Equity Valuation – Grupo Semapa

Firm Valuation Theory Applied

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Semapa/Portucel

Holding/Pulp&Paper

BUY/BUY

March 2013

Portugal

Semapa: The Group Holding

Semapa is a holding company that currently owns 78,1% of the pulp and paper producer Grupo Portucel Soporcel, 100% of the cement company Secil S.A., 96% of the small environment related company, ETSA Group and 50% of the Brazilian cement producer Supremo Cimentos S.A. .

Portucel is the largest company under Semapa's control, representing 72,7% of the group's total revenue in 2012 (excluding holding costs). Secil follows, with 24,8% of the group's revenues, while ETSA and Supremo account for the remaining 2,6% of revenues.

Portucel: The Pulp & Paper Specialist

Semapa's main asset, Portucel is a paper & pulp producer with installed capacity for 1.585 thousand tons of paper and 1.590 thousand tons of pulp. Portucel also has backup operations in the energy and wood segments, representing 11% of the company's total revenues.

Secil: The Cement Producer

Semapa acquired the remaining 49% of Secil in May 2012. The cement company has a strong presence in Portugal, Angola and the North African markets of Tunisia and Lebanon, with a total of 6.850 thousand tons of capacity.

ETSA: Environment & Waste Management

ETSA is an environmental company that operates in the industry of collection and processing of animal waste. The company is 96% owned by Semapa and reported 33M€ in revenues last year, accounting for 1,6% of the group's total.

Supremo: The New Acquisition

Semapa acquired 50% of the Brazilian cement company in 2012. The company has an ongoing investment plan that will increase its capacity to 1.700 thousand tons.

Semapa

Price Target (€)	**16,57 €**
Price (08 Feb. 13)	**7,19 €**
Potential	+130%

Reuters Code	SEM.LS
Bloomberg Code	SEM.PL
52W Low/High (€)	4,60 - 7,41
Number of Shares (mn)	112,9
Market Cap (mn €)	811,6
Average Daily Vol. (k shares)	56,2

Source: Bloomberg, Reuters & own calculations

Portucel

Price Target (€)	**3,19 €**
Price (08 Feb. 13)	**2,83 €**
Potential	+13%

Reuters Code	PTI.LS
Bloomberg Code	PTI.PL
52W Low/High (€)	1,68 - 2,92
Number of Shares (mn)	767,5
Market Cap (mn €)	2.172
Average Daily Vol. (k shares)	202,4

Source: Bloomberg, Reuters & own calculations

Historical Relative Share Price Performance

Source: Bloomberg (March 2013)

Portucel has proven itself as a high performance producer, owning the largest and most efficient paper plants in Europe, continuously operating at near 100% capacity throughout the crisis and with expectations to carry on this way.

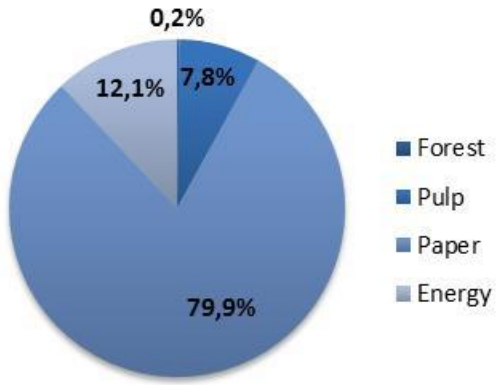
The opening of the new paper mills have increased the integration of pulp in the paper production, thus reducing the company's exposure to the pulp prices, which presented a volatility above 115% over the past 12 years.

Furthermore, the company operates in 115 countries throughout the world, with a wide variety of established brands, and a strong vertical integration model (energy, wood, pulp and paper) that allows it to mitigate to a large extent the inherent business risks.

Besides pulp and paper price and demand, the main risk factors for companies in this industry are wood and energy prices.

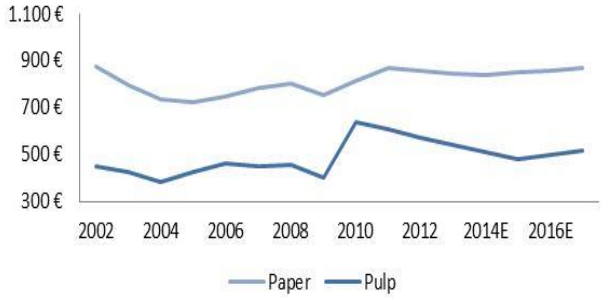
After the large investment in the new paper plant, the company's plans are to further invest in its vertical integration and internationalization. The first step is already underway with the prospect of an investment in woodlands in Mozambique.

Portucel 2012 Revenue Breakdown



Source: Portucel 2012 Interim Report

Expected Pulp and Paper Prices



Source: FOEX & own calculations

Portucel (million €)	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Revenues	1.385	1.488	1.485	1.635	1.639	1.668	1.694	1.725
EBITDA	**399**	**391**	**390**	**391**	**375**	**377**	**395**	**370**
EBITDA Margin	29%	26%	26%	24%	23%	23%	23%	21%
EBIT	**278**	**266**	**285**	**290**	**277**	**282**	**304**	**282**
Net Financial Costs	-20	-16	-25	-22	-26	-39	-41	-44
Income tax	-47	-54	-73	-75	-64	-63	-67	-61
Net Income	**211**	**196**	**187**	**193**	**187**	**182**	**196**	**178**
CAPEX	-96	-54	-40	-42	-43	-44	-45	-45
Dividends	0	165	103	106	103	100	108	98
Changes in WC	-65	-17	-19	-16	0	-3	-2	-3
FCFF	**167**	**251**	**258**	**259**	**261**	**258**	**271**	**249**

Source: Portucel Annual Reports & own calculations

DCF Assumptions

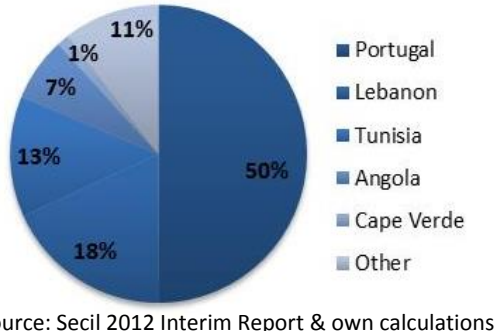
t =	25,60%
Rf =	1,37%
MRP =	6,30%
Beta =	0,89
E/V =	0,50
Kd =	5,6%
Ke =	13,0%
g =	2%
WACC =	**8,6%**

Source: Reuters, Bloomberg & own calculations

Secil has managed to maintain its market share in the face of the recent decline in the construction sector in spite of a reduction in the operating margins.

The company's sales are directly dependent on the activity in the construction industry, which is highly sensitive to macroeconomic factors.

Secil 2012 Revenue Breakdown

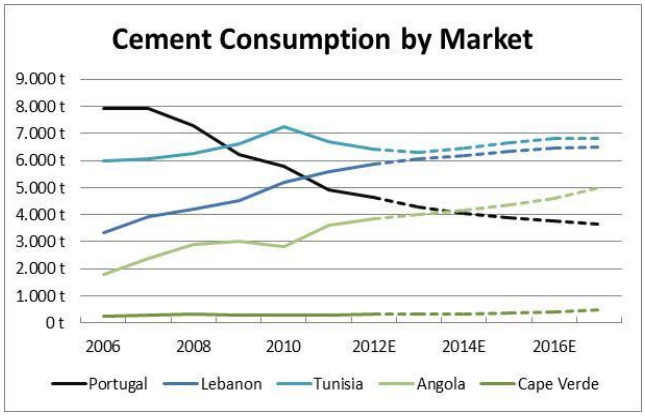


Source: Secil 2012 Interim Report & own calculations

For this reason, the company was seriously impacted by the recent crisis and the general decline in public investments in new buildings and infrastructures, which was particularly felt in Portugal.

Secil's strategy is to internationalize and to reduce the weight of the declining Portguese market. The obvious conclusion is that Lebanon, Tunisia and Angola's construction industry play a central role in Secil's future.

While cement consumption should increase in these markets, Secil's biggest challenge will be to maintain its market share despite the strong Chinese competition.



Source: Secil Annual Reports & own calculations

Secil (million €)	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Revenues	**536**	**507**	**488**	**477**	**482**	**496**	**505**	**516**
Portugal	305	274	244	229	222	217	212	209
Lebanon	77	81	88	94	100	108	113	116
Tunisia	65	61	64	64	69	76	83	89
Angola	28	31	34	34	35	36	37	39
Cape Verde	6	7	7	7	7	7	9	10
Others	55	54	51	47	49	51	52	53
EBITDA	**160**	**132**	**129**	**127**	**135**	**134**	**137**	**140**
EBITDA Margin	30%	26%	27%	27%	28%	27%	27%	27%
EBIT	**78**	**46**	**43**	**37**	**44**	**41**	**42**	**43**
Net Financial Costs	-5	-6	-7	-6	-7	-10	-12	-13
Income Tax	-17	-10	-9	-8	-9	-8	-7	-7
Net income	**56**	**30**	**27**	**24**	**28**	**24**	**22**	**22**
CAPEX	-44	-62	-34	-33	-34	-35	-35	-36
Dividends	29	18	21	15	14	12	11	11
Changes in WC	-42	-12	35	12	3	-6	-1	-1
FCFF	**55**	**45**	**119**	**96**	**94**	**83**	**90**	**92**

Source: Secil Annual Reports & own calculations

DCF Assumptions	
t =	24,50%
Rf =	1,37%
MRP =	6,30%
Beta =	1,37
E/V =	0,50
Kd =	6,8%
Ke =	15,9%
g =	2,5%
WACC =	**10,5%**

Source: Reuters, Bloomberg & own calculations

Semapa (mn€)	EV	Net debt	Stake	Equity Value
Portucel	2.842	462	78,1%	1.859
Secil	979	126	100%	853
Supremo	182	11	50%	86
ETSA	59	23	96%	35
Holding	-141	820		-961
Total (mn€)	**3.921**	**1.442**		**1.871**
Shares (#mn)				112,9
Price Target (€/share)				**16,57**
Current Price (08 Feb. 2013)				7,19
Upside Potential (%)				**130%**
Recommendation				BUY

Source: Companies' Annual Reports, Bloomberg & own calculations

Abstract

This dissertation aims to value the intrinsic value of the holding Semapa, applying the Equity Valuation theory. In order to apply the most suitable methods and appropriate assumptions, this paper firstly outlines the existing valuation frameworks and techniques, along with the academic debates on the most relevant valuation topics. The valuation is done as the sum of the parts of the companies owned by Semapa – Portucel, Secil, ETSA and Supremo – using a Discounted Cash Flow approach and the Multiples approach. Lastly, this dissertation compares the methods used and the results obtained to those of an investment bank, analyzing the differences with the purpose of understanding the reasons behind the dispersions of values obtained from different valuation methods.

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Literature Review

1. Introduction

The market value of a company is given by its stock price and reflects the general expectations of the investors and the impression they have of the company based on what they know about it. The problem is that no investor can know everything about the present and future of the company and industry, and therefore cannot make an absolutely precise valuation of the company's current assets and future cash flows. This absolutely precise valuation of the company's expected cash flows, discounted at the perfectly applicable discount rate, is called the *intrinsic value* of the asset (Damodaran 2006). The best valuation of a company is the one that estimates the closest value to the intrinsic value of its assets.

The first step towards making a valuation is to decide which valuation method is going to be applied. The range of possibilities to choose from is wide and growing continuously, as new valuation methods are created and the more traditional ones are revised, tweaked and complemented, generating new methods for valuating companies.

The existence of so many different methods and such a widespread academic interest on this matter can be explained by the fact that each approach offers a different perspective of the valuation problem, clarifying certain aspects while obscuring others (Young, Sullivan, Nokhasteh and Holt, 1999). The choice of "*the right*" valuation method is thus a matter of identifying which are the most relevant aspects of the company for valuation purposes and making a match between those company specific aspects and the existing valuation methods.

Different authors consider different types of approaches, but in general terms there are four main valuation approaches (Damodoran 2006):

1. Cash Flow Approaches (e.g. Dividend Discount Model, Discounted Cash Flow)
2. Excess Returns Based Approaches (e.g. Dynamic ROE, Economic Value Added)
3. Multiples Approaches (e.g. P/E, P/BV, EV/EBITDA)
4. Options Approaches

Each of these approaches can then be branched into specific valuation methods, taking an equity valuation perspective – estimate the value of the firm to equity holders - or an Enterprise Value perspective – estimate the value of the whole enterprise, the debt and the equity (Young, Sullivan, Nokhasteh and Holt, 1999).

Each approach has its own merits and flaws and each its own utility, but no matter which method is applied, ultimately the assumptions made for the future are the main thing affecting the accuracy of the valuation. In fact, this thought is not recent and Modigliani & Miller had already come to this conclusion by 1961, arguing that any two approaches taken to valuing a company are equivalent and in no way opposing, as long as they are implemented correctly and take the same assumptions and basic accounts into consideration, adding that the choice between them is "*a matter of taste and convenience*" (F. Modigllani & M. Miller "Dividend Policy, Growth and the Valuation of Shares", Journal of Business, 1961).

Nowadays, this philosophy is widespread in the field's literature, with Young, Sullivan, Nokhasteh and Holt (1999) considering that "*every popular valuation approach is simply a different way of expressing the same underlying model*" and proving this mathematically, under certain assumptions (Young, Sullivan, Nokhasteh and Holt, 1999). Fernandez (2003) compares ten different DCF methods and proves that all of them give the same value if under the same assumptions, concluding that the only practical difference between them is the cash flows taken as a starting point for the valuation. Penman (1998) also came to the conclusion that any methods that are apparently different, if carried out correctly, will yield the same valuation.

However, all this isn't to say that the choice of the valuation method is irrelevant. Some methods may be inadequate considering the information available or the industry and the company at play, while others may neglect or miss value some specific valuable assets. Ultimately, any one method will offer only a partial picture of the company, from a specific point of view (Young, Sullivan, Nokhasteh and Holt, 1999). Taking an integrated approach, by selecting the most appropriate method and complementing it with another, will produce a fuller picture, improving the quality of the valuation.

Although it isn't the purpose of this study to detail all the existing methods for valuation, it is appropriate to explain each general approach and some relevant methods within them in order to substantiate the approach and methods chosen to undertake in the valuation of Semapa. Considering that what actually explains the valuation outcomes are the assumptions made, it is also relevant to describe the possible methodologies to deal with the different key inputs of the model that are subject to forecasts and assumptions (e.g. cost of capital, tax shields, growth rates, bankruptcy costs, etc…) and the industry specificities that may significantly affect the valuation.

2. Return Based approach

Returns Based approaches are based on the intrinsic concept of residual income. This concept, meanwhile, focuses on the premise that stockholder value is created only when the earnings on total invested capital are higher than the cost of that capital (Biddle, Bowen and Wallace, 1999). The main difference between this and other methods is that it focuses on the excess returns, as opposed to all cash flows or net income. This way, the model highlights that earnings themselves don't create value, but instead only earnings in excess of a required return (Damodaran 2006).

Using this approach, the value of a firm is the value invested in it, plus the spread between the return and the cost of capital (Young, Sullivan, Nokhasteh and Holt, 1999 and Damodaran 2006). This way, two main methods can be used to value a firm:

- Dynamic ROE

Market Value is current book value (BV) plus the discounted value of future excess returns (VA). Excess return is the difference between the return on equity capital and the cost of equity capital (Young, Sullivan, Nokhasteh and Holt, 1999).

- Economic Value Added

Enterprise Value is current capital stock (K) plus the discounted value of future EVA. Excess return (EVA) is the difference between the return on capital and the cost of capital. Market Value is Enterprise Value minus the value of debt. K* is the equilibrium value of the capital stock in the terminal year (Young, Sullivan, Nokhasteh and Holt, 1999).

Many authors consider this method to be a rearrangement of DCF (Young, Sullivan, Nokhasteh and Holt, 1999), however, Stern Stewart, the proprietor of EVA, argues that this method better correlates with stock returns and firm value than net income. Contrariwise, tests conducted by Biddle, Bowen and Wallace (1999) showed that this wasn't true and in fact EVA and residual income "*had little incremental information content beyond that contained in Net Income*". They conclude, in the same paper, that EVA is a good tool to align managers with shareholders' interests and to be used for internal incentive purposes.

However, in what concerns the valuation of Semapa, this method proves to be inadequate as "*it conveys little news to market participants regarding the firm's valuation*" (Biddle, Bowen and Wallace 1999).

3. Options approach

This approach, also called contingent claim valuation, is very useful for valuing specific situations where a company has a future option (Damodaran, 2006). This can be the case, for example, for companies with new technologies that aren't yet being used to create value but can be in the future or companies with product development ideas that haven't been implemented yet (Luerhman, 1997).

More generally, any investment done today that, instead of direct cash returns, produces the opportunity to engage in some kind of value-generating activity in the future, should be valued using an options approach. This means that the company has the right, but not the obligation, to exploit this opportunity. Ultimately, the decision may be not to engage in this activity, but the option to do it or not is valuable nonetheless (Luerhman, 1997). In fact, as Luerhman (1997) put it "*for some companies, opportunities are the most valuable things they own*".

Typically options methods are used to value stock options. The most commonly used method is the Black-Scholes Model. In short, this model uses probability theory applied to discounted cash flows and expected value calculations to compute the underlying value of the stock option (Black and Scholes, 1973).

This approach, however, is largely considered by the field's academics as more complex (despite being an oversimplified version of reality), less intuitive and harder to apply than other classic methods such as DCF or multiples. Even the more fierce defenders of this approach recognize that it should be used as a complement, and not a replacement, of another method (Luerhman, 1997).

Therefore, an options approach will only be used in this paper if an objective and significant future opportunity for Semapa is detected.

4. Multiples approach

In the multiples approach the company's value is estimated based on analogous information from similar companies. For this reason, and unlike the other valuation methods, it is considered a relative valuation. It values an asset by observing the pricing of other assets deemed "comparable", relative to a common variable such as sales, enterprise value, earnings or cash flows (Damodaran 2006).

The successful application of this approach is dependent on two critical factors:

- The peer group chosen to compare the company to;
- The multiples chosen as most appropriate to value the company.

There are many different methodologies and views on how to choose the most appropriate peer group. As Bhojraj and Lee (2001) state in their paper "*Who is my peer?*" this process is often viewed by practitioners as "*an art form that should be left to professionals".* According to these authors, peers should be chosen based on the variables that drive the differences in ratios within the industry.

There are plenty of variables driving differences in ratios in every industry. However, some factors seem to overlap in most articles on the subject, indicating that they are the most crucial indicators for choosing a peer group. These factors are:

- the industry;
- risk exposures;
- earnings, costs and profitability;
- growth rates;
- cost of capital;
- capital structure.

Choosing companies operating in the same industry is a must, as the industry's specificities and volatility explain a big parcel of the company's earnings and growth perspectives. Finding these companies is a good start, however, it isn't enough. Companies in the same industry can still differ significantly by size, stability, profit margins, growth perspectives, capital structures and even the operational activity, portfolio of products and risk exposure.

For this reason, the companies should be analyzed in detail to guarantee they have a similar modus operandi in terms of products/services offered, general operations and risk exposure. The following triaging step should be to use companies with similar market capitalization, ROIC and growth projections (Goedhart, Koller and Wessels, 2005).

The "peer group" is the group of identical companies obtained after filtering out all inconsistent ones, according to the relevant indicators. If the selection was done right, the average multiples from this peer group should give us a rough picture of the company we are analyzing.

So, after having the right peer group, which multiples should be used?

Liu, Nissim and Thomas showed in the paper "Equity Valuation Using Multiples" (2001) that forward looking multiples are the ones that best explain stock prices, followed by historical earnings measures, cash flow measures and book value of equity, while sales based multiples perform the worst.

This ranking proved to be the same for all industries analyzed, leading the authors to conclude that different industries don't have their own "best" multiple, but instead, the right multiples should be applicable to every industry.

These ideas were followed by Goedhart, Koller and Wessels (2005), who add that P/E multiples can be manipulated by capital structure and therefore be misleading. They suggest using Enterprise Value multiples instead.

This view is shared by Liu, Nissim and Thomas (2001) who argue that enterprise based multiples are superior to equity based multiples, founded on the argument that the second can be influenced by the company's capital structure. For this reason, enterprise based multiples make it easier to find truly comparable peer groups and thus improves the accuracy of the valuation.

On the other hand, using an equity perspective can simplify the analysts' life in the sense that he doesn't have to consider debt. While this simplification has its benefits and widens the range of potential comparable companies, it can be misleading since companies with significantly different leverage ratios are not comparable, even if we are only comparing the equity value.

Despite all these minor discussions regarding the peer group selection criteria and the best multiples to apply, the multiples approach is widely viewed as the simplest. Although it is subject to appropriating any mistakes done in the previous valuations of the peer companies analyzed, it is a good way to complement another method used to estimate the company's intrinsic value (e.g. DCF method).

Unlike the options approach, that should be used to value a specific opportunity for the company, multiples can be used to do a "reality check" and to get an overall picture of the range of values for the whole company (Goedhart, Koller and Wessels, 2005). This is the way the multiples approach will be used in this paper: as a complement to a DCF method.

Given the vast number of existing multiples, I will not analyze all of them in detail in this paper. Instead, I will select a few of the most commonly used multiples, from both an equity and an enterprise perspective.

Some of the multiples that will not be analyzed in this paper include:

Equity perspective:

- Dividend yield
- Price/Sales
- Price/Cash Flow

Enterprise perspective:

- EV/EBIT
- FCF yield
- EV/Invested Capital

4.1. Price to Book Value (P/B)

P/B is an equity perspective multiple. This multiple is best used for capital intensive firms that depend on a high asset base (e.g. banks). It compares the company's market value to its intrinsic book value. It is computed by dividing the share price by the last quarter's tangible assets' book value per share.

$$P/B = \frac{\textbf{Share Price}}{\textit{Tangible Assets/Number of Shares}}$$

Investors often look at companies with low P/B as potential growth targets. This multiple indicates the value that the market is placing on the assets of the company. Therefore, if the multiple is low, than the assets are undervalued.

The limitations of this multiple are related to the lack of reliability of the book value of the assets reported. This happens mainly for three reasons. For one, the assets are reported at historical cost. Secondly, they are referring to the value at the date of the report. And lastly, the report of the book value is subject to many different accounting policies. For all of these reasons, the analyst must be very careful when using this multiple.

4.2. Price to Earnings (P/E or PER)

P/E is the most commonly used equity multiple. One of the reasons for this is that all the needed information is widely accessible for any quoted company. All we need is the share price and the earnings per share (EPS).

$$P/E = \frac{\textbf{Share Price}}{\textbf{Earnings Per Share}} = \frac{\textbf{Market Capitalization}}{\textbf{Net Income}}$$

A high P/E multiple may indicate that investors are expecting higher earnings growth in the future. One of the attributes of this multiple is that it relates company value to profit. However, if profits are negative the EPS will be negative. In this case the multiple can't be used to estimate the firm's value.

Another deliberation that should be made when using this multiple is which year's net income should be used to estimate the current value of the firm. One can use last year's value or the forecasted value for the end of the current year. Both options can be used if they are properly supported, guaranteeing that no extraordinary revenues or expenses, that will not be repeated in other years, happened during that period.

4.3. Enterprise Value to EBITDA (EV/EBITDA)

This is the most popular enterprise multiple. The main reason is the fact that it includes debt through the EV and therefore allows comparisons between companies with different capital structures. It is also very simple to compute:

$$\boldsymbol{EV/EBITDA = \frac{\text{Enterprise Value}}{\text{EBITDA}}}$$

Low EV/EBITDA multiples is a signal of a good takeover candidate. This happens because the multiple intrinsically includes the debt that the acquirer would have to assume. Another positive aspect of this multiple is that, as opposed to EV/EBIT, it is neutral to depreciation and tax policy, making it a good measure for cross-national comparisons.

On the other side, ignoring depreciations and taxes may also lead to omissions of value created through taxes or depreciations. Also, being a very cash-dependent multiple, it is very susceptible to variability caused by growth rates, earnings estimates or cycles in the industry.

5. Cash Flow approach

"*Discounted cashflow (DCF) valuation, relates the value of an asset to the present value of expected future cash flows on that asset.*"

(Damodaran 2006)

Based on my research, this approach is clearly the most popular and academically acclaimed. It is based on this premise that the present value of an asset is the sum of all future cash flows on the asset, discounted back at a rate that reflects the riskiness of these cash flows (Damodaran 2006). In practice, it stands on the principle that the value of an asset is based on its ability to generate cash and value, and not on what people perceive it to be worth.

This approach rests on four main inputs:

- Earnings and cash flows
- Growth rate
- Discount rate
- Judgement on when the company will enter the "steady state"

DCF entails forecasting all free cash flows until they stabilize ("steady state"). By applying a perpetual growth to these cash flows, a Terminal Value is computed. The sum of this Terminal Value and all forecasted Free Cash Flows, discounted back to present using a discount rate (*r*), is the value of all the company's assets. This output of a typical DCF valuation is the Enterprise Value (EV). The equity value is obtained by deducting all types of debt from the EV.

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_n}{(1+r)^n}$$

Although this seems straightforward, there are in fact many variants of the DCF method itself. Most relevant disagreements in academia derive from the differences in perspective that Young, Sullivan, Nokhasteh and Holt (1999) considered to bifurcate all valuation analysis. Fernandez (2003) and Damodaran (2006) generalized three major techniques to apply a DCF method:

1. From an equity holder viewpoint, discounting the expected cash flows to equity at the cost of equity
2. From the viewpoint of all claimholders, using the weighted average cost of capital to discount expected cash flows
3. Valuing the business first, as if it had no debt, and then compute separately the added value of having issued debt (APV)

DCF is the simplest approach to use for firms with positive, reliable and fairly stable cash flows and where risk can be estimated with some precision. This may not be the case if the firm has any significant unutilized assets, patents or any other product options that would invite an Options Based valuation. It may also be troublesome to apply DCF if the firm is in trouble or undergoing significant restructuring that may affect the predictability of expected cash flows and the usefulness of historical data (Damodaran 2006).

As I will show later in this paper, Semapa is a cyclical company, undergoing relevant acquisitions and with some fast growing segments. However, for reasons I will explain along the paper, its cyclical characteristics will not endanger the company or significantly affect the cash flows' predictability, and the major acquisitions that happened during the present year of 2012 will not affect the operations of the company, but only the scale of the cash flows. The only exception is the acquisition of 50% of the Brazilian cement company Supremo, but this case will be analyzed individually.

For this reason, and taking into consideration that Semapa has no relevant unutilized assets or product options, the Discounted Cash Flow approach was chosen as the most appropriate to value Semapa.

5.1. Equity Cash Flow (ECF)

One way to apply DCF is taking an equity perspective. This method is called Equity Cash Flow (ECF) or Flows to Equity. It is a straightforward measure used to estimate the cash flows to be paid to equity holders. This method considers only the cash flows to equity and discounts them at the required return on levered equity (Ke) (Luerhman, 1997 and Fernandez, 2003). The output of this approach will be the value of equity. Thus, the value of debt must be added to compute the full Enterprise Value.

$$E = \frac{ECF_1}{(1+Ke)^1} + \frac{ECF_2}{(1+Ke)^2} + (\ldots) + \frac{ECFn}{(1+Ke)^n}$$

The main differences to the other methods are the cash flows and the discount rate used. The cash flows to equity are computed as the free cash flows deducted from all debt charges and repayments, therefore yielding only the cash available to equity holders (mainly dividends and

share repurchases). The discount rate (Ke) is the rate of return required by the equity holders, which is different and independent from the cost of debt (Kd).

This sort of method is useful when deb cash flows should be examined explicitly (Damoadaran, 2006). However, in the Semapa case the company's capital structure and debt levels are stable and not too significant. Therefore, this method offers no added value to the valuation at hand.

5.2. Adjusted Present Value (APV)

APV consists on separating the valuation in two parts:

a) The operational value of the company and;
b) The value of all financing side effects (Luehrman, 1997)

The main advantage of this method is its simplicity. APV is based on the principle of value additivity: it splits the company into pieces, values each piece individually, and adds them back together. The sum of all the pieces equals the Entreprise Value (Luerhman, 1997).

In simple terms, the firm value under an APV method can be summarized as:

Value of business = Value of business with 100% equity financing + Present Value of Expected Tax Benefits of Debt – Expected Bankruptcy Costs (Damodaran, 2006)

This method supports the idea that companies don't set debt targets as a percentage of market value, but instead as an absolute value (Damodaran, 2006) and, as opposed to the WACC approach, APV uses the required return to assets as the discount rate, which is not affected by capital structure changes (Fernandez, 2003).

On the paper entitled "*WACC or APV?*" Jaime Sabal pointed out that APV's virtues are very useful when valuing small companies with unstable debt ratios, or companies operating in very volatile industries, countries with complex or inconstant tax legislations or anywhere with high economic uncertainty affecting the leverage of the company. On the other hand, for larger companies operating in advanced and stable countries, WACC is a more appropriate method.

Semapa, however, stands out for the reliability of its earnings and their high stability levels, even in volatile countries, and particularly the high efficiency of its biggest division, which is the pulp and paper company, Portucel. Therefore, calculating the impact of debt separately from the value of the firm is not necessary, deeming WACC a suitable method to value the company.

