of the current academic literature concerning valuation issues and frameworks. Additionally, still in the same section, I will address other issues concerning some M&A trends and this deal in particular. Therefore, the literature review will provide the theoretical foundation to the work that will then follow.

Secondly, the most important features of the cement industry as a whole, and of Cimpor and InterCement in particular will be addressed, with particular emphasis on the consolidation trend that is currently driving the industry and on the companies' historical financials.

With these two sections serving as a base, I will present a model to value both companies, as well as the merged one (with and without synergies), with the proper fundamentals. This work will devote special attention to revenues forecasts as well as to the computation of the discount rates that will be used. Having presented the model, the work will bring numbers to the table when providing enterprise values, market capitalizations and share prices both for the standalone companies and for the merged one. The focus, however, will be on Cimpor's valuation with and without synergies, since it is the most important issue to be analyzed and discussed in this deal.

I will end with a comparison between the values implied by the model used and those that featured this deal, as well as with other analysts' valuations; I will also analyze the underlying strategies and financial incentives behind this deal, and will finish with a general conclusion trying to summarize all the relevant issues regarding this acquisition.

2. Literature Review

As Damodaran (2006) puts it "Valuation lies at the heart of much of what we do in finance", albeit it is not rocket science. In fact, Carabias and Fernández (2006) argue that valuations are more built on opinions than on scientific facts because they are conditioned by the set of expectations of whoever is conducting them. Moreover, Young's *et al.* (1999), "all roads lead to Rome" means that the final result obtained by different valuation approaches may actually be the same, while in turn, the choice of the model is the result of one's decision about which aspects to make clear and which ones to obscure.

Due to the vastness of existing research on valuation, it is wiser to summarize and separate the main methodologies in four (with a variety of derivations) (Damodaran, 2006): Discounted Cash Flows (DCF); asset-based valuations; contingent claim valuations and relative valuations. In this work, I will only address DCF and relative valuations, both because they are the most commonly used and also due to the existing extensive literature about them.

2.1. Discounted Cash Flow Approach

Discounted Cash Flow (DCF) methods comprise two possible approaches: the equity one ─ where the dividend stream is the basis for the valuation ─ and the firm one ─ which values the business as a whole (enterprise value). In this work I will focus only on the latter, since I believe it is more pertinent to first value the whole company and only then separate between the firm's market capitalization and its debt value.

Damodaran (2006) states that in order to estimate the value of an asset, one should calculate its cash flows' present values and to obtain the value of the entire business forecasting the Free Cash Flows to the Firm (FCFF) is the more appropriate approach:

Operating Income (EBIT)

- Normalized tax on EBIT

= NOPAT (EBIAT)

+ Depreciations and Amortizations

- Investments in Working Capita

- Capital Expenditures

=Free Cash Flow to the Firm

The DCF model is a function of the forecast it relies on. Thus the appropriateness of using this method depends on how accurately the cash flow projections and risk measures are calculated, and of how real the assumptions are when computing the cost of capital. This is why errors in estimating Return on Invested Capital (ROIC), growth rates and Weighted Average Cost of Capital (WACC) can sometimes lead to severe errors in valuation (Goedhart, Moller and Wessels, 2005).

Having said that, there have been several debates on whether to use DCF or relative valuations when valuing a company. Within this discussion range, Kaplan and Ruback (1996) compared the DCF model with the Multiples' method using High Leverage Transactions (HTLs)[1] and concluded that DCF's estimates "were 'clustered' more tightly around the actual values".

2.1.1. Weighted Average Cost of Capital

The DCF model implies that future cash flows be discounted according to their riskiness, which consequently is the same as saying that they should be discounted using a rate that describes the "opportunity cost of investing capital in assets of similar risk and duration" (Kester and Morley, 1997).

In order to calculate this opportunity cost of the business, one needs to first estimate the required rates of return for debt and equity, and then weight them with each's respective proportional claims before adding the two components together. As a result, WACC is the most common tool to discount the future cash flows of a firm according to its capital structure, and it will be the tool used in this work. The formula can be displayed as follows:

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[1] The use of HLTs in the study is based on the fact that in this type of transactions the participants are required to make detailed cash flow projections public.

$$WACC = R_E \times \frac{E}{D+E} + R_D \times \frac{D}{D+E} \times (1 - T_c)$$

2.1.2. Capital Asset Pricing Model

Although there are several methods to calculate the cost of equity of a project, the Capital Asset Pricing Model (CAPM) tends to be the one that generally gathers more consensus. CAPM is a model that specifies expected returns for use in capital budgeting, valuation, and regulation, and considers risk premium on an individual security as a function of it systematic risk, measured by the covariance with the market.

However, some authors disagree on the latter. In fact, in their 1992 well-known study, Fama and French (1992) argued that stock returns were correlated with firm size and book-to-market rations instead of with measures of systematic risk, as the CAPM implies.

On the other hand, Kaplan's and Ruback's study (1996) valued the HLTs' cash flows using a discount rate based on CAPM and their work can be viewed as a test to this model. Contrary to Fama and French, they concluded that the implied risk premium was positively related to firm and industry betas. It is important to repeat that this study was based on HLTs mostly because their participants were required to disclose their own cash flow projections, which gives some robustness to the model in question.

To conclude, and taking into account what was already said in this section, I will use CAPM to calculate the cost of equity. Its computation requires the use of a risk-free rate, a "beta" and a risk premium.

2.1.2.1. Risk-Free Rate

A risk-free investment implies, first of all, its actual returns to be equal to its expected returns, and secondly, that there is no reinvestment risk associated with it (Damodaran, 2008). Although the theoretical importance of the second condition cannot be ignored, its practical application seldom makes any difference in the final value. Notwithstanding, it is advisable that the duration of the risk free asset matches the duration of the cash flows being analyzed. As a result, for long-run projects, 10-Year government bond rates seem to be the most appropriate to discount these project's cash flows.

However, special attention is necessary if long-term, traded government bonds are not available for a specific currency. This being the case, a different currency should be use or, if possible, risk-free rates from forward markets should be estimated.

Regarding the first suggestion, if one choses to use the risk-free rate of the mature market long-term government bond, the cash flows have to be converted to the respective currency. This is done by estimating future exchange rates.

When it comes to convert the local discount rate to the foreign one, the formula is the following:

$$Rf_{local\ currency} = \left(1 + Rf_{foreign\ corrency}\right) \times \frac{1 + Expected\ Inflation_{local\ currency}}{1 + Expected\ Inflation_{foreign\ currency}} - 1$$

In addition, when there is a default risk associated with a certain government bond, the rate that should be used must be net of the default spread[2]. As in this work it will be possible to estimate future exchange rates, cash flows from foreign projects will be converted to the local currency on a yearly basis.

2.1.2.2. Risk Premium

Damodaran states that "the expected return on any investment can be written as the sum of the risk-free rate and an extra return to compensate for the risk". The most common method to estimate the latter, known as equity risk premium, is the use of historical premium earned by stocks over default-free securities throughout long periods of time in mature markets (Damodaran, 2008). However, some issues still rise in contemporary literature regarding the use of this method. The first one concerns how far backward analysts should go in choosing a time frame to retrieve the historical risk premium from - the less the number of years taken into account, the more update estimations will be, albeit at the same time registering larger standard errors. Furthermore, to compute the premium, the risk free rate chosen must be consistent with the one used

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[2] Typically the default spreads for bounds are associated with the respective sovereign rating classes.

to compute expected returns. The last issue regarding the use of historical premiums is whether to use arithmetic or geometric averages.

Having in mind testing whether the use of the arithmetic average historical risk premium was appropriate, Kaplan and Ruback (1996) "inverted" the DCF analysis to come up with an implied discount rate (*i.e.*, the discount rate that would make the DCF forecasts yield the exact transaction value). The value they came up with was 7.8% in the median case, which is significantly close to the historical arithmetic average risk premium (7.4%). Taking this study into consideration, I will use the arithmetic average when computing the historical risk premium.

There is, however, a problem when estimating the risk premium for emerging markets due its short and volatile data. Damodaran gathered historical risk premiums for major non-United States (US) markets and concluded that some countries had risk premiums below 1%, and in some cases even negative ones. Consequently, and has historical premiums for emerging markets are not valid when applying risk models, the approach to be used has to include the country risk premium:

Assuming that the degree of exposure to the country risk is equal to the degree of exposure to systematic risk (Damodaran, 2008), this country risk premium would simply be added to the original equity risk premium.

$$Equity\ Risk\ Premium = Base\ Premium\ for\ Mature\ Equity\ Market + Country\ Premium$$

Considering the US equity market as a mature one, one can gather sufficient historical data to make a correct estimate of the risk premium. Then, through estimations of country premiums available on Damodaran website it is possible to compute a foreign project's total equity risk premium.

2.1.2.3. Beta

CAPM implies the estimation of a "beta" (B) which is a measure of the risk that a certain investment adds to the market portfolio (Damodaran, 2002). An asset's beta can be estimated through two different methods: the first one consists in regressing the returns

on an asset against the returns of an index representing the market portfolio. Different choices of a Market Index, time period, and return interval may result in different beta values for the same asset.

Despite all this issues, the most important one concerns the fact that this beta estimation is based upon historical data, thus not taking into account firm's changing features over time, particularly when recent leverage changes have occurred.

The second method consists in using the average beta for the industry since market expectations are already included in it. Damodaran (2002) suggests the use of Bottom-Up Betas, which takes into account the updated degrees of operating and financial leverage. Plus, it assumes that if all of the firm's risk is borne by the stockholders, the beta of debt is zero. Therefore, to estimate the unlevered beta for the business the firm is involved in, Copeland *et al.* (2000) recommend using the published estimates of the unlevered beta for the industry – which already includes market expectations. Assuming that the relative risk of firms is similar across markets, one is allowed to use bottom-up betas for companies in the same business in the United States (Damodaran, 2002). In addition, by assuming that all firms in a sector have the same operating leverage one can directly use these betas without adjusting for eventual differences between the average firm in the industry and the firm being valued.

$$B_L = B_U \times \left(1 + (1 - T_C) \times \frac{D}{E} \right)$$

2.1.3. Cost of Debt

The cost of debt is used to calculate the cost of debt financing for a certain project (Damodaran, 2006). It is computed adding the risk-free rate to the company's default spread (related to the company default risk). In order to estimate the latter, Damodaran (2002) proposes linking the interest coverage ratio[3] and the financial rating. Additionally, to use the cost debt in the WACC calculation, one needs to know the market value of debt. Brigharm and Ehrhardt (2011) state that "if the company's debt is not publicly traded, then it is reasonable to use the book value of debt" because "book and market

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[3] The interest coverage ratio is used to access how easily or not is a company able to pay interest on its outstanding debt. Usually, the ratio is EBIT / Interest Payments.

values of debt are usually close to one another". However, such method cannot be used if the company has debt trading in the market in the form of bonds.

2.1.4. Terminal Value

The terminal value of a project represents a significant part of its present value and always has to be included (Kester and Morley, 1997). Before computing the terminal value, the length of the forecasting time frame must be calculated. Then, assuming that the last periods' cash flows will be generated as a growing perpetuity is the most appropriate method regarding concerns with the indefinite life of the project (Ohlson and Zhan, 1999).

The growth rate to be applied should determine the annuity requirements for working capital and investment. Steiger (2008) stressed that the terminal growth rate should be similar to the nominal GDP growth, since in the long-run a company is not expected to grow faster than the country's economy where it has its business. Also, during the stable stage of the business capital expenditures (CAPEX) should be equal to depreciations and amortizations (D&A) (Kaplan and Ruback, 1996). Finally, since the final enterprise value is mostly driven by WACC and the terminal growth rate, sensitivity analysis are often recommended.

Some argue that, because the perpetuity method depends too much on the growth rate used, applying an EBITDA multiple to the last year EBITDA is more advisable. However, according to Kapan and Ruback (1996), "by using the cash flows forecast over the forecast period and then applying the current EBITDA multiple at the end of the period, the hybrid approach effectively double-counts the higher growth during the forecast period".

2.1.5. Adjusted Present Value

Although only the WACC method is going to be used in this work, one cannot ignore the existence of its main alternative: according to Luehrman (1997), "Adjusted Present Value works when WACC does, and sometimes when WACC doesn't, because it requires fewer restrictive assumptions". The main assumption when applying the WACC method

is a constant ratio of debt to total capital. Although it is possible to recalculate the WACC for every period taking into account the leverage evolution, this work is difficult and tedious and it may generate some confusion regarding where the value of the company is coming from.

In addition, the weights attributed to equity and debt when computing WACC are based on their market values. Luehrman emphasizes this issue by saying that "if we knew the true market value of the assets, we wouldn't need to do the analysis in the first place".

Having this in mind, one could say that APV is a better tool when addressing the origin of value creation, as it distinguishes between the value of the project alone and the inherent financing side effects:

$$APV = Base\ Case\ Value^4 + \text{Value of all Financing Side Effects}^5$$

If on the one hand it is rather consensual that APV is a better method when the companies are highly levered and their financial structure is projected to vary significantly during the forecasted periods, the same does not apply when choosing which rate to use to discount the financial effects' cash flows.

By using APV, one ensures that the discount rates only contains the time value of money (risk-free rate of interest) and a risk premium (according to the riskiness of the cash flows being discounted). Any other value generated by financial maneuvers (e.g. tax savings, risk management, etc.) has its own cash flow consequences.

The reason behind the use of WACC instead of APV is the assumption of a constant leverage ratio in the forecasted time period, for both companies, which makes APV useless for valuation purposes in this work.

2.2. Multiples

As stated earlier, in addition to DCF, I will also use the multiples' approach which, instead of relying on forecasts, requires a look at how the company's peers are valued by the market. However, two conditions must be verified for the sake of accuracy: the comparable companies used should bear the same level of risk and should have similar

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[4] Value of the project as if it was financed entirely with equity.
[5] Interest Tax Shields, Cost of Financial Distress, Subsidies, Hedges, Issue Costs, Other Costs.

expectations for growth and Return on Invested Capital (ROIC). Secondly, one has to assume that the value of the company varies in the same direction and proportion as the performance measure (*i.e.*, if expected Net Income increases by 5%, expected value also rises by 5%).

If these assumptions are valid and these conditions fulfilled, the multiples approach will prove to be a more rigorous measure of value, since the multiple itself already incorporates updated market expectations of future cash flows and discount rates (Kaplan and Ruback, 1996).

In addition, it is still possible to divide these multiples in two types: market and transaction (Vernimmen 2005). The market one has its focus on a sample of comparable companies, while the transaction one is based on a sample of past company transactions. Furthermore, according to Damadoran, one can also separate the market multiples based on their fundamental determinants:

Table 1: Fundamentals determining equity multiples (Damodaran, 2006)

Multiple	*Fundamental Determinants*
Price to Earnings Ratio	Expected Growth, Payout, Risk
Price to Book Equity Ratio	Expected Growth, Payout, Risk, ROE
Price to Sales Ratio	Expected Growth, Payout, Risk, Net Margin
EV to EBITDA	Expected Growth, Reinvestment Rate, Risk, ROC, Tax rate
EV to Capital Ratio	Expected Growth, Reinvestment Rate, Risk, Roc
EV to Sales	Expected Growth, Reinvestment Rate, Risk, Operating Margin

With so many multiples to choose from, Goedhart, Koller and Wessels (2005) highlight main two points to follow when valuing a company:

The use of individual companies' multiples – since the average industry ignores the fact that even though companies belong to the same business area, their growth rates, ROIC and capital structures may vary drastically;

The use of Enterprise-value multiples instead of Market Capitalization ones – since the latter are systematically affected by capital structure.

The most common type, P/E, includes many nonoperating items, which are also very specific to each individual company. EV/EBITDA is the most recommended not only because it is less susceptible to variations in the capital structure, but also because it does not take into consideration nonoperating expenses. The P/Sales assumes that the companies chosen have the same operating margins as the one being valued. PEG is similar to the P/E multiple, except it adjusts for the different growth expectations across companies. However, it still has all the other limitations as the P/E multiple.

In conclusion, although the multiples method poses a very good valuation method, the choice between it and the DCF approach depends on "whether the benefits of using firm-specific information in the DCF method are greater than the costs of ignoring the contemporaneous measures of market expectations contained in the comparable methods" (Kaplam and Ruback, 1996). However, one should not forget that an integrated analysis comprising both DCF and multiples valuation "can hold useful discussions about whether the company is strategically positioned to create more value than other industry players" and also "generate insights into the key factors creating value in an industry" (Goedhart *et al.*, 2005).

2.3. Synergy

According to Damodaran (2005), synergy is the "additional value that is generated by combining two firms, creating opportunities that would not have been available to these firms operating independently".

There are two types of synergies: operating synergies and financial synergies. Operating synergies include economies of scale (mainly through cost savings, usually resulting from horizontal mergers, which are the most reliable source of synergy), stronger pricing power (due to reduced competition and higher market share), combination of different functional strengths and higher growth in new or existing markets. These type of synergies affect the value of the firms involved in a merger or acquisition by affecting margins, returns and growth.

Financial synergies, on the other hand, can influence not only the cash flows, but also the cost of capital: a combination between a firm with excess cash and a firm with high-return projections but scarce cash can generate synergies – the value of these synergies would be the projects that a firm with high-return projections would set aside due to not having sufficient money to finance them. If the cash flows of the combined firm become more stable and predictable, the debt capacity of the new firm is expected to increase. In addition, Lewellen (1971) states that these benefits should be analyzed in terms of reduced default risk. Tax benefits may be gained by taking advantage of tax laws to write up the acquired company's assets or from using its net operating losses to smooth income. At last, diversification is often doubted because investors in the firms can diversify on their own, thus firm diversification should not generate any value creation.

Synergies can be calculated by forecasting the cash flows of the combining firm, discounting them at the appropriate rate (*i.e.*, respective to the new firm and not to the acquirer/target one) and then subtracting the sum of the two standalone companies before the merger takes place. After calculated, these synergies must be split between the acquiring and the acquired firms according to the share of unique strengths that contribute to these synergies. For instance, if costs savings are available in other peer group firms besides the acquiring one, the target shareholders would be "likely to receive a larger share of the benefits" (Damodaran, 2005).

The history around synergy sharing allows us to conclude that almost all of the synergy value goes to the acquired firm's shareholders (Jensen and Ruback, 1983). As a result, it is not surprising that the most common error when valuing synergy is providing items or strengths to the target firm's stockholders that these stockholders had no role in creating. Notwithstanding, a study from Boston Consulting Group showed that sellers collect, on average, 31 percent of the average capitalized value of expected synergies.

In sum, it is important to distinguish between the value of synergy and the value of control in order not to incur in double-counting errors: the value of control is the incremental value of the target firm assuming a new and better governance by the new management team. This value should be attributable to the acquiring firm shareholders, since they are the only ones who contribute to this value creation.

2.4. Other Issues

2.4.1. Mergers and Acquisitions' Implied Strategies

The categorization of a Merger and Acquisition (M&A) deal depends on the strategic intent that underlies it. According to Bowler (2001), "M&A actually represent very (five) different strategic activities", these being: overcapacity, geographic roll-up, product/market extension, M&A as R&D and industry convergence.

Overcapacity M&A is the most common one[6] and it usually occurs when an industry is at its maturity stage in its life-cycle and thus tending to consolidation. The main goals underlying this strategy are elimination of excess capacity, a bigger market share and more efficient operation by closing less competitive facilities, elimination of less effective managers and rationalization of administrative processes. The biggest issue with this type of merger is the cultural clash between the participants, since both are well-established large companies that have their processes and values deeply entrenched. The geographic roll-up M&A occurs when two firms in the same geographically fragmented industries merge, usually in an early stage of the industry's life cycle. The product/market extension M&A consists of the extension of a company into new markets or products, thus increasing its international coverage or its product line. The M&A as R&D is usually used in the presence of companies producing products with short life cycles and which production requires fast high-tech developments – in these scenarios, acquisitions are used in lieu of in-house R&D to quickly build a market position. Finally, the industry convergence M&A takes place when the eroding boundaries between two industries act as an incentive for a company to acquire another, thus creating a new pioneer in this new industry.

2.4.2. Cross-Border Valuation

Since the early 1990s, the relaxation of capital controls, elimination of barriers to trade, European economic integrations and the economic opening and growth of emerging countries in Eastern Europe, Asia, Africa and Latin America enabled the beginning of

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[6] It accounts for 37% of the M&A deals in the breakdown of the article "Not All M&As Are Alike – and That Matters".

mergers and acquisitions between companies around the world, thus leading to the strengthening of the globalization[7] trend (Kester and Morley, 1997).

The current crisis had a negative impact in the GDP growth in the USA and in the majority of the developed countries in Europe. The stagnation of their local economies hampered the development of several business in these countries, which forced companies to expand themselves to emerging markets in order to look for more growth opportunities. On the other hand, having in mind the need to reduce "sovereign exposure", emerging-markets firms soon began to diversify their business through the purchase of foreign assets (especially developed-market assets) (Zennet, Mathews, Marks and Mago, 2008).

Nevertheless, despite the growth of free-market based economies, there are still some forces hindering cross-border transactions, namely protectionist sentiments: for instance, the existence of "national champions" may result in some resilience by the local governments to sell them to foreign entities.

2.4.3. Geographic Diversification and Multi-Nationality

Although literature about the relationship between multi-nationality and firm performance has mostly rejected the hypothesis of being positively correlated, Driffields, Du and Girma (2005) proved that, after controlling for firm level and industry factors, that relationship is positive.

The benefits of geographic diversification are significant, and one of them is the protection against exchange rate swings, and faster responses to changes in local demands (Barlett and Ghoshal, 1986). Kogut (1985), Benvignati (1987), Grant (1987), Gomes and Ramaswamy (1999) and Contractor (2003) have also argued for several others advantages inherent to multi-nationality such as dampening the impact of domestic business fluctuations by using foreign market outlets, taking advantage of factor cost differentials across multiple locations and greater geographic dispersion which facilitates the

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[7] "Globalization is the increasing inter-connectedness of people and places as a result of advances in transport, communication, and information technologies." (Zennet, Mathews, Marks and Mago, 2008).

undertaking of domestic ventures that are high-risk but also highly profitable. In addition, firms with low tech requirements are able to choose between a larger set of host countries where they want to expand to.

Finally, it is important to explain why most of the literature on this subject does not consider positive the relationship between geographic diversification and firm performance: one factor suggested by Dfriffields, Du and Girma (2005) is that some firm exposure to specific countries may take time to pay-off, and due to the short time series and small samples available, these hypothetical pay-offs did not have the time to appear, thus hampering their inclusion in previous studies.

2.4.4. Fire-Sale

Krugman (2000) argues that *"foreign acquisitions of target firms from crisis countries surge amid a financial crisis"* and that "these target firms are sold at prices below fundamental values". Wetizel, Kling and Gerritsen (2014) test the fire-sale hypothesis for the European financial crisis and conclude that "countries affected by a crisis attract foreign buyers selling assets at a discount". One critical example is the sale of Portuguese assets to Swiss and French companies, which was also influenced by the fact that the Troika demanded Portugal to sell €5bn of state companies as part of the deal from which the country received a €78bn bailout in May 2011.

2.4.5. Market for Corporate Control

According to Fama (1980) there is a market for corporate control if one assumes financial markets are efficient. As a consequence, if a company underperforms, that will jeopardize its value and consequently its shareholders will see their wealth decreased. In line with this rational, this market can be described as an external mechanism, composed by firms and individuals who buy equity positions in potentially undervalued corporations, that is activated in the event of failure of a firm's internal control (Hit *et. al*, 2007). This leads to the discipline of managers who are ineffective or act opportunistically (Sinha, 2004).

2.4.6. Cash *vs*. Stock

Despite having covered several issues regarding valuation, there is still need to mention the different payment methods acquirers can chose from when buying another company: cash offers and stock offers. While the first one is a simple trade In between shares and cash, the second requires the acquirer to offer their shares as a way of payment for the respective target shares. Rappaport and Sirower (1999) state that the main distinction between the two methods is how the risks and the potential benefits are shared: in a cash offer all the risks and expected synergies are borne by the buyer while in the stock transaction the target is also allowed to profit for the potential synergies, as well as to share the inherent risks.

However, other criteria aside from this risk/return analysis may be used. In fact, the acquirer assessment of whether its shares are overvalued or not plays an important role in the decision making, as the buyer will be more prone to a stock transaction if he believes its shares are overvalued.

Finally, Rianda (n.d.) states that "if the purchaser is privately held, the ability to sell any shares in the company is very limited" since it is difficult to find buyers willing to purchase those shares.

3. Industry Review

3.1. Intro to Cement

Cement is considered to be the main input of the building industry. Within this sector, cement can be used in different segments of heavy building, house construction, and construction services. Given its importance, one could then argue that analyzing the evolution of cement's demand means analyzing the evolution of the building industry itself which, in turn, is highly subjected to economic cycles (namely the construction and building materials industry): it grows sedately in mature economies and faster in developing countries. This makes cement producers and their respective shareholders highly exposed to the volatility of their returns.

As far as competition is concerned, there is not a straightforward substitute of cement. It is a homogeneous product, which as a result does not allow for product differentiation. Instead, companies in this industry try to overcome competition through prices and operational efficiency.

3.2. Production Process

Cement is produced mostly from limestone and clay in a roughly 5:1 weight proportion; for each ton of cement 1.4 ton of limestone are needed. For this reason, and also to reduce transportation costs, factories are often located near limestone's fields. As far as clay goes, it is relatively easy to find it in the nature.

Besides limestone and clay, the other main necessary inputs to produce cement are: energy – which represents the largest (40% on average) variable cost; water – 100 liters per ton of cement; additions – which provide a significant reduction in CO_2 emissions; and fuel – which, as some other raw materials, has been recently substituted by residues.

3.3. Scale and Production Costs

Forge is the most important production input in the cement industry. It is inside the forge that the most vital transformation of all the cement production process takes place. Given the chemical feature of the process, there is a small interval between a minimum and a maximum quantity at which the forge is able to produce within a determined efficiency pattern. This makes the cement production extremely vulnerable to market fluctuations, as it is directly dependent on the forge's capacity.

Cement demands a significant cost of entry as the construction of a new plant costs around US$200 per ton of capacity. This brings about three main issues: first of all, it results in a high minimum efficiency scale – which has been growing in the last decades, as companies have been driven to periodically invest in the enlargement of their scale in order to increase productivity and face competition; secondly, the difficulty companies have in incrementing marginal productivity, since increases of supply occur through huge jumps in quantity produced, being these supply increases conditioned by an expected

usage of at least thirty years ; finally, the strong weight of fixed costs in the production of cement allows for the extremely costly existence of idle capacity in the industry.

3.4. Prices

Cement features, already described, make its transportation through long distances extremely expensive. As a result, its prices are determined locally – allowing for a big difference between cement prices in different regions of the word - according to four variables: population growth, GDP per capita, degree of competition and capacity utilization rates.

The first two determine the volumes consumed within each country. The degree of competition is highly influenced by the business scale, already mentioned, since it creates great advantages for the players already established in the market, while at the same time acting as significant entry barriers for beginners (as the amount of capital required to enter in this industry is considerably high). Finally, as far as capacity utilization rate is concerned, if the volumes sold are not in line with the ones expected when new capacity was built, prices usually decrease to face the supply/demand inbalance, failing to keep pace with cost inflation and sometimes reaching levels below the average costs.