5.2.1. Tax Shields

The main source of disagreement regarding the APV calculation is the way to value the tax shields.

There are many theories regarding this subject. Modigliani and Miller (1963) stated that the value of tax shields could be computed by discounting the expected future tax shields at the risk free rate (Rf). Myers (1974), Taggart (1991) and Luerhman (1997) propose using the cost of debt (Kd) as the discount rate for the tax shields. Harris and Pringle (1985) and Kaplan and

Ruback (1995) defend that the required return to the unlevered equity (Ku) should be used instead. Miles and Ezzel (1980) accept both perspectives, but state that the most appropriate way to discount the tax shields is using Kd for the first year and Ku for the following years.

The main difference in perspective can be summarized in two different strands:

- Those who believe that the risk of the tax savings arising from the use of debt is the same as the risk of debt itself (Fernandez, 2003);
- And the others, who believe that the level of debt is volatile and varies according to the operational needs of the company and, for this reason, the risk of the tax shields is the same as the operational risk of the company (Fernandez, 2003)

Fernandez (2004) went even further on his paper entitled "*The value of tax shields is NOT equal to the present value of tax shields*", arguing that the value of tax shields should be computed as the difference between the value of the levered firm, with tax savings included, and the same firm as if it was unlevered, without any tax savings. However, Cooper and Nyborg (2006), supported by Damodaran (2006), have proven this theory wrong, showing that the value of tax shields should be computed as the present value of expected tax savings discounted at the cost of debt (Kd).

There is definitely no consensus regarding this subject. Copeland, Koller and Murrin (2000) state that there is no single method that is "*theoretically correct*", but instead each analyst should choose the approach that best suits the situation.

5.2.2. Bankruptcy Costs

Bankruptcy costs are part of Modigliani and Miller's theory on optimal capital structure. They already understood by then that bankruptcy costs are the reason why a company can't be fully leveraged. Bankruptcy costs should be balanced with tax shields to obtain the optimal capital structure.

However, Modigliani and Miller didn't leave a clear explanation of how bankruptcy costs should be computed for a running company and no academic has generated a consensual theory since. In simple terms, the expected bankruptcy costs can be computed as:

Expected Bankruptcy Costs = Probability of Bankruptcy x PV of Bankruptcy Costs
(Damodaran, 2006)

This is based on the assumption that a higher level of debt will result in a higher probability of default and thus higher bankruptcy costs (Warner, 1977). Although not computed separately, this value is included indirectly on the WACC method, reflected as higher costs of debt and equity as default risk increases (Damodaran, 2006). However, in the APV method, this value must be computed separately, which is the source of some disagreement around this method.

The general figure that is most commonly used in the modern days as an estimate of bankruptcy costs is 20% of the value of the estate. This value can be traced back to Baxter's paper in 1967 and was later supported by Stanley and Girth (1971) and Van Home (1976). However, the more recent papers of Warner (1977) and Miller (1977) seem to disagree. Their

argument is that the earlier papers were based on individuals or small sized companies, sometimes even undergoing liquidation processes, instead of reorganization. Warner's study shows that that the ratio between direct bankruptcy costs and the market value of the firm decreases as the value of the firm grows. He also shows that for big firms (in his case he used railroad companies) the average cost of bankruptcy usually ranges between only 1% and 5% of the market value of the firm before going bankrupt.

These large discrepancies, that were never completely resolved, show how difficult it is to accurately estimate these costs, which can have a significant impact on the company's value. This difficulty can be partly explained by the impracticality of measuring the indirect bankruptcy costs, such as the energy and time dispersed by managers from other tasks or the averseness of customers and suppliers to enter into long-term commitments (Miller, 1977).

5.3. Weighted Average Cost of Capital (WACC)

The WACC is the most widely used DCF method for firm valuation. Since it is a "firm method" it uses the free cash flows to the firm as the basis for valuation while the cost of capital, as the name says, is calculated as a weighted average between the cost of equity and the cost of debt, adjusted for tax shield benefits:

$$\mathbf{WACC = \frac{D}{V} x\ Kd\ x\ (1\text{-}t) + \frac{E}{V} x\ Ke}$$

As opposed to APV, it aggregates the effects of tax shields in the discount rate. This way, the value added by interest tax shields is automatically included in the present value of the firm (Luerhman, 1997). For this reason, the accuracy of this method is higher when the debt to capital ratio is stable.

On the other hand, using the same WACC over periods of significant capital structure changes may lead to valuation errors. For this reason, when using this method for companies with complicated capital structures or fund-raising strategies, WACC should be used very carefully and adjusted periodically (Luerhman, 1997).

5.3.1. Growth Rate

One very important and hard to determine figure in any valuation is the expected growth rate for the forecasted period and the terminal value. This is a prediction by the analyst of the growth at which the company will grow in the future. If this could be accurately predicted, any investor would know exactly where to invest. Since it isn't so easy, we are left with a few estimation techniques. In "*Growth Rates and Terminal Value*" Damodaran suggests three main approaches:

- **Looking at the company's past** – the historical performance and growth of the company's earnings are a good base for predicting future behavior, assuming that conditions are met to behave in line with the past.
- **Looking at the competitors** – the expected growth rates for companies in the same industry should not be very different from eachother, and therefore taking a relative

approach and comparing the industry (or a peer group) average as the estimate for the company can be a viable option.

- **Looking at the fundamentals** – taking into consideration what the company is investing and how much returns these investments are making, and assuming the investment rate and the return on investments will be stable in the future, the growth rate can be extrapolated.

Regardless of the technique used, the analyst should have well-defined criteria to choose the historical period. For cyclical companies, for example, this period should include an entire cycle. Additionally, any abrupt changes in past growth rates should be analyzed and explained, in order to understand if they are likely to be repeated or not. A sustainability analysis should also be conducted to verify if it is plausible that the present (or estimated) growth rates are going to be maintained into maturity.

5.3.2. Terminal Value

"*The terminal value is generally by far the most important element in any valuation estimate.*"

These words were written by Young, Sullivan, Nokhasteh and Holt (1999). These authors argue that basing all the valuation on the terminal value estimate is not as incongruous as it may seem. In fact, their findings are that the terminal value represents on average 94% of the total firm value if three annual forecasts are made. This value is reduced to 79% of the total if ten annual forecasts are made. Nevertheless, the terminal value will represent a very sizable portion of the overall valuation.

Although computing merely the terminal value is definitely not the best way to achieve an accurate estimate for the overall value of the company, estimating it right is vital to that goal. In that sense Damodaran recognized three different ways to compute the terminal value.

The first is considering the liquidation value of the company. If the assets are separable and marketable, then we can estimate how much they are worth and compute the present value.

The second is a relative approach. In this case the analyst would simply use multiples from comparable companies and apply them to the company under analysis.

The other option is in Damodaran's opinion the "*technically soundest*". It is based on the assumption that the company will grow at a stable rate. The problem with this approach is that it requires judgment about when a company will grow at a stable rate, what is this rate and if it is sustainable.

$$\textbf{Terminal Value} = \frac{FCFFn}{(WACC - g)}$$

Techniques to estimate the growth rate are described above, but in the terminal value's specific case some other considerations mustn't be overlooked. Since we are speaking of a perpetual growth rate the sustainability analysis should impose a cap on the growth rate that should be, at most, the economy's growth rate. Damodaran suggests the risk-free rate as a proxy for the nominal growth rate.

The definition of the beginning of the perpetual stable growth period can also be problematic. Typically, companies don't grow above the industry average for long periods of time, but defining the exact duration of this period has to be done case-by-case (see Appendix 1).

5.3.3. Valuation of companies operating in cyclical industries

Calculating the terminal value for a company operating in a cyclical industry becomes even more complicated. De Heer, Koler, Schauten and Steenbeek (2000) gathered empirical evidence showing that analysts commonly make valuation mistakes when valuing cyclical companies.

The main reason for this occurrence is precisely the terminal value, since it is computed based on the cash flows from the last forecasted year (FCFFn). If this year is in the peak or close to the peak of the cycle, we will overvalue the company. If, on the other hand this year is in the bottom of the cycle, the terminal value will be understated.

The best way to face this problem is to normalize earnings, cash flows and growth rates throughout the entire cycle (De Heer, Koler, Schauten and Steenbeek, 2000 and Damodaran, 2009). This way the value used as the base for the terminal value calculation will reflect a normalized value of the whole cycle instead of a specific point in the cycle.

Some general additional reflections, summarized by Damodaran (2009), must be made for commodity companies. For one they are price takers. For this reason the earnings' variance closely reflects the price cycles of the commodities that the company deals with.

Another fact that shouldn't be neglected is that the factories may be forced to keep operating all through the price cycle to avoid the costs of shutting down and reopening. This supports the idea that these types of companies are more subject to macro moves and therefore may have higher expected bankruptcy costs are more volatile debt ratios.

Finally, we must consider that commodities are finite. The impact of this feature must be taken into account for future commodity prices and perpetual growth estimation.

Semapa Valuation

6. Company Introduction - Semapa

Semapa is a holding company that was founded in 1991 and has controlling stakes in industrial companies, mainly in the cement and pulp & paper industries. Semapa's first relevant venture started in 1994 with the acquisition of 51% of Secil, a Portuguese cement company.

Following the acquisition of an additional 7,94% stake of Secil in 1995, Semapa acquired a 4,7% stake in Cimpor, a large Portuguese cement company. In the year 2000 the company acquired another stake of 4,3% of Cimpor and attempted the full takeover of the company, which would fail.

In 2000 Semapa started its internationalization with the acquisition of a Tunisian cement company, "Societé des Ciments de Gabés" and the launch of a cement subsidiary in Angola ("Tecnosecil"). The internationalization process progressed in the following years, with the acquisition of stakes in Algeria, Lebanon and Cape Verde by Secil.

2004 was to some extent a turning point for Semapa. This was the year it entered the pulp & paper industry, by acquiring 67% of Portucel. At the same time, Semapa reduced its presence in the cement industry, selling its 9% stake of Cimpor as well as a 49% stake of Secil in a transaction that valued 100% of Secil's EV at nearly 900 M€.

In 2005 Semapa sold its 90% stake in Enersis, an electric power company it created in 1994. This deal was worth over 420 M€, which meant a capital gain of 390 M€ for Semapa.

Until 2009 Semapa reinforced its position in Portucel, finishing the year with a 77% stake, reinforced its international status by acquiring new stakes in cement companies in several countries and entered a new industry with the acquisition of the environmental company ETSA.

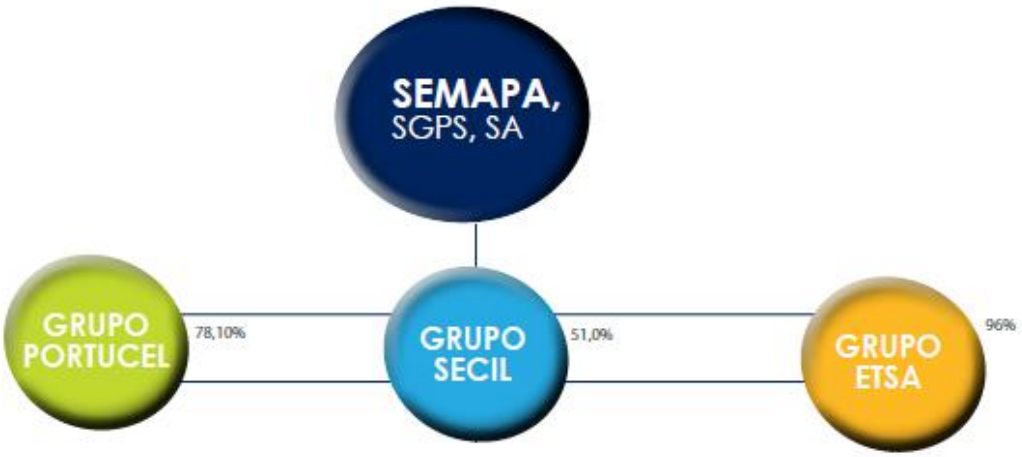

Figure 1: Semapa Group Structure in 2011 (Source: Semapa Annual Report 2011)

During the 2nd trimester of the current year of 2012 Semapa continued its internationalization process through the acquisition of 50% of the Brasilian "Supremo Cimentos S.A.", which is a cement company undergoing an expansion plan that will increase its production capacity to 1.700 million tons. Also, Semapa further strengthened its presence in the cement industry by acquiring the remaining 49% of Secil.

As of the end of 2011, when the last year-end Semapa report was published, Portucel had a 83,6% weight on the total sales of the group. If we exclude the other Holdings and consider only Portucel, Secil and ETSA, Portucel's weight on Semapa's total Net Income for 2011 is nearly 90%.

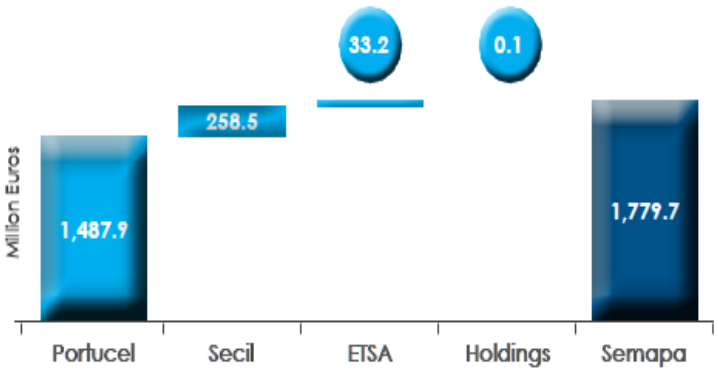

Figure 2: 2011 Semapa Group Turnover (Source: Semapa Annual Report 2011)

Even if we consider the sales for 100% of Secil (instead of the 51% owned by Semapa then) and 50% of Supremo (that was acquired this year), Portucel still represents over 73% of the group's total sales. This goes to show that the Pulp & Paper segment is by far the core value driver for Semapa.

6.1. Portucel Soporcel Group

Portucel Soporcel Group is the core business of Semapa. It operates in the pulp & paper industry and is currently the European market leader in the market for premium office paper with the brand *Navigator*. 95% of Portucel's sales are exportations. It sells pulp and paper to 115 countries all around the world and its exportations represent 3% of Portugal's total exportations.

The company results from three different Portuguese companies: Portucel, Soporcel and Papéis Inapa.

Portucel was founded in 1953 producing raw pine pulp in a single plant in Cacía, Aveiro. In 1957 it introduced the production of sulphate bleached eucalyptus pulp, which was a worldwide innovation.

In 1964 Papéis Inapa opened its operations. It used the pulp produced by Portucel to produce paper that was sold throughout Europe. Inapa used three paper mills in Setúbal, integrated with Portucel's eucalyptus pulp mill.

Soporcel started producing in 1984, after being created in 1979. Its operations are based on the production and sale of uncoated wood-free paper (UWF). It currently has two industrial units at Figueira da Foz (founded in 1991 and 2000), which are some of the most technologically advanced factories in the industry.

The Portucel Soporcel Group resulted from the combination of these three companies, increasing the efficiency levels due to vertical integration processes. Since the acquisition of Papéis Inapa in 2000 and Soporcel in 2001, the company became the number one producer of bleached eucalyptus kraft pulp (BEKP) in Europe and one of the leading producers of UWF paper. This market leadership was consolidated in 2009 with the inauguration of the new Setúbal paper mill, which has proven to be one of the most efficient paper mills worldwide. These high levels of efficiency are one of the group's trademarks and a key source of stability.

The company also has its own forest and energy generation departments.

The forest segment is responsible for managing all the company's woodland assets, which are over 120 thousand hectares, 74% of which are eucalyptus. Although it represents only 0,2% of the company's external revenues, this division's intersegment sales and services are 13% of the total revenues. This shows the importance of this segment, which has the role to produce the raw materials for pulp production.

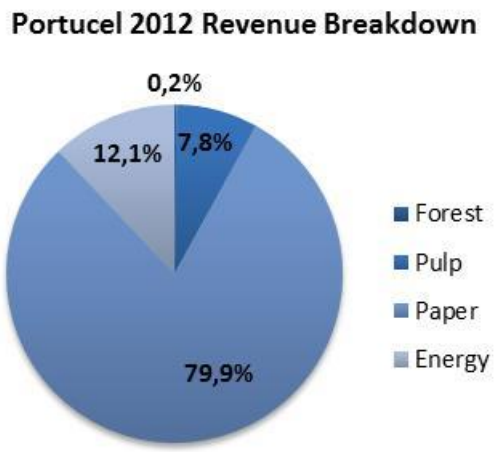

Figure 3: 2012 Portucel Revenues by Segment (Source: Semapa Interim Report 2012 & own calculations)

The energy segment represents 12,1% of the group's total revenues and 3% of Portugal's total energy generation. This is very notable since it is not the company's core business. The division is able to feed the energy required for all the company's operations and still export significant amounts of energy.

These two segments can be viewed as support segments for the company's core business of pulp and paper production, representing 87,7% of the company's total revenues (79,9% paper and 7,8% pulp).

The existence of these two segments is very important when explaining the company's stability:

Being a commodity company, Portucel is subject to a significant volatility associated with economic cycles. However, since it produces its own raw materials and energy, it is less subject to market volatilities and cycles regarding raw material and energy prices. This, in turn, minimizes the impact of the pulp and paper sales price volatility, which can be affected by economic cycles.

Currently, the Portucel Soporcel Group has an installed capacity for 1,6 million tons/year of paper, 1,4 million tons/year of pulp and 2,5 TWh/year of electric energy.

6.2. Secil Group

The second largest company in the Semapa group, which was fully acquired by Semapa during the year of 2012, was founded in 1925.

Its operations started with the Outão cement plant in Setúbal, which was created by Companhia de Cimentos de Portugal in 1906. This factory was later sold to Companhia Geral de Cal e Cimento, who in turn rented it to Secil (the name stands for Sociedade de Empreendimentos Comerciais e Industriais, Lda.). In 1930 Secil and Companhia Geral de Cal e Cimento merged with a group of Danish companies.

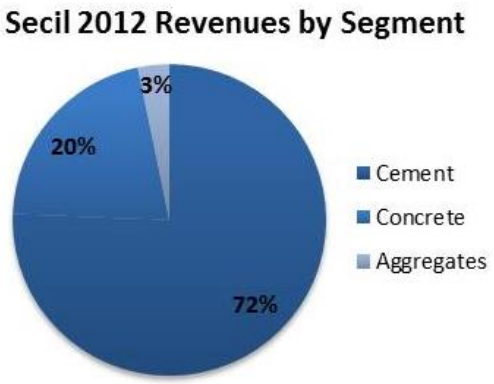

Figure 4: 2012 Secil Revenues by Segment (Source: Semapa Interim Report 2012 & own calculations

The capacity of the plant gradually increased from 10.000 tons/year in 1906, to 1 million tons/year in 1972. At this time Secil was the largest cement manufacturer in Portugal.

After the revolution in Portugal in 1974, the whole cement industry was nationalized in 1975. During this period the old plant is shut down and a new one is opens using dry process kiln, instead of the old wet process. This plant had centralized and computerized controls and reduced production costs.

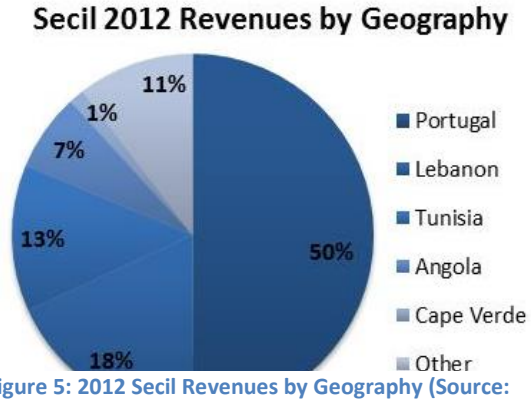

Figure 5: 2012 Secil Revenues by Geography (Source: Semapa Interim Report 2012 & own calculations)

In 1994 the State sells off its holdings in the Cement industry to Semapa and later that year Secil acquires CMP, a cement company that owned two cement plants in Portugal.

In the year 2000 Secil started its international expansion with the acquisition of Société des Ciments de Gabès, a Tunisian cement company with a plant with capacity for 1,1 million ton/year. Until 2004 Secil expanded into Lebanon and Angola.

Currently Secil has a total capacity of 6,85 million tons/year. Portugal still dominates its operations with 55% of the production capacity. However, Tunisia (20%) and Lebanon (18%) still have a very significant weight on the company's productions.

6.3. Supremo Cimentos, S.A.

Supremo Cimentos, S.A. is the most recent acquisition of Semapa, who purchased 50% of the company during the first trimester of 2012.

Supremo Cimentos, S.A. is a Brasillian cement company with a 350 thousand ton/year capacity plant in Santa Catarina. It also produces concrete and aggregates, similarly to Secil. Supremo is undergoing a capacity expansion plant with the construction of a new plant in Adrianópolis, Paraná. The new plant is expected to have nearly 1,5 million tons/year capacity and should start operating in 2014.

During the first trimester of 2012 the company reported nearly 10 million € in sales with a 0,5 million € EBITDA. This would represent yearly revenues below 2% of Semapa's total group revenues. However, the company's high growth potential and predicted capacity expansion should be taken into account when valuing Semapa.

6.4. ETSA Group

ETSA is an environmental company that resulted from the merger of SEBOL and ITS, two market leaders in the market of collection and processing of animal waste, in 1997. Since then, ETSA has focused on the recovery, storage, transportation, disposal and revaluation of animal by-products and other food by-products.

The ETSA group was incorporated in Semapa by the end of 2008 and is 96% owned by that holding. It reported 33 million € in revenues in 2011, representing roughly 1,6% of Semapa's total. Taking into account the company's level of impact in the group's total value, its historic cash flows, its growth perspectives and plans and its considerable, but fairly stable, growth rates, the ETSA group will be valued only with a multiples approach.

7. Macroeconomic scenario

Since the outburst of the subprime crisis in the USA at the end of 2007, the worldwide growth has been erratic. Data from The Economist (see Figure 6) reveals that the worldwide real GDP growth started plumitting in 2007, reaching negative values in 2009.

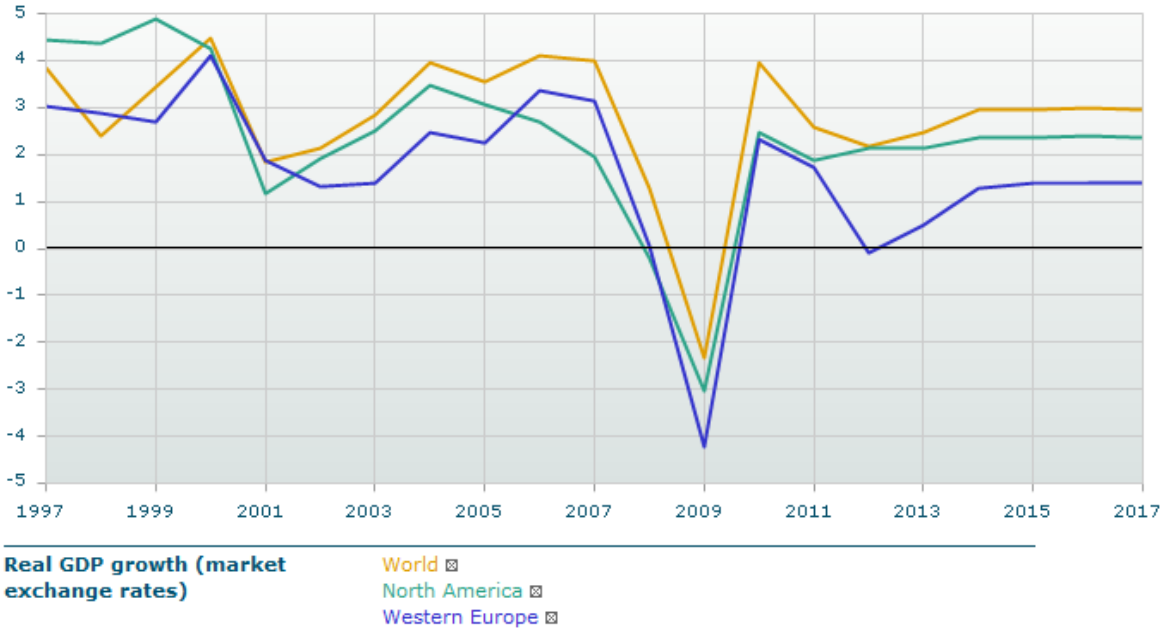

Figure 6: GDP Growth Forecast 1997-2017 (Source: The Economist Intelligence Unit [October 17th 2012])

Since 2009 there was a fast comeback until 2011. However, after that year a second crisis seemed to affect Europe, reaching negative values again in 2012. This European crisis was most notable in the EU15, compared to the new members (see Appendix 2 & Appendix 3). The southern European countries were particulary affected by this crisis, namely Portugal.

At this date, prospects for the coming years are positive. The same source forecasts world GDP growth averages at market exchange rates of 2,5% in 2013 and 2,9% in 2014, as opposed to the 2,2% witnessed in 2012 (see Appendix 4).

Europe's forecasts are also positive when compared to the -0,1% GDP decline in 2012. The Economist forecasts a modest 0,5% growth in 2013, 1,3% in 2014 and then a stable 1,4% for the following three years, 2015-2017 (see Appendix 4).

	2012–20	2021–30	2012–30
Growth and productivity (% change; annual av)			
Growth of real GDP per head	0.5	2.2	1.4
Growth of real GDP	0.5	2.1	1.3
Labour productivity growth	0.7	2.0	1.4

Figure 7: Portugal growth and productivity forecast 2012-2030 (Source: The Economist Intelligence Unit [August 4th 2012])

In the Portuguese case, the expected average real GDP growth rate is 0,5% until 2020 and 2,1% from there on after until 2030. Portugal's recent lack of labour productivity and external competitiveness in traditional export sectors has lead to a small growth potential. In the long run, Portugal should regain some competitiveness thanks to the current process of internal devaluation. In any case, the forecasted long run GDP growth rate of 2,1% reflects that Portugal will still have to face many competitors for foreign direct investment.

(% change)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GDP growth										
Euro area	0.2	-4.3	2.0	1.5	-0.4	0.4	1.2	1.4	1.4	1.2
EU27	0.2	-4.3	2.1	1.5	-0.3	0.4	1.4	1.5	1.5	1.5
EU15	0.0	-4.3	2.1	1.4	-0.4	0.3	1.3	1.4	1.4	1.4
New members[a]	4.1	-3.8	2.3	3.1	0.9	1.7	3.0	3.1	3.6	3.5
Consumer price inflation										
Euro area	3.2	0.3	1.6	2.6	2.3	1.8	2.0	2.1	2.1	2.0
EU27	3.5	0.8	2.0	2.7	2.4	2.1	2.1	2.3	2.2	2.1
EU15	3.3	0.6	1.9	3.0	2.4	2.0	2.1	2.2	2.1	2.1
New members[a]	6.2	3.2	2.9	3.9	3.6	3.1	2.8	2.7	2.7	2.6

[a] Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia (excl Malta).

Figure 8: Western Europe growth and inflation forecast 2008-2017 (Source: The Economist Intelligence Unit [October 17th 2012])

Inflation in Europe is expected to continue falling in 2013 and then return to the 2% level in 2014 and remain fairly stable until 2017. In the same way, the worlwide inflation of 3,4% in 2012 is expected to remain fairly stable until 2017, with the OECD countries registering a stable inflation rate of 2,2% (see Appendix 4).

(% change; goods)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
World trade	**2.4**	**-11.7**	**14.3**	**6.3**	**3.3**	**4.5**	**5.3**	**5.6**	**5.7**	**5.7**
Developed countries	1.7	-12.4	13.1	5.5	3.0	3.8	4.4	4.6	4.7	4.7
Developing countries	6.3	-8.8	15.5	7.9	4.3	6.0	7.1	7.4	7.5	7.4

Figure 9: World Trade growth forecast 2008-2017 (Source: The Economist Intelligence Unit [October 17th 2012])

After recovering in 2010 from an historical decline of 11,7% in 2009, world trade growth has been falling until 2012. However, expectations are that in 2013 it will pick up the pace and grow 4,5%, stabilizing in 2015 at around 5,6% growth per year.