The following graphs show predictions concerning utilization rates and cement prices' variation through 2015.

Graph I: Global Capacity Utilization Rate

Source: ICR Research; Global cement 2014 outlook
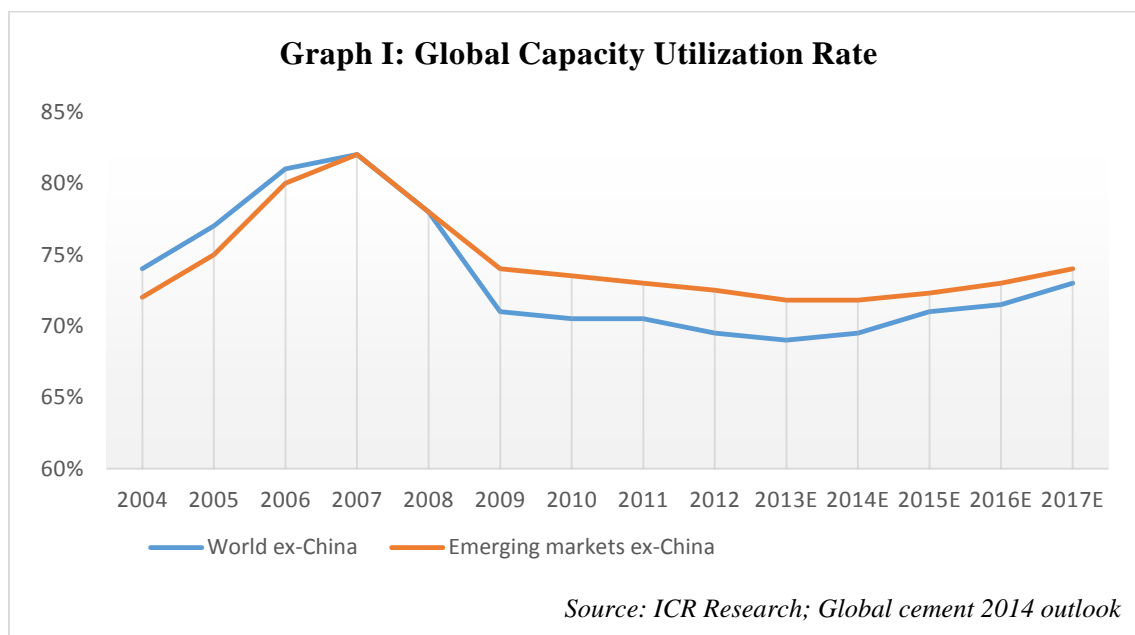
Table I: Cement Price Change Ex-Inflation YoY

	2012	2013E	2014E	2015E	2016E	2017E
Western Europe	1,0%	-1,3%	-1,0%	0,1%	0,2%	0,0%
Eastern Europe	-1,0%	-1,2%	-0,2%	-0,7%	0,5%	0,0%
Former Soviet Union	8,2%	-2,3%	-1,1%	-0,2%	0,9%	0,0%
North America	0,9%	3,0%	1,5%	2,2%	1,7%	0,9%
Latin America	0,6%	-2,7%	0,7%	0,3%	0,1%	0,0%
MENA	-1,8%	-0,4%	-2,3%	-0,7%	0,4%	0,0%
Sub-Saharan Africa	-2,0%	-3,9%	-1,4%	-1,5%	-0,2%	0,0%
China	-18,5%	-3,1%	1,2%	0,5%	-0,5%	-0,5%
India	1,7%	-11,1%	0,1%	2,0%	2,4%	0,0%
North Asia	6,2%	-0,7%	-0,4%	-0,2%	0,0%	0,0%
South Asia	-2,3%	-3,0%	-1,2%	-0,8%	0,0%	-0,1%
Australia/Pacific	-1,3%	-2,4%	-1,5%	-1,1%	-0,5%	0,0%
World (ex-China)	0,6%	-2,9%	-0,8%	0,0%	0,7%	0,0%

3.5. Intro to Brazil Market

The evolution of the cement industry in Brazil has been driven by the development of the country's production forces and its' increasing integration in the international markets. The different cement consumption cycles are connected with the economic and demographic growth, while investments are related both with the consolidation and diversification of the main firms in the country and with the capital inflows coming from the main developed markets.

The government support of the country's industrialization enabled the main local economic agents to diversify their business and apply resources to the cement sector, which in turn led to a decrease in the importance of foreign capital in Brazil. Consequently, strategic investments in new plants were made, the current ones were modernized and companies began to merge and to acquire competitors; this shaped the industry into an oligopoly, with fewer groups being responsible for considerable portions of the national market, under the lead of local business communities (e.g. Ermírio de Moraes, Camargo Corrêa e João Santos). However, the interchange between periods of consumption and periods of stagnation, together with the intensification of the oligopolistic fights, led the main national groups such as Votorantim and Camargo Corrêa to diversify their playing fields, through more acquisitions, new investments and partnerships abroad.

The recent local consumption development has been intensifying oligopolistic competition inside the country namely through investments from the main already installed foreign players (*e.g*., Lafarge and Holcim) and entrance attempts by other important global producers (*e.g*., Cemex, Titan). Thus, the expected actions of the main local companies in the medium run concern investments aimed at ensuring the possession of local market shares and attempts to take advantage of the increase in local consumption, by challenging both locally the main international firms established in Brazil and globally the ones present in markets where Brazilian groups have already invested in.

3.6. Intro to European Union Market

3.6.1. Europe

By the end of 2010, EU27 countries were still facing a decrease in the production of cement: excluding Turkey, the drop in production was − 5.4%, which followed a downward trend of -20% in the previous year, and the fact that only eleven out of twenty-eight countries had experienced a positive trend. This drop was mainly caused by the decrease in domestic demand, which can also explain the drop in imports by -6.7%, albeit member countries exports rising by 5.3%.

Graph II: Cement Production in CEMBUREAU and EU27 Countries

Source: CEMBUREAU Activity Report 2010
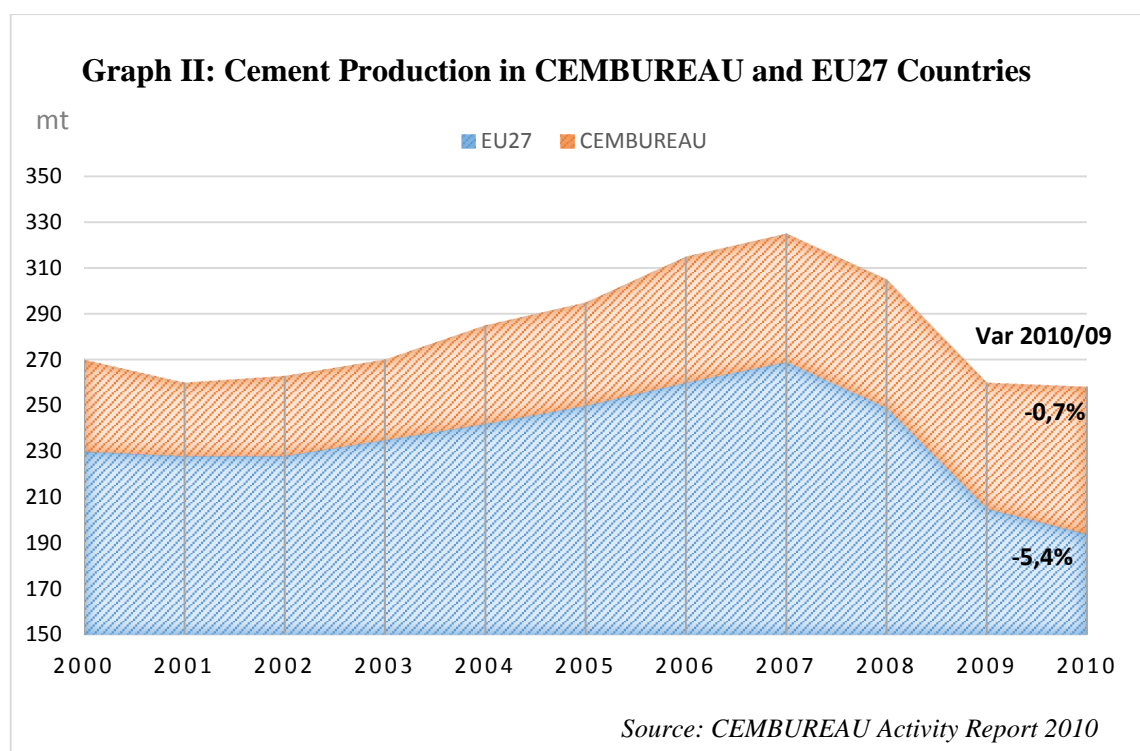
3.6.2. Portugal

The tight financial conditions and the additional consolidation measures needed in order to meet the demanding fiscal targets resulted in a deceleration of all the domestic demand components, especially private consumption. In addition, some measures, including the suspension of some public work projects, were specifically aimed at reducing public spending. All of this had negative consequences in the construction sector, as the sector's activity fell -6.5% in 2010 followed by -5% in 2011.

3.6.3. Spain

Gigh unemployment rates and credit restrictions caused by the economic crisis affected both construction enterprises and consumers. By the end of 2010, there was a decrease in investment in public civil engineering works and a delay in the completion of public and private projects as the local government's special investment plan for building construction was put to an end. Furthermore, the housing subsidies were cut, which meant no more tax reductions for house purchases and for annual mortgage payments.

Figure 1: Evolution of Cement Consumption in CEMBUREAU countries (%Variation 2010/2009)

Source: CEMBUREAU Activity Report 2010

3.7. Intro to Emerging Markets

Contrary to what happened with developed countries, most of the emerging economies are still on the rising part of the cement consumption bell curve, suggesting that consumption per capita tends to rise in early stages of economic development and ceases to do so when GDP per capita reaches advanced levels (Figure2). However, the future path is expected to be both more moderate and sustainable.

Figure 2: Cement Consumption per capita vs GDP
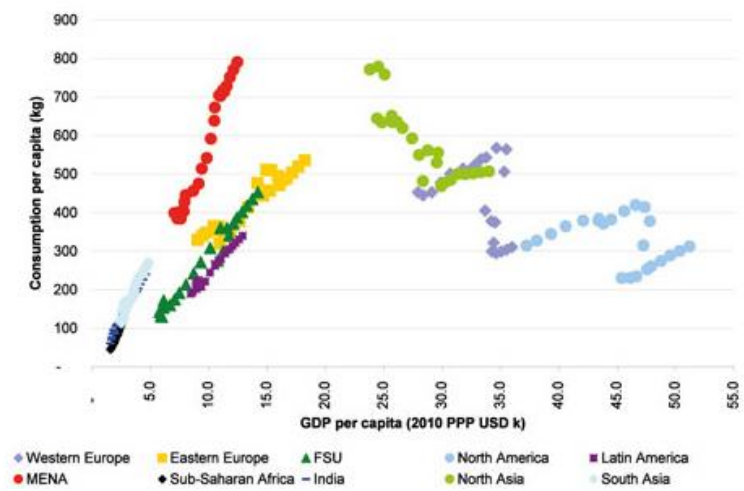
Source: Industry and national sources, CEMBUREAU, Global Cement Report, IMF, Morgan Stanleu Research

Figure 3: Development of Global Cement Volumes Between 2006 and 2011
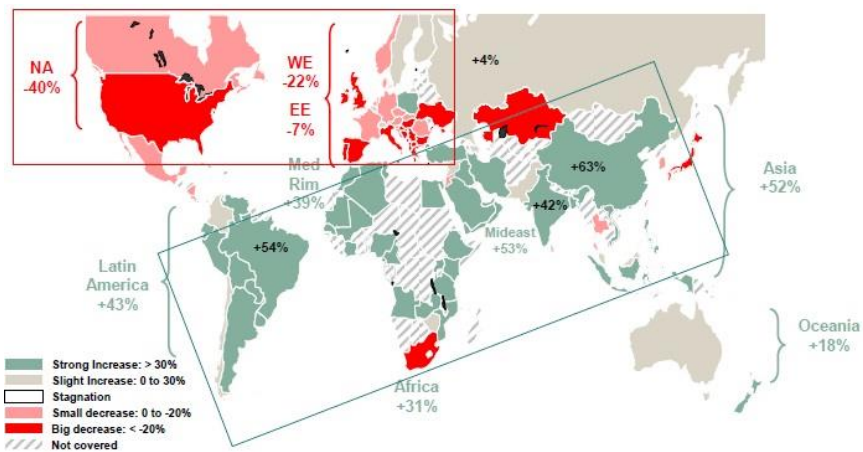
Source: Exane BNP Paribas estimates

3.8. Volumes Sold, Revenues, Biggest Players and Trends

3.8.1. Production by Region and Biggest Players

In the year 2010, total cement production around the world was 3.3 billion tons, with China representing more than half of this number. Excluding China, the top main producers according to installed capacity were Lafarge, Holcim and Heidelberg.

Graph III: 2010 World Cement Production

Source: CEMBUREAU Activity Report 2010

Graph IV: World Ranking by Cement Capacity

Source: Exane BNP Paribas estimates from company data
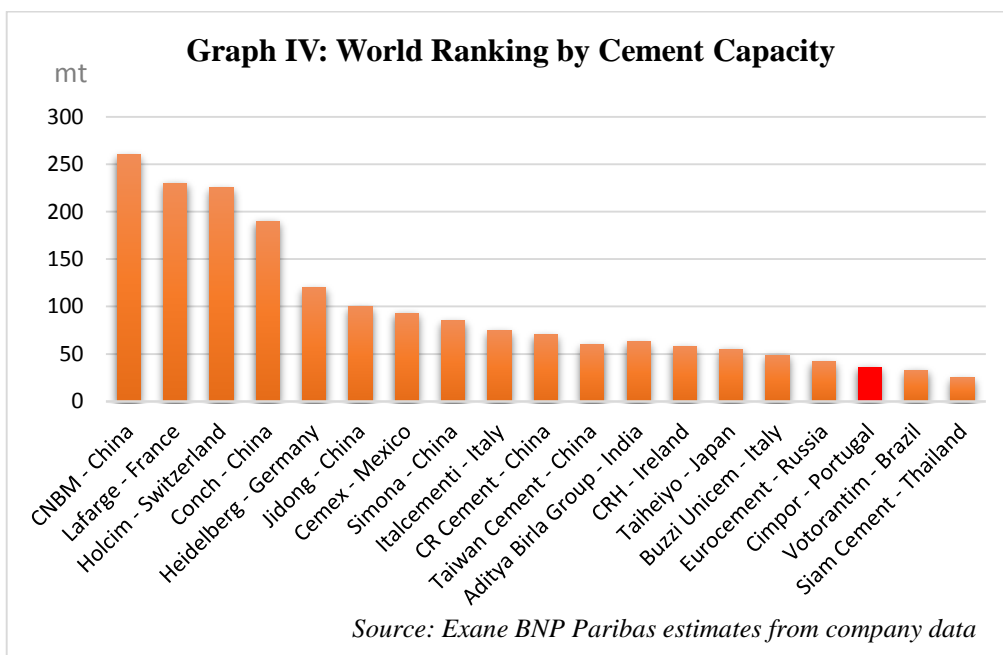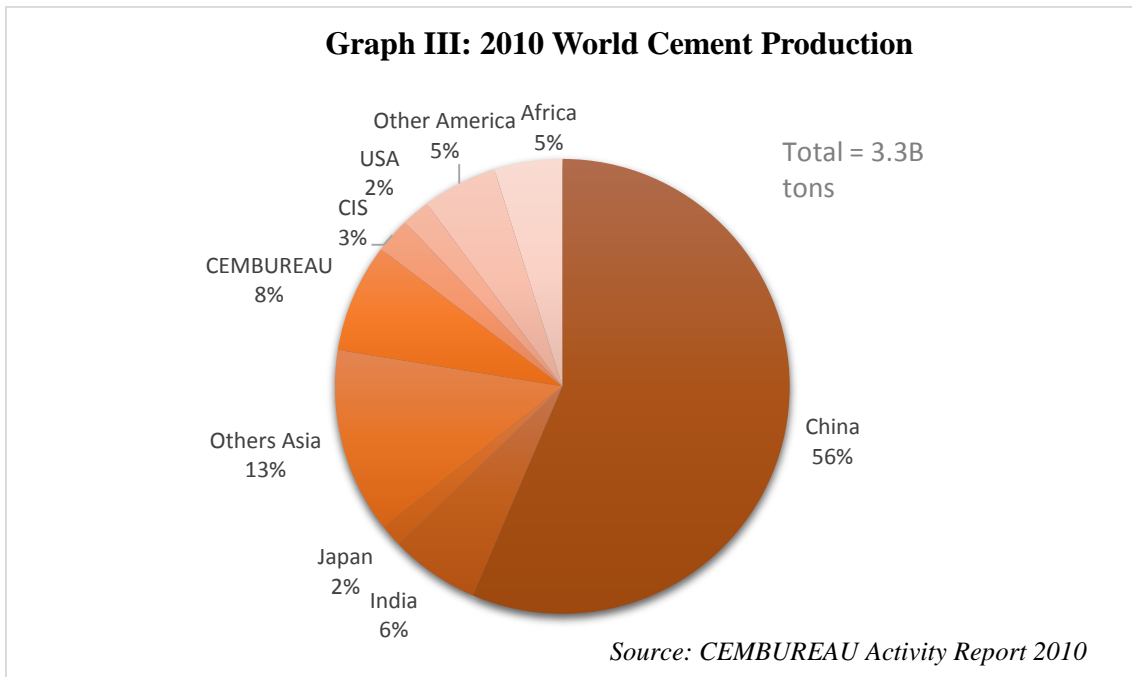
3.8.2. Crisis and Post-Crisis

Unless the paradigm has shifted, recovery will follow slump. World Bank forecasts showed GDP growth in developed world at 2.2% in 2011, followed by growth rates of 2.6% to 2.7% in 2012-13, with developing nations growing at 6.3% in 2011-2013.

During the crisis, while emerging markets were mostly stable with some growth, developed markets saw catastrophic reversals. Overall, the estimated decline for cement prices was around 15% in the 2009-10 periods. The costs eased initially, but then rose steadily through 2010, and at the moment are growing more than 30% yearly. All of this had a negative impact in the supply/demand balance, leading to overcapacity in a number of markets including emerging ones, with drops below 60% in Europe and USA.

Several people in the business world argue that there is an opportunity in adversity (*i.e.* in periods of crisis), as managers seek out to eliminate waste and reconfigure the shape of the business. In times like these, CEOs of cement companies begin to give priority to effective cash management and preservation of Free Cash Flows by reducing maintenance and operational improvement projects, cutting growth initiatives (organic and acquisitions) and tightening working capital. In addition, SG&A and revenue-driven costs are reduced, as well as targeted debt (*i.e.* deleveraging), through restructuring and issue of equity.

Generally, main indicators show that the industry is in a mature stage of development, where growth expectations exist, although lower than in pre-crisis years. The global industry revenue is slowing, with CAGR of 7.3% in 2005-10 and expected 5.3% for the years 2010-2015. The industry is now expected to be driven by increasing competition, with more and more firms focusing on cost-cutting as a way of remaining competitive. Brazil should continue to expand, albeit there are risks after the World Cup preparation. In the MENA[8] region, one should observe better trends mainly since Egypt and Morocco are now recovering from past drops. Sub-Saharan Africa should be the fastest growing region during the next years given the still very low levels of cement use.

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[8] Set of countries belonging to the Middle East and North regions of Africa. The biggest ones are Ehypt, Iraq, Israel, United Arab Emirates, Morocco, Palestine, Qatar, Saudi Arabia, Tunisia and Argelia.

3.8.3. Globalization and Consolidation

Worldwide cement production is characterized by the presence of big business groups, most of them with family property origins, who have operations spread across several countries.

A significant process of consolidation in the global cement industry has been running its course since the mid-1980s. At the same time family-run and state-owned firms have been put up for sale and a few MNCs have been on a buying spree – moving aggressively into new markets and expanding to markets where they had previously operated. Without taking China into account, the combined production share of the world's six largest firms[9] is 44% at the moment, up from 25% in 2000[10].

Eastern Europe was the first region to verify a burst of acquisition activity, after the collapse of communism in the early 1990s and the privatization spree that ensued. This was followed by a merger and acquisitions surge in Latin America, as one-third of total capacity changed ownership between 1994 and 1999. In Asia, as a consequence of the financial crisis, from 1998 onwards many foreign-currency debt-laden Asian manufacturers sold off their assets to larger global enterprises. Finally, in the Mediterranean European countries, the combined capacity share of the six largest companies went up to 48% in 2000 from 33% in 1993. Still in Europe, of the twenty firms operating in France in 1970, just four of them remained operating in 2000.

More recently, players from emerging markets are becoming more ambitious and starting to influence the business landscape. They are playing an increasingly large part in the current M&A trend and in the sector's capacity expansion. Well established and rational cement producers are expected to increase their returns in emerging markets via consolidation.

This trend towards consolidation has structural reasons behind it: the tendency of growing production scales mentioned earlier is one of causes of concentration in the supply structure in the global cement industry, since the initial investment cost is becoming bigger and bigger.

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[9] Holderbank, Lafarge, Cemex, Heidelberger, Taiheiyo, Italcementi.
[10] It was 23% in 1995 and 14% in 1985.

Besides scale, being transnational also plays an important role in valuation, as both generate economies of scale, reduce cyclicality and lower volatility of earnings. In addition, size is also able to bring benefits in terms of reduced cost of capital. Thus, mergers and acquisitions not only bring about multiple synergies and huge cost reduction benefits, but are also the fastest route to growth.

3.8.4. Speculative Bubble in the Brazilian Residential Real-Estate Market

The heavy building industry is connected with the real-estate market. Consequently, any development in the latter would significantly affect the former. Fears of a bubble in the Brazilian real-estate market have been subject to rumors. According to Oliveira & Almeida (2014), the dramatic increase in Brazil's house prices lead to "speculative bubbles in the residential real estate market for the two main Brazilian cities, São Paulo and Rio de Janeiro, during the recent years".

4. Companies' Description

The industry review section showed that cement is an extremely homogeneous product and that there is practically no margin for differentiation. Both Cimpor and InterCement are driven by the same types of volumes, prices and cost pressures. In addition, their businesses focus on the sale of cement and clinker (which is the most profitable product in the industry), and on concrete and aggregates at a lower level regarding revenues and margins influence. Cement companies can be differentiated based in the markets they are exposed to, their degree of leverage, the operational efficiency and their shareholder structure. Since the first have already been addressed in the previous section, I will focus on market exposure, operational efficiency and financial and shareholder structure when describing Cimpor and InterCement main features.

4.1. Cimpor

4.1.1. Overview

With its headquarters in Portugal, Cimpor lies amongst the top ten biggest cement groups operating globally, and it ranks 7th in Europe. The 26 factories with 16 cement millings have currently an installed production capacity of 36.5 million tons of cement per year.

Cimpor operates in Portugal, Spain, Cabo Verde, Brazil, Morocco, Tunisia, Egypt, Turkey, Mozambique, South Africa, China and India, employing around 8.250 workers of 33 nationalities. Approximately 60% of Cimpor's EBITDA derives from Brazil, Portugal and South Africa. In addition, Cimpor produces and commercializes concrete, aggregates and mortars, as a result of a vertical integration strategy, albeit it is less vertically integrated than groups such as Lafarge, Cemex, HeidelbergCement and Holcim. Moreover, Cimpor still makes most of its revenues in cement.