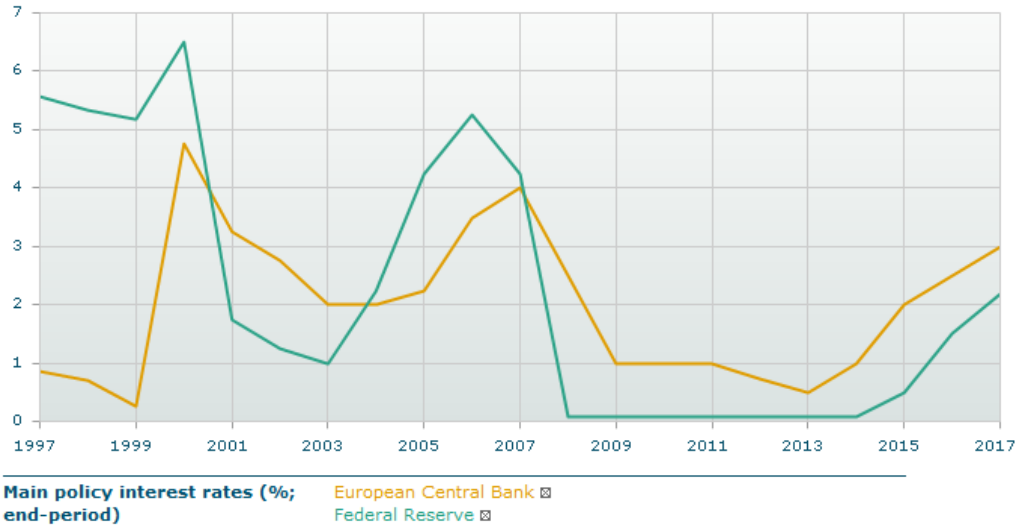

Figure 10: Main Policy Interest Rates 1997-2017 (Source: The Economist Intelligence Unit [October 17th 2012])

The financial crisis also made an impact on the economy through the access to external debt. Short-term interest rates plunged in 2007 from values around 4% to under 1% in 2009. The measure was intended to encourage consumption and investment, in order to stimulate the slow economy. However, the increased risk defaults and unstable economic situation lead to an increase of bank spreads that offset the previous interest rate declines.

This outcome is visible for both the European Central Bank and the Federal Reserve – in this case reaching 0,1%. The effect was global, with the Bank of England and the Bank of Japan both reaching values below 0,5% (see Appendix 5 & Appendix 6)

This effect has remained from 2009 to 2012, even decreasing further in Europe, but the expectation is that it will reverse after 2013, growing steadily until 2017 all around the world.

8. Valuation of Semapa

Semapa will be valued using the sum of the parts method. This means that each of the companies in the holding will be valued separately.

For Portucel and Secil, because they represent over

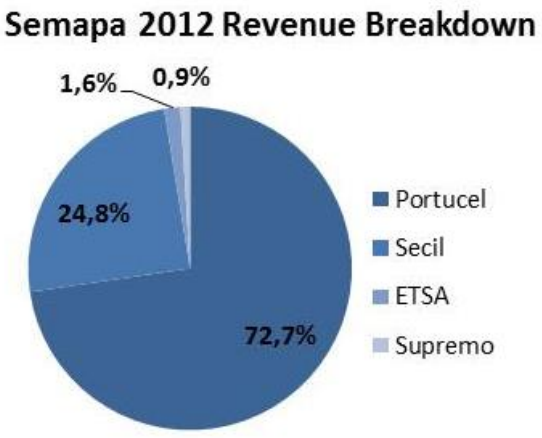

Figure 11: Semapa Revenues by Company 2012 (Source: Semapa Interim Report 2012 & own calculations)

97,5% of the total revenues, the valuation will be more thorough. An industry overview will be conducted for both companies, followed by a multiple based valuation and a discounted cash flow valuation, using the WACC method.

For ETSA and Supremo, which together represent only 2,5% of the total revenues, the valuation will be based on market values, adjusted by simple assumptions if appropriate.

The significant changes that happened in the company during the year of 2012 will have a relevant impact on its future and therefore on the present valuation. However, the effect of these changes was only incorporated in the half-year report of 2012, and only affecting the 2nd trimester (51% of Secil in the 1st trimester and 100% of Secil in the 2nd trimester in 2012 vs 51% of Secil in 2011).

This means that there is no full-year, or even half-year, information of the companies' accounts considering the presence of Supremo and 100% of Secil on the consolidated report.

Considering that the valuation will be based on a sum of the parts approach, any impact of the acquisitions of Supremo and Secil will be accounted for in their own valuation.

For these reasons, the earnings forecasts will be based on information from previous full-year reports. Nevertheless, all new information obtained after the 2011 annual report until this date (including the 2012 half-year reports) will be considered and the valuations will be adjusted accordingly.

8.1. Portucel Soporcel Group

This company represents 73% of the total Semapa group revenues and for this reason it is the main driver of the company's value. Comparable historical data from the company's annual reports date back to 2004, when a transition from the Portuguese accounting rules to the IFRS took place. A key to estimating Portucel's value correctly is the analysis of the pulp & paper industry and consequent growth forecasts.

8.1.1. Industry Overview

Paper is the final output of Portucel's mills. Until the final uncoated wood free (UWF) paper is produced, wood is consumed, along with fuel and electricity, to produce pulp, which in turn is consumed, along with more fuel and electricity, to produce the UWF paper.

Thus, the main profitability drivers in the pulp & paper industry are energy costs (electricity and fuel), wood price, pulp demand/price and paper demand/price.

8.1.1.1. Energy

Portucel produces more electricity than it consumes and, as such, still manages to make some money from it. Yet, the price at which it sells electricity is fixed but the price at which it buys can change. For this reason electricity price fluctuations affect Portucel's profitability in the

energy segment, however, this impact is very slight because it represents only a variation on a small margin on the electricity segment.

Fuel costs, however, impact Portucel's margins directly. Fuel prices in Portugal have been raising very quickly (140% increase from 2000 to 2011) despite the crisis scenario. We can see that the growth slowed down when the crisis hit in 2007, but it skyrocketed again in 2011 when the economy recovered some. Portugal, despite having a low GDP per capita compared to the European average, has very high gasoline prices compared to its European peers (see Appendix 7).

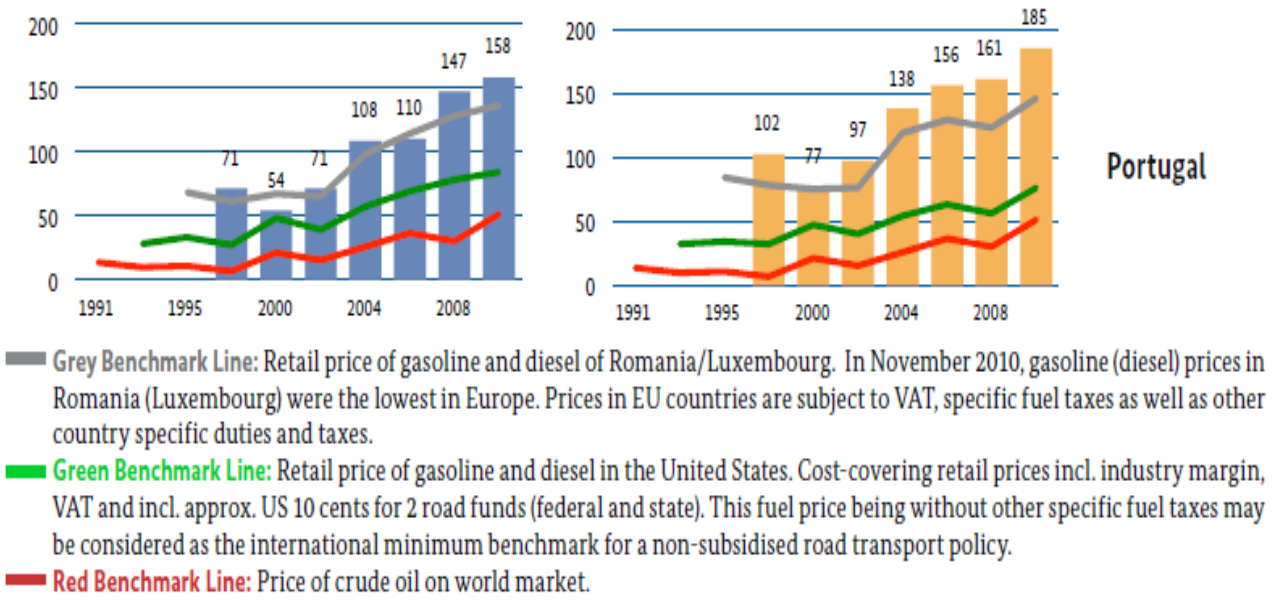

Figure 12: Fuel Prices in Portugal 1991-2010 in € (Source: GIZ - German Federal Ministry for Economic Cooperation and Development)

The tendency for the crude oil on the world market (red benchmark line), was very similar to Portugal's. It grew steadily from 2002 to 2006, dropping with the crisis in 2007 and recovering quickly in recent years. For the short-term, expectations for fuel prices are that they will keep the upward trend. However, the growth rates verified in the last decade and especially in the last 2-3 years aren't sustainable.

8.1.1.2. Wood

Regarding wood, Portucel has a similar risk protection as it does for electricity. Portucel has its own forest division, which produces wood internally and uses it mostly for its own activities. In this case, however, Portucel's wood production isn't enough to fully finance its pulp & paper activities. Therefore it must acquire some wood externally.

So, if the demand for wood increases for reasons other than increased demand for UWF paper, this could lead to wood costs increasing without a corresponding increase in paper costs. This could, thus reduce paper margins and decrease free cash flow estimates.

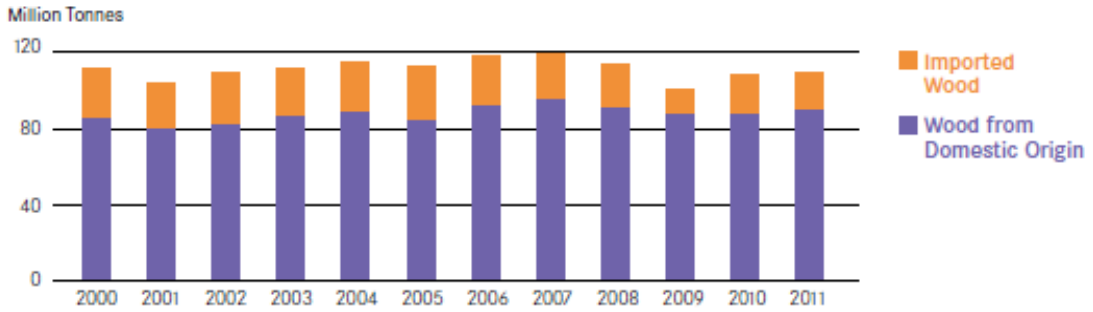

Figure 13: CEPI Wood Consumption by Origin 2000-2011 (Source: Eurostat)

CEPI is the Confederation of European Paper Industries, and provides data on the pulp & paper industry for European countries, which can be used as a benchmark for Portucel. According to Eurostat's early 2012 data, wood consumption in these European countries is mainly from domestic origin and over 100 M tons in total.

The trend in wood consumption follows the macroeconomic scenario, as expected. It started a slump in 2007 that peaked in 2009 and started recovering thereafter. It can also be noted that during crisis years, CEPI countries tended to increase their dependence on domestic wood, in detriment of imported wood.

8.1.1.3. Pulp

Pulp is a global commodity. It can be used to produce several kinds of paper. The demand for pulp is a function of paper demand, pulp capacity and wood costs.

In the case of bleached hardwood kraft pulp (BHKP) prices, a cycle is clearly visible with a low peak in mid-2009 (>40% price drop) of around 350 €/ton and an upward peak of nearly 750 €/ton in mid-2010. This cycle is noticeable across all kinds of pulp (see Appendix 8) and reflects a significant reduction in paper and board demand in 2007 and 2008 (see Figure 16).

Figure 14: BHKP Pulp Prices 2007-2012 in €/ton (Source: FOEX [23rd October 2012])

Pulp prices are a function of paper demand, wood costs and pulp capacity. We have seen how the first correlates the cycle in pulp prices. Regarding wood costs, naturally there was a decrease due to the reduced wood consumption, which further explains the pulp prices

downturn in 2008-2009. As for pulp capacity, we can see below that during this period Europe had overcapacity for pulp production, which also partly explains the price reduction.

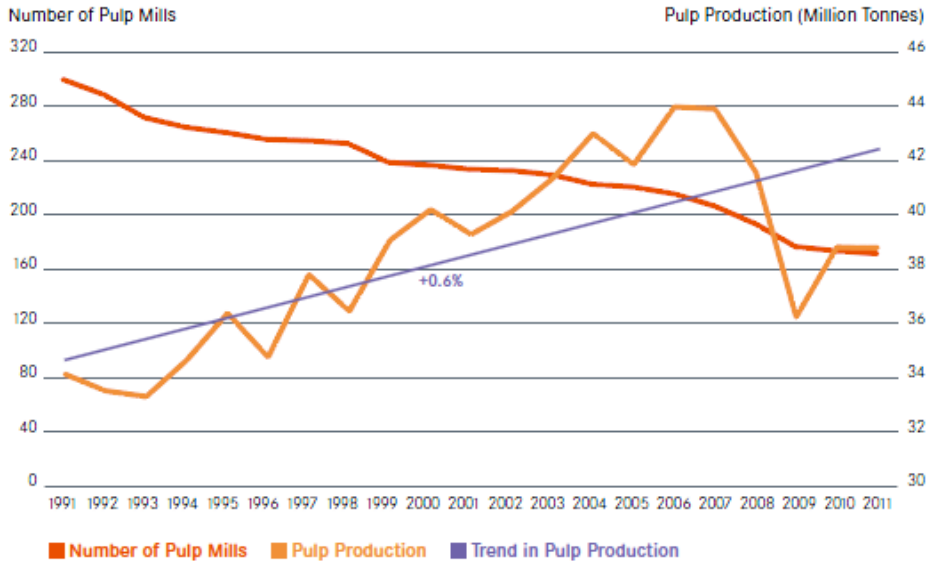

Figure 15: Number of CEPI Pulp Mills and Pulp Production 1991-2011 (Source: Eurostat)

This resulted was a severe reduction in pulp production and a reduction of the number of pulp mills in CEPI countries. However, the trend in pulp production in the mid-term has been for growth, despite the big downturn in recent years.

With the recovery of paper demand and wood costs, pulp prices have recovered to values above what they were pre-crisis and are expected to remain fairly stable in the 500-600 € range.

In the case of pulp price and demand, Portucel's risk exposure was significantly reduced with the introduction of the new paper mill in Setúbal in 2009 since more pulp is used internally and less is available to sell externally. This means that Portucel's exposure to pulp prices, although present, was reduced significantly.

8.1.1.4. Paper

Lastly, Portucel has to consider the volatility in paper demand and prices. This will be the most impacting driver on Portucel's cash flows. A reduction in demand because of a new technology, for example iPads, would create a decline in paper prices that would directly impact Portucel's results.

In the CEPI countries the trend in the mid-term has followed the macroeconomic pattern, but with more significant growth, less volatility and a lower impact in the crisis years compared to pulp. Paper production has grown faster than consumption, meaning that the ratio between exports/imports is increasing.

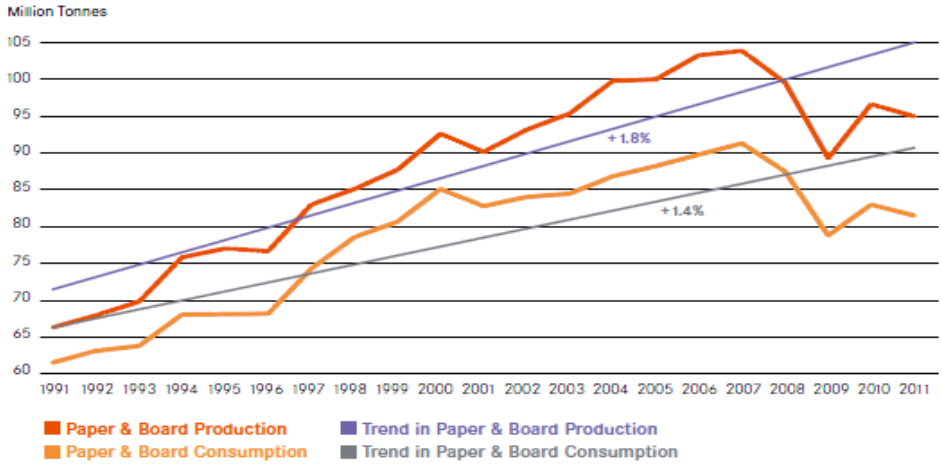

Figure 16: CEPI Paper & Board Production and Consumption 1991-2011 (Source: Eurostat)

The trend for A4 B-copy printing paper prices has been similar to that of BHKP pulp, although with a much lower variance. It reached its lowest point of 760 €/ton in early 2010 (<15% price drop), with a lag of 9 months compared to pulp, and its high-point was in late 2011, reaching nearly 880€/ton.

Figure 17: A4 B-copy Paper Prices 2007-2012 in €/ton (Source: FOEX [23rd October 2012])

Although the impact in A-4 B-copy paper prices was very noticeable in 2009, if we look at the prices for the main types of paper during this crisis period we can see that the impact was not very significant and that paper prices, even during a severe crisis, are very stable (<15% price drop).

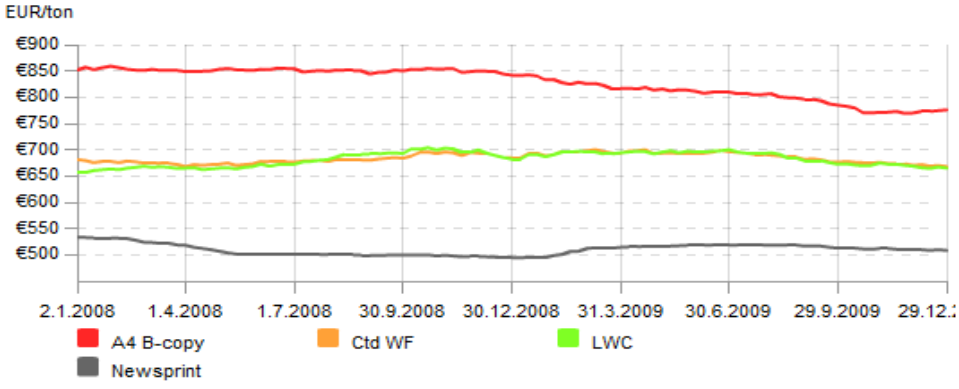

Figure 18: Paper Prices 2008-2009 in €/ton (Source: FOEX)

Unlike pulp, paper prices didn't suffer a significant drop in late-2011/early-2012. If we add to this the fact that the variance, even during the crisis period, is not significantly pronounced, we can conclude that in general terms, paper prices, which are the main source of potential instability for Portucel, are actually very stable. Expectations for the mid-term are that paper prices will continue their historical steady annual growth (1%-3%).

This lower variance in the paper prices put together with Portucel's intrinsic control of electricity, wood and pulp prices, through vertical integration, results in a very good safeguard to the main sources of risk exposure for the firm.

8.1.2. Discounted Cash Flow

Since Portucel represents the most substantial portion of Semapa's total value, a more detailed analysis is necessary on future prospects and expansion plans, along with a clear understanding on their current situation, in order to make accurate assumptions.

The most recent relevant event in Portucel was the opening of the new factory in Setúbal in 2009. That represented a 27% revenue increase between 2009 and 2010. Last year, with the factory installed, running and operating at nearly full capacity the revenue still grew 7,4%. This growth was mainly due to the increased production of UWF paper in the new mill, which reached 97% capacity by the end of 2011, along with an increase in paper prices and increased energy production and sales (20% increase).

In the first semester of 2012, the sales volume of paper increased by 3%, despite Europe's general contraction in paper consumption of -3,5%, increasing Portucel's market share. Prices remained fairly stable, with an average PIX Copy-B paper price reduction of 0,5% in the period. This fact pledges for the company's growth stability, even in adverse economic situations.

Regarding the pulp division, production increased in 2011 but sales decreased by 16%. This is explained by a decrease in BHKP pulp prices, but also by a higher internal integration of pulp in the production of paper, tendency that continued during the first semester of 2012.

Costs, however, suffered an unfavorable increase in 2011. The main reasons for this increase were the payroll increase, owing to a necessary increase of the number of employees, and the increase of wood and energy costs.

In this scenario, the EBITDA was 3,8% lower than in 2010 and the net income was 196,3 M €, 6,8% below the previous year.

The company's investments were, naturally, 62,5% lower than in 2010. This is explained by the conclusion of the new Setúbal mill. The next investment plans of the company are in the forestry segment. The company plans to continue its vertical integration strategy, producing its own raw materials for paper and pulp both in Portugal and abroad. The acquisition of 179 thousand hectars in Mozambique for wood production was a clear step in this direction. However, there is no prediction for a sudden major investment as the construction of a new mill.

Besides vertical integration, the company is pursuing an international strategy. In 2011, exportations already represented 95% of the company's sales, selling in 115 countries throughout the five continents. The tendency to spread out the sales is reflected in the consistent reduction of share in Europe (80% in 2009, 73% in 2010, 69% in 2011). However, Europe still represents the lion's share of Portucel's sales.

8.1.2.1. Revenues Assumptions

The company's revenues will be determined mainly the selling prices and quantities of each of their products. However, the production capacity and the capacity utilization rate of their factories will also play an important role.

Pulp and Paper

Production capacity for paper is generally constant. Changes are the result of new factory openings, which represent a major change in capacity. Pulp on the other hand, is subject to small production capacity increases annually. This is the result of minor improvements to the existing factories, which upgrade the production capacity by a small margin. This margin, over the last 5 years averaged a growth rate of 1,7%.

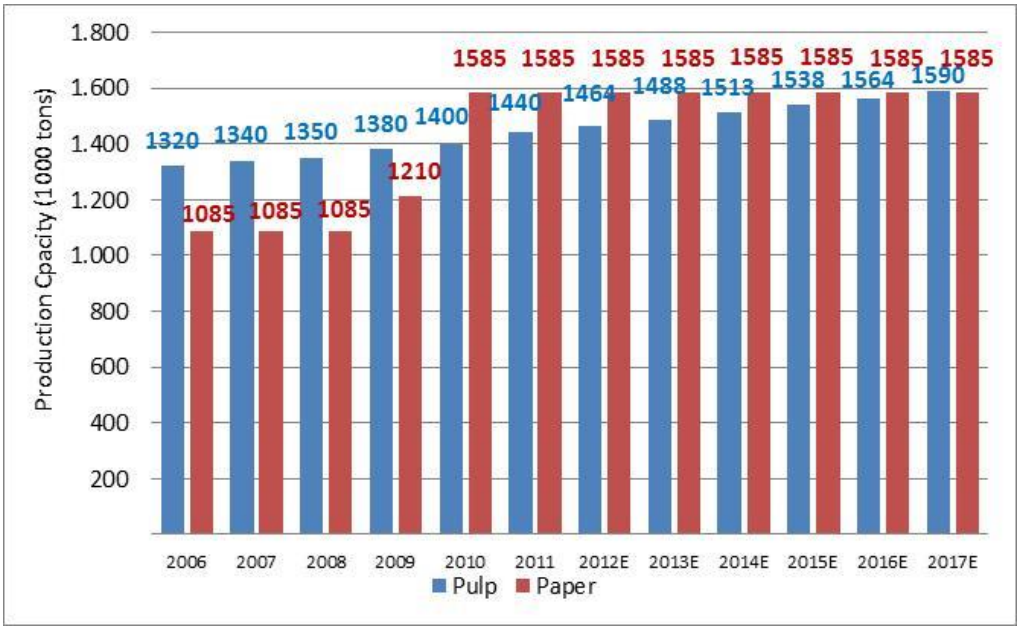

Figure 19: Portucel Pulp and Paper Capacity in 1000 tons (Source: Portucel Annual Reports & own calculations)

If we assume that this average pulp production capacity growth rate will remain stable until 2017 and that no new paper mills will be opened during this period, Portucel's paper capacity will stabilize at 1585 tons/year and the pulp production capacity will grow from the 1440 tons/year verified in 2011 to 1590 tons/year in 2017.

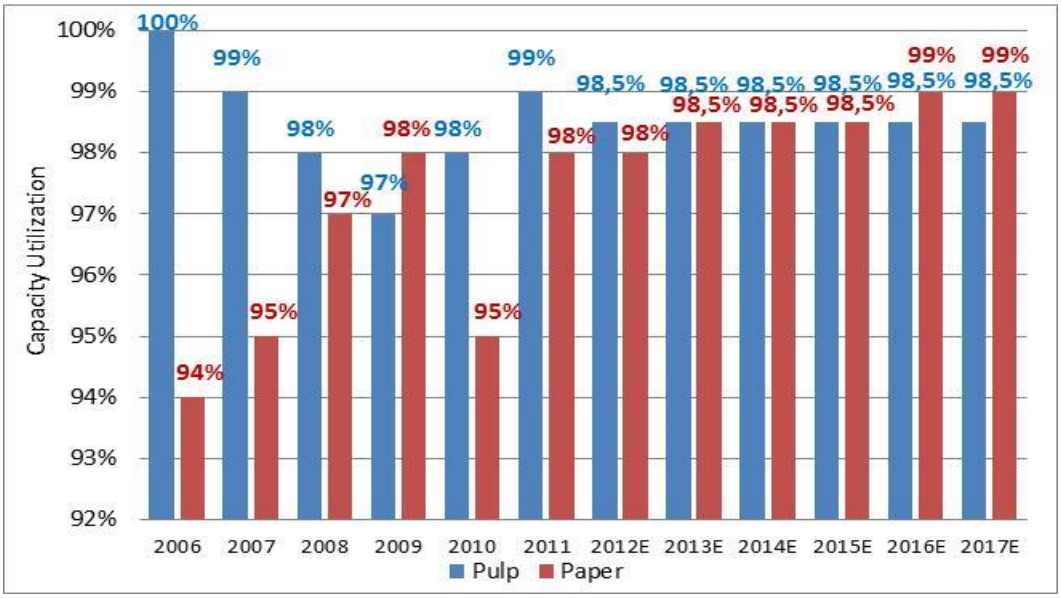

Figure 20: Portucel Pulp and Paper capacity utilization in % of total capacity (Source: Portucel Annual Reports & own calculations)

Portucel's capacity utilization is very high for both pulp and paper, which is one of the company's most renowned attributes. The company's capacity utilization regarding paper has followed an upward trend since 2003 when it was 88%. There was an abrupt reduction in 2010, which is explained by the opening of the new mill, which naturally didn't perform at full capacity immediately. However, in 2011 the utilization rate was already 98%, the same rate it had in 2009. In the future, it can't be expected that the factories keep upgrading their utilization rate at the same speed they have in the past, because they are already very close to full capacity. A slow improvement up to 99% in 2017 is a more realistic scenario considering the increased difficulty of improving utilization rates nearing 100%.

As for pulp, the capacity utilization rates have been fairly stable. They have reached 100% in 2006 and decreased until 2009, following the slower demand pattern. In 2010 and 2011 the utilization rate grew back up to 99%, recovering alongside the demand. In this case, taking into consideration that fluctuations are small, even during the crisis, I will assume for the future the average value of the entire cycle (98,5%).

Portucel has always managed to keep high capacity utilization levels for consecutive years and with a tendency to increase. Nevertheless, the levels of inventories of finished goods at year-end have been erratic, with no clear tendency or correlation with productions and demand. The fact is that this is an industry that doesn't suffer from shelf life restrictions. For this reason, it is worthwhile to maximize the factory lines' occupation regardless of demand. Therefore it will be assumed that paper production equals sales from 2012 onwards.

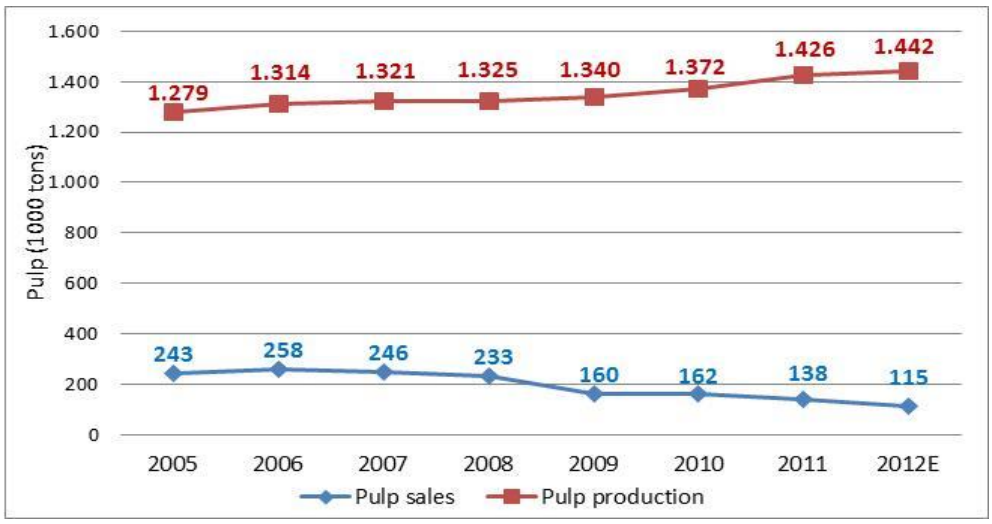

Figure 21: Pulp sales vs production 2005-2012 in M€ (Source: Portucel Annual Reports)

Conversely, the same can't be said for pulp, since most of the production is used internally for paper production. Production and sales are clearly following inverse paths, with sales declining systematically since 2006, despite the production's continued upturn. It is also visible that the tendency increased after the new paper mills opened in 2009. While sales represented 19% of the total production between 2005 and 2008, they have averaged only 10% of production after 2009.

Since the paper production capacity isn't expected to increase in the near future and the utilization rate is already close to 100% and expected to increase slowly, it is reasonable to assume that pulp sales/production ratio will also decrease slowly, in line with the company's paper mills' need for pulp. In the first semester of 2012, pulp sales were 8% of production.

The prices for both paper and pulp have followed the economic trend with a pronounced downturn in 2009 and a quick recovery in 2010. Pulp prices followed the natural downturn reaction in 2011 after a +59% increase in the previous year. This downside tendency only started for paper at the end of 2011 but it has recovered slightly in the first three quarters of 2012.