Figure 4: Cimpor Sales Breakdown (2011)
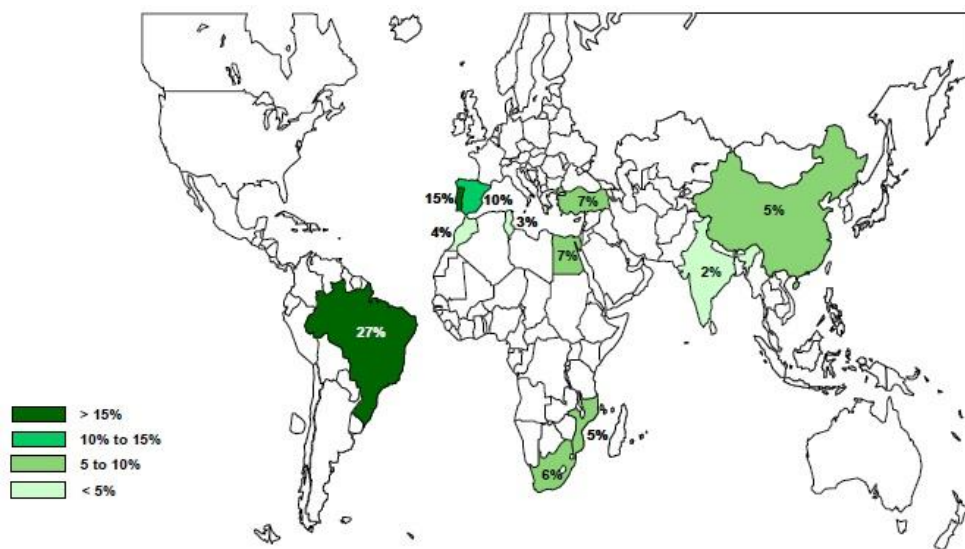
Source: Cimpor, Exane BNP Paribas estimates

Graph V: Cimpor EBITDA Breakdown by Country (2011)

Portugal 15%
South Africa 10%
Egypt 8%
Morroco 7%
Spain 6%
Turkey 5%
Tunisia 4%
Mozambique 4%
Other 3%
China 3%
Cape Verde 1%
India 1%
Brazil 33%
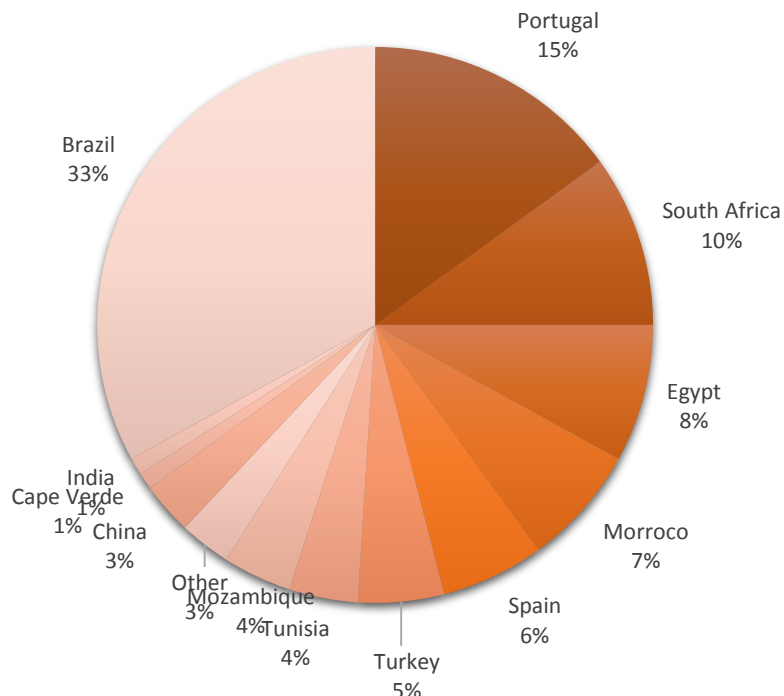
Source: Exane BNP Paribas estimates from company data

Graph VI: Installed Capacity Breakdown by Country (2011)

Portugal 19%
South Africa 4%
Egypt 11%
Morroco 4%
Spain 9%
Turkey 8%
Tunisia 5%
Mozambique 3%
China 16%
India 3%
Brazil 18%

Source: 2011 Annual Report

Graph VII: Contribution to Revenues (2011)
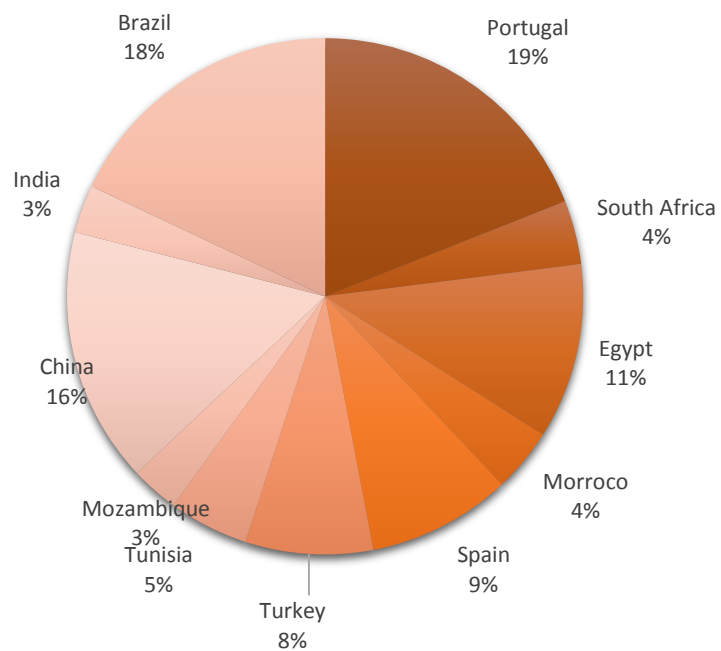
Source: 2011 Annual Report
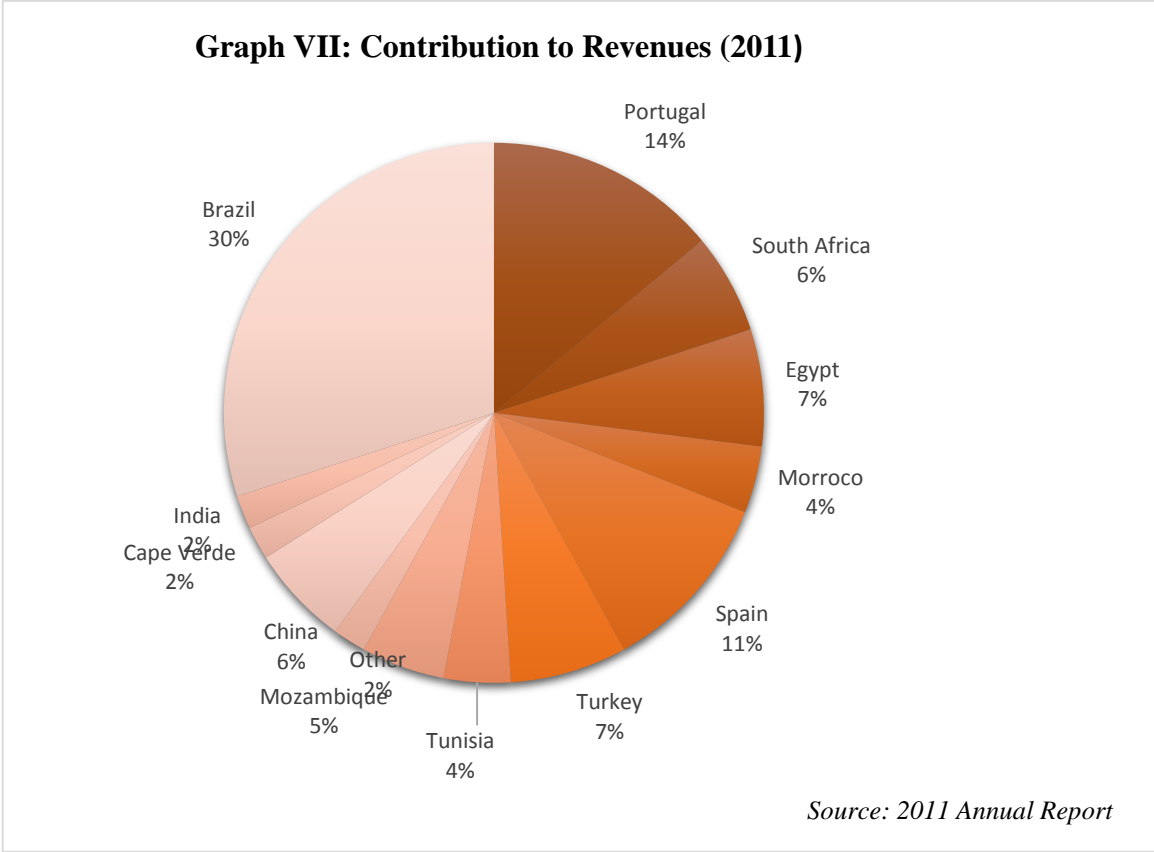
From 2006 to 2009, Cimpor's ambitious acquisitions and capex program resulted in a 45% increased capacity, mainly in India, Turkey, Latin America, Canary Islands and China.

Figure 4: Cimpor cement capacity evolution since 2002
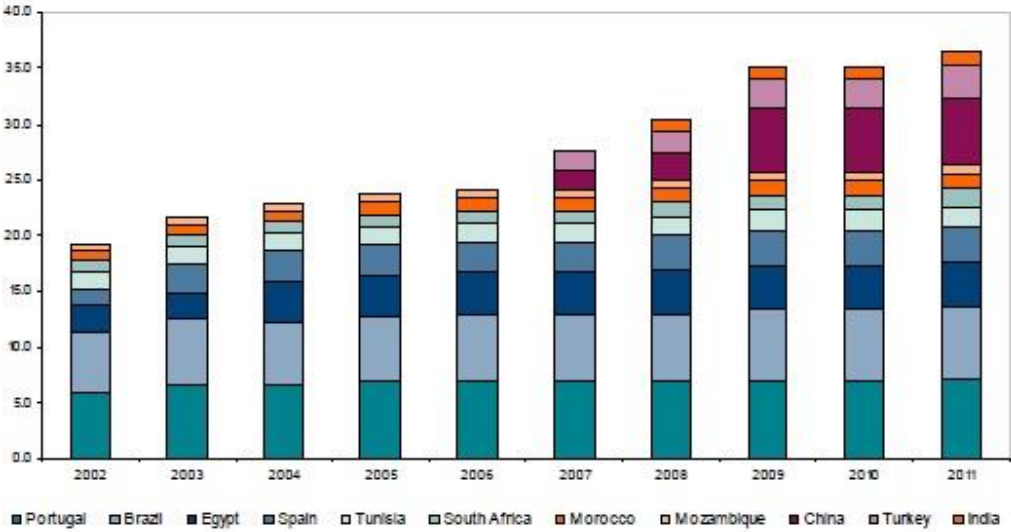
Source: Cimpor, Exane BNP Paribas estimates

Due to the financial crisis, in 2009 and 2010, Cimpor's strategy was characterized by investment restrictions to consolidate solid financials and gain credit in the markets. Following this strategic slowdown, in 2011 Cimpor returned to a sustainable growth plan, with significant investments aimed at achieving increased capacity, operational efficiency, environmental conditions and safety. Consequently, net operating investments totaled EUR 294.5Million in 2011, about 80% more than the amount invested the previous year.

4.1.2. Financials

Despite the external financial and economic context, Cimpor's main financials remained strong between 2009 and 2011. Its recognition as an emerging markets' company, its exposure to these growing economies, the reduced presence in Europe and the fact that it is not present in the United States of America justify the important advantage over its competitors, especially regarding operational return. This has allowed Cimpor not only to keep the highest EBITDA margin among international cement producers, but also to grow above its peers in the past three years.

Graph VIII: EBITDA and EBITDA Margins

Source: 2011 Annual Report
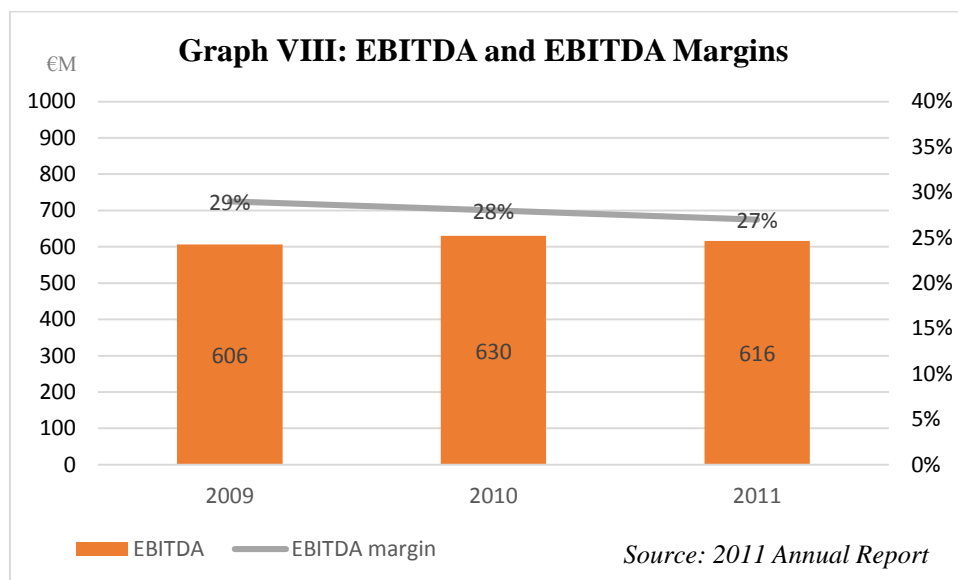
Graph IX: EBITDA Margins per Company

Company	EBITDA Margin
Taiheiyo Cement	7%
Buzzi Unicem	15%
Cemex	16%
Italcement Group	17%
Heidelberg Cement	19%
Holcim	21%
Lafarge	22%
Secil	24%
Cimpor	28%
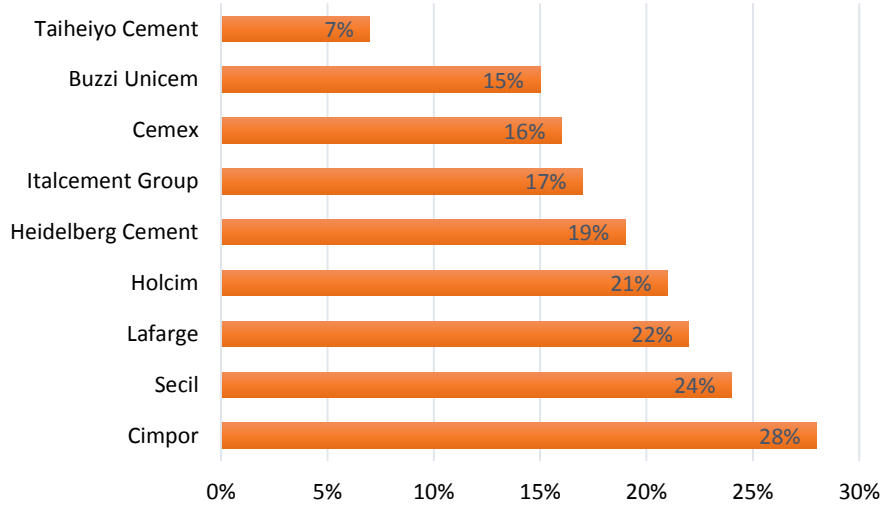
Source: 2011 Annual Report

Graph X: Evolution of Revenues (CAGR 2006-2011)

Company	CAGR	2011 Revenues (Bn€)
SECIL	positive	0,5
Molins	positive	0,8
Valderrivas	-10%	1
Cimpor	positive	2,2
CEMEX	-6%	10,6
Heidelberg	positive	11,8
Holcim	positive	17,4
Lafarge	negative	16,2
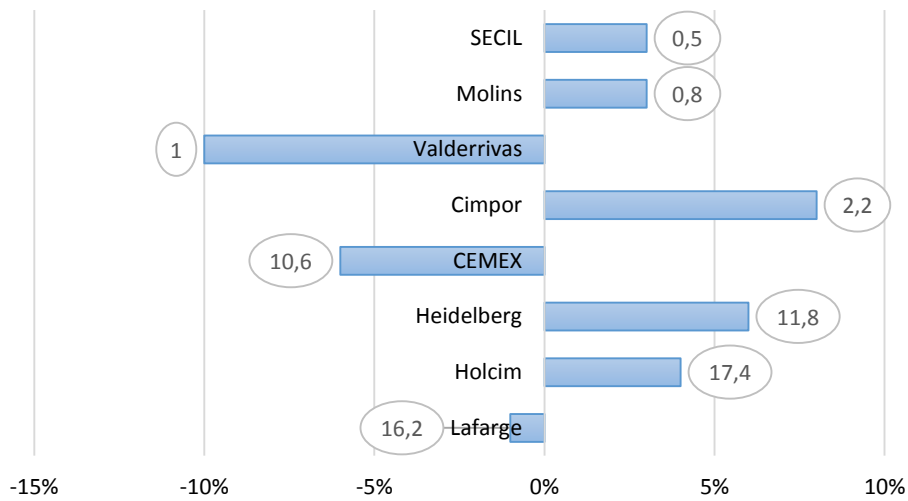
○ = 2011 Revenues (Bn€)

Source: 2011 Annual Report

In what concerns the financial structure, Cimpor has been delivering its D/V ratio, mostly because of the unfavorable economic climate. This change in the debt structure contributed significantly to the fact that Cimpor has kept a stable rating in spite of the very adverse Portuguese credit conditions.

Figure 5: Rating Evolution (Dec 2010 – Dec 2011)
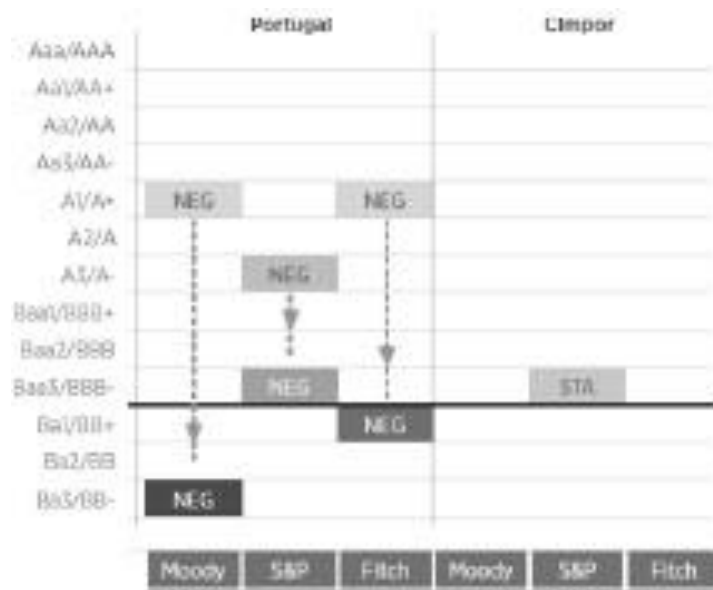
Source: 2011 annual report

Within a context of great instability in the capital markets, particularly in the Eurozone, Cimpor's share price increase of 4.9% in 2011 has clearly contrasted with the drops of 28% of the Portugal's Index, 14% of Nest100 and 36% of its industry peers.

Figure 6: Stocks' price evolution
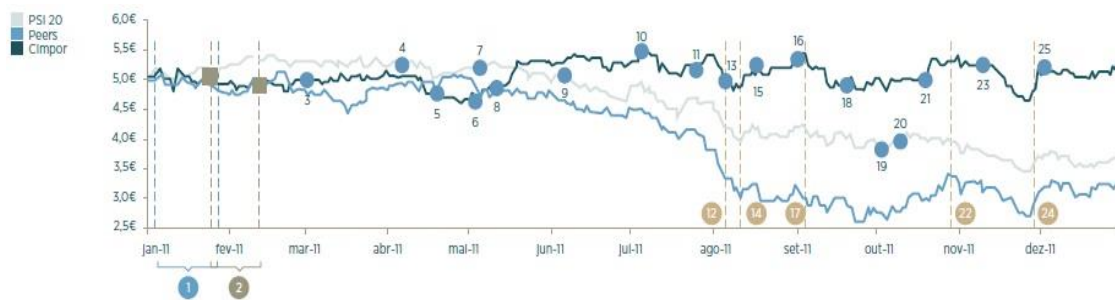
Source: 2011 annual report

Overall, one can say that the key factors of success of Cimpor are its operational efficiency, its market exposure and its low degree of indebtedness.

4.1.3. Shareholder Structure

Cimpor's shareholder structure is very small, with five shareholders controlling the firm's share and free floating at only 15.6%.

Graph XI: Cimpor's Shareholder Structure

Shareholder	Share
Camargo Corrêa	33%
Votoratim	21%
CGD	9%
Manuel Fino	11%
BCP	10%
Free Float	16%

Source: 2011 Cimport Annual Report
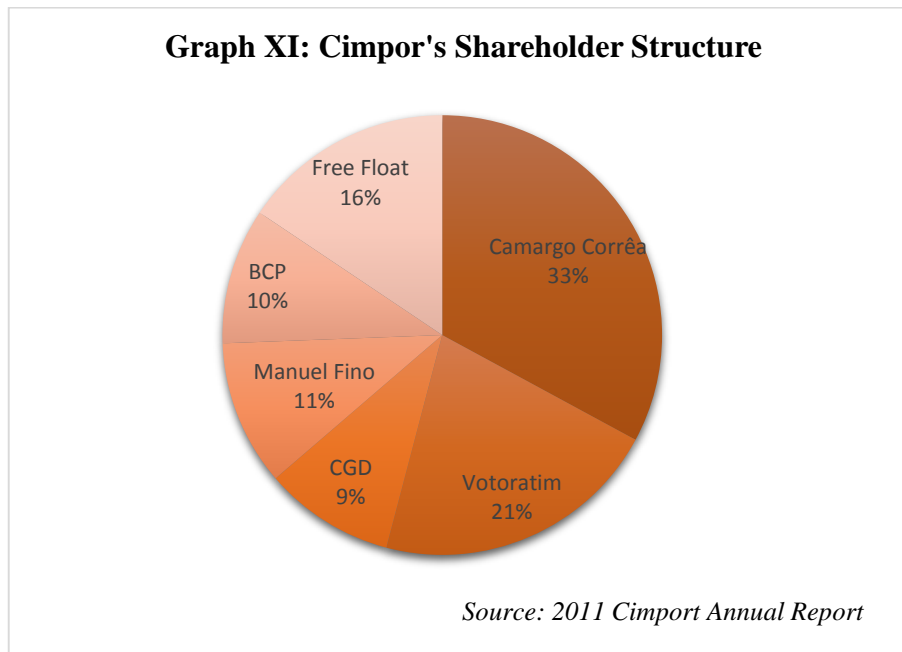
4.2. InterCement

4.2.1. Overview

InterCement Participações S.A. is a holding company formed by InterCement Brazil, a firm present in the business of producing and distributing cement, concrete and aggregates, and by Loma Negra, an Argentine cement producer. InterCement Brazil and Loma Negra have alignment of business areas and standardized procedures. At the beginning of 2012, InterCement Brazil was the third largest cement producer in the country. The holding company is controlled by Camargo Corrêa Group, which also holds 33% of the stock of Cimpor.

Graph XII: Brazil Cement Industry - Market Shares

Others
13%

CSN
5%

Holcim
6%

Cimpor
8%

Lafarge
9%

Camargo
10%

Nassau
12%

Votorantim
37%

Source: Exane BNP Paribas estimates from company data
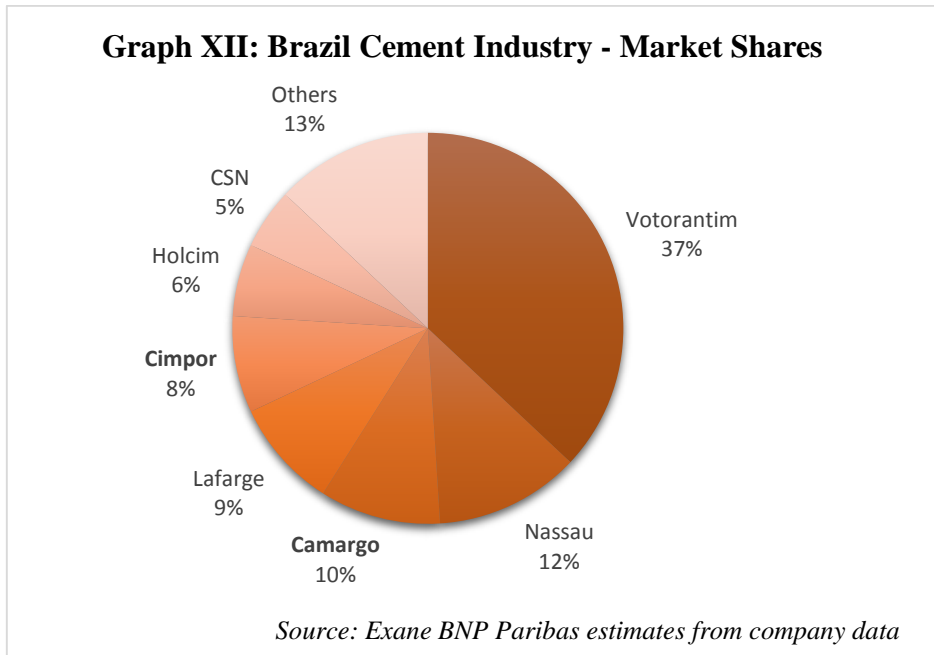
With an installed capacity of 16 million metric tons of cement a year, InterCement is one of the biggest players in Latin America. The company sold 12.7 million metric tons of cement in 2011, 6.4 of which accounted for the Brazilian market, where it holds a 10% market share, and 6.1 for the Argentinian market, where the firm has the market leadership through Loma Negra.

Graph XIII: Sales of Cement

mt

	2007	2008	2009	2010	2011
Paraguay				0,1	0,2
Argentina	5,3	5,5	5	5,5	6,1
Brazil	3,5	4,7	5,1	5,9	6,4

■ Brazil ■ Argentina ■ Paraguay

Source: 2011 InterCement Annual Report
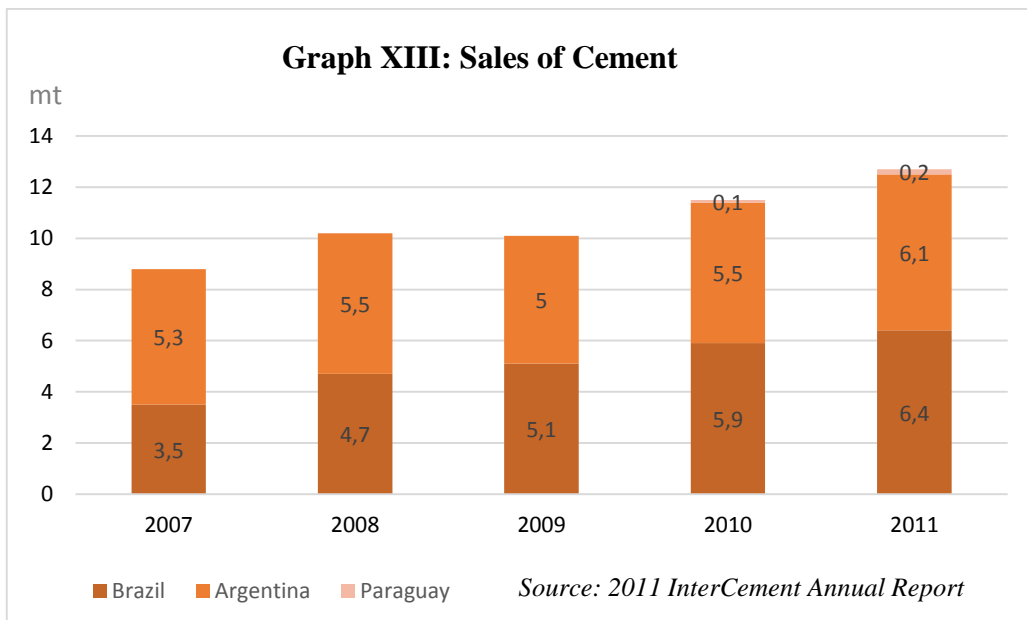
Following an international expansion strategy, in 2011 InterCement announced investments of US $ 400 million aimed at expanding its facilities in Argentina.

Moreover, strong domestic economies with high consumption rates together with programs aimed at stimulating the construction and housing sectors as well as large infrastructure works have led to the growth of the cement industry in emerging markets, where Brazil holds a highlight position. In order to take advantage of these opportunities for growth, since 2005 InterCement has invested over R$ 8 billion in organic growth projects and in acquisitions.

4.2.2. Financials

As a consequence of InterCement's total exposure to Latin America, its EBITDA has been growing for the past five years, with significant EBITDA margins around 25%. Furthermore, the company achieved record sales in 2011 as 12.6 million tons were sold, up 9.1% over 2010. Despite the positive outlook of InterCement's operational performance, the financial structure of its controlling group is highly leveraged, with a D/V ratio of 0.61, which is reflected by a BB rating assigned by the rating agencies.

Graph XIV: Gross Income by Country

Source: 2011 InterCement Annual Report
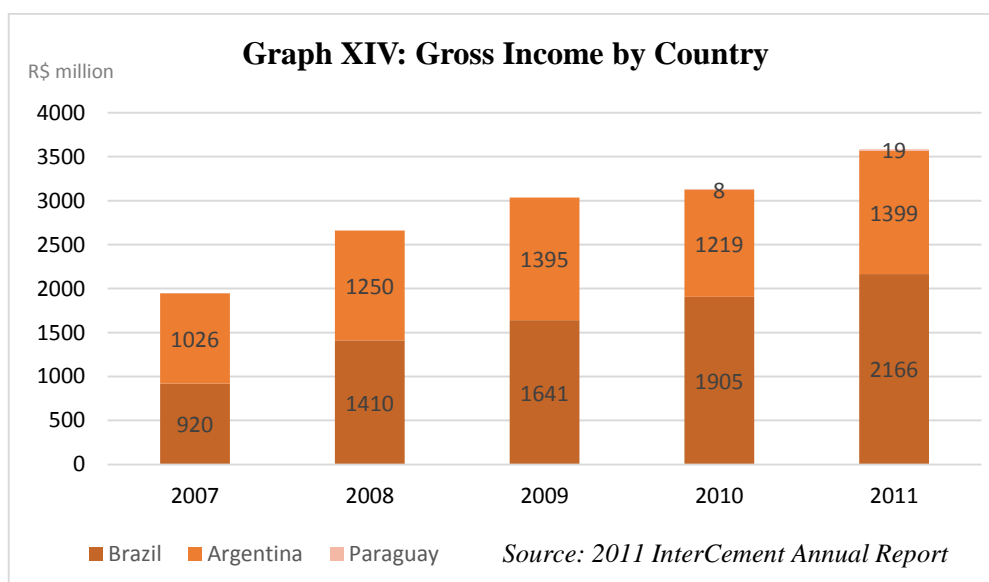
Overall, what drives the value creation of InterCement is its operational efficiency and the fact that the main country were they operate – Brazil – is one of the biggest emerging ones (if not the biggest) with very positive future prospects in the construction industry.