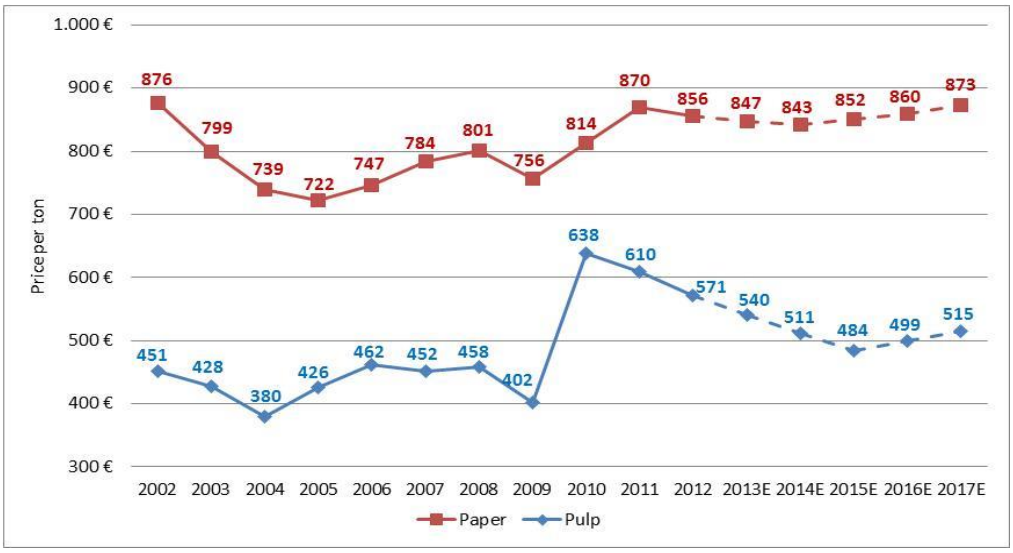

Figure 22: Paper and Pulp Price Forecast in €/ton (Source: FOEX [23rd October 2012] & own calculations)

Pulp prices have grown at a +3% average annual rate since 2001. However, if we consider only the economic cycle between 2006-2012 the average growth rate was +6,4%/year, which is much higher than the normal pulp price growth. In fact, prices in 2011 were 38% higher than the 2001-2008 average. With this in perspective, it is predictable that prices will drop to a level closer to what they were before. Indeed, since reaching the peak in 2010, pulp prices have fallen at a -5,4% annual rate until the end of Q3 2012.

As a result, I will assume a -5,4% growth rate until 2015, when prices reach a value only 10% above the "pre-crisis" average prices. From then on the pulp prices will grow at the +3% annual rate.

Looking at the annual growth rates of paper prices what stands out is the fact that it never reached double-digit changes, either positive or negative, in the 2001-2011 period. Another interesting fact is that paper prices seem to react later than pulp prices to trend inversions (see 2005 and 2011). However, it follows the same general pattern as pulp prices and, non-coincidentally, the economy. The result is that paper prices only started to fall in 2012, as a reaction to 2010 and 2011 unusually high growth rates (+8% and +7% respectively).

The average paper price between 2001 and 2008 was 795€/ton. Therefore, and considering paper prices' low volatility (-0,1% average variation between 2001 and 2011), the 2011 price of 870€/ton is also unusually high. The first three trimesters of 2012 have corrected the price with a -2% reduction. I will assume that the market will keep correcting the price with a progressively lower annual decrease, until it stabilizes after 2014 and starts a slow +1% annual growth from there on.

Energy

Portucel's energy production underwent a 200 M€ investment plan in 2009-2010. This large investment aimed at increasing the sector's production capacity, particularly biomass originated energy. After this investment, this segment represented 11% of Portucel's revenues in 2011.

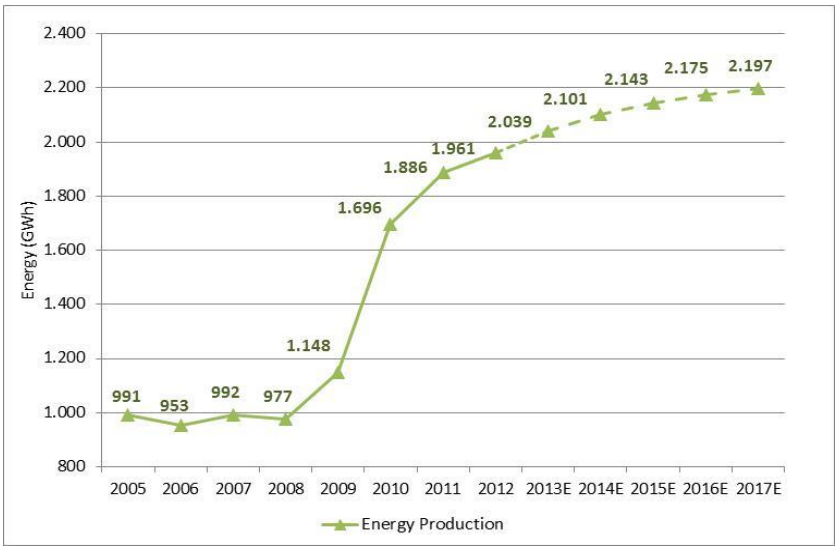

Figure 23: Energy Production in GWh (Source: Portucel Annual Reports & own calculations)

The energy production, which was stable from 2005 to 2008, increased +93% from 2008 to 2011, reflecting the output of the new energy plants. The total energy production capacity is 2.500 GWh, therefore there is still some growth potential in the existing plants. However, the first semester of 2012 revealed a +4% increase vs the same period in 2011. This contrasts with the double digit growth rates in the three previous years, suggesting the impact of the opening of the new plants has already been incorporated in the current productions.

For the future there is no plan to invest in new energy plants. Therefore, any improvements will be done by increasing the utilization of the existing plants. It can be expected that the production will keep increasing at growth rates similar to that of 2012 (+4%), with a tendency to stabilize as it approaches the 2500 GWh capacity limit.

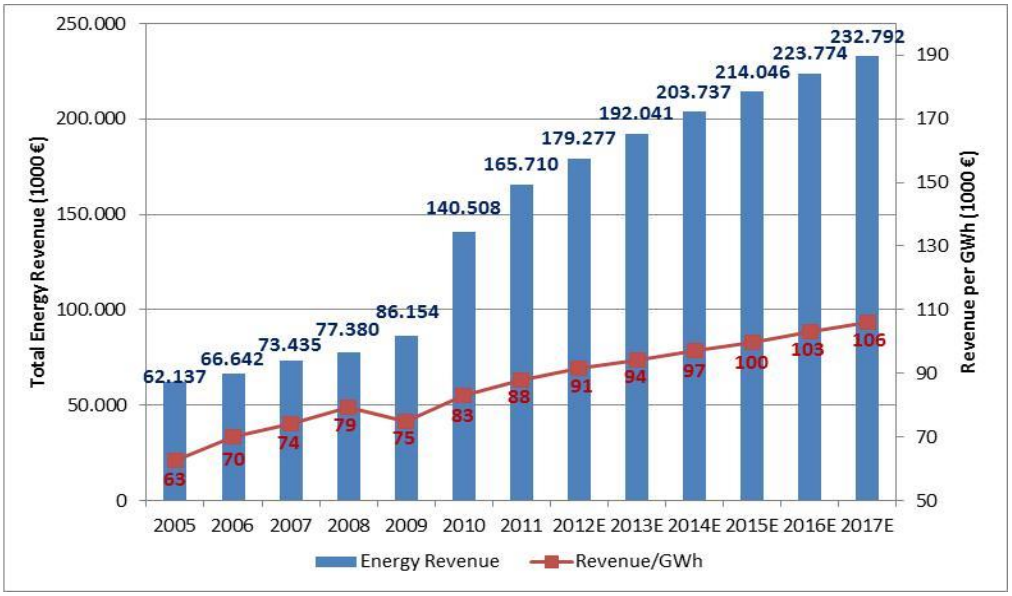

Figure 24: Portucel Total Energy Revenue & Revenue/GWh in 1000€ (Source: Portucel Annual Reports & own calculations)

The revenue per GWh sold grew at a sturdy +8,1% CAGR from 2005 to 2008. In 2009 there was a decline due to the energy price general decrease but in the following year the revenue/GWh sold bounced back and grew at a +6,8 CAGR from 2009 to 2012. These high rates can be explained by the energy price increases, but also by a lower internal incorporation of the energy produced. Since the internal activities are already being fully supplied by the energy produced, all annual energy production increases will be channeled to external sales.

For this reason, the annual increase in the revenue/GWh sold will be assumed to remain constant at a +3% annual rate. This rate is lower than the +4% registered in the first semester of 2012, reflecting a slower, but steady, price increase in the coming years.

Wood and other operating revenues

The wood segment has a minor impact on the company's accounts as a whole. In 2011 it represented only 0,2% of the overall revenues. Wood is used as a by-product for Portucel's other segments. Revenues aren't the priority in this segment as it used a support segment for the other three segments.

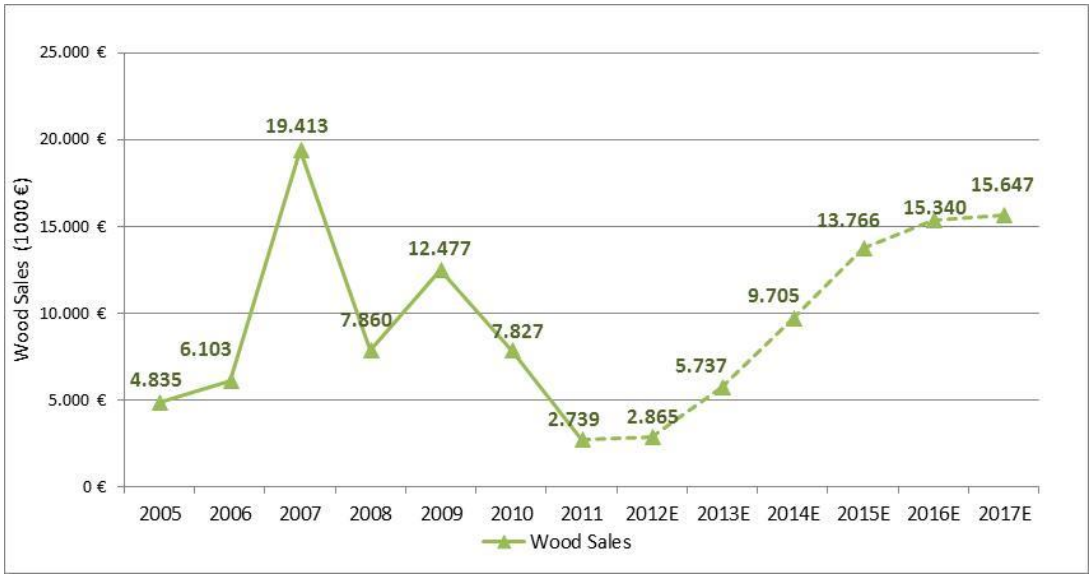

Figure 25: Portucel Wood Sales in 1000 € (Source: Portucel Annual Reports & own calculations)

Portucel has been investing relevant amounts in this segment, which is why the wood produced in the first semester of 2012 alone is 22% higher than the full year 2011 wood production. Yet, in the first semester of 2012, despite the expressively higher wood production, external sales have been in line with the homologous period in 2011, which was the lowest in the 2005-2011 period.

External sales have followed an erratic pattern from 2005 to 2012. However, it is notable that in 2011 and 2012 the value seems to have fallen compared to the previous years. A possible explanation for this is the increased incorporation of wood in the new mills.

For this reason I will assume that the lower sales values after the new mills opened as the basis for the future projections. The company has a 3-year expansion project on this division which aims to increase the plant nursery capacity from the current 7,4 million plants per year to 12 million plants per year. I assumed that the capacity will increase gradually until it reaches the target of 12 million per year. Furthermore, I assumed that 80% of all plant production increases will be sold, while the remaining 20% will be incorporated in production.

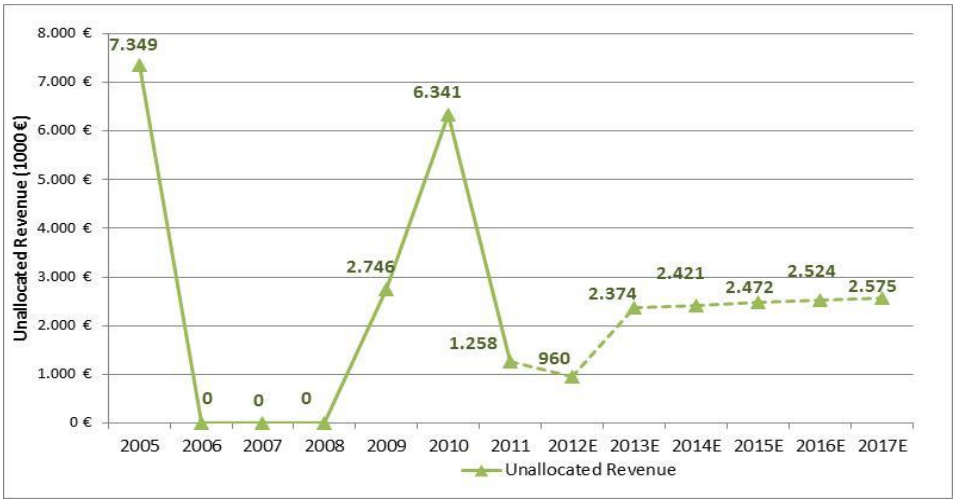

Figure 26: Portucel Unallocated Revenues in 1000 € (Source: Portucel Annual Reports & own calculations)

The unallocated revenues have also behaved unpredictably between 2005 and 2012, with three periods where they weren't accounted for at all (2006-2008). Given their unpredictability and lack of impact in the overall income of the company, the same assumption was made as for wood: other operating revenues in 2013 are the average of the 2005-2012 values and grow at the inflation rate from there on.

Concluding, we can see that paper will continue to dominate the revenues of Portucel, while energy will increase its share progressively at the expense of pulp, which will continue to be integrated in the internal paper production process.

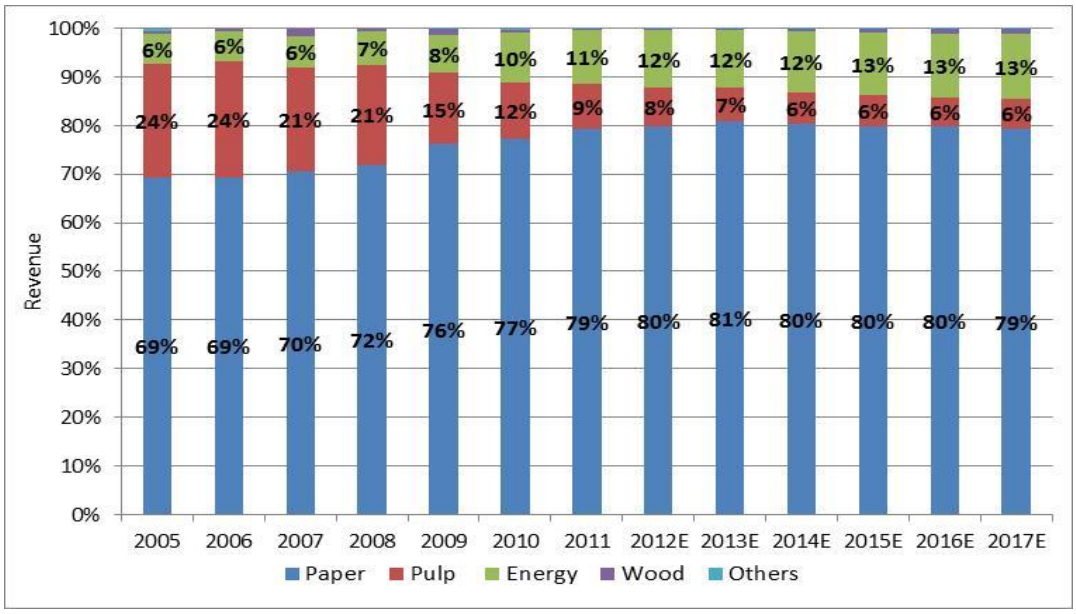

Figure 27: Portucel Revenue by Segment (Source: Portucel Annual Reports & own calculations)

8.1.2.2. Operational Costs Assumptions

Most of Portucel's operational costs are directly linked to sales volumes. Therefore, the most significant operational cost lines (materials and services consumed and inventories sold) are cyclical, alike the quantities sold. However, the cyclical impact is not exactly the same as for revenues, since these operational costs, although directly linked to quantities sold, are not related to price. Thus, revenues per se are not an appropriate benchmark for operational costs estimation, but instead the quantities sold; which in this case, as mentioned before, are assumed to be the same as the quantities produced.

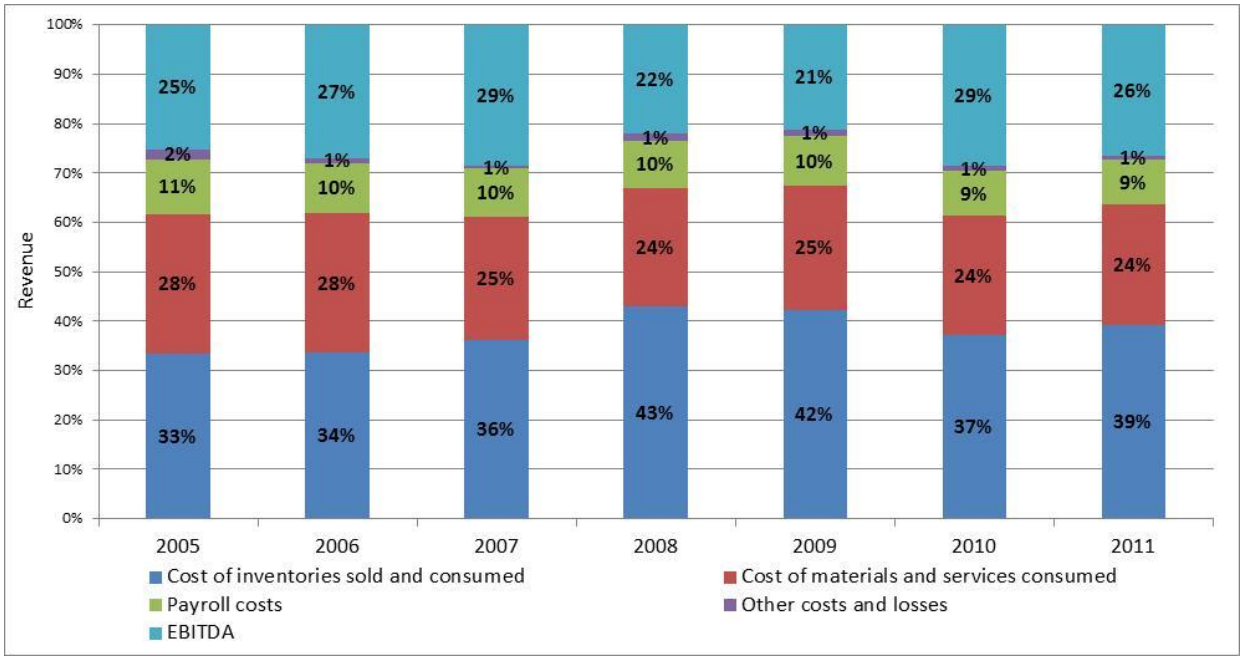

Figure 28: Portucel Operational Costs as a % of Revenues (Source: Portucel Annual Reports & own calculations)

Although the previously mentioned operational cost lines are variable costs, the same can't be said for payroll costs, which are fixed, although they might follow a similar growth pattern as quantities produced since, for example, the opening of the new plants will increase the number of employees and the production quantities hand in hand.

Variable Costs

Inventories sold and materials and services consumed were assumed to be allocated to pulp and paper as a percentage of sales. This makes sense because pulp and paper have very different cost structures. Paper has a much higher unit cost than pulp, which is obvious if we discern that pulp itself is a component of paper.

Energy wasn't contemplated because there is no data available about the prices and the quantities sold. Also, energy uses pulp residua as fuel for its own production. The same is true for wood and other costs; however their impact would be inconsequential.

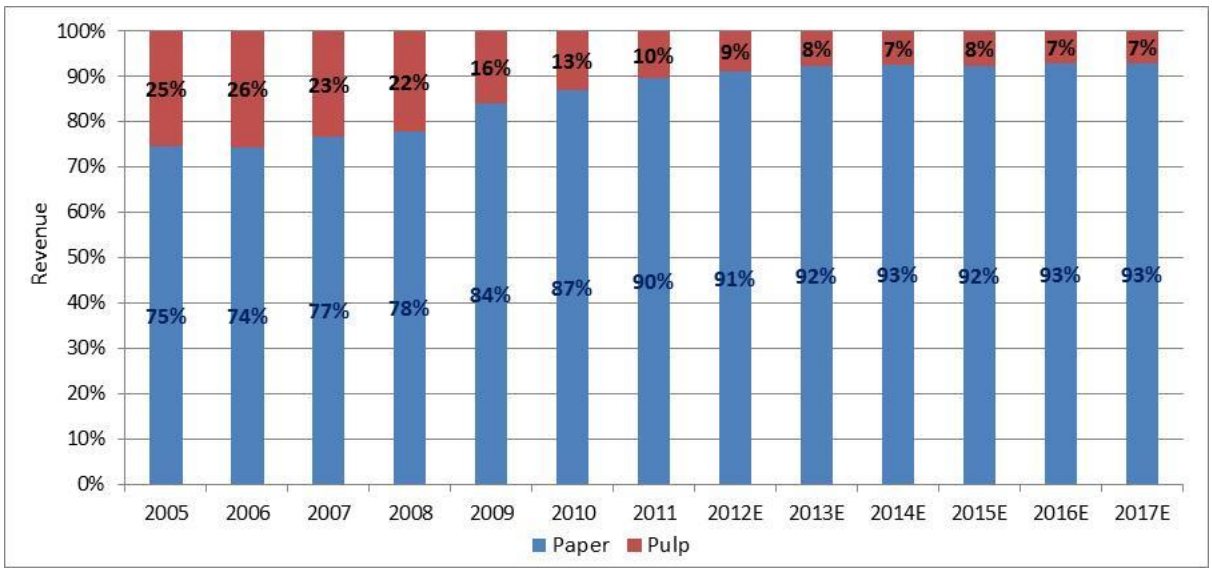

Figure 29: Paper and Pulp as a % of Revenues (Source: Portucel Annual Reports & own calculations)

Sales quantities are a better benchmark than revenues when estimating variable operational costs because the costs are not affected by the sales price, contrarily to revenues. Instead, the variable costs will be affected by the quantities sold and the mix of products sold and the associated unit costs.

Sales value % was used to allocate the costs between the two products. Then, based on the quantities sold, a cost per ton was computed. The assumption was that these costs per ton along with the quantities produced will be the drivers of the variable costs for the forecasted period.

VARIABLE COSTS													
tons sold	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Paper sales	986	1.004	1.031	1.016	1.103	1.313	1.342	1.387	1.561	1.561	1.561	1.569	1.569
Pulp sales	570	559	544	508	399	254	222	202	204	204	219	201	198
Sales 000'€	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Paper sales	711.959	749.625	808.448	814.103	833.530	1.068.681	1.167.926	1.187.006	1.309.680	1.290.035	1.277.135	1.290.036	1.296.486
Pulp sales	242.806	258.288	246.098	232.593	160.402	162.100	135.662	115.387	109.956	104.336	106.075	100.139	101.808
Paper	75%	74%	77%	78%	84%	87%	90%	91%	92%	93%	92%	93%	93%
Pulp	25%	26%	23%	22%	16%	13%	10%	9%	8%	7%	8%	7%	7%
Cost of inventories sold	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Paper	261.828	266.140	321.996	390.973	406.861	449.103	519.881	553.521	637.880	651.475	664.550	683.504	696.909
Pulp	89.294	91.700	98.019	111.703	78.295	68.121	60.388	55.708	56.808	58.041	63.739	59.403	59.720
Cost of inventories sold per ton	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Paper	266	265	312	385	369	342	387	399	409	417	426	436	444
Pulp	157	164	180	220	196	268	272	276	279	284	291	296	302
Cost of materials consumed	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Paper	220.627	223.244	221.101	219.177	242.315	292.535	321.009	341.781	393.869	402.264	410.337	422.041	430.318
Pulp	75.242	76.920	67.305	62.620	46.630	44.372	37.287	34.398	35.077	35.838	39.356	36.679	36.875
Cost of materials consumed per ton	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Paper	224	222	214	216	220	223	239	246	252	258	263	269	274
Pulp	132	138	124	123	117	175	168	170	172	176	179	183	186

Figure 30: Variable Costs Forecast in 1000 € (Source: Portucel Annual Reports & own calculations)

The growth rate for the cost per ton sold was assumed to be the annual sales share variation, plus the inflation rate. This means that the real cost per ton of pulp sold will decrease annually

along with the pulp's sales share decrease, while the real cost per ton of paper sold will increase at the yearly rate of sales share increase.

The rationale behind this calculation is based on the premise that paper has higher variable costs than pulp. Thus, when the mix of products sold involves higher percentages of paper, the cost of each unit sold will be higher.

Payroll Costs

The main driver of payroll costs is, naturally, the number of workers. Before the opening of the new paper mills and energy mills in 2009 the tendency was to reduce the number of employees. Obviously though, the opening of the new mills forced a sudden increase in the number of employees. However, in 2011 with the implementation of the LEAN project, which was designed to boost operational efficiency. One of the main aims of this project is "to cut costs in operational areas, in respect of processes, equipment and people". For this reason, the number of employee reduced -2% in 2011 and -0,5% in the first semester of 2012.

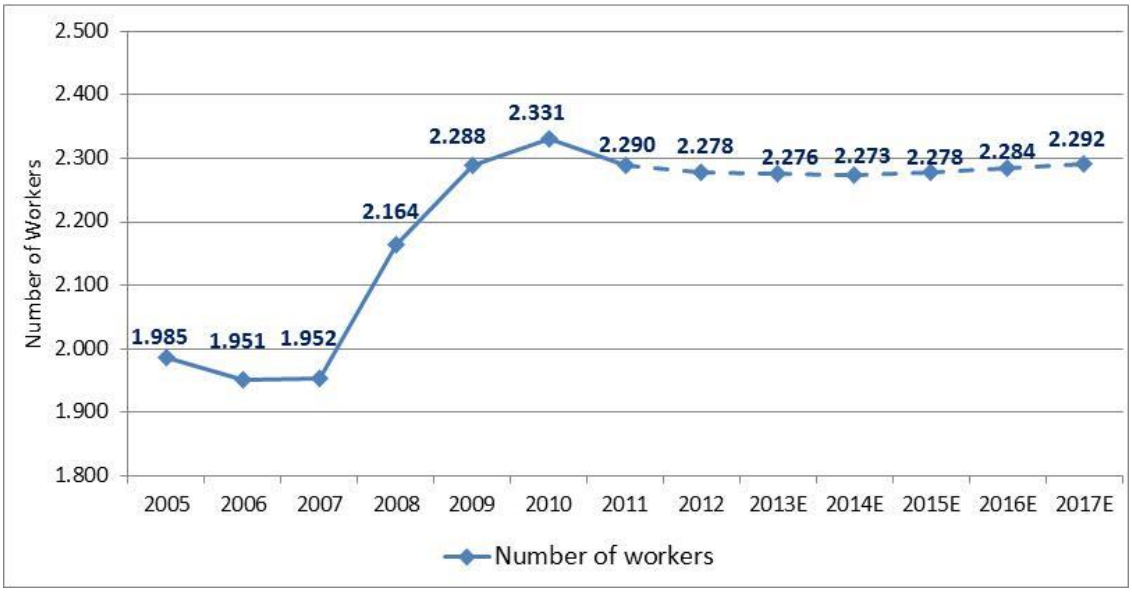

Figure 31: Portucel number of workers (Source: Portucel Annual Reports & own calculations)

This project should be in place for the entire explicit period and therefore the number of employees and the employee related costs should keep reducing. Regarding the number of workers I have assumed for the full year of 2013 a decrease of the same magnitude as the one verified in the first semester of 2012. In 2014 I assumed a smaller decrease, since the "dispensable" employees should be cut immediately and after that the reductions have to be surgical. From this point on I assumed a slow increase of the number of employees reflecting a natural growth in the company size.

The payroll costs for 2012 were computed as the average cost per employee over the 2005-2011 period, multiplied by the estimated number of workers. For the remaining of the forecasted period, the average cost per worker was assumed to reduce at a 1% annual rate, as a result of the LEAN program.

Other Costs and Losses

Given the unpredictable nature of these costs, the fact that it includes both variable and fixed costs and their low volatility and significance, I have decided to compute them based on the 2005-2011 average. The growth for the explicit period will be the inflation rate.

Provisions

Provisions have followed an extremely unpredictable path. They have had a historically unstable pattern and there is not enough information about it. The most relevant values since 2005 were provisions for tax claims related to VAT contingencies outside of Portugal, while legal provisions have a small impact. The value reported as "other" provisions isn't well detailed in the company's report, but relates to "provisions for risks with other public entities which may originate cash outflows in the future".