4.2.3. Shareholder Structure

InterCement is 100% controlled by Camargo Corrêa, a solid family group with an international profile. This Brazilian conglomerate operates in twenty countries through six divisions: Cement, Engineering and Construction, Footwear, Textiles and Steel, Concessions, and Real Estate Development, Environment and Corporate. The cement one is represent exclusively by InterCement, which accounts for 33% of the group EBITDA in 2011.

5. Companies' Valuations

Before starting to describe the methodology used in this work, it is pertinent to state that since the deal in question was completed on the 29th of May 2012, all the projections and computations will be made as if today was the first of January of 2012. All the data obtained was based either on what happened prior to 2012 or on what was projected to happen from 2012 onwards. The forecasted period will therefore start in 2012 and end in 2017, followed by an estimation of the terminal value.

In addition, the valuation will be made according to a Sum-of-the-Parts of all of the companies' assets spread across the world, since their risk and growth profiles vary immensely from country to country.

Finally, a few months after the deal was made, there was a split of assets between the merged company and Votorantim, as a result of anti-trust concerns regarding competition in Brazil. However, taking this operation into account in this valuation would not only be too complex, but also ineffective for the purpose of the valuation, which is to determine how valuable InterCement and Cimpor, as well the merged company were at the time.

5.1. Cimpor

5.1.1. Installed Capacity

Installed capacity is perhaps the most delicate issue in what concerns management decisions in the cement industry. The decision to expand capacity, thus building new forges, is highly dependent on an expected usage of at least thirty years, among other factors. The criteria used to decide whether and when to expand may yet be different from country to country and even from factory to factory. As a result, the model used to determine installed capacity simplifies what would be an extremely complex procedure, as it will be a function of the forecasted cement production and of the forecasted utilization rates. Regarding the latter, it will be assumed that Cimpor's utilization rates will be in line with what is expected to happen in the industry. With expected utilization rates in 2017 of 72% for developed markets and 74% for emerging ones, the model assumes that the utilization rates of every country Cimpor operates in will gradually converge to these percentages in 2017.

Mozambique and China will be exempted from this rule. Applying the rule to Mozambique would mean a decrease in installed capacity at the same time that volumes sold increase. Obviously this does not make sense, thus installed capacity in Mozambique will be forecasted to remain constant. As for China, its Cimpor unit has been registering an average utilization rate of 91% in the years prior to 2012, therefore I will assume that the current utilization rate (59% due to the huge investments made in the past years) will converge to 91% in 2017.

Figure 7: Global capacity utilization-rate
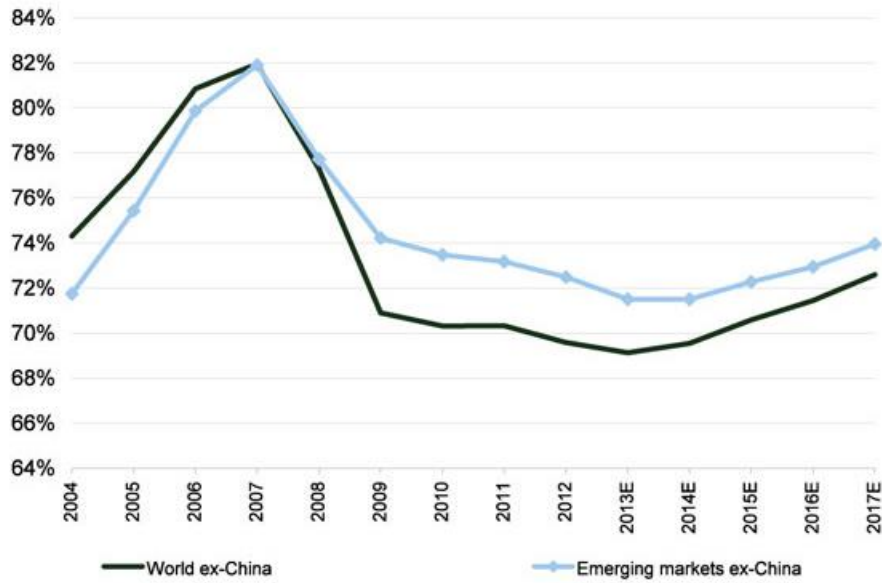
Source: global cement 2014 outlook: ICR Research

5.1.2. Revenues

In order to determine total revenues, the model that is going to be used will assume three items: sales of cement and clinker, sales of concrete and aggregates, and other revenues. Sales of cement and clinker will be directly dependent on the total cement forecasted to be consumed in each country throughout the years, which will be the product of the total population of each country times the annual per capita cement consumption. To compute the latter, I used the following graphs that provide us with the cement consumption per capita in 2009 and its forecasts through 2050. Based on this data, the model assumes that each country's cement consumption per capita converges gradually from 2009 to 2050, albeit the forecasted period will end in 2017.

Figure 8: Income and Cement Consumption Relationship (2009)
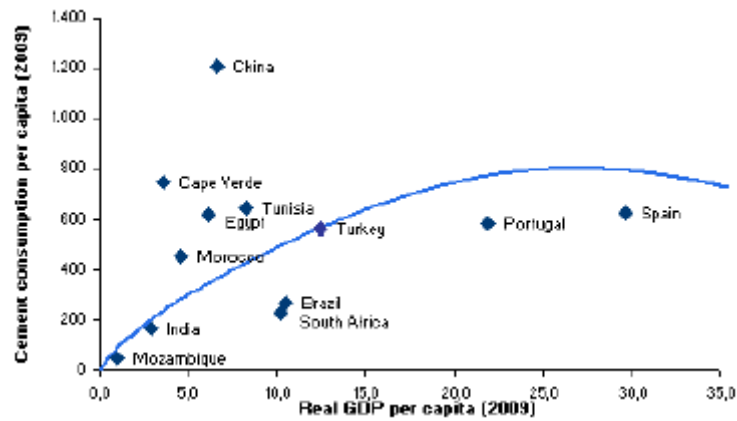
Figure 9: Income and Cement Consumption Relationship (2009)
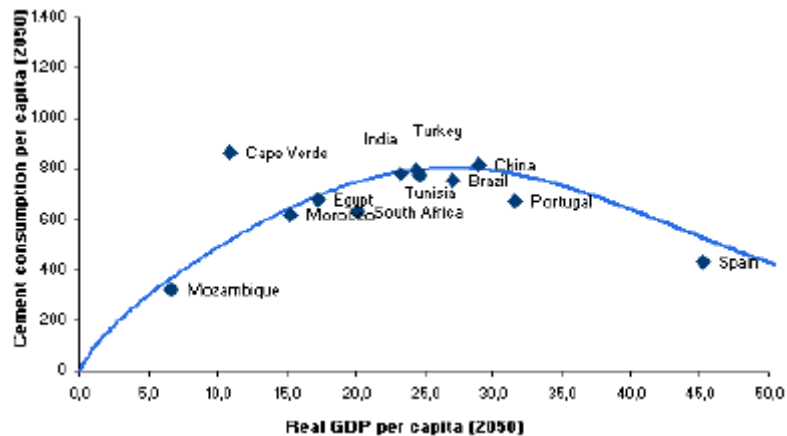
The only modification this method will suffer will be related to such events as the Football World Cup and the Olympic Games meant to happen in Brazil in 2014 and 2016 respectively. Both of these will have a positive impact on cement consumption in Brazil and analysts' forecasts predict that the industry will have a CAGR of more than 9% between 2012 and 2017. As a result, this growth rate was taken into account when predicting Cimpor revenues regarding cement unit sales.

With each year's cement consumption calculated for each country, the model assumes that Cimpor's cement units sold will evolve in the same direction and proportion as the respective country's total cement consumption, which means that it is assumed that Cimpor market shares will remain constant in the future.

For each country I computed the average percentage of units of concrete and aggregates sold since 2007 in relation to units of cement and clinker sold in the same period, and used it to forecast future units of concrete and aggregates to be sold. Finally, the model assumes that other revenues will represent the same share of total revenues as they did in 2011, thus growing/decreasing at the same pace as the former.

5.1.3. Prices

Since it was impossible to find information about prices of cement and clinker, concrete and aggregates for each country, the model assumes that unit prices of concrete and aggregates are a fixed percentage of unit prices of cement and clinker across each country. This price relation was retrieved from the consolidated annual report. Then, for each country the prices were determined using an equation to equal total revenues of 2011 to the product of the unknown prices with the known quantities. From 2011 onwards, prices are assumed to vary according to inflation together with the forecast price change ex-inflation which was presented in the Industry Review section.

Graph XV: Cimpor's Forecasted Revenues by Country (€ Millions)

Source: Own calculations
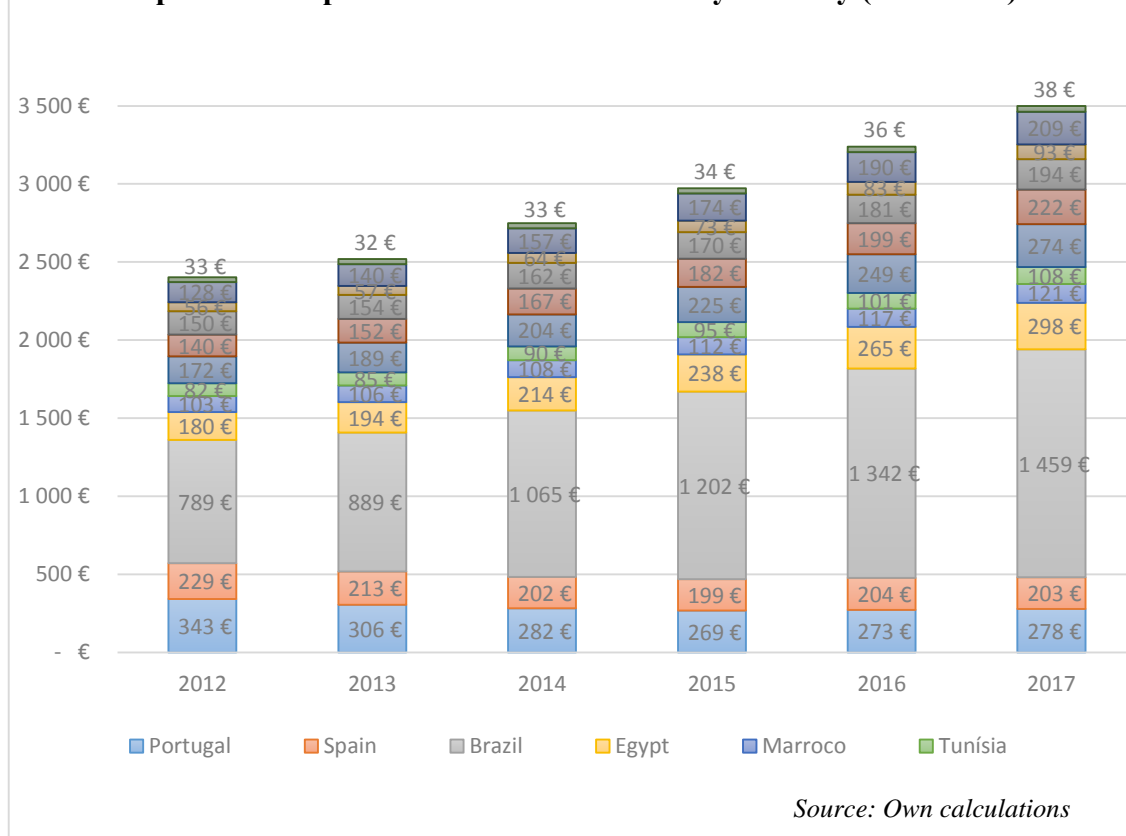
5.1.4. Costs

Despite the changes in volumes of cement sold around the countries, and although the economic (2008) and financial (2011) crisis had a negative impact in revenues in the European countries where Cimpor operates, the company was always able to keep their EBITDA margins constant in every country. The model assumes that there are no reasons to believe that this margins will change in the future, since they have been so far resistant to external negative forces. As a result, an average of the EBITDA margins verified through January 1, 2012 will be used for every country's forecast. Similarly with the approach to estimate installed capacity, there are some exceptions to be made regarding EBITDA margins forecasts:

In China, Cimpor managed to increase its EBITDA margin from 5.9% in 2009 to 14% in 2011, making it reasonable to assume it will keep improving its operational efficiency and reach the company's average EBITDA margin of 23.61% by 2017.

In India, although the EBITDA margin was just 6.70% in 2011, the margin in 2009 was 18.80%, which is reason enough to believe Cimpor can recover its healthy margins there by 2017.

In Turkey, EBITDA margin increased from 10% in 2008 to 18.90% in 2011.In 2007 the EBITDA margin was 23.70% which is an reasonable indicator that Turkey's unit will be able to reach this number by 2017.

On the other hand, it is not reasonable to believe that Spain, Portugal and Egypt will register past EBITDA margins when struggling to face the last consequences of the external economic environment present in these countries. Therefore, their margins will converge to the past average historical values gradually until 2017.

In sum, while there might be some optimism regarding China, India and Turkey, one should not forget that the margin forecasts for the other countries were somehow conservative since they were calculated taking into account an average between 2007 and 2011, which consequently included four years of world financial crisis.

Table II: EBITDA Margins Historical Values and Forecasts

	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Portugal	30,7%	31,4%	33,3%	31,5%	26,3%	27,0%	27,7%	28,5%	29,2%	29,9%	30,6%
Spain	29,3%	23,1%	14,2%	11,9%	13,9%	14,7%	15,4%	16,2%	17,0%	17,7%	18,5%
Brazil	22,9%	25,5%	28,8%	31,3%	30,5%	27,8%	27,8%	27,8%	27,8%	27,8%	27,8%
Egypt	48,6%	45,4%	43,4%	38,3%	30,2%	32,0%	33,9%	35,7%	37,5%	39,4%	41,2%
Marroco	43,8%	46,1%	44,4%	44,0%	41,0%	43,9%	43,9%	43,9%	43,9%	43,9%	43,9%
Tunísia	31,7%	26,6%	28,1%	29,8%	28,5%	28,9%	28,9%	28,9%	28,9%	28,9%	28,9%
Turkey	23,7%	10,0%	10,3%	14,2%	18,9%	19,7%	20,5%	21,3%	22,0%	22,8%	23,6%
Mozambique	20,6%	17,6%	14,7%	13,0%	20,6%	17,3%	17,3%	17,3%	17,3%	17,3%	17,3%
South Africa	33,1%	33,4%	46,1%	40,7%	40,1%	38,7%	38,7%	38,7%	38,7%	38,7%	38,7%
India	11,1%	9,7%	18,8%	9,0%	6,7%	8,7%	10,7%	12,8%	14,8%	16,8%	18,8%
China	7,7%	9,5%	5,9%	8,4%	14,0%	15,6%	17,2%	18,8%	20,4%	22,0%	23,6%
Cape Verde	9,7%	10,0%	12,2%	11,8%	12,6%	11,3%	11,3%	11,3%	11,3%	11,3%	11,3%

Source: Own calculations

Concluding, while there might be some optimism regarding the first three exceptions, one should not forget that in the others the margins forecasts were somehow conservative since they were calculated taking into account an average between 2007 and 2011, which consequently included four years of world financial crisis.

5.1.5. Capex, D&A and Working Capital

In order to predict working capital investments for the following years I used an average of working capital as a percentage of sales of the past years for each country where Cimpor has its business. As for Depreciations and CAPEX a more complex approach is needed:

First of all, I used the company data regarding Fixed Tangible Assets (including Accumulated Depreciations) between 2008 and 2011 and broke the respective values per country according to the installed capacity of each one. Then, in order to compute Depreciations I used the following formula:

$$Depreciations_{year\ x} = Gross\ Fixed\ Assets_{year\ x-1} \times Depreciation\ Rate$$

To calculate the Depreciation Rate I used the historical values to come out with an implied rate that was applied across all assets in every country. However, since using this same Depreciation rate in China would result in Depreciations being bigger than EBITDA, for this country the model assumes the local historical values of Depreciations.

As mentioned in a previous section, Installed Capacity and consequently CAPEX are the most delicate issues, especially because of the influence the latter as on the valuation. As a result, I did not find it reasonable to apply some fixed percentage to every country, since maintenance and investment costs vary a lot across them. Instead, I used an 'if scenario' taking into consideration the company's investment plans, its historical CAPEX needs and other announcements made at the time, for every specific country where Cimpor operates. This approach was applied as follows:

If installed capacity has been stable/decreasing and forecasted to be stable/decreasing in the future, then I could assume CAPEX was related to maintenance expenses and apply a fixed rate based on historical values to the forecasted values of installed capacity, always taking each country's inflation into account.

If installed capacity has been growing and is projected to continue growing, then CAPEX was related to both maintenance and CAPEX and the same approach (based on historical values) was applied. The only thing this second method fails to consider is the

difference between maintenance costs and investment costs, however it was not possible to obtain that type of information for each country specifically.

If none of the former scenarios applied or if there were investment plans associated with a particular country, then individual approaches were used:

In Morocco, a new plant was projected to be built in 2012. As the model was already forecasting increases in installed capacity and thus in CAPEX, what I did was to retrieve 20% of CAPEX of 2013-2017 and add it to CAPEX of 2012. The rational is that this new plant is being built to face the increase in capacity of the coming years.

In Mozambique, installed capacity decreased between 2007 and 2009, increased between 2009 and 2011, and is estimated to remain stable in the coming years. As a consequence, I assumed that only the CAPEX relative to 2007 concerned maintenance expenditures, as the one for 2008 is presumed to contain investments associated with the increase in installed capacity predicted for the following 3 years.

In China, the historical values used to calculate the rate to predict future CAPEX were those relative to 2010 and 2011, since prior to those years huge investments were made to allow for an increase in installed capacity of around 200%, and the increase in installed capacity that the model predicts is smoother.

5.1.6. WACC

As explained in the literature review, I will use the Discounted Cash Flow approach for valuation purposes, WACC as the rate to discount the Free Cash Flows to the Firm and CAPM to estimate the cost of equity.

Consequently, one needs to know which risk-free rate to use. Taking into consideration all the issues regarding the financial crisis impacting Europe at the time and the fact that Cimpor's headquarters were based in Portugal, in the Eurozone, the most appropriate 10 year government bond to be used is the German one, since at the time there were rumors about the probabilities of default of some of European countries. This bond yield quote on 2nd January 2012 was 1.89%. Notwithstanding, it is important to say that the use of a local risk-free rate for discounting foreign cash flows implies that those have to be discounting every year to the local currency (*i.e.*, Euro).

Further, the equity risk premium will comprise both the base premium for mature equity market and the country premium. The first one will be computed as an average of the arithmetic averages available in Damodaran website (*i.e.*, 1928-2013; 1964-2013; 2004-2013), which is 5%. Still through Damodaran website, it is possible to access each country's risk premium as of June 2012.

Then, in order to compute the Beta, the unlevered Beta for the construction industry was retrieved from Damodaran website as well, which allowed for the calculation of the levered Beta for Cimpor using the formula present in the literature review. As such, the model will use a beta of 0.75 for Cimpor' cost of capital computation.

At the time, Cimpor had a BBB rating, implying a spread of 2%, which results in a cost of debt of 3.89%. Further, the model assumes the degree of leverage of 34%. This assumption is based upon two factors: first of all, despite the external adversities Cimpor managed to decrease its leverage over the previous years, which allows us to assume it can manage its future operations without needing to issue more debt. Finally, the different WACCs computed for each country are based on the market capitalization of 3 377 Million Euros, and in the debt book value of 1 623 Million Euros. Per the literature review, the book value can be considered the same as the market value since none of the companies has debt trading in the market.

5.1.7. Terminal Value

The growth rates applied to the different countries where Cimpor operates (plus Argentina, were InterCement also operates) were based on the PwC forecasts of GDP per country through 2060 - from where I computed the CAGR of each country GDP until 2060, using them as the terminal growth rates. This method was according to the suggestion in the literature about terminal growth rates needing to be in line with the nominal GDP where the companies' operate.

5.2. InterCement

5.2.1. Revenues

Figure 10: Income and Cement Consumption Relationship (2010)
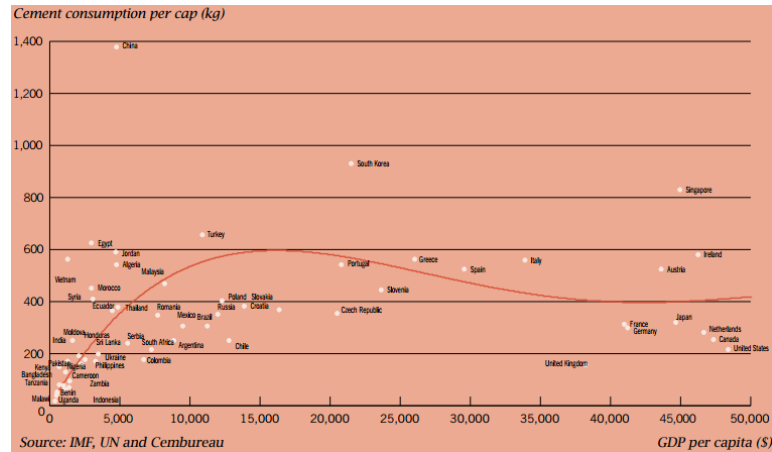
Source: IMF, UN and CEMBUREAU

As I was not able to find information of forecasts for Argentina's cement consumption per capita, the presumption is that it would grow at a pace between Brazil's and South Africa's, taking under consideration the fact that in 2010, consumption values were in the middle of these countries according to the Bell Curve.
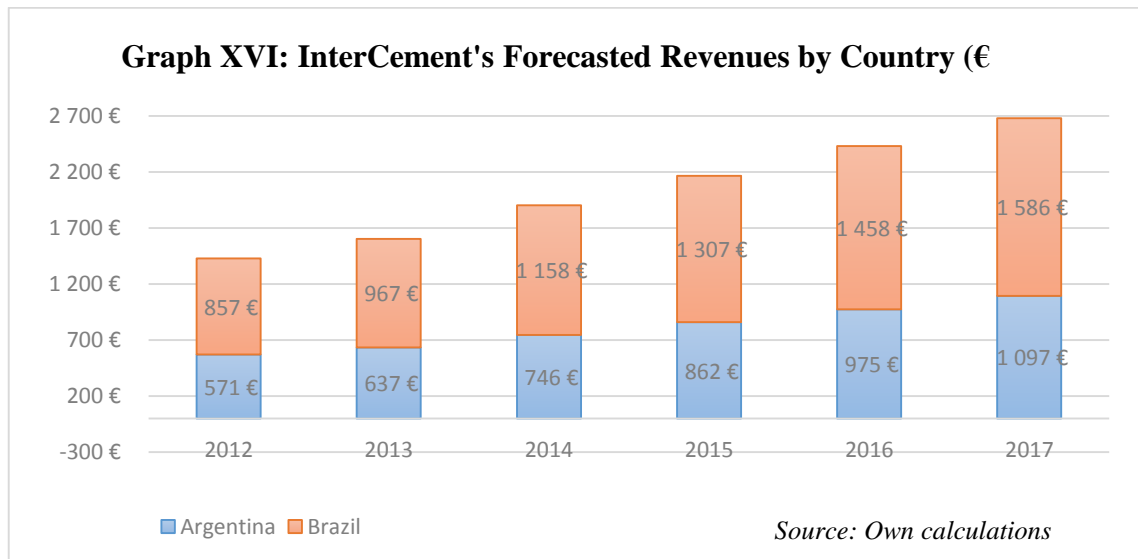
5.2.2. Costs

The model assumes that the relation between concretes' and aggregates' prices and cement's and clinker's is the same as in Cimpor; it also used the same method to estimate future EBITDA margins.

5.2.3. WACC

The same assumptions will be made regarding the risk-free rate and the conversion of foreign cash-flows to the Euro currency when valuing InterCement. In addition, the model will use the same procedures when computing equity risk premium and the Beta. The cost of debt for InterCement will be higher since they have a rating of BB, which means its spread will be 4%. Therefore, the model will presume that the level of leverage InterCement had in 2011 (*i.e.*, 44%) will be maintained in the future, and that the book value of equity of InterCement in 2011, considering no information was available regarding market capitalization of the company.

5.2.4. Capex, D&A and Working Capital

The rationale used to calculate Working Capital, CAPEX and D&A is the same that was applied when valuing Cimpor: the Depreciation Rate was exactly the same, while Working Capital and CAPEX were also based on historical values.

5.3. Multiples Valuation

In this section I will use the multiples' to analyze how the market value Cimpor's and InterCement's peers. Then, I will compare both my DCF valuation and its implied multiples against the peers' ones to see the differences and the similarities between them and their respective underlying reasons.

In order to do so, one must carefully choose which multiples to use and which peers to choose. Having in mind what was discussed in the literature review, I will use the EV/EBITDA, EV /SALES and P/E multiples, with particular emphasis on EV/EBITDA.

As for the choice of peers, the following table considers each of Cimpor's and InterCement's main competitors and presents information about their geographic exposure, degree of leverage, EBITDA margins, ROIC and historical and expected growth.

Table III: Peers Multiples

Peers	Market Debt to Equity ratio	PE	EV/EBITDA	EV/Sales	EBITDA Margins	Historical growth in Revenues - Last 3 years	Expected growth in revenues - Next 2 years	ROIC	Geographic exposure
CRH	52,54%	24,77	10,10	0,88	9%	-6%	3%	6%	Europe, North America
Holcim	97,68%	13,60	6,37	1,32	19%	-8%	-2%	8%	Europe, Asia, Latin America
Italcementi	309,02%	21,06	5,05	0,81	16%	-6%	1%	NA	Europe, North America, Africa, Asia
HeidelbergCement	159,36%	17,44	7,01	1,24	18%	-5%	5%	13%	Europe, North America, Africa, Asia
Lafarge	215,32%	9,13	6,06	1,35	21%	-4%	-2%	14%	Europe, North America, Latin America, Asia
Buzzi Unicem	132,79%	NA	7,20	0,90	16%	-8%	5%	3%	Europe, North America
Average	161,12%	17,20	6,96	1,08	17%	-6%	2%	9%	-
Cimpor	50,82%	21,38	9,66	2,62	27%	3%	5%	17%	Europe, Africa, Asia, Latin America
Premium implied		24%	39%	142%					

All the peers have most of their business concentrated in the production of cement, concrete and aggregates, allowing one to conclude that, since the business risk is roughly the same, the only criterion to assess the differences in risk profile between the companies is their geographic exposure.

There are two main players in the cement business that were not considered in this analysis: Votorantim and Cemex. Votorantim only generates half of its EBITDA through cement activities, and operates in the USA and Brazil; besides, as a family group, gathering information about its activities is particularly difficult. On the other hand, Cemex generates almost 70% of its revenues in Mexico and the USA and 15% in Spain, which is not comparable to the market exposure that Cimpor has; in addition, the information required to make a proper multiples analysis was not available.

Therefore, since the cement industry is characterized as an oligopoly, as previously discussed, with few but big players representing the supply side of the market, and thus being left with six peers to analyze, I have no option but to ignore the other such criteria as the desirable similar levels of growth and ROIC.