Additionally, if we valuate a period (longer than a year) of time, the value included in provisions for one year will be reversed in another. For these reasons, and taking into consideration the very low historical values for provisions, they don't have a significant impact in the valuation whatsoever.

However, an assumption must be made concerning the evolution of the provisions. The approach taken given the lack of information regarding each specific spike on provisions was that each type of provision will follow the same path as they did in the past, while the overall provisions account will maintain a level in line with the previous years.

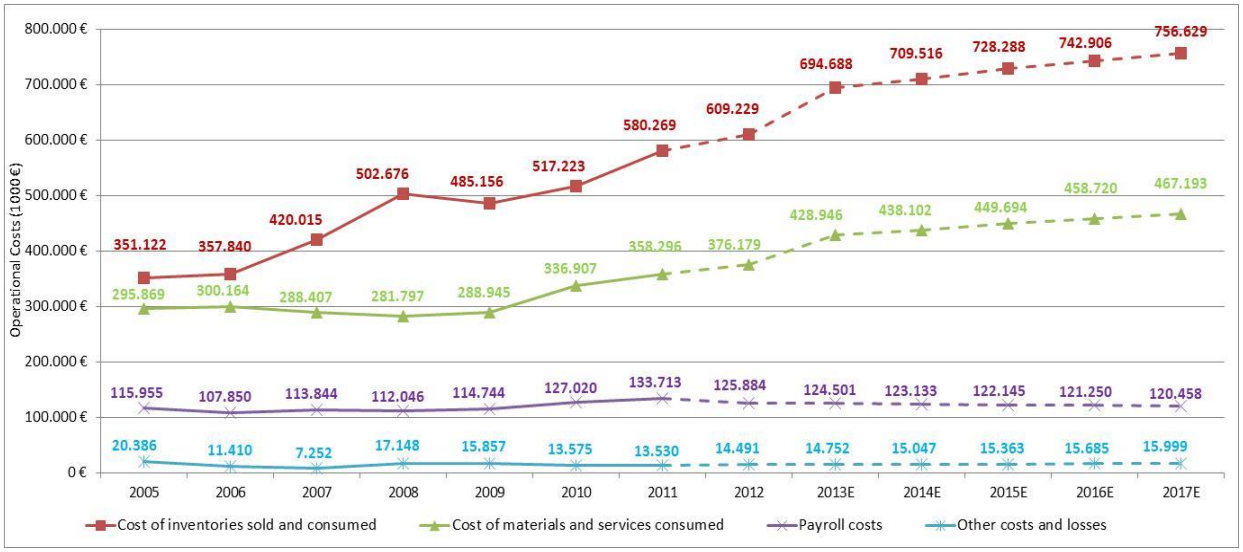

Figure 32: Portucel Operational Costs forecast in 1000 € (Source: Portucel Annual Reports & own calculations)

8.1.2.3. Net Working Capital Assumptions

Current Assets (000€)	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Inventories	131.113	117.556	141.835	240.318	147.269	172.900	188.691	184.665	203.568	203.540	206.720	209.705	213.569
Receivables and other current assets	226.498	249.541	318.463	199.553	168.191	212.840	242.257	271.673	299.483	299.442	304.120	308.511	314.197
State and other public entities	36.132	24.683	35.211	47.070	51.477	32.228	54.684	40.212	40.212	40.212	40.212	40.212	40.212
Total	**483.264**	**660.678**	**880.674**	**709.490**	**419.486**	**551.926**	**753.064**	**680.362**	**707.372**	**687.601**	**775.757**	**746.764**	**719.946**
Current Liabilities													
Payables and other current liabilities	(182.464)	(187.859)	(259.882)	(248.702)	(272.530)	(264.839)	(284.893)	(303.211)	(334.249)	(334.204)	(339.425)	(344.326)	(350.672)
State and other public entities	(27.737)	(40.384)	(81.607)	(38.912)	(55.578)	(49.329)	(79.673)	(53.317)	(53.317)	(53.317)	(53.317)	(53.317)	(53.317)
Total	**(288.440)**	**(238.706)**	**(402.345)**	**(303.708)**	**(659.420)**	**(405.418)**	**(528.652)**	**(618.361)**	**(423.478)**	**(623.432)**	**(428.653)**	**(433.555)**	**(639.900)**
Non-cash Net Working Capital	**183.542**	**163.537**	**154.020**	**199.328**	**38.829**	**103.799**	**121.065**	**140.022**	**155.696**	**155.674**	**158.310**	**160.785**	**163.990**

Figure 33: Portucel Net Working Capital forecast in 1000 € (Source: Portucel Annual Reports & own calculations)

Net working capital was computed as current operational assets net of cash and current operational liabilities. Since 2005 until the opening of the new mills in 2009, net working capital followed a fairly regular path. However, in 2009 there was a strong fall and a visible recovery in the following year, which proceeded until 2012.

For estimation purposes, I considered that each of the net working capital items, from 2012 onwards, followed a percentage of revenues.

Inventories, since 2005, have had a very close connection to revenues, ranging from 11%-13%, with the only exception being 2008, when the value of inventories was 21% of revenues. This value is explained by a one-off situation caused by the 2008 Beijing Olympic Games. In short, what happened was that due to the Olympics in Beijing, many polluting industries closed in China, causing speculation regarding the possible shortage of raw materials for the industry. For this reason the company decided to increase its stocks as a preventive measure. Given the uniqueness of this event, this year's value was disregarded and the 12% average of the other years' inventories/revenues ratio was used for the remaining years.

The same approach was used for the receivables and payables accounts, representing on average 18% and 20% of revenues, respectively.

8.1.2.4. Depreciations and Capital Expenditures Assumptions

After a period of very heavy investment in increasing production capacity for pulp and energy, the company is now channeling its capital expenditures into trouble-shooting its plants, increasing efficiency and cutting costs. These, obviously, are investments of much smaller magnitude.

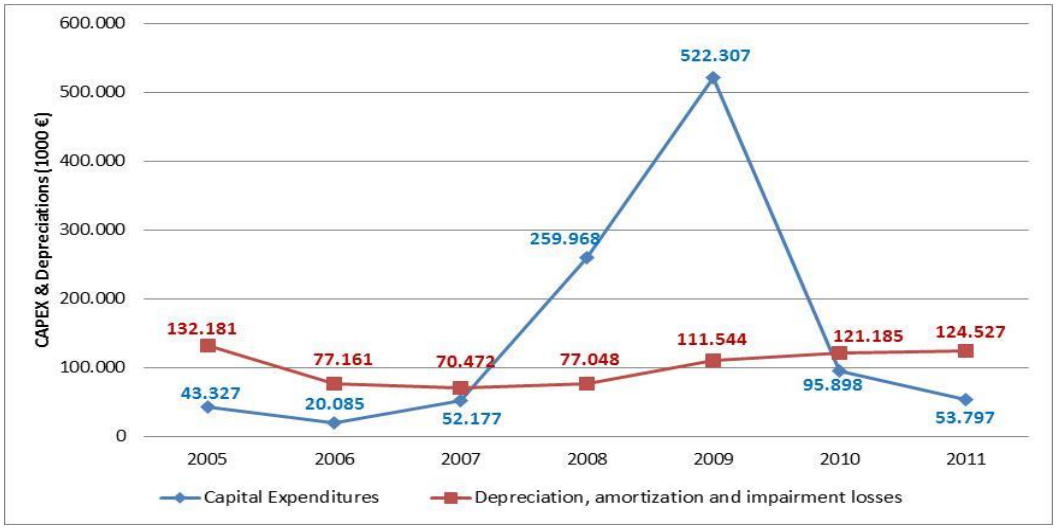

Figure 34: Portucel CAPEX and Depreciations 2005-2011 in 1000 € (Source: Portucel Annual Reports)

For this reason, the 900 M€ invested between 2008 and 2010, which represent the investment planned for the new paper and energy plants, will be removed from the basis period for estimation. On the other hand, the value for the first semester of 2012 will be considered for estimation, in order to widen the relevant period.

By averaging the CAPEX outside the 2008-2010 period, we obtain 42.346 €. If we consider that the value reported in the first semester of 2012 (20.104 €) will be the same in the second semester, we get a value of 40.208 €, which is consistent with the value in the previous years. Thus, the value considered for the explicit period will be the average between 2005-2007 and 2011-2012, growing at the inflation rate.

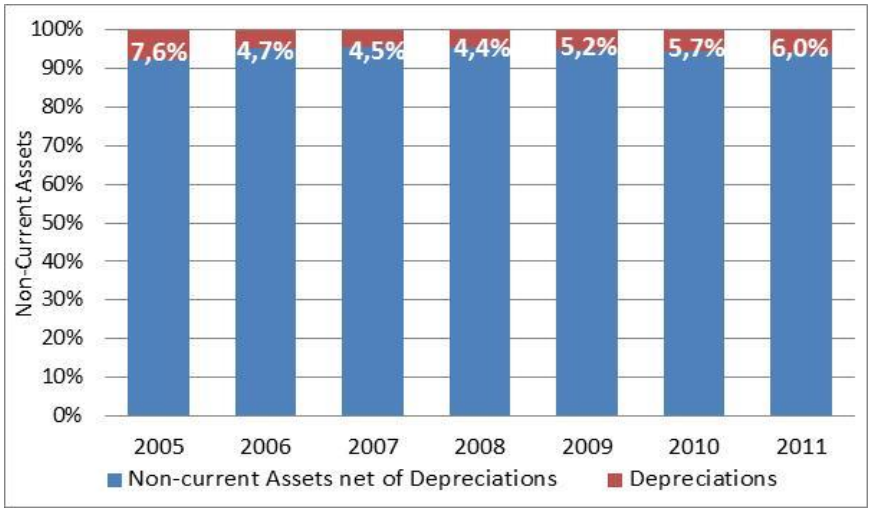

Figure 35: Depreciations as a % of Non-Current Assets (Source: Portucel Annual Reports & own calculations)

Regarding depreciations, we can see that they seem to have a close relation with non-current assets, averaging 5,5% of the total non-current assets value. However, this assumption would be too general and possibly misleading.

Furthermore, if we observe the annual change in every line of the non-current assets, we can see that the only one that had annual variations representing more than 1% of the total non-current assets since 2005, was the Property, Plant and Equipment line (see Appendix 9). For this reason, this will be, by far, the key driver of the total non-current assets value.

Taking a closer at Portucel's non-current assets we can see that goodwill hasn't changed since 2004. Therefore it will be assumed to remain constant from here on, as it has in the past, since there is no prospect of any acquisitions that may affect the company's goodwill.

Regarding the biological assets the assumption was that they would grow in line with the expansion project mentioned in section 8.1.2.1 (wood revenues). Besides the growth required to increase the plant nursery capacity from 7,4 million to 12 million plants per year in 3 years' time, the previous years' biological assets were assumed to be consumed at the average yearly rate at which they were consumed in the past (1,8%).

For the other tangible assets, biological assets, available-for-sale financial assets, investment in associates and deferred taxes half-year value was used for 2012 and the assumption for the years in the remaining of the explicit period was that the value was the average of the historical period analyzed. The basis for this decision was the fact that the past evolution showed no clear pattern or direct link with the company's operations.

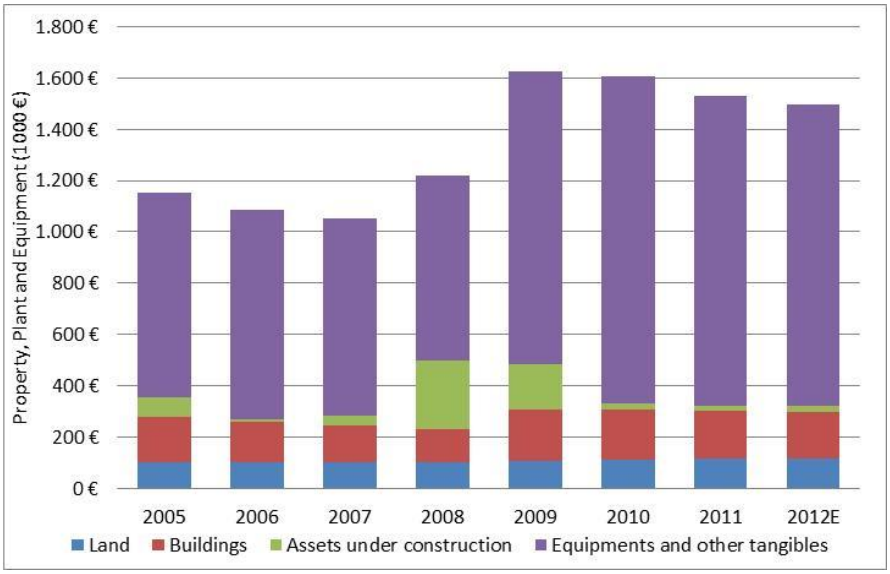

Figure 36: Portucel Property, Plant & Equipment 2005-2012 in thousands of € (Source: Portucel Annual Reports & own calculations)

Regarding the Property, Plant and Equipment's value, a more detailed analysis is necessary. First of all, a breakdown of the value shows us a more detailed picture. It is perceptible that during 2008 and 2009 there were more assets under construction and, as expected, the overall value of buildings, equipments and other tangibles increased. Excluding this period, it is visible from Figure 37 that the year-to-year evolution is a negative one, reflecting the yearly depreciations of the equipments.

Property, Plant and Equipment annual growth	2006	2007	2008	2009	2010	2011	2012E	Average
Land	0%	0%	3%	5%	1%	5%	1%	**1,9%**
Buildings	-10%	-10%	-12%	58%	-1%	-5%	-2%	**-6,6%**
Equipments and other tangibles	2%	-6%	-6%	59%	11%	-5%	-3%	**-3,6%**

Figure 37: Portucel Property, Plant & Equipment annual growth 2005-2012 (Source: Portucel Annual Reports & own calculations)

Regarding the assets under construction, there isn't a linear growth. Therefore I will assume the average value of the period, excluding 2008 and 2009. Contrariwise, land has had a very linear growth, increasing every year since 2007 and averaging +1,9% since 2005, which will be assumed as the annual growth rate for the future as well.

The equipments and buildings behave differently since they are depreciated every year and were affected by the 2008-2009 investment. As can be seen in Figure 37, which is considering only the relevant period, the buildings' value was decreasing at a constant -10% yearly rate before 2009. After that it has reduced at an average -3% per year (2010-2012), which will be assumed to be the rate for the explicit period.

The equipments value has behaved more irregularly year-to-year, however it averaged roughly -3,5% annually both before and after the investment plan. Thus, this will be assumed to be the equipments and other tangibles' annual growth rate until 2017.

Depreciation rate	2006	2007	2008	2009	2010	2011	2012E	Average
Buildings	7%	7%	8%	6%	5%	3%	3%	**5,6%**
Equipment	6%	6%	8%	8%	8%	9%	8%	**7,6%**

Figure 38: Portucel annual depreciation rate 2005-2012 (Source: Portucel Annual Reports & own calculations)

Having the estimated Property, Plant and Equipment values, discriminated by category, we can estimate the corresponding depreciation rates. The logical approach is to use the average historical value verified during the last cycle. These rates can be used for buildings and equipments, however, other tangibles and intangibles' depreciation rates can't be directly computed this way. Regarding intangible asset depreciations, the value was constant between 2007 and 2010 and the value in 2011 was reversed in 2012. Therefore, the 2007-2010 value will be considered to remain constant for the future as well. As for other tangibles' depreciations, given their irregular pattern, the lack of data concerning them and the unpredictability of the direction of their growth, an average of the entire cycle will be assumed for the explicit period.

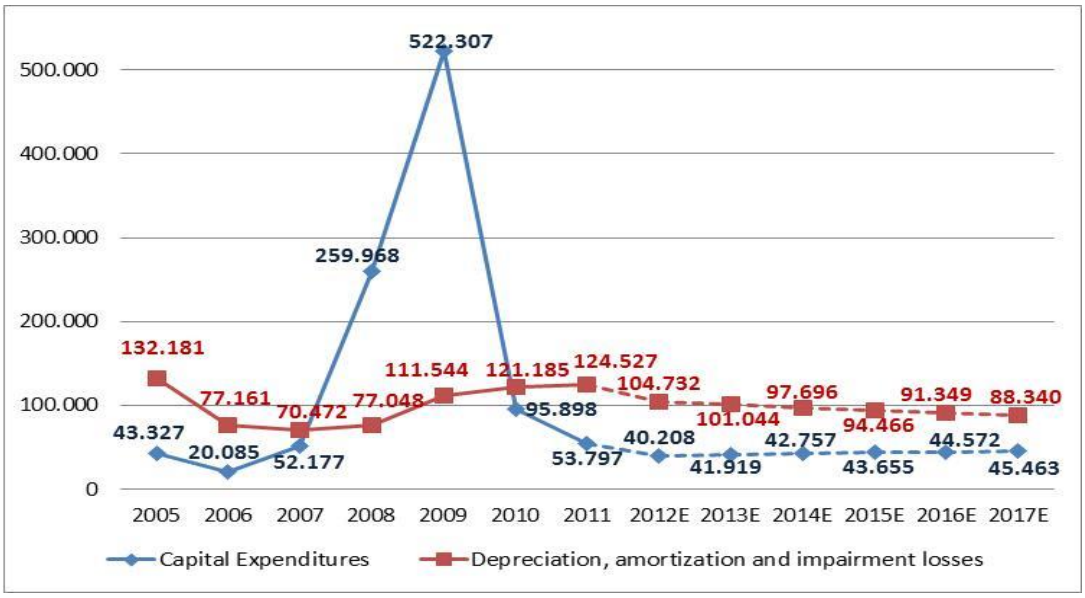

Figure 39: Portucel CAPEX and Depreciations forecast in 1000 € (Source: Portucel Annual Reports & own calculations)

8.1.2.5. Debt and interest Assumptions

Portucel's interest bearing liabilities totaled 731 M€ by the end of 2011. This contrasts with a peak in 2010. This peak, along with 2005, represents the issue of bonds. In 2005, Portucel issued a total of 350 M€ in bonds, in two separate issues: 150 M€ maturing in October 2012 and 200 M€ maturing in May 2013. In 2010 it issued another two different sets of bonds worth 100 M€ each, one expiring in January 2015 and the other in the following month.

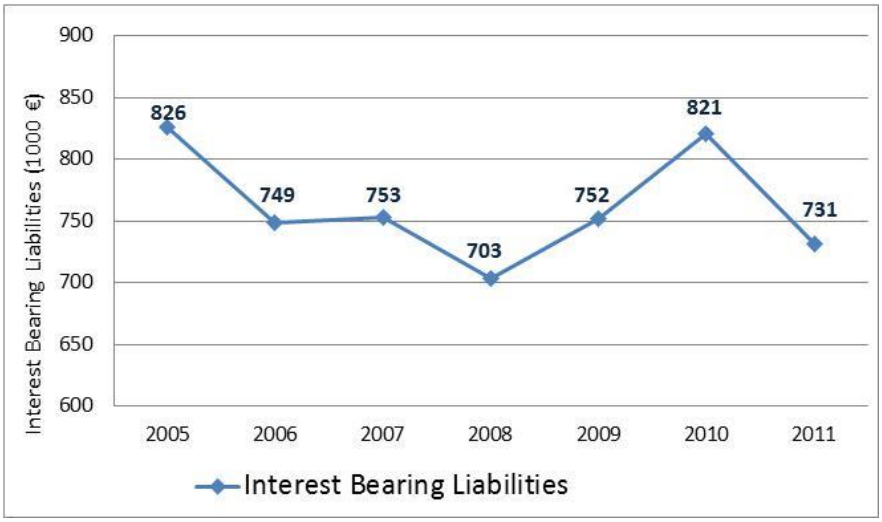

Figure 40: Portucel Interest Bearing Liabilities in M€ (Source: Portucel Annual Reports)

As of the last available report, the 2012 interim report, the outstanding bonds accounted for a total of 550 M€ (see Figure 41). However, in October 2012 one of these loans, worth 150 M€ is expiring. For this reason, we must wonder how Portucel will repay this loan.

Amounts in Euro	Amount	Maturity	Reference interest rate
Bond loans			
Portucel 2005 / 2012	150,000,000	Oct 2012	Euribor 6m
Portucel 2005 / 2013	200,000,000	May 2013	Euribor 6m
Portucel 2010 / 2015 - 2nd emission	100,000,000	Feb 2015	Euribor 6m
Portucel 2010 / 2015	100,000,000	Jan 2015	Euribor 6m
	550,000,000		

Figure 41: Portucel Bond Loans Outstanding as of June 30th 2012 (Source: Portucel Interim Report 2012)

Although it has 179 M€ worth in "other treasury applications", I will assume that the company will turn to the markets to finance the bond payout. In fact, this was the strategy undertaken in 2010, when the last bond loan was repayed. Indeed, in that occasion Portucel repaid a 325 M€ by reissuing bonds worth 200 M€ and obtaining 115 M€ worth in banks loans. The remaining 10 M€ were paid using cash.

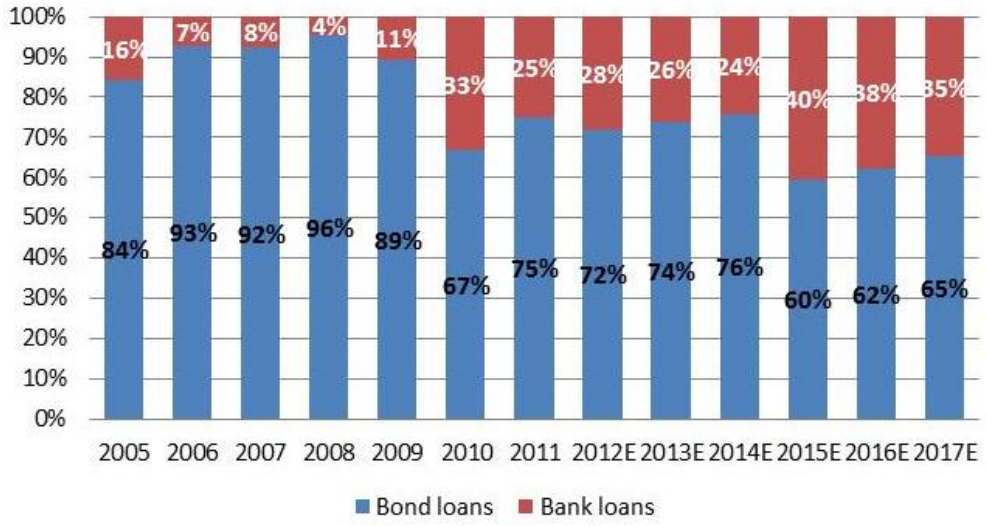

Figure 42: Portucel Bond Loans vs Banks Loans as a % of Total Interest Bearing Liabilities forecast (Source: Portucel Annual Reports & own calculations)

If we look at the company's historic loan structure, we can see that bonds are predominant, although that tendency seems to be reducing in recent years.

With this in mind, I will assume that the company will keep the ratio of bonds/bank loans above, but closer to, 1. This means that the percentage of bond loans over total loans will remain above 50%, although lower than the 2005-2011 period average of 85%.

That being said, the assumption will be that in 2012 and 2013, when the bond loans worth 150 M€ and 200 M€ expire, Portucel will issue new bond loans worth the same nominal value, with a 5 year maturity and indexed to the Euribor 6m rate. In 2015, when two 100 M€ bond loans mature, I will consider that the company issues 100 M€ in bonds and 200 M€ in bank loans to rebalance the debt level and structure. This bank loan is assumed to be in line with the previous bank loans: 12 years maturity, semi-annual installments and an interest rate indexed to the Euribor 6m.

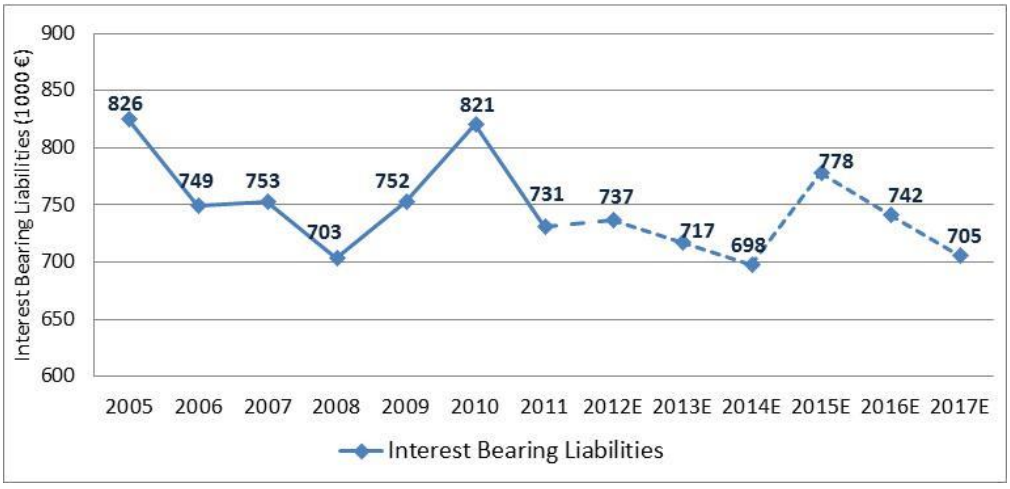

Figure 43: Portucel Interest Bearing Liabilities foreacast in M€ (Source: Portucel Annual Reports & own calculations)

The existing bank loans were obtained in 2009 and 2010 and are well detailed in the company's 2011 annual report. The table below shows the key details of the outstanding bank loans as of 2012:

Issue date	2009	2010	2010
Amount	65.000€	30.000€	85.000€
Maturity	10	11	14
Installments	4.643	1.667	3.542
Interest rate	Euribor 6m + variable spread	Euribor 6m + fixed spread	Euribor 6m + fixed spread

Figure 44: Portucel Outstanding Bank Loans as of June 30th 2012 (Source: Portucel Interim Report 2012 & own calculations)

The repayment plan can be computed in detail and the assumption will be that the company uses its available cash and other treasury applications to repay debt.

Euribor 6m	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
	2,22%	3,19%	4,31%	4,15%	1,52%	1,07%	1,64%	0,92%	0,62%	1,23%	2,46%	3,08%	3,70%

Figure 45: Euribor 6m forecast (Source: The Economist Intelligence Unit & own calculations)

The interest rates are indexed to the Euribor 6m. This rate was estimated using annual averages for past values and the same growth pattern expected by The Economist Intelligence Unit for the main policy interest rates, applied by the European Central Bank (see Figure 10 and Appendix 5), for the explicit period. The Euribor 6m rate is thus expected to start recovering in 2014, growing consistently until 2017.

The interest rate for Portucel will be the Euribor 6m plus the estimated default spread for the company. Assuming a BBB rating, which is in line with the BESI research, and using Damodoran's model (see Appendix 10) to estimate the associated spread, we can add the 2,5% spread to each of the estimated annual Euribor 6m, reaching the final cost of debt.

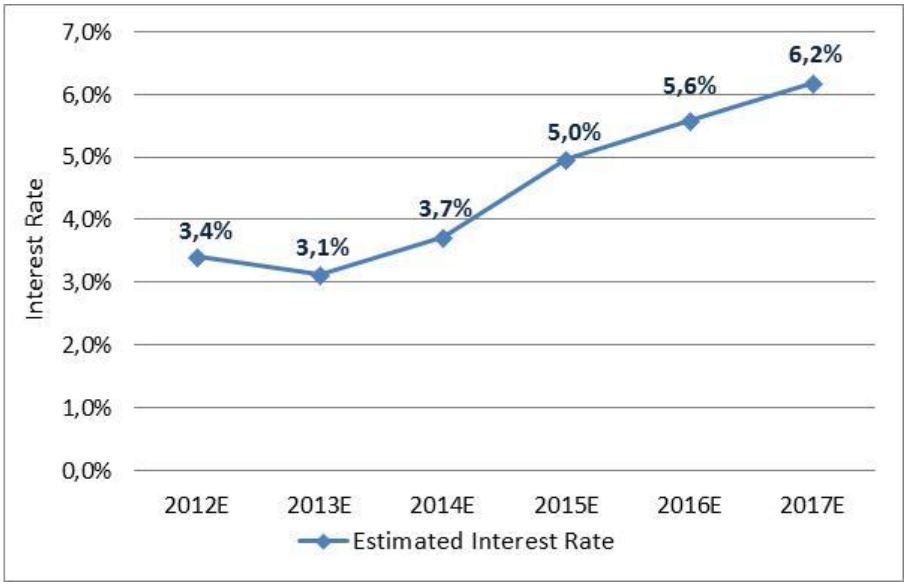

Figure 46: Portucel Interest Rate forecast (Source: Portucel Annual Reports, BESI research paper, The Economist Intelligence Unit & own calculations)

8.1.2.6. Other Assumptions

Having projected all the major components of the income statement for the explicit period, there are still some details to be outlined.

The effective income tax rate for 2013-2017 was estimated based on the historical difference between expected and effective income tax rates. Since 2005, effective income tax was -3,4% lower than the expected income tax rate. This differential will be applied over the 31,5% income tax rate set for 2012, yielding a 28,1% effective income tax rate. The same rate was assumed for 2013. For the 2014-2017 period it was assumed that the income tax rate will be reduced back to the 29% of 2011 and thus the effective income tax rate for this period will be 25,6%.