As it can be observed, Cimpor has higher multiples than its peers, with the difference between their EV/Sales ratio being enormous; this is understandable, since as it was

explained in the companies' description, Cimpor has the highest margins within all the industry. In addition, Cimpor's implied EV/EBITDA is 27% higher than its peers' average, which can be explained by the fact that it is more exposed to emerging and growing markets, thus having better growth prospects. Finally, the fact that the premium is smaller for the PE ratio can be justified by the potential heavy interest charges that the other players are facing, which results in a wide difference between their EBITDA and their Net Income. Overall and most importantly, Cimpor's exposure to emerging countries, its low degree of leverage and its high margins are the critical factors that makes it more valuable than its competitors.

As for Intercement, a multiples analysis would not provide any added value to the assessment made so far for three reasons: the main cement players in Brazil are international companies, which on its own would bias any comparison with a local player like Intercement; secondly, among these competitors, Intercement is the only company with a big exposure to the cement market in Argentina, and thus to the country's peso exchange rate fluctuations, which is absorbing much of the company's value; and finally, the other non-international players in Brazil and Argentina are private companies for which not much information is available to the public.

5.4. Analysis of results obtained

5.4.1. Cimpor

The DCF method together with the assumptions made and previously explained resulted in an Enterprise Value for Cimpor of 5 496 Million Euros, and a Market Capitalization of 3 873 Million Euros, with a share price of 5.74 Euros. This valuation is higher than the company's market price at the time (5 Euros), higher than the offer price made to acquire the firm (5.85 Euros), and in line with the average of other analysts' valuations (average of 5.85 Euros). Regarding the market price, it is of vital importance to say that there might be a huge bias due to the very small free float – just 15.6% of Cimpor's stake as outstanding shares – which might mean that the true equity value of Cimpor may be very different than the one the market implies.

Graph XVII: Targe Price

Source: Company data
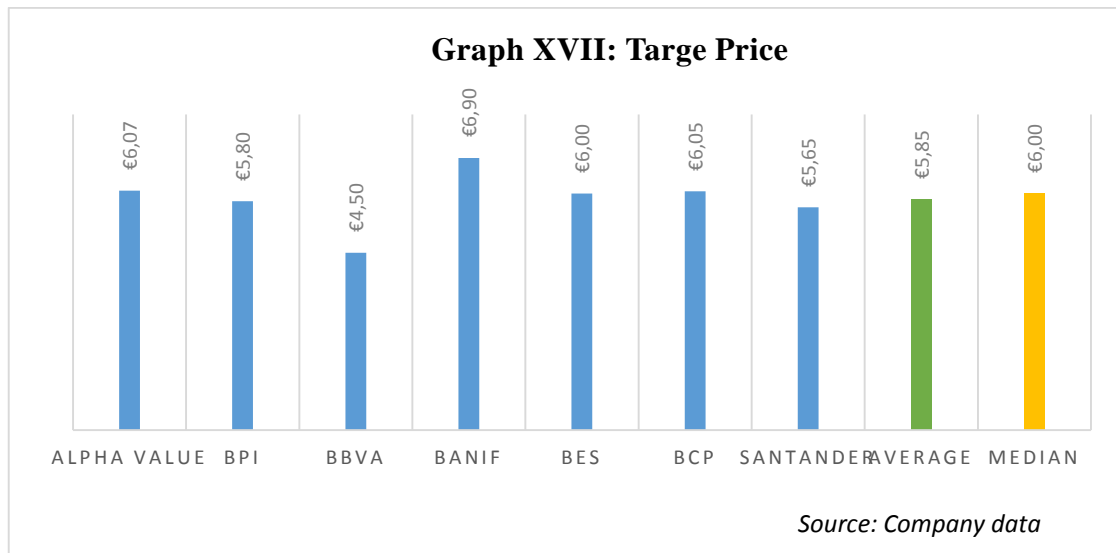
The most complete research notes available for a proper comparison were Millenium's and Santander's, both of which used the DCF approach in conjunction with a Sum of Parts valuation. The following table shows mine, Santander's and Millenium's valuations for each of Cimpor's assets:

Table IV: Valuations Comparison

	Thesis			Millenium			Santander		
	EV	WACC	Growth Rate	EV	WACC	Growth Rate	EV	WACC	Growth Rate
Portugal	728 €	9,34%	1,9%	705 €	12,2%	1,5%	678 €	10,2%	1,0%
Spain	236 €	7,95%	2,5%	470 €	10,1%	1,5%	308 €	8,2%	1,0%
Brazil	1 565 €	7,63%	3,3%	1 710 €	14,1%	5,6%	2 163 €	8,1%	3,0%
Egypt	466 €	11,15%	3,7%	571 €	22,3%	12,5%	302 €	11,0%	3,0%
Marroco	567 €	8,39%	3,6%	283 €	14,7%	7,0%	289 €	10,1%	3,0%
Tunísia	175 €	7,95%	3,5%	225 €	15,3%	7,0%	206 €	10,1%	3,0%
Turkey	328 €	8,57%	3,9%	560 €	15,4%	6,5%	182 €	11,0%	3,0%
Mozambique	257 €	8,40%	4,9%	160 €	25,3%	16,0%	533 €	10,1%	3,0%
South Africa	559 €	7,12%	3,0%	420 €	13,4%	5,2%	498 €	9,8%	3,0%
India	104 €	7,88%	4,9%	146 €	12,5%	5,4%	48 €	10,0%	3,0%
China	462 €	6,71%	4,3%	589 €	8,7%	1,5%	186 €	8,3%	2,0%
Cape Verde	49 €	8,47%	3,5%	162 €	-	-	29 €	10,2%	2,0%
SoP	5 496 €	8,23%	3,4%	6 001 €	13,8%	5,4%	5 422 €	9,2%	2,6%

The main differences between my valuation and the ones by the two banks pertain mainly to the WACCs and terminal growth rates used. Regarding WACCs, the only apparent difference was the risk free rate of 2.5% used by Millenium, which is greater than the one used in this work (1.89%). On the one hand, the financial crisis may have led analysts to make an over pessimistic assessment of the general risks for Cimpor's business; on the other hand, another possible explanation could be the lack of importance given to Cimpor's geographic diversification and the consequent risk diversification as a result of its market exposure.

As for the terminal growth rates, although I am aware of the consequences arising from using higher growth rates when valuing companies[11] (albeit Millenium's being even higher), I believe that using countries' GDP nominal growth rates is the most coherent method of valuing a company's terminal value – in the case of Cimpor, the company is exposed to emerging markets with the strategic purpose of taking advantage of their long-term potential growth, which is where they can also create value, and therefore should be included in the growth prospects of the company. As such, I took these two elements under careful consideration, as a result of their significant influence in the final values, with the respective results presented in the following graphs[12]:

Table IV: Sensitivity Analysis

PRICE PER SHARE		TERMINAL GROWTH RATE		
		2,82%	3,35%	3,90%
WACC	8,76%	4,38 €	4,90 €	5,54 €
	8,23%	5,04 €	5,74 €	6,60 €
	7,69%	5,86 €	6,83 €	7,91 €

There is yet another element in the valuation used in this work that differs from the one used by the two banks, according to whom the valuation of Cimpor's assets in Brazil should be much higher. According to the model used, Santander and Millenium are being over optimistic about the cement industry growth in Brazil, since it is not forecasted to

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[11] Significant changes in the terminal value, and consequently in the enterprise value.
[12] Each country's WACC and Terminal Growth Rate was increased/decreased by 0.5%.

grow faster than 9.2% a year (on average), even with the Football World Cup and the Olympic Games already included in these predictions. In addition, as mentioned in the industry review, there are "speculative bubbles in the residential real estate market" in São Paulo and Rio de Janeiro, which should foster some caution when making forecasts about the construction industry.

5.4.2. InterCement

Careful attention should be paid when considering InterCement valuation: the Enterprise Value of 647 Million Euros and the consequent null equity value (since the enterprise value is lower than the debt one) are far from what would be expected. Although there are no research notes to use as a comparison term to my own valuation, one still can look at InterCement's book values: the assets value is significantly higher than what the valuation used in this work implies, and due to the debt book value of 768 Million Euros, the equity of InterCement is worth nothing.

Nevertheless, there is a reasonable and logical explanation supporting these values: while apparently there is nothing wrong with the forecasts used regarding EBITDA, Capex, etc…, the huge forecasted exchange rates regarding the Argentina Peso and the Argentina country risk absorb almost the total value that is being created by InterCement in that country, and that is why the overall value of the company is so much lower than its book value.

6. Valuation of the Merged Entity

Consistent with what was said in the literature review, the valuation of the merged entity that now follows implies two major steps: the first one concerns the valuation of the merged entity without synergies, while the second already considers the potential synergies in its calculations.

6.1. Valuation of the merged entity without synergies

In order to value the combined entity without taking into account any potential synergies, I made almost all the same assumptions used to value both companies separately. Those that need additional explanation concern margins and cost of capital: the EBITDA margin used to value the combined company in Brazil is a weighted average between both companies which took into consideration the installed capacity of each one in 2011. As for the cost of capital, the financial structure considered will take into account an average of the companies' levels of leverage (still based on book values), weighted according to the enterprise values calculated through the DCF approach. In addition, the spread used to calculate the cost of debt will be subjected to the same method as the previous item.

The final value of 6 150 Million Euros is slightly bigger than the simple sum of both companies' enterprise values (6 143 Million Euros). The explanation probably lies in the fact that the new computed WACCs had different impacts across the different assets, and not always in the same proportion. Notwithstanding, the enterprise value to be used for calculating synergies will be the first one, while this difference will be ignored for the sake of simplicity.

6.2. Analysis of Synergies

The fact that Cimpor and InterCement operate in different countries with the exception of Brazil, makes it illogical to find synergies between the other Cimpor and InterCement assets. Therefore, the only country where it makes sense to look for potential synergies is Brazil, where both companies operate. Regarding the combination of InterCement's and Cimpor's assets in Brazil, only one type of synergy will be considered, which will concern cost savings. Regarding the other possible ones:

Although a stronger pricing power caused by the decrease in competition and by a market share gain could be considered an operating synergy, the fact is that in this case factories from both companies operate in different regions which, due to the high transportation costs, forces prices to be a function of a supply/demand relationship on a regional basis. As a result, the industrial context does not allow for gains in pricing power.

Less volatility in cash flows could be considered a result of a spreader market exposure, which would lead to a decrease in the overall risk of the business. However, the reality is that the one country which did not already belong to Cimpor's 'portfolio' is Argentina which, as mentioned above, has a very high country risk.

On the other hand, economies of scale between these companies will be obtained through cost savings, resulting in operating synergies. I based the estimation of this cost savings on three studies: the first concerns past deals in the cement industry and the respective realized synergies of 2-4% of target sales[13]; the second consists of a study from Boston Consulting Group around the announced synergies in the construction synergy, which median is of 5.6%; and finally a study of Price and Waterhouse Coopers about the percentage fully achieved of announced cost saving synergies, with a result of 40%. I assume that every one of these synergies concerns cost savings, since as it was mentioned in the industry review, the cement industry is not characterized by significant changes in companies' market shares, thus not allowing for revenue synergies. In addition, as stated before, cost savings are the most reliable source of synergy. Therefore, the cost savings synergies will account for 2.24% of Cimpor sales in Brazil. This number is consistent both with synergies achieved in past deals as with the last two studies mentioned above.[14]

Graph 17: Past Deals Synergies as %Target Sales

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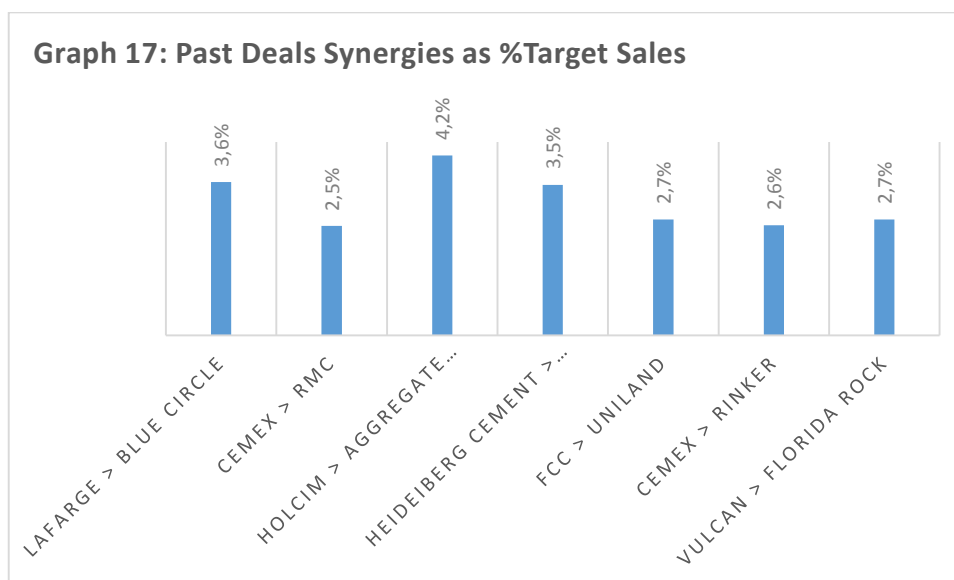
[13] Estimation obtained from company data.
[14] 5,6% x 40% = 2,24%

6.3. Synergies Sharing

With all the synergies estimated, one still has to decide how to split them between the acquiring and the target companies.

As far as cost saving synergies are concerned, per the literature review, the split of these synergies depends on the unique contribution of each firm to the creation of synergies. In this case, from Cimpor's perspective, the cost savings provided by InterCement could also be obtained if it was acquired by other cement big players in Brazil (e.*g.* Votorantim, Lafarge, Holcim). However, the fact that there are not many players in the industry gives InterCement some uniqueness in terms of contribution to these synergies. Just by analyzing each companies' contribution to the creation of these synergies one could say that a 50/50 split was the fairest one. Nevertheless, as explained before history around synergy sharing points to an average of 31% of the capitalized value of expected synergies collected by the target companies. Moreover, the same study related the percentage of synergies attributed to the target shareholders with the acquiring firm's operating performance:

Graph XVIII: Synergies captured by target shareholder (%)

47	39	29	21

HIGHEST OPERATIVE PERFORMANCE · LOWEST OPERATIVE PERFORMANCE

Source: Boston Consulting Group
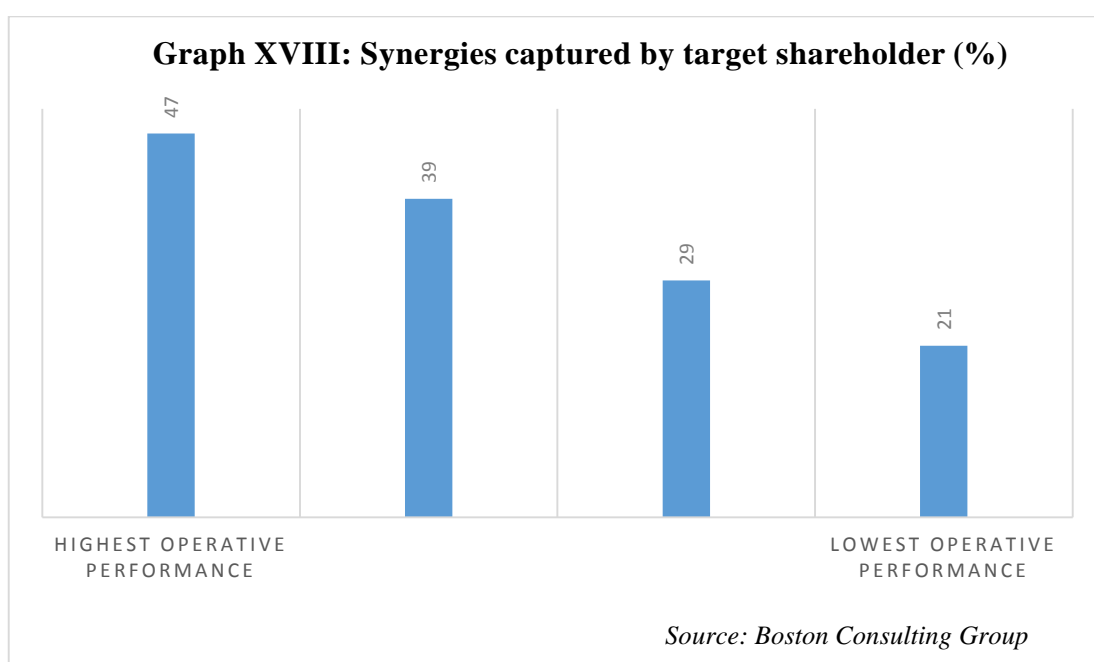
As a result, considering that with InterCement's average historical EBITDA margins of 24% placing the company above the average in what operative performance is concerned, one could say that the percentage of synergies that should be attributable to Cimpor would vary from 31% to 39%. As a result, the model will that Cimpor deserves

35% of the synergies created by this acquisition. The following graph shows the synergies' present value attributable to each company:

Graph XIX: Synergies Split

Source: Own calculations
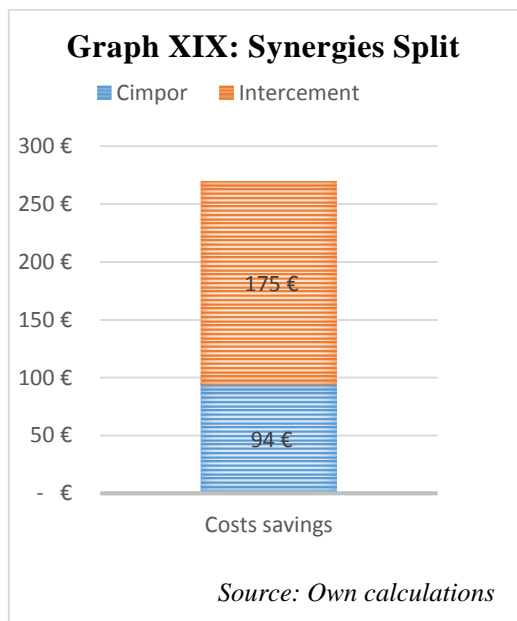
In conclusion, the value of Cimpor with synergies according to this model is 5 765 Million Euros. The value of the synergies expected by this combination of assets of 269 Million Euros, is slightly lower than the one InterCement predicted when announcing the acquisition (330 Million Euros).

7. The Acquisition

7.1. Mode of acquisition

On May 30, 2012, the Brazilian group Camargo Corrêa announced a Takeover Bid for Cimpor.

The acquiring group already owned 33% of Cimpor, and offered €5.50 per share for the remainder 67%.

The target shareholders were all present in Cimpor's structure apart from Camargo Corrêa itself. Caixa Geral de Depósitos (CGD), Banco Comercial Português (BCP), Manuel Fino and 9.7% out of 15.6% shareholders that represented the free float, agreed

to sell their shares at the offered price. Votorantim, on the other hand, decided to maintain its 21.2% stake in Cimpor and declined the offer.

Camargo Corrêa, the Brazilian group, was the acquiring shareholder and had the objective to merge InterCement's assets with Cimpor's.

7.2. Underlying Strategy

One cannot say that the acquisition of Cimpor by Camargo Corrêa was motivated by a single factor. Instead, there are several reasons that make this acquisition very opportunistic for the Brazilian group. All of the reasons presented below contributed positively to the decision, albeit probably not in the same proportion.

7.2.1. Overcapacity M&A

All of the underlying goals implied in this strategy fit in the rationale of this acquisition as far as the Brazilian assets are concerned. The consolidation of the Brazilian cement industry, together with the announced events such as the Football World Cup and the Olympic Games, which are predicted to boost the demand side of the industry, make the year 2012 the perfect time for Camargo Corrêa to acquire Cimpor, as one of the consequences will be the gain of a bigger market share, 18%, thus establishing itself as the second largest cement producer in Brazil, and allowing the group to take full advantage of the forthcoming events.

Graph XX: Brazil Cement Industry - Market Shares

Others 13%
CSN 5%
Holcim 6%
Lafarge 9%
NewCo 18%
Nassau 12%
Votorantim 37%

Source: Exane BNP Paribas estimates from company data
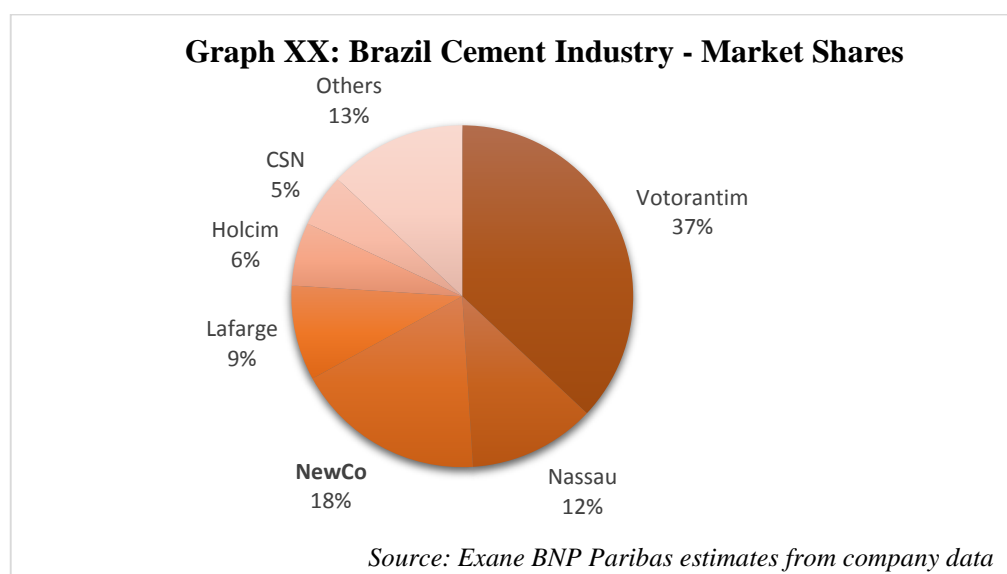
In addition, the elimination of excess capacity, the creation of a more efficient operation and the rationalization of the administrative processes inherent to these strategies are included in the cost saving synergies calculated in the previous section. Overall, and according to previous calculations, one can say that this is the best strategy for Camargo Corrêa to acquire more value.

7.2.2. Geographic diversification

This is an acquisition of a multinational company present in twelve countries by a local company operating in only two countries (Brazil and Argentina). This fact alone brings significant benefits to the acquiring firm. By being exposed to more countries in different parts of the globe, Camargo Corrêa will now be more protected against exchange rate swings – the Brazilian Real and the Argentina Peso are not stable currencies ─, as well as domestic business fluctuations. Furthermore, this geographic dispersion will allow the merged company to penetrate in other potential emerging markets as the risk inherent to the investments in these eventual new countries is backed by the presence in other already growing and mature markets. Finally, and as also mentioned in the literature review, firms in emerging markets like Brazil will benefit from a reduced "sovereign exposure" through the acquisition of foreign assets in developed countries, and in addition will have access to the financial international markets.

7.2.3. Undervaluation

As was discussed when valuing Cimpor, the DCF model used implied a much higher price per share than the market price at the time. Additionally, other financial institutions had valued Cimpor above the market price. However, the underlying strategy of taking advantage of an undervalued company is only valid assuming that Camargo Corrêa also views Cimpor as a more valuable company than what the market implies. According to the "market for corporate control" theory explained in the literature review, Camargo Corrêa would have perceived Cimpor as an undervalued company and as such – together with all the reasons explained above – decided to proceed with the respective acquisition.

In line with this rationale is the hypothesis of the existence of the Fire-Sale phenomena in this deal: by 2012, Portugal was immensely affected by the financial crisis. Further, Troika had demanded that Portugal sell €5Bn in state companies as a counterpart for the bailout. All of this, together with the fact that two of Cimpor's shareholders were state owned – CGD and BCP – resulted in the immediate acceptance of Camargo Corrêa's offer by these two entities, which did not allow enough room to renegotiate the offer price. In sum, it is highly likely that the Brazilian group was aware of the Portuguese government's needs and took advantage of that to establish an offer price only slightly higher than the market one, as they knew they would not find much resistance on the other side of the table.

7.2.4. Financial Structure

With a debt to equity ratio of 0.48, Cimpor's low levered financial structure came as an opportunity for Camargo Corrêa to decrease its overall level of indebtedness. As it can been seen in the following tables, the degree of leverage of the merged company reduced significantly compared with Camargo Corrêa's previous one.

Cimpor (Book Values, M€)

Assets	Liabilites	
5 000 €	3 377 €	**Equity**
	1 623 €	**Debt**
D/E	48%	

InterCement (Book Values, M€)

Assets	Liabilites	
1 736 €	968 €	**Equity**
	768 €	**Debt**
D/E	79%	

NewCo (Book Values, M€)

Assets	Liabilites	
6 736 €	4 345 €	**Equity**
	2 391 €	**Debt**
D/E	55%	

7.3. The Offer Price

The offer price of €5.5 had an implied premium of 10% if one takes into consideration the closing price on the day before the preliminary announcement of €5.0 per share. Per the explanation offered in the valuation section, the model used in this work provided a 'fair' offer price of €6.14 with synergies already included. This price has a premium over the closing price of 23%. In addition, if one compares the premium paid in this acquisition with the premiums paid in previous deals in the cement industry one can conclude it is significantly lower than 30%, corresponding to the average of these previous deals' premiums.

Graph XXI: Premiums on past deal announcements

Deal	Premium
Buzzi > UNICEM	30%
Anglo American > Tarmac	35%
Lafarge > Blue Circle...	14%
FCC > Portland Valderrivas	16%
Buzzi Unicem > Dyckerholf	42%
CEMEX UK > RMC Group	34%
Holcim > Aggregate Industries	34%
Spohn Cement > Heidelberg...	18%
Cemex > Rinker Group	53%
Vulcan Materials > Florinda...	51%
Lehigh UK > Hanson	35%

Source: Company Data
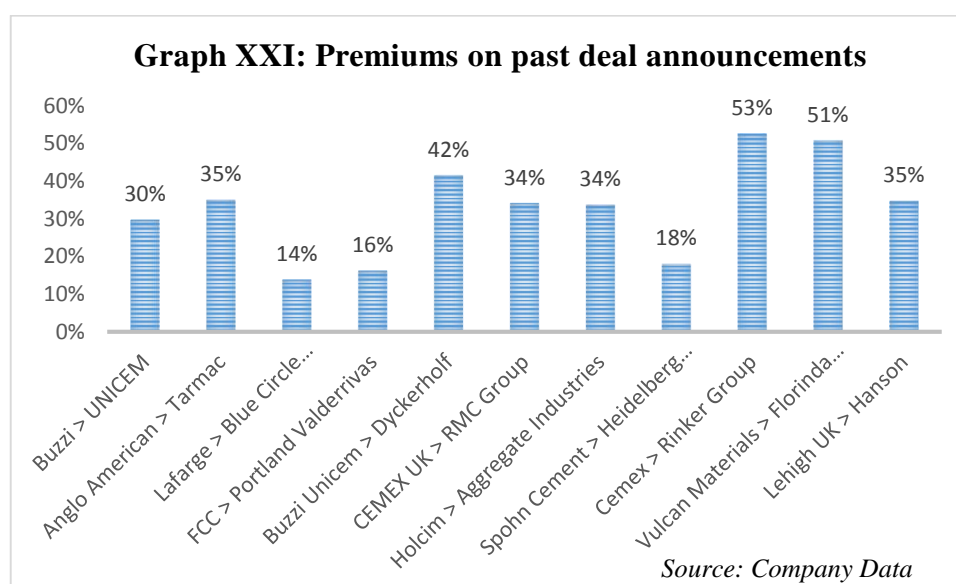
The offer price of 5.50 Euros implies a Transaction Value / EBITDA multiple of 8.7, which means a discount of 20% over the average of 10.9 of the multiples TV/EBITDA in past deals in the cement industry[15]. On the other hand, the offer price implied by my calculations resulted in a multiple Transaction Value / EBITDA of 9.4, which although it does not reach the average of past transactions, implies a lower discount in relation to the former (14%).Therefore, while 6.14 Euros is considerably higher when compared to the real offer price of 5.50 Euros, it is still a low value considering the premiums on past deal announcements.