The Other Operating Income line refers to a number of gains non-related to any of the operational segments of the company. Such gains include gains on the sale of non-current assets, CO_2 emission allowances and government grants, amongst other supplementary gains. Given the unpredictable nature of these gains and their lack of impact in the final results, the assumption made was that the value in 2012 is equal to the average of the 2005-2011 values and in the following years it grows at the inflation rate.

The rubrics of non-controlling interests and share of gain/loss of associated companies have no impact on the final net profit and there is no thorough information about them. For this reason and given the lack of importance for the analysis at hand, it was assumed that the value will be constant and equal to the average of the previous periods.

Pensions and other post-employment benefits, provisions and other non-current liabilities were forecasted as a function of their historical proportion of the non-current liabilities net of non-current interest bearing liabilities.

Deferred tax assets don't seem to be directly impacted by economic cycles or even operational profits. In fact, deferred tax assets' main differences from year-to-year are "adjustments in fixed assets" and "valuation of biological assets", which together account for about two thirds of the annual differences. Consequently, the assumption made was that the ratio between deferred tax assets and Property, Plant and Equipment + Biological Assets will remain stable and equal to the 2005-2012 period's average of 2,5%.

The dividend policy of the company has been, since 2005, to distribute between 50%-60% of net profit to shareholders. The only exception was 2010, when no dividends were distributed. In compensation, though, in 2011 the dividends distributed were 84% of the year's net profit. Therefore, I will assume that the stable distribution of dividends will continue in the future with a yearly distribution of 55% of net profit.

8.1.2.7. Terminal Value Assumptions

The terminal value is computed after the explicit period of 6 years, ending in 2017. Since the method used is the WACC method, we must estimate the terminal Ke, Kd, tax rate and growth rate.

The terminal tax rate used was 25,6%, which is the estimated effective tax rate for the period after the post-crisis stabilization (2014-2017).

The same reasoning was used to estimate the cost of debt. However, since the value wasn't the same in the last three years of the explicit period, an average was computed, yielding a perpetual Kd of 5,6%.

Regarding Ke, the formula used was:

Ke = Rf + country risk premium + (beta * German market premium)

In this case further assumptions are necessary. The risk-free rate was assumed to be equal to the German 10-year government bond yield, which is 1,37% (see Appendix 11). The country risk premium for Portugal is the spread vs bund, which is equal to 6,30%, while the total German market premium is 6%, according to Damodaran's estimation in 2012 (see Appendix 12). Assuming the beta of 0,89 used by Reuters (see source [December 12th 2012]: http://www.reuters.com/finance/stocks/overview?symbol=PTI.LS) to value Portucel in 2012, Portucel's Ke is 13%.

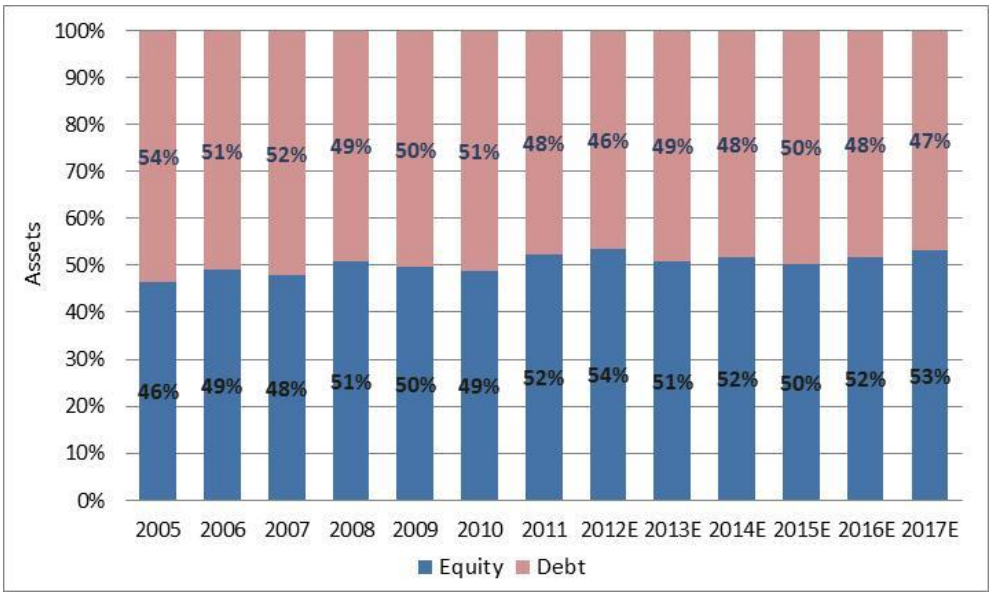

Figure 47: Portucel estimated Debt/Equity Ratio (Source: Portucel Annual Reports & own calculations)

Finally, it is necessary to estimate the perpetual D/E ratio. Looking at the historical values we can see that debt has been fairly consistent and oscillated between 48%-54% of assets, averaging 50,2% through the 2005-2012. Considering the previous assumptions regarding debt and the companies' historical behavior it seems fair to assume a target debt to assets ratio of 50%.

t =	25,60%
Rf =	1,37%
Country risk premium =	6,30%
Beta =	0,89
E/V =	0,50
German market premium =	6%
Kd =	5,6%
Ke =	13,0%
g =	2%
WACC =	8,6%

Figure 48: Portucel WACC calculation (Source: Portucel Annual Reports, Reuters, Bloomberg, The Economist Intelligence Unit, damodaran.com & own calculations)

WACC calculation is straightforward using the formula shown in section 5.3 and yields a discount rate of 8,6%. Assuming a 2% perpetual growth rate, in line with the estimated inflation rate and slightly below the estimated worldwide GDP growth rate of 3% (see Appendix 4), the terminal value can be computed. By discounting the estimated FCFF for each of the explicit period's years and the terminal value by the WACC rate we have the present values, which added up yield an enterprise value for Portucel of 2.842 M€.

000€	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	Terminal
EBIT * (1-tax)	99.148	155.728	193.680	134.762	98.267	206.696	198.020	212.066	215.448	205.993	210.159	226.248	209.687	
Depreciations and amortizations	132.181	77.161	70.472	77.048	111.544	121.185	124.527	104.732	101.044	97.696	94.466	91.349	88.340	
(Capital Expenditures)	(43.327)	(20.085)	(52.177)	(259.968)	(522.307)	(95.898)	(53.797)	(40.208)	(41.919)	(42.757)	(43.655)	(44.572)	(45.463)	
(Change in Non-Cash Net Working Capital)	(30.991)	20.006	9.517	(45.308)	160.499	(64.970)	(17.267)	(18.957)	(15.674)	23	(2.637)	(2.475)	(3.205)	
FCFF	**157.010**	**232.810**	**221.492**	**(93.467)**	**(151.996)**	**167.012**	**251.485**	**257.633**	**258.898**	**260.955**	**258.334**	**270.550**	**249.359**	**2.748.038**
								PV =	238.438	221.340	201.800	194.642	165.219	1.820.783

Figure 49: Portucel FCFF and Terminal Value calculation in thousands of € (Source: Portucel Annual Reports & own calculations)

In order to compute the company's market capitalization we must deduct the net debt and minority interests. From this value we can arrive at the recommended share price by dividing the market capitalization by the number of outstanding shares, thus yielding a final share price of 3,19€.

Enterprise Value	**2.842.223**
Net debt	(462.450)
Minority Interests	(11)
Market Cap	**2.379.763**

Total # of shares	767.500.000
Repurchased shares	22.111.382
Outstanding shares	**745.388.618**

Share price	**3,19 €**

Figure 50: Portucel Enterprise Value, Market Cap and Share Price calculation in thousands of €(Source: Portucel Annual Reports & own calculations)

This share price suggests a 40% upside potential when looking at the market share price of 2,28 € as of the closing of the 31/12/2012 trading session. From the graph below it is visible that in the first month of 2013 Portucel's shares have traded above 2,60 € per share for the first time since October 2007, immediately before the crisis hit and the stock plummeted to its lowest values in 2009, until the opening of the Setúbal mill in mid-2009, which allowed the company's stock value to bounce back.

It is also evident that in mid-2011 the company's stock suffered a new downturn, which continued throughout 2012, right up to the end of the year when it started a clear recovery, reaching its highest value since 2007. This tendency, although recent, corroborates the earlier assumption that 2013 will be the start of the economy's recovery, closing a cycle that started in the end of 2007, lasting from 5 to 6 years.

Figure 51: Portucel Share Price 2006-2013 (Source: Yahoo Finance)

8.1.3. Multiples Valuation

The peer group was obtained through an analysis of the European companies operating in the paper/forest industry, according to Damodaran's database (http://pages.stern.nyu.edu/~adamodar/). The most current information available refers to data from January 2012, which is consistent with the data used from the 2011 annual report, although the values are in $. Whenever necessary, currency conversion rates from January 2012 were used, although multiples and ratios' calculation shouldn't be affected by the currency used.

These values differ slightly from the ones computed above, but the values used by Damodoran will be used as a comparison basis for the purpose of choosing the most appropriate peer group. The rationale behind this decision is that the assumptions made by Damodaran should be comparable between all the companies in this list.

After selecting the broad industry and market, the first filtering criteria was to exclude every company with market cap below $ 500 M, which leaves the following group of companies to be used as a base for defining the most appropriate peer group:

Company Name	Country	Market Cap (in US $)	Total Debt (in US $)	Enterprise Value (in US $)	Current PE	Trailing PE	Forward PE	PBV	EV/EBIT	EV/EBITDA	Historical growth in Revenues - Last 5 years	Expected growth in revenues - Next 2 years	Return on Capital (ROC or ROIC)	Net Profit Margin
M-real Oyj	Finland	$575,00	$1.596,20	$1.707,30	15,33	NA	NA	0,46	NA	5,98	-14%	-8,07%	-1,55%	-3,23%
Grupo Empresarial Ence SA	Spain	$579,60	$395,80	$891,00	6,68	8,89	9,19	0,59	6,88	3,65	7%	-0,78%	9,97%	5,70%
Ahlstrom Oyj	Finland	$588,20	$463,80	$1.023,80	24,51	NA	35,77	0,71	19,28	4,35	4%	-8,78%	4,52%	-1,27%
Billerud AB	Sweden	$878,70	$119,00	$876,50	8,38	6,96	11,06	1,25	4,93	3,80	6%	-0,47%	24,67%	9,05%
Portucel- Empresa Produtora de Papel SA	**Portugal**	**$1.785,90**	**$1.034,00**	**$2.553,80**	**6,32**	**6,63**	**7,86**	**0,93**	**7,43**	**4,73**	**7%**	**2,89%**	**15,33%**	**13,55%**
Holmen AB	Sweden	$2.422,90	$902,70	$3.310,30	23,12	13,92	13,85	0,98	13,75	9,87	1%	2,74%	7,16%	6,34%
Mondi plc	United Kingdom	$3.407,40	$1.804,70	$5.164,20	11,34	7,18	8,63	0,72	5,47	4,41	NA	-3,95%	17,84%	5,10%
Stora Enso Oyj	Finland	$4.832,80	$5.843,50	$9.085,10	4,70	6,50	5,67	0,60	10,36	5,76	-3%	2,26%	7,45%	4,97%
UPM-Kymmene Oyj.	Finland	$5.801,50	$6.138,60	$11.489,60	7,71	8,65	8,32	0,60	21,91	6,43	-1%	7,57%	3,92%	5,12%
Svenska Cellulosa Aktiebolaget, SCA	Sweden	$10.419,90	$5.657,20	$15.650,70	12,61	12,62	11,89	1,08	11,70	6,66	1%	0,19%	11,03%	5,22%

Figure 52: European Paper/Forest Companies with Market Cap > $ 500 M in thousands of $ (Source: Damodaran.com)

After a detailed analysis of each company's operations, we can exclude SCA because it operates in a much broader range of industries than the remaining companies (e.g. diapers, feminine care, tissues, etc.). All the other companies operate in the wood processing and pulp and paper industry, with some small variations, such as producing paper packaging material.

Following Goedhart, Koller and Wessels' (2005) advice, the next triaging step was ROIC and expected growth. According to these criteria, M-real Oyj, Ahlstrom Oyj and UPM-Kymmene Oyj were excluded. The reason was that they combined very different growth expectations with the lowest ROIC ratios, with a significant discrepancy compared to Portucel.

Additionally, M-real Oyj had the lowest (the only one below 50%) and more distant PBV compared to Portucel, there was no information on trailing and forward PE, but the current PE was more than double that of Portucel, the debt to Enterprise Value ratio was the highest and the historical growth was dramatically low. While Ahlstrom Oyj had a very discrepant forward PE and was, along with M-real Oyj, the only companies with negative net profit margins.

UPM-Kymmene Oyj added to the previous arguments the fact that they were, along with Ahlstrom Oyj, the only companies with more than double the EV/EBIT of Portucel and historical growth rates that show they are not following the same trends as Portucel.

Company Name	Forward PE	PBV	EV/EBIT	EV/EBITDA
Grupo Empresarial Ence SA	9,2	0,59	6,9	3,6
Billerud AB	11,1	1,25	4,9	3,8
Holmen AB	13,8	0,98	13,7	9,9
Mondi plc	8,6	0,72	5,5	4,4
Stora Enso Oyj	5,7	0,60	10,4	5,8
Average	**9,7**	**0,8**	**8,3**	**5,5**
Portucel implied valuation:	Market Cap **1.900.837 €**	Market Cap **1.356.076 €**	Enterprise Value **2.359.140 €**	Enterprise Value **2.143.027 €**

Figure 53: Portucel's Peer Group in thousands of € (Source: Damodaran.com & own calculations)

From these five companies, which were considered as Portucel's peer group, we can compute the implied multiples' valuation of Portucel, under each of the chosen Multiples. In general

terms, we can see that the DCF valuation places Portucel at a higher market price compared to its peers, with the 2.8 B€ Enterprise Value and 2.4 B€ Market Capitalization not being met by any of the chosen multiples, using the peer group's multiples average.

This was expected for the PBV multiple, as it is an asset based multiple and Portucel's value is in its operations and not the assets themselves. However, even using the forward PE multiple, the implied share price is 2,55€, which is 20% below the DCF based estimation. This could be the effect of using the peer multiples from 2012, when companies in general were undervalued due to the ongoing crisis. Another possible explanation would be the fact that the multiple is based in the earnings from a single year, which for a cyclical company could compromise the analysis. However, the fact is that using an average of the earnings throughout the whole cycle, in this case, doesn't present a different conclusion. In general though, the PE is not the most appropriate multiple due to the company's high depreciations and CAPEX.

Concerning the EV based multiples, which yield fairly similar estimates for the company's EV (both below the DCF estimated EV) the analysis is very similar. The EV/EBIT multiple yields a 2,54€ implied share price, while EV/EBITDA implies a price of 2,25€ per share. Using an average of the two, the implied share price would be 2,40€ per share, 33% below the DCF estimated value.

However, if we consider the highest and lowest multiples within the peer group, it becomes clear that the DCF estimated value of 3,19€ per share is clearly within the reasonable range of values, using either the forward PE or the EV/EBIT and EV/EBITDA average.

Share Price	Forward PE	EV/EBIT & EV/EBITDA
Lowest	1,49 €	1,28 €
Average	2,55 €	2,40 €
Highest	3,65 €	4,59 €

Figure 54: Portucel share price (Source: Damodaran.com & own calculations)

8.2. Secil Group

After the acquisition of the remaining shares of Secil, the Group increased its importance in the valuation of Semapa. However, as of the first semester of 2012, Secil's revenues accounted for 20% of the whole Group, while its EBITDA represented only 9,5% of Semapa's total EBITDA.

Nevertheless, it still has some impact in the overall valuation and therefore a DCF valuation will be conducted for the Secil Group as well as a Multiples' valuation.

8.2.1. Discounted Cash Flow

Considering that the Secil Group represents only about one third of Portucel, the DCF analysis will be more compact, focusing on the broader value drivers.

8.2.1.1. Industry Analysis

As explained in section 6.2, the company operates mainly in the cement industry and the larger part of the sales are conducted in Portugal, although the aggregated international sales account for roughly 50% of the company's total revenues.

In contrast with Portucel, which operates in over one hundred countries, with very disperse origins of revenues, Secil has 88% of its revenues originating from four countries: Portugal, Lebanon, Tunisia and Angola. For this reason, the valuation and the industry analysis will be done segmented by geography.

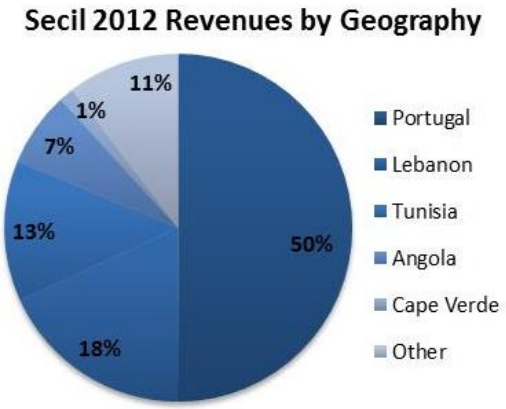

Figure 55: Secil Revenues by Segment 2011 (Source: Secil Annual Report 2011 & own calculations)

The main driver of value for Secil is the cement consumption. This model will be based on the assumption that cement consumption per capita is indexed to GDP per capita to some extent. Cement consumption per capita is higher for developing countries and declines when a country reaches a certain level of GDP per-capita and development. The rationale is that as a country grows it will need more cement to build the necessary infrastructures. However, when a certain threshold in development is achieved not much more infrastructures are needed. At this point the level of cement consumption per capita will gradually decrease.

This reasoning will be applied to estimate Secil's operations in Portugal, Tunisia, Lebanon, Angola and Cape Verde, the only geographies that are discriminated in the reports.

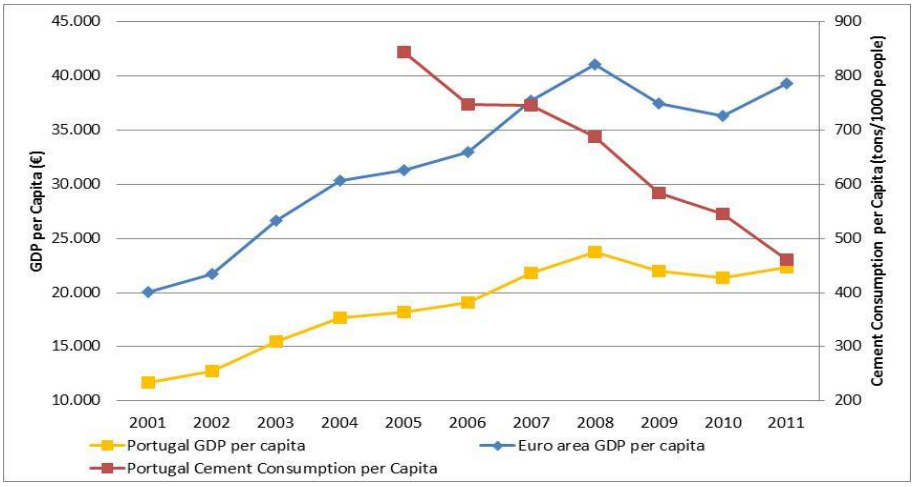

Figure 56: Portugal & Euro Area GDP per capita in current € vs Cement Consumption per Capita in tons/1000 people (Source: The World Bank & Secil Annual Reports)

Portugal's GDP per capita, although smaller, is following roughly the same trend as the Euro Area's average, growing at an average 4% since 2004. Although we can expect it to grow in the future, the growth will not be as high as it was in the early 90's. The high cement consumption times have passed which in clear from the steep decline in the cement per capita indicator, despite residual population growth. Expectations are that cement consumption will continue to decline, although the annual decline will tend to stabilize as the economic situation does and as the cement consumption reaches the "maintenance only" level.

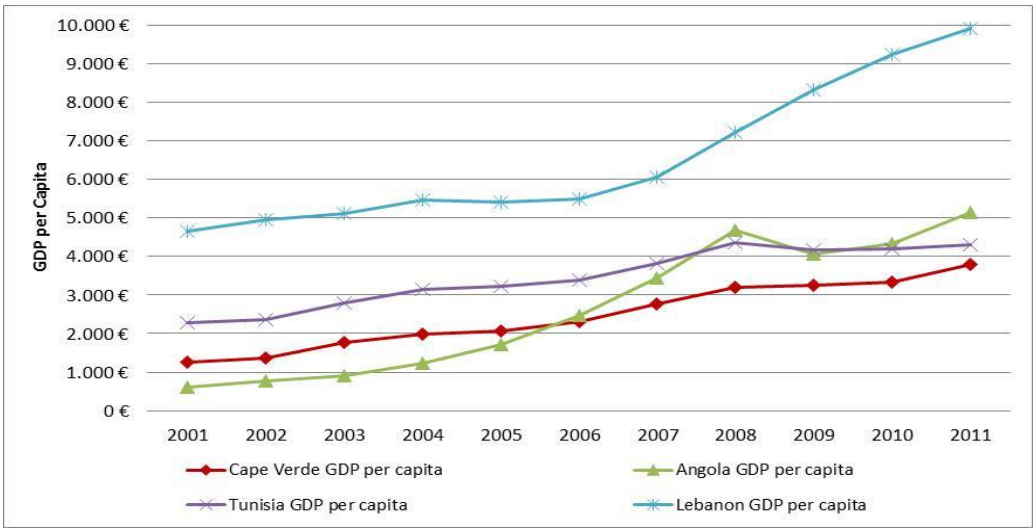

Figure 57: GDP per capita in current € (Source: The World Bank)

The situation for the remaining countries where Secil operates is significantly different. We can see that the GDP per capita, since 2001, has grown 7%-8% in Lebanon and Tunisia, 12% in Cape Verde and 25% in Angola. However, the period after 2006 must be pointed out in Lebanon, with an average GDP per capita annual growth of 13%.

Cape Verde, the smallest segment of Secil, used to have a GDP per capita twice as high as Angola in 2001. However, nowadays, Angola's GDP per capita is nearly double that of Cape Verde, having also surpassed the GDP per capita of Tunisia for the first time in 2008.

For a better picture of each segment we can take a look at each one individually and compared to the cement consumption per capita:

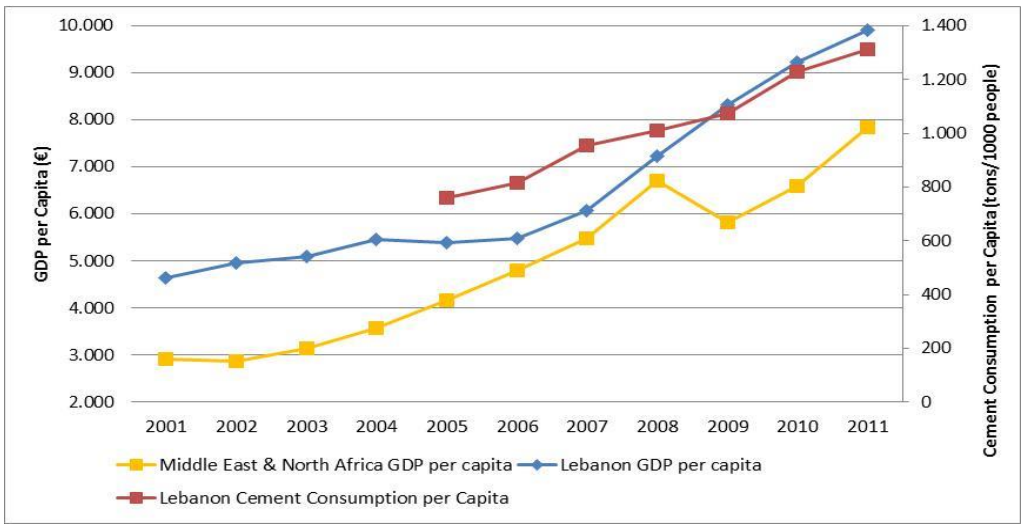

Figure 58: Lebanon & Middle East and North Africa GDP per capita in current € vs Cement Consumption per Capita in tons/1000 people (Source: The World Bank & Secil Annual Reports)

Lebanon has grown in line with the Middle East & North African average but with smaller volatility. Cement consumption has gone along with the GDP per capita's growth. However, the double digit growth rates in cement consumption cannot last forever, so we can expect to see a reduction in the growth rates for cement consumption, while they continue to grow in the future.

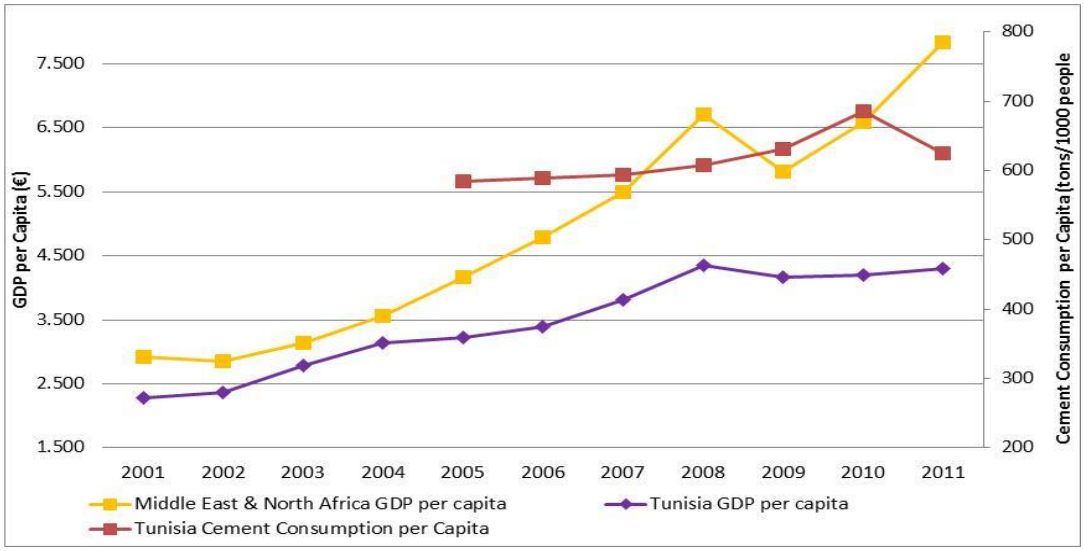

Figure 59: Tunisia & Middle East and North Africa GDP per capita in current € vs Cement Consumption per Capita in tons/1000 people (Source: The World Bank & Secil Annual Reports)

In Tunisia the GDP per capita growth has been more modest, averaging only 5% since 2004 and 6% since 1989 (vs 11% in Lebanon). Tunisia's annual growth and GDP per capita are still below the Middle East & North African average. For these reasons it is realistic to assume that the cement consumption growth will continue in the future as GDP per capita is expected to speed up in the future. However, the slow growth in the past and the slump in 2011 suggest that cement consumption growth will not be as prominent as in Lebanon.

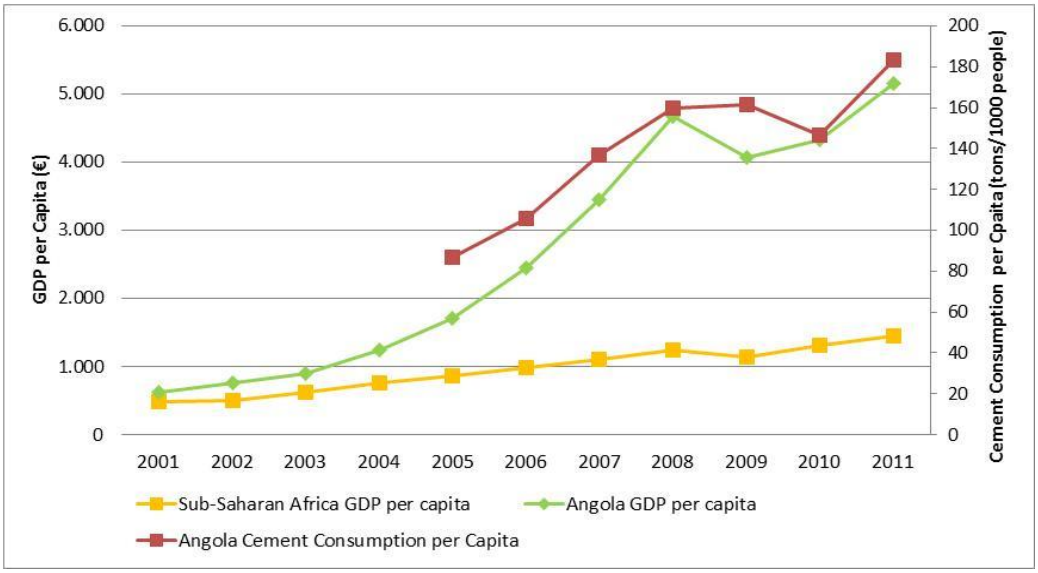

Figure 60: Angola & Sub-Saharan Africa GDP per capita in current € vs Cement Consumption per Capita in tons/1000 people (Source: The World Bank & Secil Annual Reports)

Angola has been one of the fastest growing countries in the last decade, with annual growth rates above 20%. Cement consumption has naturally followed that tendency. Given the country's potential and the still developing nature of its construction industry, it is realistic to assume that the high growth rates will continue in the near future.