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[15] Source: Company data.

In conclusion, it is important to restate that the offer price of €6.14 implies a premium of 23% not only because the model used assumes higher synergies but also due to the higher valuation of Cimpor as a standalone company when compared to its market capitalization.

7.4. Method of Payment

Having already determined what should have been the offer price according to the valuations obtained in this work, one still has to decide whether to pay for the acquisition with stock or with cash. As discussed previously in the literature, the most frequently used criteria to make this type of decision relies on who should bear the risks and the benefits of the potential synergies. Having said that, it is important to remember that most of the synergies come from Cimpor's side, with just half of the cost savings synergies resulting from InterCement's participation in the deal. However, as I have already concluded, the offer price did not include the proper premium taking into account the potential synergies to be created, which might lead one to think that it would be best for Cimpor to accept a stock deal to benefit from these synergies in the future since these were not incorporated in the offer price.

However, it was also said that the choice for the method of payment should be made under a risk/return rationale. In fact, there are three main issues that might lead one to conclude that perhaps the acquisition by stock brings more risks than future potential benefits for Cimpor's shareholders: the first and main one concerns the fact that Camargo Corrêa is a privately held group and that will limit in a big extent the ability of Cimpor's shareholder to sell Camargo Corrêa's shares in the future. Secondly, although not taken into account in previous sections, the risk of assets being split in the future would jeopardize the value of the merged company, as it would bring a lot of uncertainty to the table. Finally, the Troika's demand that the Portuguese government sell €5Bn of state owned companies forces in a certain way CGD and BCP to only accept cash in trade for their participations in Cimpor.

To sum up, the acquisition was made with stock, and due to the lack of cash in Camargo Corrêa's balance sheet, the company was forced to ask for a credit line to finance these operations, and consequently to lever even more its financial structure.

7.5. Brazilian Competition Authority

At the time of the acquisition, and although it would result in further consolidation in the Brazilian cement industry, the risk of anti-trust concerns was limited, mostly because of the fact that on 15 May, 2012 the Brazilian anti-trust authority had approved Camargo Corrêa's initial purchase of 33% of Cimpor's stake in 2010. However, in June of that year concerns were raised because of Votorantim, market leader in the Brazilian cement industry, which had 21% stake in the merged company, making it the second largest cement producer in Brazil. As a consequence, and considering these concerns by the national antitrust authorities, Votorantim was forced to sell its stake in Cimpor. The consequences were a reorganization of assets which will not be addressed in this work.

8. Conclusion

The first immediate conclusion one can take from this work is the fact that the market undervalues Cimpor's shares: the DCF framework used in this work implies a price per share – 5.74 Euros — significantly higher than the market price, and in addition the valuations made by other financial institutions seem to agree with this idea, since on average the analysts' valuations of Cimpor lead to a share price of 5.85 Euros, as it is explained in Cimpor's valuation section, together with the reasons to back it up.

As far as the offer price of 5.5 Euros per share, not only does it not correspond to the true value of Cimpor – once again, according to my DCF analysis and to other bank's valuations – but it also lacks the premium that should be in line with the potential synergies that are expected to arise from the deal. Furthermore, Votorantim's refusal to sell its stake in Cimpor at this offer price may be viewed as additional evidence of undervaluation, since one can conclude that according to Votorantim, €5.5 per share was not the fair value of Cimpor's shares.

In normal circumstances, this offer price would have never been accepted by Cimpor's shareholders; however, the impact the financial crisis had in the treasury accounts in Portugal, along with Troika's demand to sell €5Bn of state-owned companies, resulted in

the acceptance of this offer by CGD and BCP, which would immediately give Cimpor's control over to Camargo Corrêa. According to the model used in this work and considering that the offer price should have been 6.14 Euros per share, one can say that Cimpor's shareholders as a whole might have lost up to 173 Million Euros with this deal, and state-owned shareholders could have lost up to 85 Million Euros. Cimpor was considered by many a Portuguese 'national champion' and a lot of resistance was shown both by the political opposition parties as well as the public opinion, albeit these were not able to dissuade the government of its decision to sell its respective stake in Cimpor.

Further, besides these undervaluation issues, while InterCement's situation was improved with this deal, the same cannot be said about Cimpor: the Portuguese company has been able to create value to its shareholders due to its operational efficiency, its exposure to the right markets and its relatively low degree of indebtedness. However, the two latter key factors of success will now be in danger: the split of assets that was likely to occur at the time can potentially destroy Cimpor's strategic market exposure, and the efforts made by Cimpor's administration to deleverage its financial structure might have been in vain since the already indebted InterCement, together with the loans obtained to finance the deal, will add a huge amount of debt to the merged company financial structure.

However, these risks are somehow insignificant, since in the end Camargo Corrêa would control 94% of Cimpor's stake. Overall, according to all that has been said in this work, it was an excellent deal for the Brazilian shareholders and a bad one for Cimpor's shareholders, since they could have benefited a lot more from the company value and from the upcoming synergies.

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10. Appendixes

Appendix I: Population forecast per country				Source: The Global Cement Report, BESI research							
Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Angola	17043	17559	18076	18592	19109	19625	20197	20769	21340	21912	22484
Argentina	41343	41761	42179	42596	43014	43432	43821	44211	44600	44990	45379
Brazil	201103	203352	205600	207849	210097	212346	214398	216451	218503	220556	222608
Cape Verde	509	516	524	531	539	546	553	561	568	576	583
China	1330141	1336415	1342690	1348964	1355239	1361513	1366119	1370726	1375332	1379939	1384545
Egypt	80472	82075	83678	85281	86884	88487	90042	91596	93151	94705	96260
India	1173108	1188826	1204543	1220261	1235978	1251696	1266575	1281455	1296334	1311214	1326093
Morroco	31627	31966	32305	32645	32984	33323	33650	33976	34303	34629	34956
Mozambique	22417	22994	23571	24149	24726	25303	25963	26623	27283	27943	28603
Paraguay	6376	6892	7409	7925	8442	6783	7355	7927	8498	9070	7192
Portugal	10736	10754	10772	10789	10807	10825	10825	10826	10826	10826	10842
South Africa	49109	48944	48780	48615	48451	48286	48335	48384	48432	48481	48530
Spain	46506	46834	47162	47490	47818	48146	48520	48894	49268	49642	50016
Tunisia	10525	10627	10730	10832	10935	11037	11128	11220	11311	11403	11494
Turkey	77804	78748	79692	80635	81579	82523	83370	84217	85063	85910	86757

Appendix II: Annual per capita cement consumption (kg per capita)						Source: Santander / IMF		
Country	2010	2011	2012	2013	2014	2015	2016	2017
Argentina								
Brazil	309	327	357	372	399	411	420	433
Cape Verde	632	617	615	616	619	627	636	655
China	1395	1517	1570	1601	1625	1641	1649	1666
Egypt	635	541	514	512	512	512	514	530
India	210	214	219	225	231	236	241	248
Morroco	459	474	479	483	486	488	491	493
Mozambique	50	53	57	61	63	64	65	67
Portugal	543	457	399	359	332	315	316	316
South Africa	219	239	244	247	250	252	254	259
Spain	532	439	386	356	337	330	331	324
Tunisia	701	659	633	617	622	628	634	647
Turkey	735	829	844	859	871	883	895	917

Appendix III: Inflation (as %)		Source:	IMF						
Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Angola	14,48	13,48	10,29	8,78	7,66	7,73	7,39	7,14	6,73	6,50
Argentina	10,46	9,78	10,04	10,62	10,99	12,00	10,44	8,88	7,32	5,76
Brazil	5,04	6,64	5,40	6,20	5,92	4,18	4,37	4,56	4,75	4,94
Cape Verde	2,08	4,47	2,54	1,51	1,75	2,00	2,00	2,00	2,00	2,00
China	3,33	5,42	2,65	2,63	3,00	2,00	2,00	2,00	2,00	2,00
Egypt	11,70	11,07	8,65	6,92	10,65	9,83	8,66	7,50	6,33	5,17
India	10,53	9,55	10,21	9,48	8,41	7,53	7,62	7,72	7,81	7,91
Morroco	0,99	0,91	1,29	1,88	2,50	2,50	2,50	2,50	2,50	2,50
Mozambique	12,70	10,35	2,09	4,21	5,60	5,60	5,60	5,60	5,60	5,60
Paraguay	4,65	8,25	3,68	2,68	4,72	5,00	5,00	5,00	5,00	5,00
Portugal	1,39	3,56	2,78	0,44	0,67	0,24	0,95	1,66	2,36	3,07
South Africa	4,27	5,00	5,65	5,75	5,98	5,95	5,60	5,25	4,90	4,55
Spain	2,04	3,05	2,44	1,53	0,27	0,24	0,90	1,04	1,02	1,05
Tunisia	4,41	3,54	5,56	6,10	5,49	5,01	4,17	4,03	4,03	4,03
Turkey	8,57	6,47	8,89	7,49	7,77	8,23	7,40	6,58	5,75	4,93

Appendix IV: Exchange rates (US$)						Source: IMF				
Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Angola	91,91	93,93	95,47	96,51	98,37	100,09	101,93	103,91	106,01	108,15
Argentina	3,92	4,14	4,55	5,48	8,32	11,11	14,10	17,89	22,97	29,52
Brazil	1,76	1,67	1,95	2,16	2,36	2,41	2,47	2,53	2,59	2,65
Cape Verde	83,12	79,23	85,76	83,01	80,54	79,14	78,18	76,98	75,90	75,89
China	6,77	6,46	6,31	6,20	6,26	6,32	6,38	6,43	6,48	6,67
Egypt	5,52	5,82	6,01	6,46	6,94	6,94	7,17	7,45	7,70	7,75
India	45,56	47,92	54,41	60,52	64,10	66,63	69,15	71,16	73,59	75,73
Morroco	8,42	8,09	8,63	8,41	8,21	8,09	8,01	8,01	8,01	8,01
Mozambique	32,98	29,07	28,54	30,08	30,41	31,02	31,62	32,29	32,97	33,65
Paraguay	4591,96	4506,82	4364,29	4436,82	4641,77	4727,74	4780,18	4875,05	5007,84	5131,98
Portugal	0,75	0,72	0,78	0,75	0,73	0,72	0,71	0,70	0,69	0,68
South Africa	7,32	7,25	8,21	9,65	10,37	10,66	11,00	11,29	11,61	11,93
Spain	0,75	0,72	0,78	0,75	0,73	0,72	0,71	0,70	0,69	0,68
Tunisia	1,43	1,41	1,56	1,62	1,78	1,90	1,99	2,09	2,19	2,29
Turkey	1,50	1,68	1,80	1,90	2,26	2,32	2,40	2,47	2,55	2,63

Appendix V: Exchange rates (€)						Source: IMF				
Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Angola	69,26	67,51	74,26	72,66	71,86	71,84	72,26	72,54	72,97	73,43
Argentina	5,20	5,76	5,85	7,27	11,39	15,48	19,89	25,63	33,38	43,48
Brazil	2,33	2,33	2,51	2,86	3,23	3,36	3,48	3,62	3,76	3,91
Cape Verde	110,30	110,24	110,26	110,25	110,25	110,27	110,28	110,27	110,27	111,78
China	8,98	8,99	8,12	8,23	8,57	8,81	8,99	9,21	9,41	9,83
Egypt	7,32	8,10	7,72	8,58	9,51	9,67	10,11	10,68	11,19	11,42
India	60,45	66,68	69,95	80,38	87,75	92,85	97,54	101,93	106,91	111,54
Morroco	11,17	11,26	11,09	11,17	11,23	11,27	11,30	11,48	11,64	11,80
Mozambique	43,76	40,44	36,69	39,95	41,62	43,22	44,60	46,26	47,89	49,56
Paraguay	3460,70	3239,04	3394,82	3340,59	3390,94	3393,00	3388,85	3403,23	3447,10	3484,25
Portugal										
South Africa	9,72	10,09	10,55	12,82	14,19	14,86	15,51	16,18	16,86	17,57
Spain										
Tunisia	1,90	1,96	2,01	2,16	2,44	2,64	2,81	2,99	3,18	3,37
Turkey	1,99	2,33	2,31	2,53	3,10	3,23	3,39	3,54	3,70	3,87

Appendix VI: Market Shares	Source: Annual Report		
Country	2009	2010	2011
Brazil	9,1%	8,8%	8,6%
Cape Verde	72,1%	81,0%	81,5%
China	0,1%	0,1%	0,1%
Egypt	8,6%	7,4%	6,4%
India	0,5%	0,5%	0,5%
Morroco	8,1%	7,8%	7,5%
Mozambique	77,0%	81,1%	78,0%
Portugal	55,8%	55,5%	53,8%
South Africa	12,6%	10,5%	10,5%
Spain	10,5%	10,5%	11,4%
Tunisia	23,4%	23,4%	25,5%
Turkey	5,3%	5,5%	5,5%

Appendix VII: Forecasted Cash Flows								
Portugal	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	10736	10754	10772	10789	10807	10825	10825	10826
Cement consumption per capita (kg)	543	457	399	359	332	315	316	316
Exchange Rate €	-	-	-	-	-	-	-	-
Price change ex-inflation			1,00%	-1,30%	-1,00%	0,10%	0,20%	0,00%
Inflation	1,39%	3,56%	2,78%	0,44%	0,67%	0,24%	0,95%	1,66%
Installed Capacity (10^3 tonne)	7157	7034	6474	5914	5353	4793	4233	3673
Capacity Utilization	65%	54%	51%	51%	52%	55%	62%	72%
Sales								
Cement and Clinker (10^3 tonne)	4557	3700	3237	2915	2697	2564	2575	2579
Unit price (per 10^3 tonne)	55 €	57 €	59 €	59 €	58 €	59 €	59 €	60 €
Concrete and Agregates	8166	6630	5801	5223	4833	4595	4614	4621
Unit price (per 10^3 tonne)	21 €	22 €	23 €	23 €	23 €	23 €	23 €	24 €
Sales Revenues	426 €	358 €	325 €	290 €	268 €	255 €	259 €	264 €
Other Revenues	23 €	19 €	17 €	15 €	14 €	14 €	14 €	14 €
Total Revenues (10^6€)	449 €	377 €	343 €	306 €	282 €	269 €	273 €	278 €
Cash-costs	311 €	262 €	250 €	221 €	202 €	191 €	192 €	193 €
EBITDA	137 €	116 €	93 €	85 €	80 €	79 €	82 €	85 €
DA	55 €	56 €	45 €	48 €	51 €	54 €	57 €	60 €
EBIT	82 €	59 €	47 €	37 €	29 €	24 €	25 €	25 €
Taxes	28 €	20 €	16 €	12 €	10 €	8 €	8 €	8 €
WC	75 €	68 €	60 €	54 €	50 €	47 €	48 €	49 €
IWC	- € -	7 € -	8 € -	6 € -	4 € -	2 €	1 €	1 €
CAPEX	27 €	17 €	21 €	19 €	18 €	16 €	14 €	12 €

Appendix VIII: Forecasted Cash Flows								
Spain	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	46506	46834	47162	47490	47818	48146	48520	48894
Cement consumption per capita (kg)	532,1	439,3	385,6	356	337,4	329,9	330,8	323,7
Exchange Rate €	-	-	-	-	-	-	-	-
Price change ex-inflation			1,00%	-1,30%	-1,00%	0,10%	0,20%	0,00%
Inflation	2,04%	3,05%	2,44%	1,53%	0,27%	0,24%	0,90%	1,04%
Installed Capacity (10^3 tonne)	3132	3211	3011	2811	2612	2412	2212	2012
Capacity Utilization	72%	59%	55%	55%	57%	60%	66%	72%
Sales								
Cement and Clinker (10^3 tonne)	2856	2397	2119	1970	1880	1850	1870	1844
Unit price (per 10^3 tonne)	52 €	54 €	55 €	56 €	55 €	55 €	56 €	57 €
Concrete and Agregates	6204	5207	4602	4279	4083	4020	4062	4006
Unit price (per 10^3 tonne)	20 €	21 €	22 €	22 €	22 €	22 €	22 €	22 €
Sales Revenues	274 €	237 €	217 €	202 €	192 €	189 €	193 €	193 €
Other Revenues	15 €	13 €	12 €	11 €	10 €	10 €	10 €	10 €
Total Revenues (10^6€)	289 €	250 €	229 €	213 €	202 €	199 €	204 €	203 €
Cash-costs	236 €	204 €	195 €	180 €	169 €	166 €	168 €	165 €
EBITDA	53 €	46 €	34 €	33 €	33 €	34 €	36 €	38 €
DA	43 €	53 €	21 €	24 €	26 €	28 €	30 €	32 €
EBIT	10 € -	6 €	12 €	9 €	7 €	6 €	6 €	5 €
Taxes	3 € -	2 €	3 €	3 €	2 €	2 €	2 €	1 €
WC	57 €	61 €	52 €	48 €	46 €	45 €	46 €	46 €
IWC	- €	4 € -	9 € -	4 € -	3 € -	1 €	1 € -	0 €
CAPEX	27 €	39 €	28 €	26 €	25 €	23 €	21 €	19 €

Appendix IX: Forecasted Cash Flows

Brazil	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	201103	203351,6	205600,2	207848,8	210097,4	212346	214398,4	216450,8
Cement consumption per capita (kg)	309,1	327,1	356,9	371,9	398,7	411,3	420,1	432,7
Exchange Rate €	2,33	2,33	2,51	2,86	3,23	3,36	3,48	3,62
Price change ex-inflation			0,60%	-2,70%	0,70%	0,30%	0,10%	0,00%
Inflation	5,04%	6,64%	5,40%	6,20%	5,92%	4,18%	4,37%	4,56%
Installed Capacity (10^3 tonne)	6511	6630	7296	7962	8628	9294	9960	10626
Capacity Utilization	67%	71%	73%	73%	76%	76%	76%	74%
Sales								
Cement and Clinker (10^3 tonne)	4316	4652	5317	5802	6514	7036	7518	7817
Unit price (per 10^3 tonne)	275 BRL	293 BRL	311 BRL	321 BRL	343 BRL	358 BRL	374 BRL	391 BRL
Concrete and Agregates	1522	1641	1875	2046	2298	2482	2651	2757
Unit price (per 10^3 tonne)	107 BRL	114 BRL	121 BRL	125 BRL	134 BRL	140 BRL	146 BRL	153 BRL
Sales Revenues	1 350 BRL	1 552 BRL	1 881 BRL	2 121 BRL	2 540 BRL	2 867 BRL	3 200 BRL	3 479 BRL
Other Revenues	72 BRL	83 BRL	100 BRL	113 BRL	136 BRL	153 BRL	171 BRL	186 BRL
Total Revenues (10^6€)	1 422 BRL	1 635 BRL	1 981 BRL	2 234 BRL	2 676 BRL	3 020 BRL	3 371 BRL	3 665 BRL
Cash-costs	1 027 BRL	1 180 BRL	1 430 BRL	1 613 BRL	1 932 BRL	2 180 BRL	2 434 BRL	2 646 BRL
EBITDA	395 BRL	455 BRL	551 BRL	621 BRL	744 BRL	840 BRL	937 BRL	1 019 BRL
DA	67 BRL	80 BRL	100 BRL	113 BRL	128 BRL	145 BRL	164 BRL	186 BRL
EBIT	328 BRL	374 BRL	451 BRL	508 BRL	616 BRL	694 BRL	773 BRL	833 BRL
Taxes	115 BRL	131 BRL	158 BRL	178 BRL	216 BRL	243 BRL	270 BRL	292 BRL
WC	204 BRL	225 BRL	281 BRL	317 BRL	380 BRL	429 BRL	479 BRL	521 BRL
IWC	- BRL	21 BRL	57 BRL	36 BRL	63 BRL	49 BRL	50 BRL	42 BRL
CAPEX	145 BRL	231 BRL	199 BRL	231 BRL	265 BRL	298 BRL	333 BRL	372 BRL

Appendix X: Forecasted Cash Flows

Egypt	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	80472	82075	83678	85281	86884	88487	90041,6	91596,2
Cement consumption per capita (kg)	635,3	540,9	514,1	511,9	511,9	511,9	514,4	529,8
Exchange Rate €	7,32	8,10	7,72	8,58	9,51	9,67	10,11	10,68
Price change ex-inflation			-1,80%	-0,40%	-2,30%	-0,70%	0,40%	0,00%
Inflation	11,70%	11,07%	8,65%	6,92%	10,65%	9,83%	8,66%	7,50%
Installed Capacity (10^3 tonne)	4005	4013	4088	4163	4238	4313	4388	4463
Capacity Utilization	86%	75%	72%	71%	71%	71%	72%	74%
Sales								
Cement and Clinker (10^3 tonne)	3657	3226	3126	3172	3232	3292	3366	3526
Unit price (per 10^3 tonne)	352 EGP	391 EGP	417 EGP	444 EGP	480 EGP	524 EGP	571 EGP	614 EGP
Concrete and Agregates	96	84	82	83	85	86	88	92
Unit price (per 10^3 tonne)	137 EGP	153 EGP	163 EGP	173 EGP	187 EGP	204 EGP	223 EGP	240 EGP
Sales Revenues	1 300 EGP	1 274 EGP	1 317 EGP	1 424 EGP	1 568 EGP	1 741 EGP	1 943 EGP	2 188 EGP
Other Revenues	69 EGP	68 EGP	70 EGP	76 EGP	84 EGP	93 EGP	104 EGP	117 EGP
Total Revenues (10^6€)	1 370 EGP	1 342 EGP	1 388 EGP	1 499 EGP	1 652 EGP	1 834 EGP	2 046 EGP	2 305 EGP
Cash-costs	806 EGP	789 EGP	943 EGP	992 EGP	1 062 EGP	1 146 EGP	1 241 EGP	1 356 EGP
EBITDA	564 EGP	553 EGP	444 EGP	508 EGP	589 EGP	688 EGP	805 EGP	949 EGP
DA	42 EGP	58 EGP	213 EGP	227 EGP	242 EGP	259 EGP	277 EGP	296 EGP
EBIT	522 EGP	495 EGP	232 EGP	281 EGP	347 EGP	430 EGP	529 EGP	653 EGP
Taxes	178 EGP	168 EGP	79 EGP	95 EGP	118 EGP	146 EGP	180 EGP	222 EGP
WC	294 EGP	301 EGP	235 EGP	254 EGP	279 EGP	310 EGP	346 EGP	390 EGP
IWC		7 EGP -	66 EGP	19 EGP	26 EGP	31 EGP	36 EGP	44 EGP
CAPEX	63 EGP	156 EGP	114 EGP	125 EGP	140 EGP	157 EGP	173 EGP	190 EGP

Appendix XI: Forecasted Cash Flows								
Marroco	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	31627	31966,2	32305,4	32644,6	32983,8	33323	33649,6	33976,2
Cement consumption per capita (kg)	458,6	474,3	478,8	483,4	485,8	488,4	490,9	493,1
Exchange Rate €	11,17	11,26	11,09	11,17	11,23	11,27	11,30	11,48
Price change ex-inflation			-1,80%	-0,40%	-2,30%	-0,70%	0,40%	0,00%
Inflation	0,99%	0,91%	1,29%	1,88%	2,50%	2,50%	2,50%	2,50%
Installed Capacity (10^3 tonne)	1327	1290	1373	1457	1540	1623	1707	1790
Capacity Utilization	85%	93%	89%	86%	82%	79%	77%	74%
Sales								
Cement and Clinker (10^3 tonne)	1135	1209	1233	1258	1278	1298	1317	1336
Unit price (per 10^3 tonne)	783 MRO	790 MRO	786 MRO	797 MRO	799 MRO	813 MRO	836 MRO	857 MRO
Concrete and Agregates	336	358	365	372	378	384	390	395
Unit price (per 10^3 tonne)	306 MRO	308 MRO	307 MRO	311 MRO	312 MRO	317 MRO	327 MRO	335 MRO
Sales Revenues	991 MRO	1 066 MRO	1 081 MRO	1 119 MRO	1 138 MRO	1 177 MRO	1 229 MRO	1 278 MRO
Other Revenues	53 MRO	57 MRO	58 MRO	60 MRO	61 MRO	63 MRO	66 MRO	68 MRO
Total Revenues (10^6€)	1 044 MRO	1 122 MRO	1 139 MRO	1 179 MRO	1 199 MRO	1 240 MRO	1 295 MRO	1 346 MRO
Cash-costs	586 MRO	630 MRO	639 MRO	662 MRO	673 MRO	696 MRO	727 MRO	756 MRO
EBITDA	458 MRO	492 MRO	500 MRO	517 MRO	526 MRO	544 MRO	568 MRO	590 MRO
DA	64 MRO	84 MRO	108 MRO	119 MRO	127 MRO	136 MRO	145 MRO	155 MRO
EBIT	395 MRO	408 MRO	392 MRO	398 MRO	399 MRO	408 MRO	423 MRO	435 MRO
Taxes	79 MRO	82 MRO	78 MRO	80 MRO	80 MRO	82 MRO	85 MRO	87 MRO
WC	276 MRO	298 MRO	287 MRO	297 MRO	302 MRO	313 MRO	326 MRO	339 MRO
IWC	- MRO	22 MRO -	11 MRO	10 MRO	5 MRO	10 MRO	14 MRO	13 MRO
CAPEX	61 MRO	44 MRO	158 MRO	68 MRO	74 MRO	79 MRO	86 MRO	92 MRO

Appendix XI: Forecasted Cash Flows								
Tunísia	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	10525	10627,4	10729,8	10832,2	10934,6	11037	11128,4	11219,8
Cement consumption per capita (kg)	700,9	658,9	632,6	616,6	622,4	628,3	634,2	646,8
Exchange Rate €	1,90	1,96	2,01	2,16	2,44	2,64	2,81	2,99
Price change ex-inflation			-1,80%	-0,40%	-2,30%	-0,70%	0,40%	0,00%
Inflation	4,41%	3,54%	5,56%	6,10%	5,49%	5,01%	4,17%	4,03%
Installed Capacity (10^3 tonne)	1668	1751	1829	1906	1984	2061	2139	2216
Capacity Utilization	95%	90%	84%	79%	78%	76%	75%	74%
Sales								
Cement and Clinker (10^3 tonne)	1737	1738	1685	1658	1689	1721	1752	1801
Unit price (per 10^3 tonne)	73 TZS	76 TZS	78 TZS	83 TZS	85 TZS	89 TZS	93 TZS	97 TZS
Concrete and Agregates	820	820	795	782	797	812	827	850
Unit price (per 10^3 tonne)	29 TZS	30 TZS	31 TZS	32 TZS	33 TZS	35 TZS	36 TZS	38 TZS
Sales Revenues	150 TZS	156 TZS	156 TZS	163 TZS	171 TZS	181 TZS	193 TZS	207 TZS
Other Revenues	8 TZS	8 TZS	8 TZS	9 TZS	9 TZS	10 TZS	10 TZS	11 TZS
Total Revenues (10^6€)	158 TZS	164 TZS	165 TZS	171 TZS	180 TZS	191 TZS	203 TZS	218 TZS
Cash-costs	112 TZS	116 TZS	117 TZS	122 TZS	128 TZS	136 TZS	145 TZS	155 TZS
EBITDA	46 TZS	47 TZS	48 TZS	50 TZS	52 TZS	55 TZS	59 TZS	63 TZS
DA	12 TZS	12 TZS	23 TZS	25 TZS	27 TZS	29 TZS	31 TZS	34 TZS
EBIT	33 TZS	35 TZS	24 TZS	24 TZS	25 TZS	26 TZS	28 TZS	29 TZS
Taxes	8 TZS	9 TZS	6 TZS	6 TZS	6 TZS	7 TZS	7 TZS	7 TZS
WC	25 TZS	21 TZS	28 TZS	29 TZS	30 TZS	32 TZS	34 TZS	36 TZS
IWC	- TZS -	4 TZS	7 TZS	1 TZS	1 TZS	2 TZS	2 TZS	2 TZS
CAPEX	11 TZS	21 TZS	16 TZS	18 TZS	20 TZS	21 TZS	23 TZS	25 TZS

Turkey	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	77804	78747,8	79691,6	80635,4	81579,2	82523	83369,8	84216,6
Cement consumption per capita (kg)	735,2	828,7	843,9	859,4	871	882,7	894,6	916,9
Exchange Rate €	1,99	2,33	2,31	2,53	3,10	3,23	3,39	3,54
Price change ex-inflation			-1,80%	-0,40%	-2,30%	-0,70%	0,40%	0,00%
Inflation	8,57%	6,47%	8,89%	7,49%	7,77%	8,23%	7,40%	6,58%
Installed Capacity (10^3 tonne)	3027	3005	3232	3460	3687	3915	4142	4370
Capacity Utilization	86%	91%	87%	84%	81%	78%	75%	74%
Sales								
Cement and Clinker (10^3 tonne)	2884	3034	3127	3222	3304	3387	3468	3590
Unit price (per 10^3 tonne)	75 TRY	79 TRY	85 TRY	91 TRY	96 TRY	103 TRY	111 TRY	118 TRY
Concrete and Agregates	3089	3249	3349	3450	3538	3627	3714	3845
Unit price (per 10^3 tonne)	29 TRY	31 TRY	33 TRY	35 TRY	37 TRY	40 TRY	43 TRY	46 TRY
Sales Revenues	305 TRY	341 TRY	376 TRY	415 TRY	448 TRY	494 TRY	545 TRY	601 TRY
Other Revenues	16 TRY	18 TRY	20 TRY	22 TRY	24 TRY	26 TRY	29 TRY	32 TRY
Total Revenues (10^6€)	321 TRY	360 TRY	396 TRY	437 TRY	472 TRY	520 TRY	574 TRY	633 TRY
Cash-costs	260 TRY	292 TRY	318 TRY	348 TRY	372 TRY	405 TRY	443 TRY	484 TRY
EBITDA	61 TRY	68 TRY	78 TRY	89 TRY	100 TRY	115 TRY	131 TRY	150 TRY
DA	45 TRY	39 TRY	45 TRY	47 TRY	50 TRY	54 TRY	57 TRY	61 TRY
EBIT	16 TRY	29 TRY	33 TRY	42 TRY	50 TRY	61 TRY	74 TRY	88 TRY
Taxes	5 TRY	9 TRY	11 TRY	13 TRY	16 TRY	19 TRY	24 TRY	28 TRY
WC	51 TRY	47 TRY	74 TRY	81 TRY	88 TRY	96 TRY	106 TRY	118 TRY
IWC	- TRY -	5 TRY	27 TRY	8 TRY	6 TRY	9 TRY	10 TRY	11 TRY
CAPEX	12 TRY	25 TRY	20 TRY	23 TRY	26 TRY	30 TRY	34 TRY	38 TRY

Mozambique	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	22417	22994,2	23571,4	24148,6	24725,8	25303	25963	26623
Cement consumption per capita (kg)	50,4	53,2	57,3	60,7	62,5	64	64,9	66,9
Exchange Rate €	43,76	40,44	36,69	39,95	41,62	43,22	44,60	46,26
Price change ex-inflation			-2,00%	-3,90%	-1,40%	-1,50%	-0,20%	0,00%
Inflation	12,70%	10,35%	2,09%	4,21%	5,60%	5,60%	5,60%	5,60%
Installed Capacity (10^3 tonne)	732	858	858	858	858	858	858	858
Capacity Utilization	50%	47%	52%	57%	60%	63%	65%	69%
Sales								
Cement and Clinker (10^3 tonne)	884	976	1078	1170	1233	1292	1344	1421
Unit price (per 10^3 tonne)	3 865 MZM	4 265 MZM	4 267 MZM	4 273 MZM	4 449 MZM	4 628 MZM	4 878 MZM	5 151 MZM
Concrete and Agregates	129	143	158	171	180	189	197	208
Unit price (per 10^3 tonne)	1 509 MZM	1 665 MZM	1 666 MZM	1 668 MZM	1 737 MZM	1 807 MZM	1 904 MZM	2 011 MZM
Sales Revenues	3 612 MZM	4 400 MZM	4 861 MZM	5 283 MZM	5 799 MZM	6 321 MZM	6 932 MZM	7 737 MZM
Other Revenues	193 MZM	235 MZM	259 MZM	282 MZM	310 MZM	337 MZM	370 MZM	413 MZM
Total Revenues (10^6€)	3 805 MZM	4 635 MZM	5 120 MZM	5 565 MZM	6 109 MZM	6 659 MZM	7 302 MZM	8 150 MZM
Cash-costs	3 146 MZM	3 833 MZM	4 235 MZM	4 602 MZM	5 052 MZM	5 507 MZM	6 039 MZM	6 740 MZM
EBITDA	658 MZM	802 MZM	886 MZM	963 MZM	1 057 MZM	1 152 MZM	1 263 MZM	1 410 MZM
DA	360 MZM	292 MZM	290 MZM	319 MZM	350 MZM	383 MZM	419 MZM	457 MZM
EBIT	298 MZM	510 MZM	596 MZM	644 MZM	707 MZM	769 MZM	844 MZM	953 MZM
Taxes	83 MZM	143 MZM	167 MZM	180 MZM	198 MZM	215 MZM	236 MZM	267 MZM
WC	341 MZM	659 MZM	497 MZM	540 MZM	593 MZM	647 MZM	709 MZM	792 MZM
IWC	- MZM	318 MZM -	162 MZM	43 MZM	53 MZM	53 MZM	62 MZM	82 MZM
CAPEX	683 MZM	1 416 MZM	381 MZM	397 MZM	419 MZM	442 MZM	467 MZM	493 MZM

Appendix XIV: Forecasted Cash Flows																
South Africa		2010		2011		2012		2013		2014		2015		2016		2017
Population (10^3)		49109		48944,4		48779,8		48615,2		48450,6		48286		48334,8		48383,6
Cement consumption per capita (kg)		219,4		238,5		243,9		247		250,2		252,2		254,1		259,2
Exchange Rate €		9,72		10,09		10,55		12,82		14,19		14,86		15,51		16,18
Price change ex-inflation						-2,00%		-3,90%		-1,40%		-1,50%		-0,20%		0,00%
Inflation		4,27%		5,00%		5,65%		5,75%		5,98%		5,95%		5,60%		5,25%
Installed Capacity (10^3 tonne)		1465		1582		1582		1582		1582		1582		1582		1582
Capacity Utilization		58%		58%		59%		59%		60%		60%		61%		62%
Sales																
Cement and Clinker (10^3 tonne)		1152		1230		1254		1265		1277		1283		1294		1321
Unit price (per 10^3 tonne)	R	896	R	941	R	974	R	990	R	1 034	R	1 080	R	1 138	R	1 197
Concrete and Agregates		683		729		743		750		757		760		767		783
Unit price (per 10^3 tonne)	R	350	R	367	R	380	R	387	R	404	R	421	R	444	R	468
Sales Revenues	R	1 271	R	1 425	R	1 504	R	1 542	R	1 627	R	1 706	R	1 813	R	1 949
Other Revenues	R	68	R	76	R	80	R	82	R	87	R	91	R	97	R	104
Total Revenues (10^6€)	R	1 339	R	1 501	R	1 584	R	1 625	R	1 714	R	1 797	R	1 910	R	2 053
Cash-costs	R	821	R	920	R	971	R	996	R	1 051	R	1 102	R	1 171	R	1 259
EBITDA	R	518	R	581	R	613	R	628	R	663	R	695	R	739	R	794
DA	R	131	R	134	R	96	R	104	R	112	R	121	R	132	R	143
EBIT	R	387	R	447	R	516	R	525	R	551	R	574	R	607	R	651
Taxes	R	116	R	134	R	155	R	157	R	165	R	172	R	182	R	195
WC	R	143	R	161	R	169	R	174	R	183	R	192	R	204	R	220
IWC	R	-	R	17	R	9	R	4	R	10	R	9	R	12	R	15
CAPEX	R	52	R	64	R	70	R	90	R	106	R	112	R	129	R	142

Appendix XV: Forecasted Cash Flows																
India		2010		2011		2012		2013		2014		2015		2016		2017
Population (10^3)		1173108		1188825,6		1204543,2		1220260,8		1235978,4		1251696		1266575,4		1281454,8
Cement consumption per capita (kg)		210,3		213,7		219,3		225,1		231,1		236,1		241,1		248,3
Exchange Rate €		60,45		66,68		69,95		80,38		87,75		92,85		97,54		101,93
Price change ex-inflation						1,70%		-11,10%		0,10%		2,00%		2,40%		0,00%
Inflation		10,53%		9,55%		10,21%		9,48%		8,41%		7,53%		7,62%		7,72%
Installed Capacity (10^3 tonne)		1149		1167		1237		1307		1376		1446		1516		1586
Capacity Utilization		83%		80%		79%		78%		77%		75%		74%		74%
Sales																
Cement and Clinker (10^3 tonne)		949		927		964		1002		1042		1078		1114		1161
Unit price (per 10^3 tonne)	₹	3 165	₹	3 467	₹	3 886	₹	3 782	₹	4 105	₹	4 502	₹	4 961	₹	5 344
Concrete and Agregates		0		0		0		0		0		0		0		0
Unit price (per 10^3 tonne)	₹	-	₹	1 354	₹	1 517	₹	1 477	₹	1 603	₹	1 758	₹	1 937	₹	2 087
Sales Revenues	₹	3 004	₹	3 214	₹	3 746	₹	3 791	₹	4 278	₹	4 855	₹	5 528	₹	6 205
Other Revenues	₹	160	₹	172	₹	200	₹	202	₹	228	₹	259	₹	295	₹	331
Total Revenues (10^6€)	₹	3 164	₹	3 386	₹	3 946	₹	3 993	₹	4 506	₹	5 114	₹	5 823	₹	6 536
Cash-costs	₹	2 814	₹	3 012	₹	3 602	₹	3 565	₹	3 932	₹	4 359	₹	4 846	₹	5 307
EBITDA	₹	350	₹	374	₹	344	₹	429	₹	575	₹	755	₹	977	₹	1 229
DA	₹	384	₹	434	₹	478	₹	510	₹	545	₹	584	₹	626	₹	672
EBIT	₹	-35	₹	-60	₹	-134	₹	-81	₹	30	₹	172	₹	352	₹	557
Taxes	₹	-10	₹	-17	₹	-38	₹	-23	₹	9	₹	49	₹	101	₹	160
WC	₹	719	₹	353	₹	587	₹	594	₹	670	₹	760	₹	866	₹	972
IWC	₹	-	₹	-366	₹	233	₹	7	₹	76	₹	90	₹	105	₹	106
CAPEX	₹	166	₹	597	₹	261	₹	302	₹	345	₹	390	₹	440	₹	496

Appendix XVI: Forecasted Cash Flows								
China	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	1330141	1336415,4	1342689,8	1348964,2	1355238,6	1361513	1366119,4	1370725,8
Cement consumption per capita (kg)	1394,9	1517	1569,8	1601,1	1625	1641,1	1649,3	1665,8
Exchange Rate €	8,98	8,99	8,12	8,23	8,57	8,81	8,99	9,21
Price change ex-inflation			-18,50%	-3,10%	1,20%	0,50%	-0,50%	-0,50%
Inflation	3,33%	5,42%	2,65%	2,63%	3,00%	2,00%	2,00%	2,00%
Installed Capacity (10^3 tonne)	5270	5962	6013	6064	6114	6165	6216	6267
Capacity Utilization	71%	59%	71%	77%	83%	88%	95%	91%
Sales								
Cement and Clinker (10^3 tonne)	4105	3893	4236	4634	5000	5395	5821	6281
Unit price (per 10^3 tonne)	¥ 265	¥ 279	¥ 234	¥ 232	¥ 242	¥ 248	¥ 252	¥ 256
Concrete and Agregates	0	0	0	0	0	0	0	0
Unit price (per 10^3 tonne)	¥ -	¥ -	¥ -	¥ -	¥ -	¥ -	¥ -	-
Sales Revenues	¥ 1 088	¥ 1 088	¥ 990	¥ 1 077	¥ 1 211	¥ 1 340	¥ 1 467	1 607
Other Revenues	¥ 58	¥ 58	¥ 53	¥ 57	¥ 65	¥ 72	¥ 78	86
Total Revenues (10^6€)	¥ 1 146	¥ 1 146	¥ 1 043	¥ 1 134	¥ 1 276	¥ 1 411	¥ 1 546	1 692
Cash-costs	¥ 985	¥ 985	¥ 880	¥ 939	¥ 1 036	¥ 1 123	¥ 1 205	1 293
EBITDA	¥ 160	¥ 160	¥ 163	¥ 195	¥ 240	¥ 288	¥ 340	400
DA	¥ 75	¥ 83	¥ 106	¥ 109	¥ 111	¥ 114	¥ 117	120
EBIT	¥ 85	¥ 77	¥ 57	¥ 87	¥ 129	¥ 174	¥ 223	279
Taxes	¥ 30	¥ 27	¥ 20	¥ 30	¥ 45	¥ 61	¥ 78	98
WC	¥ 252	¥ 381	¥ 325	¥ 354	¥ 398	¥ 440	¥ 482	528
IWC	¥ -	¥ 130	¥ -56	¥ 29	¥ 44	¥ 42	¥ 42	46
CAPEX	¥ 54	¥ 127	¥ 99	¥ 103	¥ 107	¥ 110	¥ 113	116

Appendix XVII: Forecasted Cash Flows								
Cape Verde	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	509	516,4	523,8	531,2	538,6	546	553,4	560,8
Cement consumption per capita (kg)	632,2	617,4	615,3	616,4	619,4	626,8	636,3	655,4
Exchange Rate €	110,30	110,24	110,26	110,25	110,25	110,27	110,28	110,27
Price change ex-inflation			-2,00%	-3,90%	-1,40%	-1,50%	-0,20%	0,00%
Inflation	2,08%	4,47%	2,54%	1,51%	1,75%	2,00%	2,00%	2,00%
Installed Capacity (10^3 tonne)								
Capacity Utilization								
Sales								
Cement and Clinker (10^3 tonne)	234	227	229	233	238	244	251	262
Unit price (per 10^3 tonne)	¥ 10 270	¥ 10 729	¥ 10 782	¥ 10 518	¥ 10 552	¥ 10 602	¥ 10 792	11 008
Concrete and Agregates	227	221	223	227	231	237	244	254
Unit price (per 10^3 tonne)	¥ 4 010	¥ 4 189	¥ 4 210	¥ 4 107	¥ 4 120	¥ 4 139	¥ 4 214	4 298
Sales Revenues	¥ 3 315	¥ 3 360	¥ 3 413	¥ 3 383	¥ 3 457	¥ 3 564	¥ 3 732	3 974
Other Revenues	¥ 177	¥ 179	¥ 182	¥ 181	¥ 185	¥ 190	¥ 199	212
Total Revenues (10^6€)	¥ 3 492	¥ 3 539	¥ 3 595	¥ 3 563	¥ 3 642	¥ 3 754	¥ 3 932	4 186
Cash-costs	¥ 3 099	¥ 3 141	¥ 3 190	¥ 3 162	¥ 3 232	¥ 3 331	¥ 3 489	3 715
EBITDA	¥ 393	¥ 399	¥ 405	¥ 401	¥ 410	¥ 423	¥ 443	471
DA	¥ 97	¥ 98	¥ 100	¥ 99	¥ 101	¥ 104	¥ 109	116
EBIT	¥ 296	¥ 300	¥ 305	¥ 302	¥ 309	¥ 318	¥ 333	355
Taxes	¥ 89	¥ 90	¥ 91	¥ 91	¥ 93	¥ 95	¥ 100	106
WC	¥ 276	¥ 33	¥ 222	¥ 220	¥ 225	¥ 232	¥ 243	259
IWC	¥ -	¥ -243	¥ 189	¥ -2	¥ 5	¥ 7	¥ 11	16
CAPEX								

Appendix XVIII: Tax Rates and Growth Rates							
source	Damodaran	GDP (PPP) in current US$ billions - source: 'PwC forecasts of GDP (PPP), January, 2011					
Country	Marginal Tax Rate	2015	2020	2060	CAGR 2015-2060	CAGR 2020-2060	TGR
Angola	35%	154 521	213 085	1 064 100	4,38%	4,10%	4,24%
Argentina	35%	844 267	1 055 782	3 805 449	3,40%	3,26%	3,33%
Brazil	34%	2 656 858	3 385 432	12 054 725	3,42%	3,23%	3,32%
Cape Verde	29%	2 518	3 368	12 732	3,67%	3,38%	3,52%
China	25%	15 923 626	22 847 135	114 320 131	4,48%	4,11%	4,29%
Egypt	25%	611 713	799 891	3 285 580	3,81%	3,60%	3,70%
India	34%	5 750 467	8 270 673	53 414 318	5,08%	4,77%	4,93%
Marroco	29%	203 372	274 559	1 046 852	3,71%	3,40%	3,56%
Mozambique	32%	32 367	51 216	309 818	5,15%	4,60%	4,88%
Portugal	25%	258 106	305 033	619 931	1,97%	1,79%	1,88%
South Africa	28%	656 709	832 703	2 603 792	3,11%	2,89%	3,00%
Spain	30%	1 449 619	1 694 101	4 541 856	2,57%	2,50%	2,53%
Tunisia	30%	122 408	161 365	606 291	3,62%	3,36%	3,49%
Turkey	20%	1 307 034	1 734 609	7 675 898	4,01%	3,79%	3,90%

Appendix XIX: Ratings and Spreads			
>	≤ to	Rating is	Spread is
8.50	100000	Aaa/AAA	0.40%
6.5	8.499999	Aa2/AA	0.70%
5.5	6.499999	A1/A+	0.85%
4.25	5.499999	A2/A	1.00%
3	4.249999	A3/A-	1.30%
2.5	2.999999	Baa2/BBB	2.00%
2.25	2.49999	Ba1/BB+	3.00%
2	2.2499999	Ba2/BB	4.00%
1.75	1.999999	B1/B+	5.50%
1.5	1.749999	B2/B	6.50%
1.25	1.499999	B3/B-	7.25%
0.8	1.249999	Caa/CCC	8.75%
0.65	0.799999	Ca2/CC	9.50%
0.2	0.649999	C2/C	10.50%
-100000	0.199999	D2/D	12.00%

Appendix XIX: WACC (1)	Rating at Jan 2012	Spread	Risk-free rate	Cost of debt	MV Debt	Mcap
Intercement	BB	4%	1,89%	5,89%	768 €	968 €
Cimpor	BBB	2%	1,89%	3,89%	1 623 €	3 377 €
NewCo		2,21%	1,89%	4,10%	2 391 €	4 345 €

D/V	V	E/V	D/E	EV DCF
44%	1 736 €	0,56	0,79	647 €
32%	5 000 €	0,68	0,48	5 496 €
35%	6 736 €	0,65	0,55	6 143 €

Appendix XX: WACC (2)			Brazil		Cape	
Country	Angola	Argentina	Intercement	Brazil	Verde	China
Risk-free rate	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%
Equity Risk Premium	5%	5%	5,00%	5%	5%	5%
Country Risk Premium	4,88%	9,00%	2,63%	2,63%	3,72%	1,05%
Unlevered Beta	0,75	0,75	75,00%	0,75	0,75	0,75
Tax Rate	35%	35%	34,00%	34%	28,75%	25%
D/E	48%	79%	79%	48%	48%	48%
Levered Beta	0,98	1,14	1,14	0,99	1,01	1,02
Cost of Equity	12%	18%	11%	9%	11%	8%
E/V	68%	56%	55,77%	68%	68%	68%
Cost of Debt	3,89%	5,89%	5,89%	3,89%	3,89%	3,89%
D/V	32%	44%	44%	32%	32%	32%
WACC	9,10%	12,53%	8,52%	7,63%	8,47%	6,71%

Egypt	India	Morroco	Mozambique	Portugal	South Africa	Spain	Tunisia	Turkey
1,89%	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%
5%	5%	5%	5%	5%	5%	5%	5%	5%
7,50%	3,00%	3,60%	3,72%	4,88%	1,73%	3,00%	3,00%	3,60%
0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75
25%	33,99%	28,75%	32,00%	25%	28%	30%	30%	20%
48%	48%	48%	48%	48%	48%	48%	48%	48%
1,02	0,99	1,01	1,00	1,02	1,01	1,00	1,00	1,04
15%	10%	11%	11%	12%	9%	10%	10%	11%
68%	68%	68%	68%	68%	68%	68%	68%	68%
3,89%	3,89%	3,89%	3,89%	3,89%	3,89%	3,89%	3,89%	3,89%
32%	32%	32%	32%	32%	32%	32%	32%	32%
11,15%	7,88%	8,39%	8,40%	9,34%	7,12%	7,95%	7,95%	8,57%

Appendix XXI: NewCo WACC			Brazil		Cape	
Country	Angola	Argentina	Intercement	Brazil	Verde	China
Risk-free rate	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%
Equity Risk Premium	5%	5%	5,00%	5%	5%	5%
Country Risk Premium	4,88%	9,00%	2,63%	2,63%	3,72%	1,05%
Unlevered Beta	0,75	0,75	75,00%	0,75	0,75	0,75
Tax Rate	35%	35%	34,00%	34%	28,75%	25%
D/E	51%	51%	51%	51%	51%	51%
Levered Beta	1,00	1,00	1,00	1,00	1,02	1,04
Cost of Equity	12%	16%	10%	10%	11%	8%
E/V	66%	66%	66,30%	66%	66%	66%
Cost of Debt	4,10%	4,10%	4,10%	4,10%	4,10%	4,10%
D/V	34%	34%	34%	34%	34%	34%
WACC	9,18%	11,92%	7,71%	7,71%	8,56%	6,80%

Egypt	India	Morroco	Mozambique	Portugal	South Africa	Spain	Tunisia	Turkey
1,89%	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%	1,89%
5%	5%	5%	5%	5%	5%	5%	5%	5%
7,50%	3,00%	3,60%	3,72%	4,88%	1,73%	3,00%	3,00%	3,60%
0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75
25%	33,99%	28,75%	32,00%	25%	28%	30%	30%	20%
51%	51%	51%	51%	51%	51%	51%	51%	51%
1,04	1,00	1,02	1,01	1,04	1,03	1,02	1,02	1,06
15%	10%	11%	11%	12%	9%	10%	10%	11%
66%	66%	66%	66%	66%	66%	66%	66%	66%
4,10%	4,10%	4,10%	4,10%	4,10%	4,10%	4,10%	4,10%	4,10%
34%	34%	34%	34%	34%	34%	34%	34%	34%
11,24%	7,96%	8,48%	8,48%	9,44%	7,22%	8,04%	8,04%	8,67%

Appendix XXII: Depreciations and CAPEX									
Portugal	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	6970	7157	7034	6474	5914	5353	4793	4233	3673
Inflation			3,6%	2,8%	0,4%	0,7%	0,2%	0,9%	1,7%
gross PPP	1 013 642	1 084 766	1 045 439	1 111 983	1 179 666	1 248 564	1 318 636	1 390 024	1 462 838
Acumulated Dep	588 088	647 100	624 749	670 113	718 365	769 553	823 731	880 950	941 267
Net assets	425 555	437 666	420 691	441 870	461 302	479 010	494 904	509 073	521 571
D&A		55 186	56 163	45 364	48 252	51 189	54 178	57 219	60 317
CAPEX	23 026	27 305	16 990	21 179	19 432	17 709	15 894	14 169	12 498

Appendix XXIII: Depreciations and CAPEX									
Spain	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	3220	3132	3211	3011	2811	2612	2412	2212	2012
Inflation	0,02043	2,0%	3,1%	2,4%	1,5%	0,3%	0,2%	0,9%	1,0%
Activo Bruto	486 548	488 145	495 208	544 644	594 769	645 253	696 095	747 440	799 304
Acumulated Dep	282 282	291 195	295 934	317 422	341 055	366 864	394 863	425 068	457 501
Activo Líquido	204 266	196 950	199 275	227 222	253 713	278 389	301 232	322 371	341 802
D&A		43 003	52 548	21 488	23 633	25 808	27 999	30 205	32 433
CAPEX	18 800	26 719	39 335	27 947	26 491	24 676	22 843	21 139	19 431

Appendix XXIV: Depreciations and CAPEX (local currency)									
Brazil	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	6280	6511	6630	7296	7962	8628	9294	9960	10626
Exchange rate	2,33	2,33	2,33	2,51	2,86	3,23	3,36	3,48	3,62
Inflation	5,0%	5,0%	6,6%	5,4%	6,2%	5,9%	4,2%	4,4%	4,6%
Activo Bruto	2 247 973	2 279 088	2 307 158	2 606 740	2 951 035	3 344 444	3 787 357	4 284 776	4 842 255
Acumulated Dep	1 304 213	1 359 555	1 378 744	1 478 858	1 591 971	1 720 023	1 865 147	2 029 490	2 215 417
Activo Líquido	943 760	919 534	928 413	1 127 882	1 359 064	1 624 421	1 922 210	2 255 286	2 626 838
D&A		67 251	80 244	100 113	113 113	128 053	145 124	164 343	185 927
CAPEX	121 771	144 728	230 607	199 468	231 182	265 357	297 789	333 075	371 552