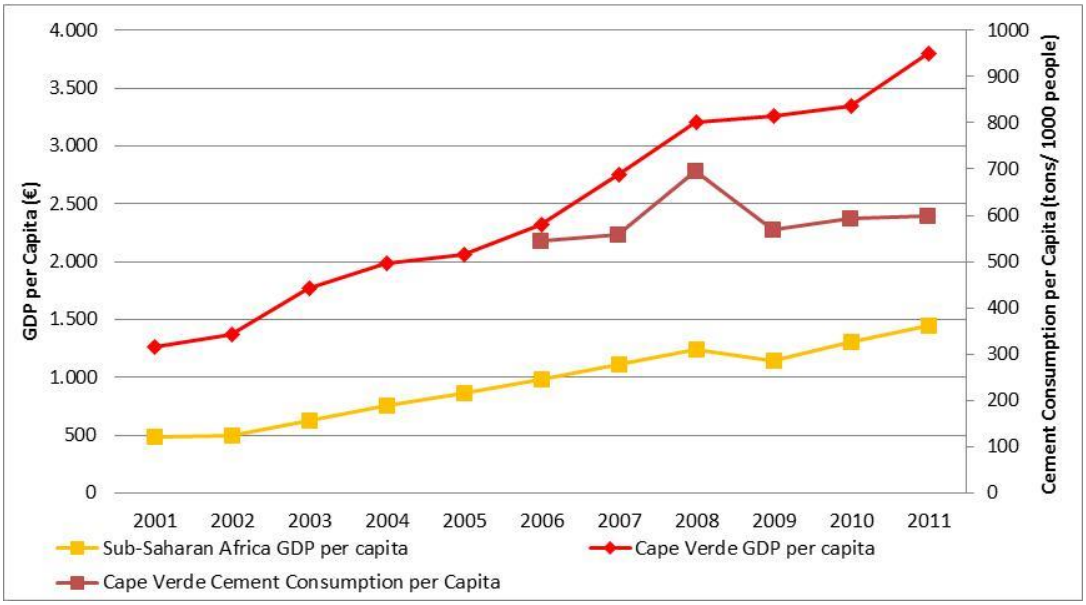

Figure 61: Cape Verde & Sub-Saharan Africa GDP per capita in current € vs Cement Consumption in thousands of tons (Source: The World Bank & Secil Annual Reports)

In Cape Verde, despite the high growth in GDP per capita, cement consumption hasn't boomed yet having averaged only 4% since 2005. Expectations are that it will happen sometime in the future. For this reason, cement consumption should tend to increase gradually in the near future and boom sometime later in the future.

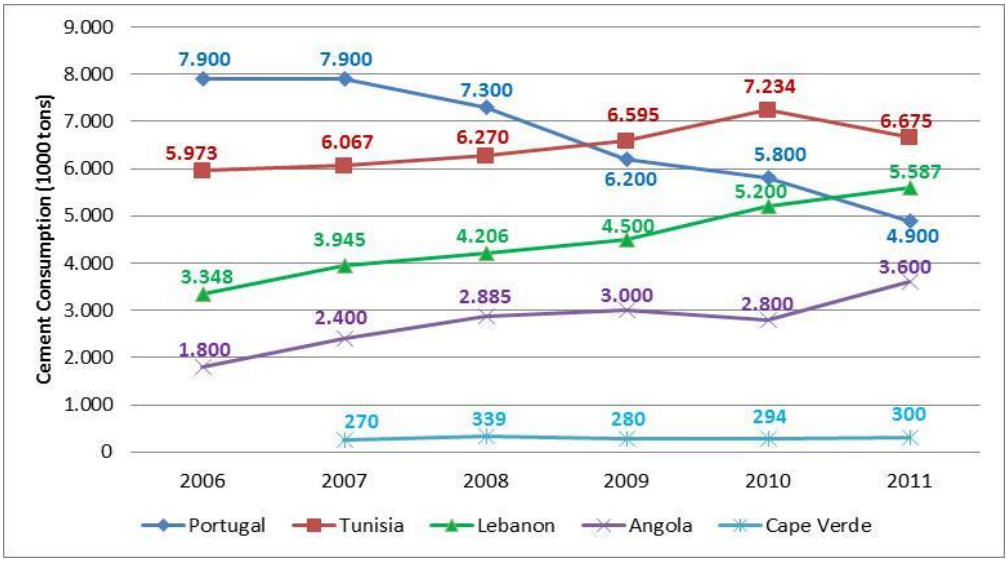

Figure 62: Cement Consumption in thousands of tons (Source: Secil Annual Reports & own calculations)

As we can see in Figure 62 above, Portugal is already in the downward trend of cement consumption, while Lebanon and Angola are on the rise and Tunisia and Cape Verde haven't

really started to grow yet. Expectations are for these tendencies to continue for the next few years, while Tunisia and Cape Verde should start to grow quicker sometime in the future.

Another aspect that can be noted from the graph is that the macroeconomic scenario also plays a role on cement consumption. In fact, excluding Tunisia and Cape Verde, all the countries had their highest growth levels in 2007, right before the crisis broke out.

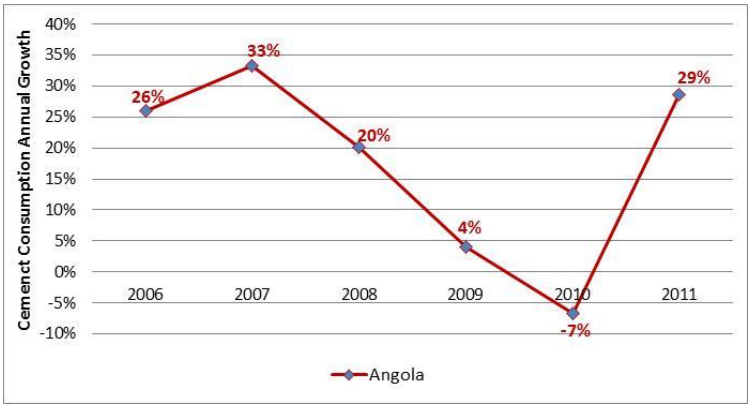

Figure 63: Angola Cement Consumption Annual Growth (Source: Secil Annual Reports & own calculations)

Angola had an average +27% increase in cement consumption between 2005 and 2008, while in 2009 it grew by only +4% and in 2010 the cement consumption reduced by -7%, growing back at +29% in 2011, when the crisis was mostly felt in Europe, deviating investment to the fast growing economy of Angola.

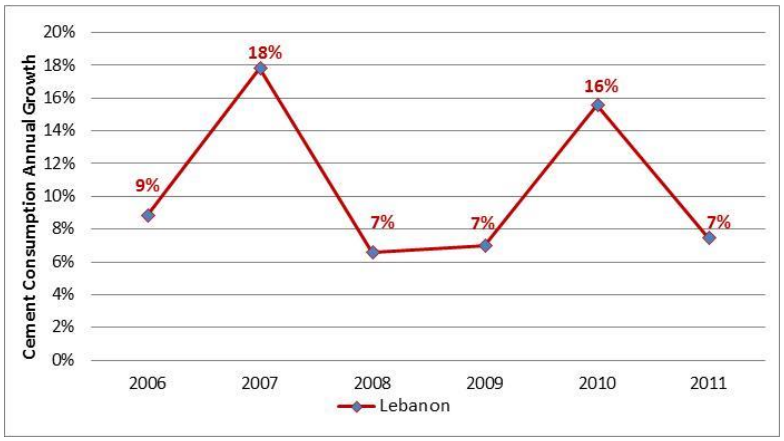

Figure 64: Lebanon Cement Consumption Annual Growth (Source: Secil Annual Reports & own calculations)

During the last six years, Lebanon was the country with the most constant growth rate, averaging +11% per year and never falling below +7%. The fastest growing year was 2007 while 2010 displayed very good growth as well.

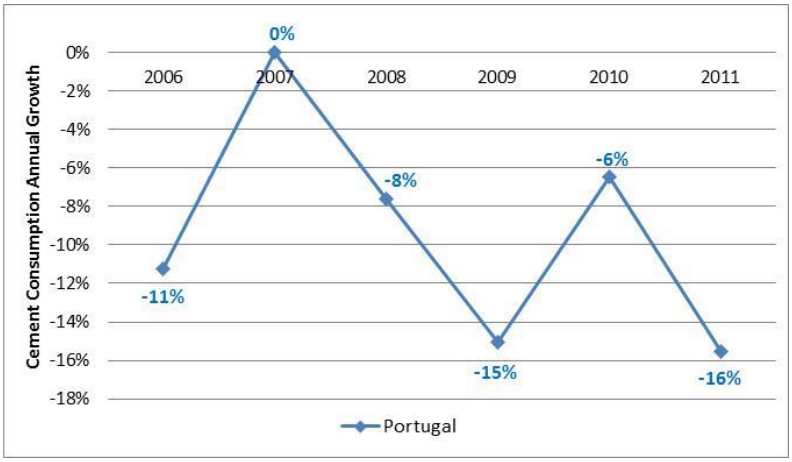

Figure 65: Portugal Cement Consumption Annual Growth (Source: Secil Annual Reports & own calculations)

Portugal was the only country following a downward trend, reflecting the fact it is the more infrastructural developed country amongst the five. Evidence indicates an evolution in line with the economic situation. The only year in which the cement consumption didn't decline was 2007 with 2010 being the second best year. Contrariwise, cement consumption declined at a steeper rate in 2009 and 2011, when the crisis was more accentuated.

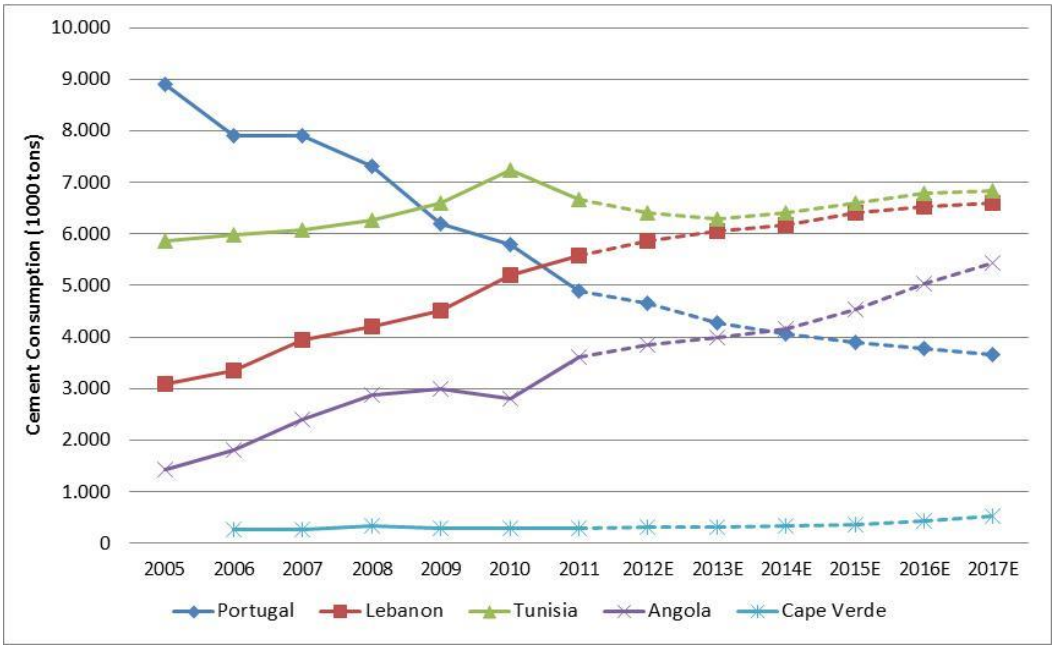

Figure 66: Cement Consumption forecast in thousands of tons (Source: Secil Annual Reports, The World Bank & own calculations)

8.2.1.2. Operational Assumptions

Revenues

Secil's revenues derive from eight different products: cement, ready mixed concrete, aggregates, precast concrete, mortars & binders, biomass, slag and other ordinary waste. Cement sales represents about 77% of total revenues, while ready mixed concrete represents about 20%, with the remaining 3% being split amongst the other six groups of products. The

key driver of revenue is thus cement, with ready mixed concrete playing a secondary, but somewhat significant role. The remaining products are only a residual source of revenue for the company.

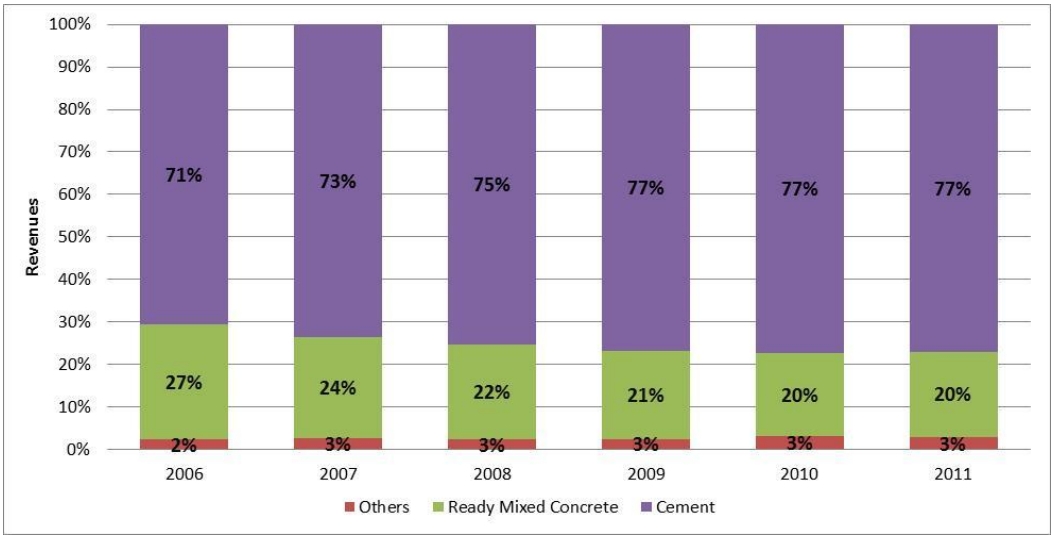

Figure 67: Secil Revenues by Product 2006-2011 (Source: Secil Annual Reports & own calculations)

The tendency, since 2006, has been for the cement division to increase further on, while the ready mixed cement is in a clear shrinking trend. Furthermore, the biomass, slag and other ordinary waste segments, which were the smallest of all in terms of annual revenue, have been sold out and will no longer be part of the company in the future.

The "Others" group, which is now composed only by aggregates, precast concrete and mortars & binders, is only present in Portugal and Cape Verde, with only a small aggregates plant (5% of total aggregates sales). Ready mixed concrete is sold in Portugal (85% of total ready mixed concrete sales), Lebanon and Tunisia, while cement is sold in every country where Secil operates.

Cement revenues are dependent on price and quantity sold which, obviously, varies from country to country. Cement consumption per country was already forecasted in 8.2.1.1. Given these cement consumption estimates for each country computed, I will estimate the quantities sold based on Secil's historical cement market share in each country.

Cement Market Share	2006	2007	2008	2009	2010	2011	Estimated
Portugal	44%	45%	44%	45%	47%	53%	46%
Lebanon	24%	24%	24%	24%	21%	21%	21%
Tunisia	19%	19%	21%	20%	19%	18%	19%
Angola	10%	10%	10%	10%	7%	6%	7%
Cape Verde	17%	13%	8%	17%	18%	18%	18%

Figure 68: Secil Cement Market Shares (Source: Secil Annual Reports & own calculations)

In fact, excluding Portugal in 2011 and Cape Verde in 2008, Secil's market shares during this last cycle have been very stable, within a ±3% range of the period's average in all five

countries. Therefore, it is reasonable to assume that market shares will remain stable for the foreseeable future. The estimated shares were computed based on the previous years' average, excluding the exceptional years (e.g. Portugal and Tunisia) or based on the most recent years' average, if market shares have changed and stabilized in the latter years of the period analyzed (e.g. Lebanon, Angola and Cape Verde).

By multiplying these market shares with the estimated cement consumption by market, we have the estimated Secil cement sales in tons (see Appendix 16). However, to forecast the revenues we also need to estimate the cement prices.

Cement Price	2006	2007	2008	2009	2010	2011
Portugal	60 €	64 €	77 €	79 €	74 €	67 €
Lebanon	NA	44 €	51 €	57 €	62 €	64 €
Tunisia	35 €	36 €	37 €	39 €	42 €	45 €
Angola	192 €	135 €	155 €	158 €	142 €	134 €
Cape Verde	200 €	207 €	145 €	112 €	104 €	108 €

Figure 69: Cement Market Prices per ton (Source: Secil Annual Reports & own calculations)

Based on data from the last economic cycle, there is strong evidence that GDP per capita and cement prices are tightly correlated (see Figure 70). For this reason, GDP per capita evolution will be used as a benchmark for cement prices and the same growth patterns will be assumed. Following the analysis made about GDP per capita in chapter 8.2.1.1, the same assumptions, regarding growth expectations and future tendencies, will be made for cement prices.

GDP per Capita	2007	2008	2009	2010	2011	Average
Portugal	15%	9%	-7%	-3%	5%	4%
Lebanon	11%	19%	15%	11%	7%	13%
Tunisia	12%	14%	-4%	1%	2%	5%
Angola	40%	35%	-13%	6%	19%	18%
Cape Verde	19%	16%	2%	3%	14%	11%
Cement Prices	**2007**	**2008**	**2009**	**2010**	**2011**	**Average**
Portugal	7%	20%	3%	-6%	-9%	3%
Lebanon	NA	16%	13%	9%	2%	10%
Tunisia	3%	2%	7%	6%	8%	5%
Angola	-30%	15%	2%	-10%	-5%	-6%
Cape Verde	4%	-30%	-23%	-8%	4%	-11%

Figure 70: GDP per Capita and Cement Price Annual Growth (Source: Secil Annual Reports, The World Bank & own calculations)

In Portugal prices have fallen since the 2009 crisis. However, expectations are that prices will grow back in the future, as the economy recovers. I will assume rates between 2%-4% for the explicit period: smaller rates for the upcoming years as the economy recovers, higher rates in the following years as recovery speeds up, and finally falling back to a level only slightly above inflation, as it was happening before the crisis impacted the prices strongly.

In Lebanon prices have increased at a 10% yearly rate since 2007, while GDP per capita has grown at an average 13% per year, having had the highest growth rates since 1998 in the 2007-2010 period. However, these rates have reached a peak in 2008 and have been shrinking

since, reaching their lowest in 2011 for both cement prices and GDP per capita. There are prospects of continued growth in Lebanon, however the annual rates should not be as flamboyant as they have been. I will assume a 4%-6% growth rate range, following the same pattern as Portugal.

Tunisia also had a notoriously bad year in 2009 regarding GDP per capita, however this rate has been recovering since. At the same time, the cement prices' growth rate has been fairly stable, with a slight upward trend, which was outlined in the previous chapter. It is also noteworthy that cement prices in Tunisia are considerably lower than Portugal and Lebanon, which confirms this estimated growth potential. Assuming that cement prices shadow the behavior expected for GDP per capita, growth rates will increase considerably (7% on average), achieving values closer to Portugal and Lebanon in 2016/2017.

Angola and Cape Verde have extremely high cement prices. The tendency has been for a reduction since 2006 and this reduction is expected to continue with the recent entrance of Chinese players in the markets, practicing incomparably lower prices. As these markets are expected to have astonishing growths in the near future (particularly Angola) competition should increase, which will bring prices down very quickly.

All of these assumptions go in line with the overall convergence of cement prices in every market that is clear in Figure 71 below, not only in the forecasted period, but also in the previous years.

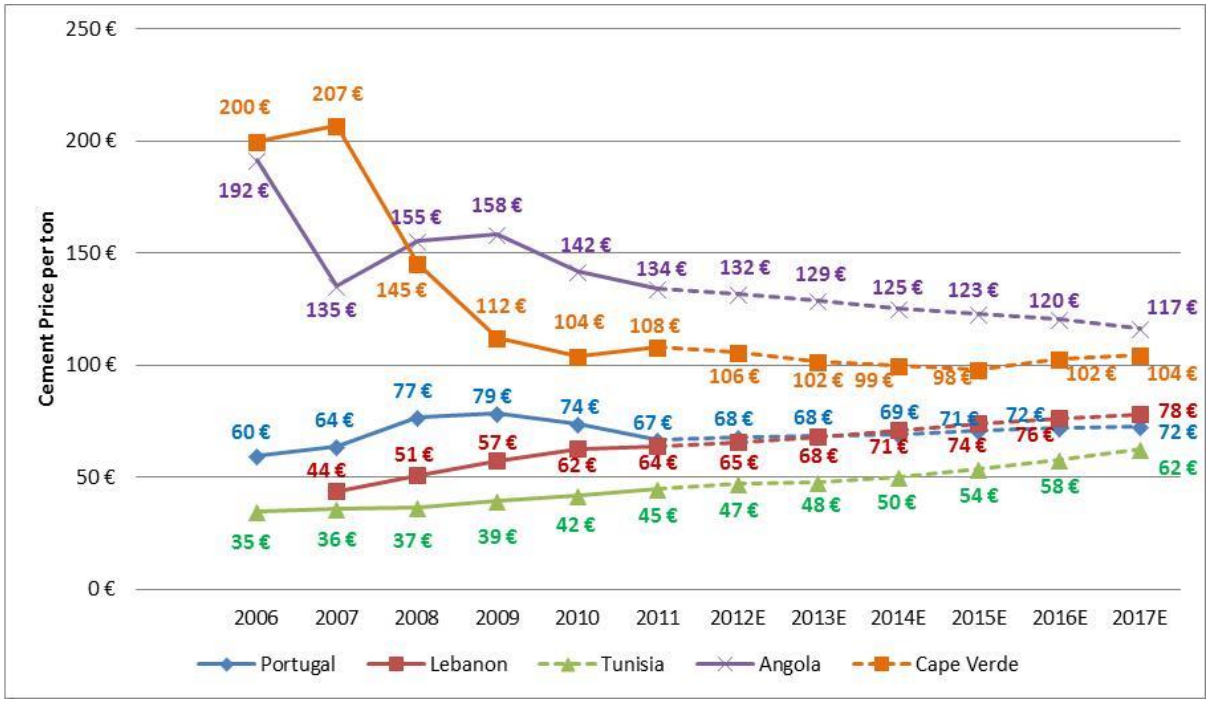

Figure 71: Cement Price per ton forecast (Source: Secil Annual Reports & own calculations)

Having prices, market demand and market shares for Secil in each of the five countries, it is straightforward to compute cement related revenues. In order to have the total revenue estimations we need to forecast the revenues from the other countries where Secil has minor

operations (values not discriminated by country) and the other revenues related to ready mixed concrete and the other products (aggregates, precast concrete and mortars & binders).

The assumption for these other products was that they will follow a similar growth as the country in general. This also applies to ready mixed concrete, which is expected to increase at rates in line with the past and to return to the pre-crisis values of growth rate. In the meanwhile, the tendency of increasing the weight of cement on total revenues should continue, at the detriment of ready mixed concrete (see Figure 72).

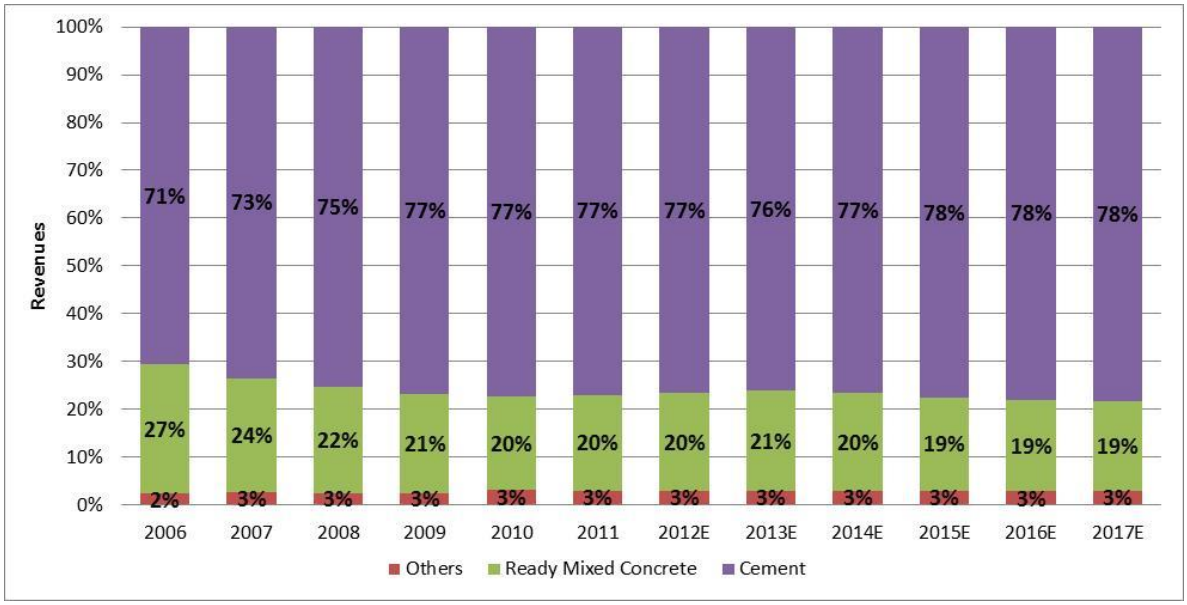

Figure 72: Secil Revenues by Product forecast (Source: Secil Annual Reports & own calculations)

Finally, the cement operations in the other countries (not discriminated) were assumed to follow the general macroeconomic trends and growth rates, which is in line with recent past behavior.

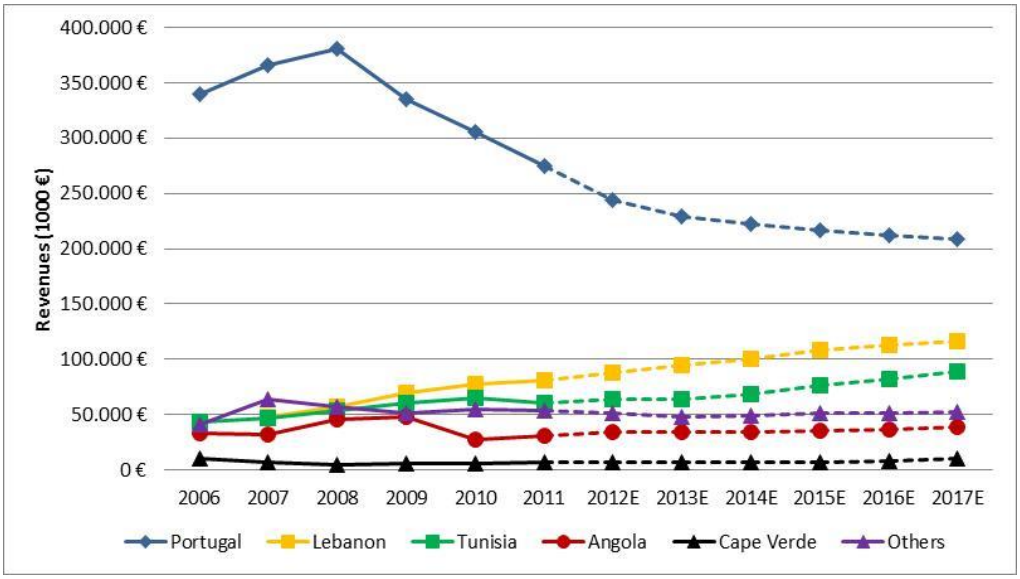

Figure 73: Secil Revenues Forecast in thousands of € (Source: Secil Annual Reports & own calculations)

Operational Costs

Secil's most significant cost lines are the personnel costs, cost of sales and materials consumed and external supplies and services. These costs are not discriminated by country and are only reported in a consolidated way.

No note or additional information is provided about the cost of sales and materials consumed. However, when looking at its historical weight on revenues, we can see that there seems to be a straight link between the two. There seems to have been a slight increase in recent years, possibly due to the increase of the materials prices, however, I will assume that these will stabilize and the weight of the cost of materials sold and consumed over sales will tend to return to its earlier values.

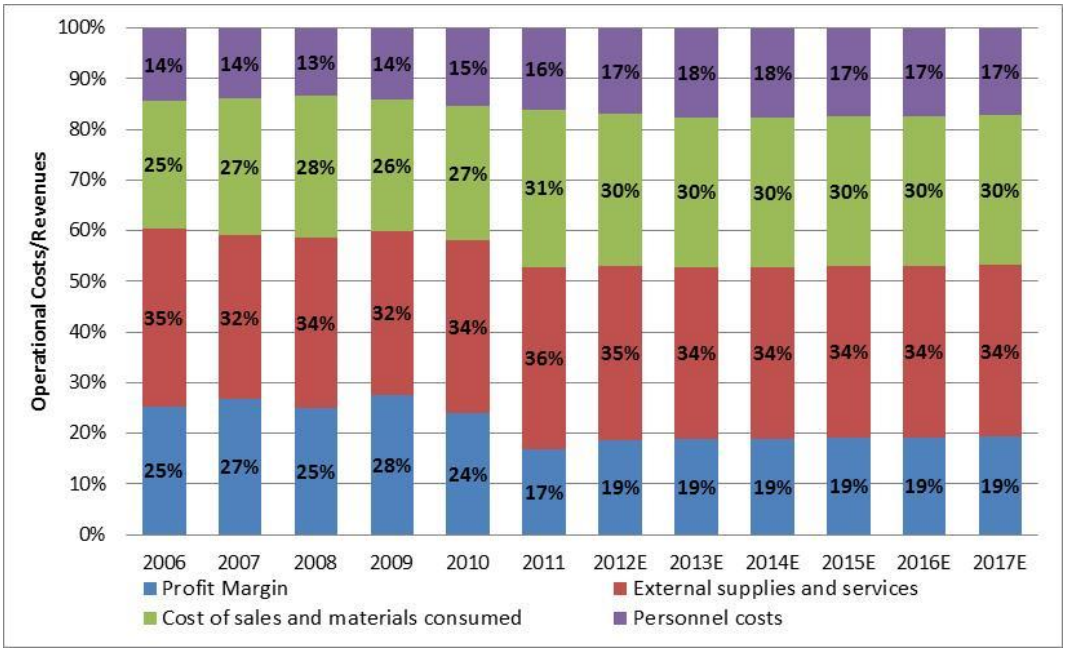

Figure 74: Operational Costs % over Revenues (Source: Secil Annual Reports & own calculations)

External supplies and services are very stable and are composed by subcontracts, specialist services, miscellaneous services, travelling and transport costs and energy and oil. However, this has only been detailed in Secil's reports since 2010 and therefore there isn't sufficient historical background to make a compact analysis of its expected trends.