Appendix XXV: Depreciations and CAPEX (local currency)									
Egypt	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	3900	4005	4013	4088	4163	4238	4313	4388	4463
Exchange rate	7,32	7,32	8,10	7,72	8,58	9,51	9,67	10,11	10,68
Inflation	11,7%	11,7%	11,1%	8,7%	6,9%	10,7%	9,8%	8,7%	7,5%
Activo Bruto	4 302 656	4 366 391	4 901 054	5 228 165	5 579 627	5 962 092	6 377 674	6 827 844	7 313 734
Acumulated Dep	2 496 284	2 604 702	2 928 842	3 141 511	3 368 374	3 610 488	3 869 198	4 145 941	4 442 218
Activo Líquido	1 806 372	1 761 688	1 972 212	2 086 654	2 211 253	2 351 604	2 508 477	2 681 903	2 871 516
D&A		41 620	57 743	212 669	226 863	242 114	258 710	276 743	296 277
CAPEX	65 720	62 830	156 379	114 442	124 599	140 351	156 873	173 426	189 613

Appendix XXVI: Depreciations and CAPEX (local currency)									
Marroco	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	1280	1327	1290	1373	1457	1540	1623	1707	1790
Exchange rate	11,17	11,17	11,26	11,09	11,17	11,23	11,27	11,30	11,48
Inflation	1,0%	1,0%	0,9%	1,3%	1,9%	2,5%	2,5%	2,5%	2,5%
Activo Bruto	2 150 982	2 423 061	2 477 438	2 743 065	2 929 922	3 130 559	3 345 816	3 576 575	3 823 770
Acumulated Dep	1 247 941	1 445 439	1 480 503	1 588 005	1 707 033	1 834 170	1 970 012	2 115 196	2 270 392
Activo Líquido	903 041	977 622	996 935	1 155 060	1 222 889	1 296 390	1 375 803	1 461 380	1 553 378
D&A		63 516	83 871	107 502	119 028	127 137	135 843	145 183	155 196
CAPEX	111 664	60 757	44 012	158 125	67 829	73 501	79 414	85 577	91 998

Appendix XXVII: Depreciations and CAPEX (local currency)									
Tunísia	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	1640	1668	1751	1829	1906	1984	2061	2139	2216
Exchange rate	1,90	1,90	1,96	2,01	2,16	2,44	2,64	2,81	2,99
Inflation		4,4%	3,5%	5,6%	6,1%	5,5%	5,0%	4,2%	4,0%
Activo Bruto	471 676	515 073	538 892	578 341	621 204	667 665	717 921	772 079	830 384
Acumulated Dep	273 654	307 259	322 039	345 423	370 518	397 474	426 446	457 598	491 100
Activo Líquido	198 022	207 814	216 853	232 919	250 686	270 192	291 475	314 482	339 284
D&A		12 391	12 127	23 384	25 096	26 956	28 972	31 152	33 502
CAPEX	9 713	11 297	20 704	16 065	17 768	19 505	21 284	23 006	24 802

Appendix XXVIII: Depreciations and CAPEX (local currency)									
Turkey	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	2430	3027	3005	3232	3460	3687	3915	4142	4370
Exchange rate	1,99	1,99	2,33	2,31	2,53	3,10	3,23	3,39	3,54
Inflation		8,6%	6,5%	8,9%	7,5%	7,8%	8,2%	7,4%	6,6%
Activo Bruto	909 102	972 890	1 025 932	1 090 201	1 160 232	1 236 679	1 320 334	1 411 712	1 511 292
Acumulated Dep	527 436	580 362	613 091	657 609	704 915	755 261	808 923	866 216	927 473
Activo Líquido	381 666	392 528	412 841	432 592	455 317	481 419	511 411	545 497	583 819
D&A		44 616	38 689	44 518	47 306	50 345	53 663	57 293	61 258
CAPEX	10 192	11 855	24 635	19 751	22 725	26 102	29 993	34 085	38 322

Appendix XXIX: Depreciations and CAPEX (local currency)									
Mozambique	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	685	732	858	858	858	858	858	858	858
Exchange rate	43,76	43,76	40,44	36,69	39,95	41,62	43,22	44,60	46,26
Inflation		12,7%	10,4%	2,1%	4,2%	5,6%	5,6%	5,6%	5,6%
Activo Bruto	4 435 342	4 746 553	6 676 152	7 346 448	8 061 845	8 830 496	9 655 955	10 542 000	11 492 648
Acumulated Dep	2 573 265	2 831 482	3 989 630	4 279 325	4 598 105	4 947 929	5 331 106	5 750 101	6 207 545
Activo Líquido	1 862 078	1 915 071	2 686 521	3 067 123	3 463 740	3 882 567	4 324 849	4 791 899	5 285 103
D&A		360 072	292 414	289 695	318 780	349 823	383 177	418 996	457 443
CAPEX	512 957	683 214	1 415 720	380 601	396 617	418 828	442 282	467 050	493 204

Appendix XXX: Depreciations and CAPEX (local currency)									
South Africa	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	1640	1465	1582	1582	1582	1582	1582	1582	1582
Exchange rate	9,72	9,72	10,09	10,55	12,82	14,19	14,86	15,51	16,18
Inflation		4,3%	5,0%	5,7%	5,8%	6,0%	6,0%	5,6%	5,3%
Activo Bruto	2 215 833	2 107 830	2 221 170	2 387 814	2 581 667	2 799 580	3 032 932	3 294 036	3 579 124
Acumulated Dep	1 285 566	1 257 393	1 327 359	1 423 741	1 527 354	1 639 379	1 760 859	1 892 466	2 035 402
Activo Líquido	930 267	850 437	893 811	964 074	1 054 313	1 160 202	1 272 073	1 401 571	1 543 722
D&A		131 345	133 628	96 382	103 613	112 025	121 481	131 606	142 936
CAPEX	82 204	51 590	64 316	70 262	90 239	105 889	111 871	129 498	142 151

Appendix XXXI: Depreciations and CAPEX (local currency)									
India	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	1180	1149	1167	1237	1307	1376	1446	1516	1586
Exchange rate	60,45	60,45	66,68	69,95	80,38	87,75	92,85	97,54	101,93
Inflation	10,5%	10,5%	9,6%	10,2%	9,5%	8,4%	7,5%	7,6%	7,7%
Activo Bruto	10 723 619	9 836 618	11 006 539	11 745 531	12 557 517	13 447 674	14 421 281	15 487 137	16 655 035
Acumulated Dep	6 221 552	5 867 881	6 577 445	7 055 046	7 564 713	8 109 615	8 693 143	9 318 918	9 990 943
Activo Líquido	4 502 067	3 968 737	4 429 094	4 690 485	4 992 803	5 338 059	5 728 138	6 168 219	6 664 093
D&A		384 240	434 009	477 601	509 668	544 902	583 528	625 775	672 025
CAPEX	219 445	166 065	596 704	261 391	302 319	345 255	390 079	440 081	495 873

Appendix XXXII: Depreciations and CAPEX (local currency)									
China	2009	2010	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	2725	5270	5962	6013	6064	6114	6165	6216	6267
Exchange rate	8,98	8,98	8,99	8,12	8,23	8,57	8,81	8,99	9,21
Inflation	3,3%	3,3%	5,4%	2,7%	2,6%	3,0%	2,0%	2,0%	2,0%
Activo Bruto	4 917 325	7 308 826	7 914 936	8 119 840	8 330 953	8 548 851	8 772 695	9 002 645	9 238 861
Acumulated Dep	2 852 898	4 359 966	4 729 921	4 835 697	4 944 212	5 055 548	5 169 796	5 287 036	5 407 348
Activo Líquido	2 064 427	2 948 860	3 185 015	3 284 143	3 386 741	3 493 303	3 602 899	3 715 609	3 831 513
D&A		75 390	83 297	105 776	108 515	111 336	114 248	117 240	120 313
CAPEX	328 216	54 036	127 062	99 128	102 598	106 562	109 596	112 710	115 904

Appendix XXXIII: Assets' Valuation (M€)							
Portugal	2012	2013	2014	2015	2016	2017	Terminal Value
EBITDA	93 €	85 €	80 €	79 €	82 €	85 €	
Taxes	16 €	12 €	10 €	8 €	8 €	8 €	
IWC	-8 €	-6 €	-4 €	-2 €	1 €	1 €	
CAPEX	21 €	19 €	18 €	16 €	14 €	12 €	
FCFF	63 €	59 €	57 €	57 €	59 €	63 €	865 €
Discounting Factor	0,9145	0,8364	0,7649	0,6995	0,6398	0,5851	0,5351
PV	58 €	50 €	44 €	40 €	37 €	37 €	463 €
EV	**728 €**						

Appendix XXXIV: Assets' Valuation (M€)							
Spain	2012	2013	2014	2015	2016	2017	Terminal Value
EBITDA	34 €	33 €	33 €	34 €	36 €	38 €	
Taxes	3 €	3 €	2 €	2 €	2 €	1 €	
IWC	-9 €	-4 €	-3 €	-1 €	1 €	0 €	
CAPEX	28 €	26 €	25 €	23 €	21 €	19 €	
FCFF	11 €	7 €	9 €	10 €	12 €	17 €	317 €
Discounting Factor	0,9263	0,8581	0,7948	0,7363	0,6820	0,6318	0,5852
PV	11 €	6 €	7 €	7 €	8 €	11 €	186 €
EV	**236 €**						

Appendix XXXV: Assets' Valuation (M€)							
Brazil	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	2,51	2,86	3,23	3,36	3,48	3,62	
EBITDA	219 €	217 €	230 €	250 €	269 €	281 €	
Taxes	63 €	62 €	67 €	72 €	78 €	80 €	
IWC	23 €	13 €	19 €	15 €	14 €	12 €	
CAPEX	79 €	81 €	82 €	89 €	96 €	103 €	
FCFF	54 €	62 €	62 €	74 €	81 €	87 €	2 081 €
Discounting Factor	0,9291	0,8633	0,8021	0,7453	0,6925	0,6434	0,5978
PV	51 €	53 €	50 €	55 €	56 €	56 €	1 244 €
EV	**1 565 €**						

Appendix XXXVI: Assets' Valuation (M€)							
Egypt	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	7,72	8,58	9,51	9,67	10,11	10,68	
EBITDA	58 €	59 €	62 €	71 €	80 €	89 €	
Taxes	10 €	11 €	12 €	15 €	18 €	21 €	
IWC	-9 €	2 €	3 €	3 €	4 €	4 €	
CAPEX	15 €	15 €	15 €	16 €	17 €	18 €	
FCFF	41 €	31 €	32 €	37 €	41 €	46 €	644 €
Discounting Factor	0,8997	0,8094	0,7282	0,6551	0,5894	0,5302	0,4770
PV	37 €	25 €	23 €	24 €	24 €	25 €	307 €
EV	**466 €**						

Appendix XXXVII: Assets' Valuation (M€)							
Marroco	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	11,09	11,17	11,23	11,27	11,30	11,48	
EBITDA	45 €	46 €	47 €	48 €	50 €	51 €	
Taxes	7 €	7 €	7 €	7 €	7 €	8 €	
IWC	-1 €	1 €	0 €	1 €	1 €	1 €	
CAPEX	14 €	6 €	7 €	7 €	8 €	8 €	
FCFF	25 €	32 €	33 €	33 €	34 €	35 €	744 €
Discounting Factor	0,9226	0,8512	0,7854	0,7246	0,6685	0,6168	0,5691
PV	23 €	27 €	26 €	24 €	23 €	21 €	423 €
EV	**567 €**						

Appendix XXXVIII: Assets' Valuation (M€)							
Tunisia	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	2,01	2,16	2,44	2,64	2,81	2,99	
EBITDA	24 €	23 €	21 €	21 €	21 €	21 €	
Taxes	3 €	3 €	3 €	2 €	2 €	2 €	
IWC	3 €	1 €	1 €	1 €	1 €	1 €	
CAPEX	8 €	8 €	8 €	8 €	8 €	8 €	
FCFF	9 €	11 €	10 €	10 €	10 €	9 €	220 €
Discounting Factor	0,9263	0,8581	0,7948	0,7363	0,6820	0,6318	0,5852
PV	9 €	10 €	8 €	7 €	7 €	6 €	129 €
EV	**175 €**						

Appendix XXXIX: Assets' Valuation (M€)							
Turkey	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	2,31	2,53	3,10	3,23	3,39	3,54	
EBITDA	34 €	35 €	32 €	35 €	39 €	42 €	
Taxes	5 €	5 €	5 €	6 €	7 €	8 €	
IWC	12 €	3 €	2 €	3 €	3 €	3 €	
CAPEX	9 €	9 €	8 €	9 €	10 €	11 €	
FCFF	9 €	18 €	17 €	17 €	19 €	20 €	452 €
Discounting Factor	0,9211	0,8484	0,7814	0,7197	0,6629	0,6106	0,5624
PV	8 €	15 €	13 €	12 €	12 €	12 €	254 €
EV	**328 €**						

Appendix XL: Assets' Valuation (M€)							
Mozambique	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	36,69	39,95	41,62	43,22	44,60	46,26	
EBITDA	24 €	24 €	25 €	27 €	28 €	30 €	
Taxes	5 €	5 €	5 €	5 €	5 €	6 €	
IWC	-4 €	1 €	1 €	1 €	1 €	2 €	
CAPEX	10 €	10 €	10 €	10 €	10 €	11 €	
FCFF	14 €	9 €	9 €	10 €	11 €	12 €	365 €
Discounting Factor	0,9225	0,8511	0,7851	0,7243	0,6682	0,6164	0,5687
PV	13 €	7 €	7 €	7 €	7 €	8 €	208 €
EV	**257 €**						

Appendix XLI: Assets' Valuation (M€)							
South Africa	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	10,55	12,82	14,19	14,86	15,51	16,18	
EBITDA	58 €	49 €	47 €	47 €	48 €	49 €	
Taxes	15 €	12 €	12 €	12 €	12 €	12 €	
IWC	1 €	0 €	1 €	1 €	1 €	1 €	
CAPEX	7 €	7 €	7 €	8 €	8 €	9 €	
FCFF	36 €	29 €	27 €	27 €	27 €	27 €	681 €
Discounting Factor	0,9335	0,8714	0,8135	0,7594	0,7089	0,6617	0,6177
PV	33 €	26 €	22 €	21 €	19 €	18 €	421 €
EV	**559 €**						

Appendix XLII: Assets' Valuation (M€)							
India	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	69,95	80,38	87,75	92,85	97,54	101,93	
EBITDA	5 €	5 €	7 €	8 €	10 €	12 €	
Taxes	-1 €	0 €	0 €	1 €	1 €	2 €	
IWC	3 €	0 €	1 €	1 €	1 €	1 €	
CAPEX	4 €	4 €	4 €	4 €	5 €	5 €	
FCFF	-2 €	2 €	2 €	2 €	3 €	5 €	163 €
Discounting Factor	0,9270	0,8593	0,7965	0,7384	0,6845	0,6345	0,5882
PV	-1 €	2 €	1 €	2 €	2 €	3 €	96 €
EV	**104 €**						

Appendix XLIII: Assets' Valuation (M€)							
China	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	8,12	8,23	8,57	8,81	8,99	9,21	
EBITDA	20 €	24 €	28 €	33 €	38 €	43 €	
Taxes	2 €	4 €	5 €	7 €	9 €	11 €	
IWC	-7 €	3 €	5 €	5 €	5 €	5 €	
CAPEX	12 €	12 €	12 €	12 €	13 €	13 €	
FCFF	12 €	4 €	5 €	9 €	12 €	15 €	657 €
Discounting Factor	0,9371	0,8782	0,8230	0,7713	0,7228	0,6773	0,6348
PV	12 €	4 €	4 €	7 €	9 €	10 €	417 €
EV	**462 €**						

Appendix XLIV: Assets' Valuation (M€)							
Cape Verde	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	110,26	110,25	110,25	110,27	110,28	110,27	
EBITDA	4 €	4 €	4 €	4 €	4 €	4 €	
Taxes	1 €	1 €	1 €	1 €	1 €	1 €	
IWC	2 €	0 €	0 €	0 €	0 €	0 €	
CAPEX	0 €	0 €	0 €	0 €	0 €	0 €	
FCFF	1 €	3 €	3 €	3 €	3 €	3 €	66 €
Discounting Factor	0,9219	0,8500	0,7836	0,7225	0,6661	0,6141	0,5661
PV	1 €	2 €	2 €	2 €	2 €	2 €	38 €
EV	**49 €**						

Appendix XLV: Forecasted Cash Flows (InterCement)								
Argentina	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	41343	41760,8	42178,6	42596,4	43014,2	43432	43821,4	44210,8
Cement consumption per capita (kg)	249,3	268,0333333	281,5666667	288,6333333	299,7	305,233333	309,4333333	317,0333333
Exchange Rate €	5,20	5,76	5,85	7,27	11,39	15,48	19,89	25,63
Price change ex-inflation			0,60%	-2,70%	0,70%	0,30%	0,10%	0,00%
Inflation	10,46%	9,78%	10,04%	10,62%	10,99%	12,00%	10,44%	8,88%
Installed Capacity (10^3 tonne)	7051,282051	7820,512821	8237	8654	9071	9488	9905	10322
Capacity Utilization	78%	78%	79%	77%	77%	76%	75%	74%
Sales	2164,576298	2798,493874						
Cement and Clinker (10^3 tonne)	5500	6100	6472	6700	7025	7225	7390	7638
Unit price (per 10^3 tonne)	$ 350,00	$ 384,21	$ 425,34	$ 457,80	$ 511,69	$ 574,81	$ 635,45	$ 691,88
Concrete and Agregates	2000	2100	2228	2307	2419	2487	2544	2630
Unit price (per 10^3 tonne)	$ 136,65	$ 150,01	$ 166,06	$ 178,74	$ 199,77	$ 224,42	$ 248,10	$ 270,13
Sales Revenues	$ 2 198,30	$ 2 658,71	$ 3 122,82	$ 3 479,65	$ 4 077,98	$ 4 710,93	$ 5 326,95	$ 5 995,24
Other Revenues	$ 117,35	$ 141,93	$ 166,71	$ 185,76	$ 217,70	$ 251,49	$ 284,37	$ 320,05
Total Revenues (10^6€)	$ 2 315,65	$ 2 800,64	$ 3 289,53	$ 3 665,41	$ 4 295,67	$ 4 962,42	$ 5 611,32	$ 6 315,29
Cash-costs	$ 1 751,90	$ 2 118,82	$ 2 488,68	$ 2 773,05	$ 3 249,88	$ 3 754,30	$ 4 245,23	$ 4 777,82
EBITDA	$ 563,75	$ 681,82	$ 800,84	$ 892,35	$ 1 045,79	$ 1 208,11	$ 1 366,09	$ 1 537,48
DA	$ 110,76	$ 133,96	$ 263,29	$ 291,57	$ 324,14	$ 361,52	$ 405,68	$ 453,04
EBIT	$ 452,99	$ 547,87	$ 537,56	$ 600,79	$ 721,66	$ 846,59	$ 960,41	$ 1 084,44
Taxes	$ 113,25	$ 136,97	$ 134,39	$ 150,20	$ 180,41	$ 211,65	$ 240,10	$ 271,11
WC	$ 328,97	$ 397,87	$ 467,32	$ 520,72	$ 610,26	$ 704,98	$ 797,17	$ 897,18
IWC	$ 0,00	$ 68,90	$ 69,45	$ 53,40	$ 89,54	$ 94,72	$ 92,19	$ 100,01

Appendix XLVI: Forecasted Cash Flows (InterCement)								
Brazil	2010	2011	2012	2013	2014	2015	2016	2017
Population (10^3)	201103	203351,6	205600,2	207848,8	210097,4	212346	214398,4	216450,8
Cement consumption per capita (kg)	309,1	327,1	356,9	371,9	398,7	411,3	420,1	432,7
Exchange Rate €	2,33	2,33	2,51	2,86	3,23	3,36	3,48	3,62
Price change ex-inflation			0,60%	-2,70%	0,70%	0,30%	0,10%	0,00%
Inflation	5,04%	6,64%	5,40%	6,20%	5,92%	4,18%	4,37%	4,56%
Installed Capacity (10^3 tonne)	7564	8205	9260	10315	11369	12424	13479	14533
Capacity Utilization	78%	78%	79%	77%	79%	78%	77%	74%
Sales								
Cement and Clinker (10^3 tonne)	5900	6400	7314	7983	8962	9680	10342	10755
Unit price (per 10^3 tonne)	210 BRL	224 BRL	237 BRL	245 BRL	262 BRL	273 BRL	286 BRL	299 BRL
Concrete and Agregates	1600	2900	3314	3617	4061	4386	4686	4873
Unit price (per 10^3 tonne)	82 BRL	87 BRL	93 BRL	96 BRL	102 BRL	107 BRL	112 BRL	117 BRL
Sales Revenues	1 370 BRL	1 687 BRL	2 044 BRL	2 305 BRL	2 761 BRL	3 116 BRL	3 478 BRL	3 781 BRL
Other Revenues	73 BRL	90 BRL	109 BRL	123 BRL	147 BRL	166 BRL	186 BRL	202 BRL
Total Revenues (10^6€)	1 443 BRL	1 777 BRL	2 153 BRL	2 428 BRL	2 908 BRL	3 282 BRL	3 664 BRL	3 983 BRL
Cash-costs	1 092 BRL	1 344 BRL	1 629 BRL	1 837 BRL	2 200 BRL	2 483 BRL	2 772 BRL	3 013 BRL
EBITDA	351 BRL	433 BRL	524 BRL	591 BRL	708 BRL	799 BRL	892 BRL	970 BRL
DA	- BRL	- BRL	124 BRL	132 BRL	141 BRL	150 BRL	160 BRL	169 BRL
EBIT	282 BRL	348 BRL	400 BRL	459 BRL	567 BRL	649 BRL	732 BRL	801 BRL
Taxes	96 BRL	118 BRL	136 BRL	156 BRL	193 BRL	221 BRL	249 BRL	272 BRL
WC	205 BRL	252 BRL	306 BRL	345 BRL	413 BRL	466 BRL	520 BRL	566 BRL
IWC	- BRL	47 BRL	53 BRL	39 BRL	68 BRL	53 BRL	54 BRL	45 BRL

Appendix XLVII: Depreciations and CAPEX (local currency)							
Argentina	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	7820,51	8237,47	8654,42	9071,37	9488,33	9905,28	10322,24
Inflation	9,8%	10,0%	10,6%	11,0%	12,0%	10,4%	8,9%
gross PPP	6 067 559	6 719 307	7 469 862	8 331 490	9 349 190	10 440 427	11 589 280
Acumulated Dep	3 625 939	3 889 225	4 180 793	4 504 928	4 866 452	5 272 137	5 725 173
Net assets	2 441 620	2 830 082	3 289 070	3 826 561	4 482 738	5 168 290	5 864 107
D&A		263 286	291 567	324 136	361 524	405 684	453 036
CAPEX	629 961	548 252	637 168	741 293	868 409	1 001 217	1 136 012

Appendix XLVIII: Depreciations and CAPEX (local currency)							
Brazil	2011	2012	2013	2014	2015	2016	2017
Installed Capacity	8205,13	9259,83	10314,53	11369,23	12423,93	13478,63	14533,32
Inflation	6,6%	5,4%	6,2%	5,9%	4,2%	4,4%	4,6%
gross PPP	2 855 283	3 041 874	3 249 680	3 467 614	3 675 821	3 898 208	4 135 849
Acumulated Dep	1 706 301	1 830 199	1 962 193	2 103 205	2 253 673	2 413 176	2 582 329
Net assets	1 148 982	1 211 675	1 287 487	1 364 410	1 422 148	1 485 032	1 553 520
D&A		123 898	131 994	141 012	150 468	159 503	169 153
CAPEX	296 448	251 055	296 999	346 755	394 762	446 990	503 945

Appendix XLIX: Assets' Valuation (M€)							
Argentina	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	5,85	7,27	11,39	15,48	19,89	25,63	
EBITDA	137 €	123 €	92 €	78 €	69 €	60 €	
Taxes	23 €	21 €	16 €	14 €	12 €	11 €	
IWC	12 €	7 €	8 €	6 €	5 €	4 €	
CAPEX	94 €	88 €	65 €	56 €	50 €	44 €	
FCFF	8 €	7 €	3 €	2 €	2 €	1 €	13 €
Discounting Factor	0,8886	0,7896	0,7017	0,6235	0,5541	0,4924	0,4375
PV	7 €	6 €	2 €	1 €	1 €	1 €	6 €
EV	**24 €**						

Appendix L: Assets' Valuation (M€)							
Brazil	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	2,51	2,86	3,23	3,36	3,48	3,62	
EBITDA	209 €	206 €	219 €	238 €	256 €	268 €	
Taxes	54 €	54 €	60 €	66 €	72 €	75 €	
IWC	21 €	14 €	21 €	16 €	16 €	13 €	
CAPEX	100 €	104 €	107 €	118 €	128 €	139 €	
FCFF	33 €	35 €	31 €	39 €	41 €	41 €	813 €
Discounting Factor	0,9215	0,8492	0,7825	0,7211	0,6645	0,6123	0,5643
PV	31 €	29 €	24 €	28 €	27 €	25 €	459 €
EV	**623 €**						

Appendix LI: Cimpor Valuation (M€)	
EV	5 496 €
Adjusted Net Debt	1623
Equity Value	3 873 €
Number of shares	674
Price per share	5,74 €

Appendix LII: InterCement Valuation (M€)	
EV	647 €
Adjusted Net Debt	768
Equity Value	-121 €

Appendix LIII: NewCo Valuation (M€)	
	EV Merged entity without synergies
Argentina	25 €
Brazil IC	741 €
Brazil cimpor	1 533 €
Portugal	719 €
Spain	231 €
Egypt	460 €
Morocco	557 €
Tunisia	172 €
Turkey	321 €
Mozambique	251 €
South Africa	547 €
India	101 €
China	444 €
Cape Verde	48 €
TOTAL	6 150 €

Appendix LIV: NewCo Brazil's Valuation (without synergies) (M€)							
Brazil	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	2,51	2,86	3,23	3,36	3,48	3,62	
EBITDA	425 €	420 €	446 €	484 €	521 €	545 €	
Taxes	114 €	114 €	123 €	135 €	146 €	152 €	
IWC	44 €	26 €	40 €	30 €	30 €	24 €	
CAPEX	179 €	184 €	189 €	206 €	224 €	242 €	
FCFF	87 €	96 €	93 €	113 €	122 €	127 €	2 991 €
Discounting Factor	0,9284	0,8619	0,8002	0,7429	0,6897	0,6404	0,5945
PV	81 €	82 €	74 €	84 €	84 €	81 €	1 778 €
EV	**2 265 €**						

Appendix LV: NewCo Brazil's Valuation (with synergies) (M€)							
Brazil	2012	2013	2014	2015	2016	2017	Terminal Value
Exchange Rate	2,51	2,86	3,23	3,36	3,48	3,62	
EBITDA	442 €	437 €	464 €	504 €	543 €	567 €	
Taxes	120 €	120 €	130 €	142 €	153 €	160 €	
IWC	44 €	26 €	40 €	30 €	30 €	24 €	
CAPEX	179 €	184 €	189 €	206 €	224 €	242 €	
FCFF	99 €	107 €	105 €	126 €	136 €	142 €	3 343 €
Discounting Factor	0,9284	0,8619	0,8002	0,7429	0,6897	0,6404	0,5945
PV	92 €	92 €	84 €	94 €	94 €	91 €	1 988 €
EV	**2 534 €**						

Appendix LVI: Cimpor Valuation with Synergies (M€)	
EV	5 765 €
Adjusted Net Debt	1623
Equity Value	4 142 €
Number of shares	674
Price per share	6,14 €