Since these costs have kept a close association with the revenues (32%-36%), even throughout ups and downs on the revenues, I will assume that this feature will endure in the future and that external supplies and services will grow in line with revenues, keeping the same relative weight as in the past.

Regarding personnel costs there is more information available. First of all, the Government Bodies' remuneration is fixed at 1% of revenues and it will be assumed to remain so. The post-employment benefits account also has a stable annual income which is expected to continue, as an average of the previous periods.

The "other personnel costs", for which there is no additional information, seems to be directly linked to employees' remuneration. Since 2007 "other personnel costs" have represented 37% of employee's remunerations without any fluctuation whatsoever. For this reason, this connection will be assumed to continue into the future. As for the employees' remuneration itself, it has been growing at a recurrent rate close to 1,5%, having deviated only in 2008, when there was a slight -0,1% reduction. The expectations, however, are that the 1,5% annual increase will endure in the future and this was assumed for the remaining of the explicit period.

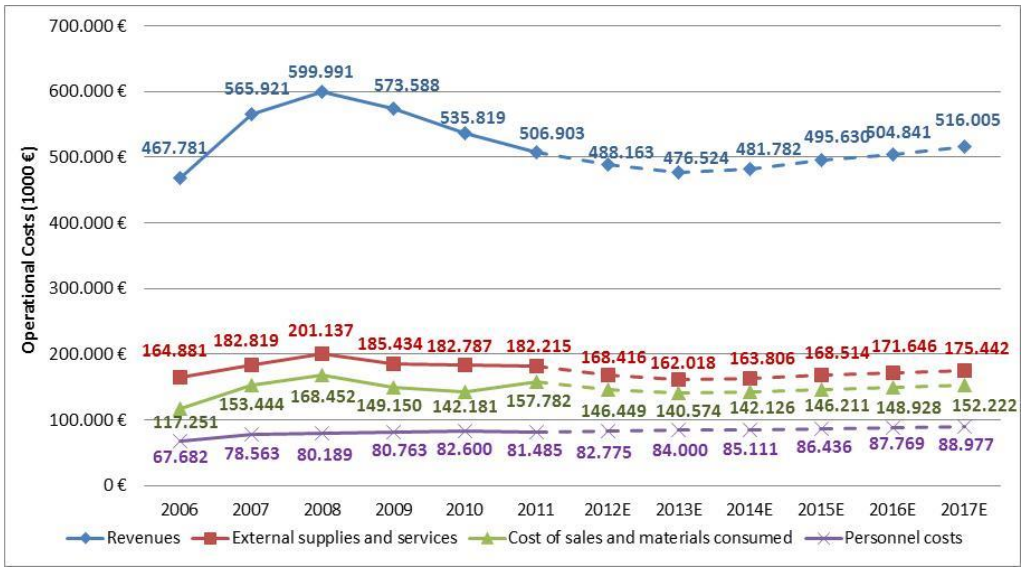

Figure 75: Secil Operational Costs forecast in thousands of € (Source: Secil Annual Reports & own calculations)

Capital Expenditures and Net Working Capital

Capital Expenditures were expected to remain constant as a percentage of revenues. This was the case for every year before the crisis and, despite yearly fluctuations, the average after 2009 has also been close to 7%, which was assumed as the ratio for the explicit period.

Current Assets	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Inventories	53.669	69.803	95.308	80.427	100.388	101.737	103.772	98.583	99.569	104.547	110.820	111.928
Trade receivables	112.288	103.841	92.502	93.812	83.851	82.601	69.319	67.666	69.377	71.866	73.202	74.821
Advances to suppliers	0	0	0	0	1.880	1.223	0	0	0	0	0	0
State and other public entities	19.855	16.905	12.858	7.393	7.189	13.642	8.789	9.668	13.535	12.181	19.490	17.541
Other financial assets	0	0	0	0	0	1.575	0	0	0	0	0	0
Non-current assets held for sale	0	0	0	0	0	30.031	0	0	0	0	0	0
Cash and cash equivalents	37.802	54.300	34.162	57.627	70.543	65.449	78.539	87.525	86.612	100.185	106.012	118.055
Total	**223.614**	**244.849**	**234.830**	**239.259**	**263.851**	**296.258**	**260.418**	**263.442**	**269.092**	**288.780**	**309.524**	**322.345**
Current Liabilities	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Trade payables	39.185	91.860	123.169	107.161	38.875	48.893	52.475	57.183	62.632	64.432	70.678	72.241
Advances from customers	0	0	0	0	1.765	1.841	0	0	0	0	0	0
State and other public entities	20.707	35.828	38.372	33.410	32.713	36.491	31.637	32.516	36.383	35.030	42.339	40.390
Related parties	0	0	0	0	1.372	2.977	0	0	0	0	0	0
Interest-bearing loans and borrowings	66.209	82.872	69.276	98.698	24.832	48.109	68.843	70.636	66.231	69.542	58.944	67.429
Other accounts payable	0	0	0	0	35.707	39.407	37.557	37.557	38.174	37.763	37.831	37.923
Liabilities directly associated with nor	0	0	0	0	0	5.708	0	0	0	0	0	0
Deferred liabilities	27.666	0	0	0	120	344	0	0	0	0	0	0
Other financial liabilities	0	0	0	0	0	161	0	0	0	0	0	0
Total	**153.767**	**210.560**	**230.817**	**239.269**	**135.384**	**183.930**	**190.512**	**197.893**	**203.420**	**206.767**	**209.791**	**217.982**
Non-cash Net Working Capital	98.254	62.861	39.127	41.061	82.755	94.987	60.210	48.661	45.291	51.370	52.664	53.737

Figure 76: Secil Net Working Capital forecast in thousands of € (Source: Secil Annual Reports & own calculations)

Net Working Capital was computed as current assets net of cash minus current liabilities net of interest-bearing liabilities, as detailed above.

In 2011 there were several reporting differences, such as the non-current assets held for sale and the liabilities directly related, other financial assets and liabilities, advances to suppliers and from customers, related parties and deferred liabilities which weren't reported separately in the past. For simplification purposes, given the lack of history and clear explanations in most cases it was assumed that these lines would be reported in a more concise way, as they were until 2010.

Therefore, these current assets were converted into cash while the current liabilities were converted into short-term debt.

Inventories are expected to decrease when sales grow above expected and to increase when sales are slow, always within a close distance to 20% of revenues. Trade receivables and payables are also expected to grow in line with revenues, with a stable percentage of revenues, growing slightly along with the economy.

State and other public entities relates to the corporate income taxes include mainly corporate income taxes disputed by the firm. Some of these legal actions have expected outcomes and liquidation timetables which will be assumed as effective.

Finally, the other accounts payable, which are current liabilities related to fixed assets suppliers, creditors for accrued costs and other creditors is assumed to remain in line with the recent past.

Others

The earnings of associates and JV, which amount for less than 0,1% of revenues, were assumed to be constant in the future and equal to the historical average, as no particular pattern or trend can concluded from the past periods.

The changes in production inventories were assumed to follow the same pattern as the past periods, while impairments of inventories and accounts receivable were assumed to remain constant as a percentage of the related costs/revenues.

Secil's provisions have been fairly stable in the past, with exceptions in 2006 and 2011 when there were significant increases to the provision account. These amounts were set aside to fully cover the negative equity of associates. These extraordinary aren't expected to repeat in the future and therefore the remaining periods were used to estimate the provisions for the future.

The other income and gains are mainly composed by free greenhouse emission rights granted by the Government. The attribution of these rights in the 2013-2020 period is dependent on the guidelines established by the European Commission in 2010. According to Secil's most recently publish Sustainability Report, the company is not expected to be excluded from the list of companies in the sector which will be granted rights. Therefore, it will be assumed that the free emission grants will be in line with the past values.

The other costs and losses' main components are much vaguer: costs and losses of non-financial assets, indirect taxes, unfavorable currency differences and other operating costs, with no further explanation. In the past there were some higher values because the emission rights weren't granted for free. Considering the previously stated assumption that Secil will continue to receive greenhouse emission grants, than it is assumed that the other costs and losses will remain aligned with the most recent periods.

Depreciations and amortization costs relate to tangible and intangible assets which must be forecasted differently.

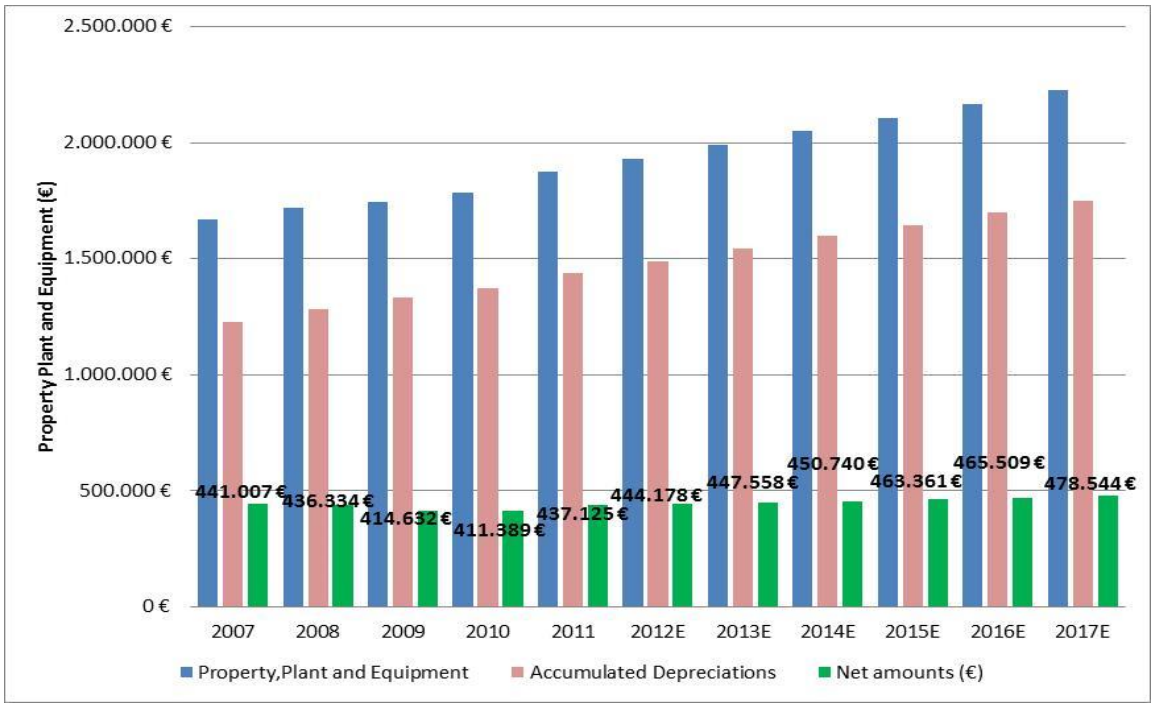

Figure 77: Secil Property, Plant and Equipment forecast in thousands of € (Source: Secil Annual Reports & own calculations)

Regarding tangible fixed assets, responsible for about 65% of the total depreciation and amortization costs, the assumption was that property, plant and equipment will grow at an average 3% annual rate, in line with the last decade's annual growth. The annual depreciations and amortizations will account for 3% of the total value of property, plant and equipment, which has been happening uninterruptedly since 2006.

Intangible assets (mainly composed by emission rights) are consumed at an average 91% per year, with the remaining residual difference transiting into the next period. The net amount of emission rights transiting into the next year is fairly stable averaging only 2.75 M€.

The impairments of depreciable assets are losses of emission rights, which are exceptional and unpredictable events. The average of the past periods was considered as a constant for the future.

It was also assumed that 80% of net income would be attributable to shareholders in the future.

8.2.1.3. Capital Structure Assumptions

By the end of 2011 Secil had a balanced capital structure composed by 53% of equity and 47% of debt. In 2006/2007 debt represented 49% of total assets, however, when the crisis hit, the weight of debt on total assets reduced as a precaution, however, with the foreseen economic recovery, Secil has been returning to the former levels of debt/equity ratio. It seems that Secil aims for a 50/50 debt/equity ratio and the tendency should be to return to these values.

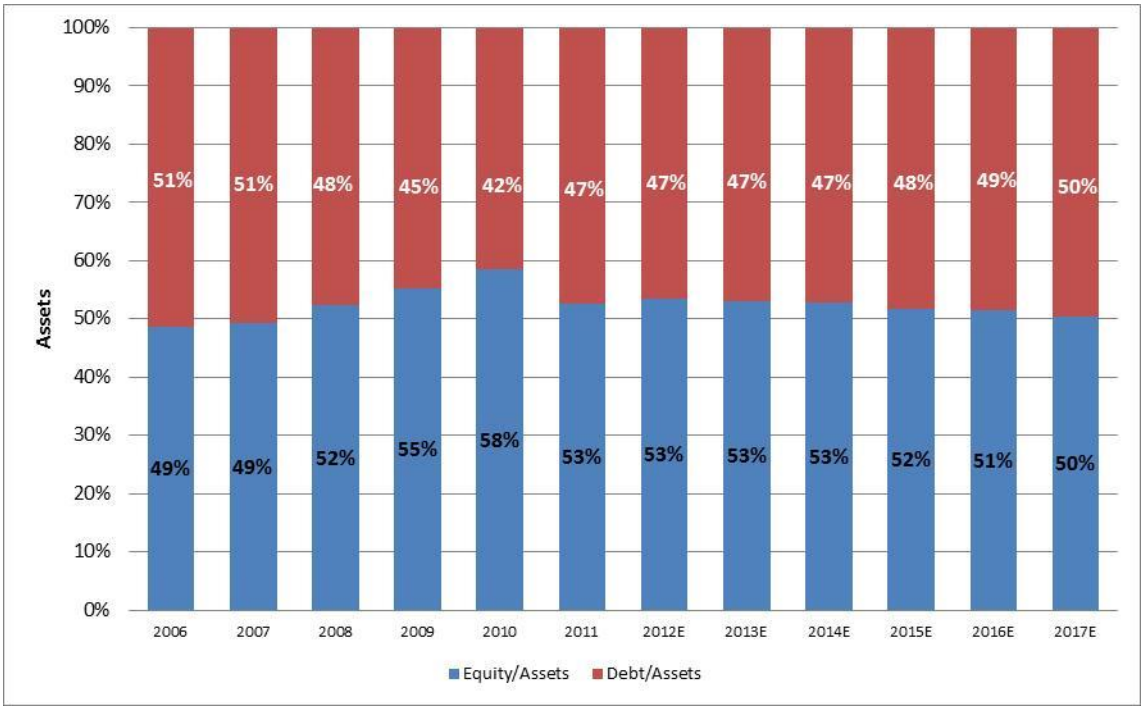

Figure 78: Secil Capital Structure forecast (Source: Secil Annual Reports & own calculations)

The company's debt as of 2011 was composed by 48 M€ in short-term bank loans and bank overdrafts, 40 M€ in bonds issued in 2007 and expiring in the end of 2017 and 120 M€ of other non-current bank loans, with the maturities detailed below.

Non-Current Interest-bearing liabilities	**2011**
1-2 years	39.977
2-3 years	22.863
3-4 years	27.040
4-5 years	19.673
5+ years	50.203
	159.756

Figure 79: Secil Outstanding Debt 2011 in thousands of € (Source: Secil Annual Report 2011)

It was assumed that Secil will repay each year's current debt with the issue of new debt to cover 50% and cash for the remainder. Also, it was assumed that Secil will issue amounts between 30-50 M€ of debt every year to maintain the 50/50 debt structure. It was assumed that 60% of new debt issues will be current debt maturing within the same year and 40%

maturing in 5+ years. Finally, it was assumed that 40% of all 5+ years' debt will transit into 4-5 years debt every year.

This yields the following debt plan:

	2011	2012	2013	2014	2015	2016	2017
expired 5y							68.843
expired 4y						68.843	70.636
expired 3y					68.843	70.636	66.231
expired 2y				68.843	70.636	66.231	69.542
expired 1y			68.843	70.636	66.231	69.542	58.944
0-1 year	48.109	68.843	70.636	66.231	69.542	58.944	67.429
1-2 years	39.977	22.863	27.040	19.673	20.081	19.746	24.587
2-3 years	22.863	27.040	19.673	20.081	19.746	24.587	25.203
3-4 years	27.040	19.673	20.081	19.746	24.587	25.203	28.420
4-5 years	19.673	20.081	19.746	24.587	25.203	28.420	27.416
5+ years	50.203	49.365	61.468	63.008	71.051	68.539	72.912
New Debt	**48.109**	**79.622**	**65.318**	**83.115**	**64.771**	**79.472**	**33.715**

Figure 80: Secil Debt Repayment Plan forecast in thousands of € (Source: Secil Annual Reports & own calculations)

8.2.1.4. Terminal Value Assumptions

The terminal value is computed after the explicit period of 6 years, ending in 2017 using the same approach as Portucel: the WACC method.

t =	**24,50%**
Rf =	**1,37%**
Country risk premium =	**6,30%**
Beta =	**1,37**
E/V =	**0,50**
German market premium =	**6%**
Kd =	**6,8%**
Ke =	**15,9%**
g =	**1,5%**
WACC =	**10,5%**

Figure 81: Secil WACC calculation (Source: Secil Annual Reports, Reuters, Bloomberg, The Economist Intelligence Unit, damodaran.com & own calculations)

The terminal tax rate used was 24,5%, which is the estimated average effective tax rate for the period after the post-crisis stabilization (2014-2017), considering the different markets and tax rates that the company applies.

The cost of debt was estimated using a default spread of 3,75%, associated with a BB+ rated company according to Damodaran. Although Secil is unrated, this spread is justified by the historical interest expenses of the company, which were very close to this value in the past

three years. This spread was applied to the Euribor 6m, estimated in section 8.1.2.5. The perpetual Kd was, again, assumed as an average of the last three years: 6,8%.

Ke was computed using the same formula, with the levered beta assumed as 1,37, which was the value used by BESI in their valuation of Secil. The cost of equity for Secil yields 15,9%, which is reasonably higher than Portucel's due to the higher beta.

Using the Debt/Equity ratio of 50% explained in the previous section and a growth rate of 1,5%, considering that the high expected growth rates of Angola, Tunisia, Lebanon and Cape Verde are outweighed by Portugal's decline. This rate is slightly below the estimated inflation rate. Finally, WACC is calculated yielding 10,5%.

000€	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	Terminal
EBIT * (1-tax)	59.309	63.868	75.326	76.280	58.848	34.654	32.357	27.937	33.507	31.036	31.570	32.355	
Depreciations and amortizations	56.694	61.487	56.793	53.284	81.930	85.137	86.438	89.846	90.955	92.906	94.974	96.629	
(Capital Expenditures)	(34.000)	(41.000)	(40.615)	(30.830)	(44.165)	(62.210)	(34.171)	(33.357)	(33.725)	(34.694)	(35.339)	(36.120)	
(Change in Non-Cash Net Working Capital)	33.459	35.393	23.733	(1.934)	(41.694)	(12.232)	34.777	11.549	3.369	(6.079)	(1.294)	(1.073)	
FCFF	**115.463**	**119.748**	**115.238**	**96.799**	**54.919**	**45.349**	**119.401**	**95.975**	**94.107**	**83.168**	**89.911**	**91.791**	**1.051.624**
							PV =	86.837	77.040	61.602	60.256	55.658	637.662

Figure 82: Secil FCFF and Terminal Value calculation in thousands of € (Source: Secil Annual Reports & own calculations)

Using the same FCFF formula to compute the firm's leveraged value, we reach a final enterprise value for Secil of roughly 979 M€.

Enterprise Value	**979.055**
Net debt	(119.806)
Minority Interests	(6.570)
Market Cap	**852.680**

Figure 83: Secil Enterprise Value and Market Cap calculation in thousands of € (Source: Secil Annual Reports & own calculations)

By deducting net debt and minority interests, we conclude that the estimated market capitalization for Secil is 852,7 M€

8.2.2. Multiples

Secil's peer group was based on Damodaran's database. The basis was European construction companies with market caps above $500.000. Since Secil isn't quoted, it wasn't included in Damodaran's multiples' database.

Company Name	Country	Market Cap (in US $)	Total Debt (in US $)	Enterprise Value (in US $)	Trailing PE	PBV	EV/EBIT	EV/EBITDA	Return on Capital (ROC or ROIC)	Historical growth in Revenues - Last 5 years	Expected growth in revenues - Next 2 years	Net Profit Margin
Italmobiliare SpA	Italy	$612	$4.635	$5.247	45	0,08	17	4	NA	-3%	3%	0%
Cementos Molins SA	Spain	$688	$802	$1.250	10	0,56	11	6	10%	4%	NA	6%
RHI AG	Austria	$777	$580	$1.256	5	1,52	7	5	22%	9%	5%	6%
Titan Cement Company S.A.	Greece	$1.164	$1.349	$2.197	15	0,51	15	6	4%	-5%	-7%	5%
Italcementi SpA	Italy	$1.293	$3.996	$5.289	6	0,20	21	5	NA	-3%	1%	3%
Buzzi Unicem SpA	Italy	$1.627	$2.160	$3.191	NA	0,44	24	7	3%	-3%	5%	-3%
Vicat SA	France	$2.522	$2.099	$4.174	9	0,73	8	6	20%	2%	9%	9%
Ciments Francais SA	France	$2.809	$2.401	$5.209	8	0,51	10	4	7%	-1%	0%	7%
Imerys SA	France	$3.490	$1.877	$5.367	9	1,22	9	6	13%	NA	7%	8%
Cimentos De Portugal, SGPS, S.A.	Portugal	$4.599	$2.958	$6.802	14	1,71	13	8	17%	7%	5%	11%
HeidelbergCement AG	Germany	$8.015	$12.773	$19.532	16	0,46	12	7	13%	9%	5%	3%
Lafarge S.A.	France	$10.125	$21.801	$29.292	11	0,42	10	6	14%	1%	-2%	4%
CRH plc	Ireland	$14.347	$7.538	$20.355	20	1,00	18	10	6%	2%	3%	3%
Holcim Ltd.	Switzerland	$17.201	$16.803	$30.609	15	0,80	12	6	8%	-2%	-2%	5%

Figure 84: European Construction Companies with Market Cap > $ 500.000 (Source: Damodaran.com)

Further investigation into each of these companies' operations eliminates Italmobiliare SpA, RHI AG, Imerys SA and CRH plc because they aren't focused on cement, concrete and aggregates, as all the other companies listed above. Furthermore, HeidelbergCement AG, Lafarge S.A. and Holcim Ltd were not considered for the peer group because they are market leaders with incomparably higher revenues and overall size.

Lastly, Titan Cement Company S.A. and Buzzi Unicem SpA were also excluded. The Greek company is the only one that has estimations for declining revenues in the next two years, at an even steeper rate as the last five years' average. The Italian company on the other hand was the only company with negative net profit margin. Moreover, the ROIC for both these companies is the lowest within the whole group, deeming them incomparable to Secil, which has significantly different ratios in all the crucial measures.

Company Name	Trailing PE	PBV	EV/EBIT	EV/EBITDA
Cementos Molins SA	10	0,6	11	6
Italcementi SpA	6	0,2	21	5
Vicat SA	9	0,7	8	6
Ciments Francais SA	8	0,5	10	4
Cimentos De Portugal, SGPS, S.A.	14	1,7	13	8
Average	**9**	**0,7**	**13**	**6**
Secil implied valuation:	Market Cap **520.575 €**	Market Cap **324.499 €**	Enterprise Value **989.444 €**	Enterprise Value **952.243 €**

Figure 85: Secil Peer Group in thousands of € (Source: Damodaran.com & own calculations)

Secil's peer group is thus composed by these five other companies, all specialized in the cement, concrete and aggregates industries. As can be seen in the table above, the multiples

based valuation of Secil, under any of the four chosen types of multiples, is lower than the DCF based valuation.

Once again, it is visible that, as expected, the company's market capitalization under the PBV multiple is much lower than the DCF estimated value. It is once more clear that this multiple is not adequate for companies with high levels of property and other fixed assets.

For the PE multiple the trailing approach was used instead of the more adequate forward approach. The only reason for this was the lack of available reliable forward data for the comparable companies. This multiple also yields values much lower than the 852,7 M€ obtained through the DCF valuation, since the peer group's multiples were gathered in 2012, when companies were generally undervalued due to the ongoing crisis. Another reason for this could be the fact that the peer group is composed by European companies which, although operating internationally, don't have such a strong presence in fast growing markets, such as Angola. This increased value is not reflected in this multiples' valuation, but has a significant impact on the DCF valuation.

Finally, using the average between the EV/EBIT and EV/EBITDA multiples, Secil's market cap is valued at 844 M€, which is significantly closer to the values computed through DCF.

Market Capitalization	Trailing PE	EV/EBIT & EV/EBITDA
Lowest	360.929 €	544.061 €
Average	520.575 €	844.468 €
Highest	766.171 €	1.379.566 €

Figure 86: Sensitivity Analysis - Secil Market Capitalization using Multiples in thousands of € (Source: Damodaran.com & own calculations)

Looking at the range of values obtained from the peer group, it is possible to conclude that the DCF computed market cap for Secil is within the range for the EV based analysis, but not for the trailing PE multiple. This reflects the optimism regarding the expected growth rates in the emerging markets, not fully displayed in this analysis, but also makes it clear that PE is not the most adequate multiple to value depreciations, amortizations and CAPEX intensive companies, such as Secil.

8.3. Supremo Cimentos S.A.

There isn't much information available for Supremo Cimentos S.A. yet. However it is known that the company is undergoing an expansion project which should increase the cement production capacity by five times the current capacity. The current annual revenue is roughly 40 M€, the company has net debt of 10,7 M€ and the assets' book value is reported as 92,8 M€.

Supremo Cimentos S.A. was valued under a multiples approach. The peer group was initially composed by South American companies operating in the cement industry.

Company Name	Country	Market Cap (in US $)	Total Debt (in US $)	Enterprise Value (in US $)	Trailing PE	PBV	EV/EBIT	EV/EBITDA	Return on Capital (ROC or ROIC)	Historical growth in Revenues - Last 5 years	Expected growth in revenues - Next 2 years	Net Profit Margin	Revenues
Cemento Polpaico S.A.	Chile	$206	$85	$286	142	1,28	NA	14	0%	0%	NA	1%	$267
Compania Industrial El Volcan S.A.	Chile	$252	$4	$247	13	1,06	14	8	8%	4%	NA	15%	$132
Cemento Andino	Peru	$260	$193	$444	8	1,16	8	7	18%	NA	NA	20%	$155
Cementos Argos	Colombia	$6.441	$1.768	$7.369	73	1,08	57	32	2%	NA	15%	5%	$1.576
Inversiones Argos	Colombia	$5.591	$2.860	$8.450	30	0,65	13	10	10%	NA	NA	6%	$2.819
Eternit S.A.	Brazil	$423	$21	$430	8	1,85	8	5	28%	19%	7%	12%	$457
Cementos Pacasmayo SAA	Peru	$979	$120	$1.084	33	3,56	13	10	27%	7%	NA	8%	$320
Cementos Bio-Bio S.A.	Chile	$381	$414	$784	NA	0,92	20	8	4%	-2%	NA	-10%	$618
Juan Minetti S.A.	Argentina	$379	$16	$383	7	1,45	6	5	24%	20%	NA	12%	$388
Melon SA	Chile	$966	$104	$1.068	NA	1,85	NA	NA	0%	NA	NA	NA	$0
Magnesita Refratarios S.A.	Brazil	$896	$948	$1.381	16	0,62	9	5	18%	NA	5%	5%	$1.371

Figure 87: South American Construction Companies (Source: Damodaran.com)

From this group were excluded Melon SA, due to the lack of available data, and Cemento Polpaico S.A. and Cementos Bio-Bio S.A. due to the lack of growth prospects, as well as in the past 5 years. Cementos Argos was also excluded because the multiples and ROIC are very out of tune with the remainder of the considered companies, which could be explained by the company's large size (fourth largest cement producer in Latin America and sixth in the United States).

The remaining companies seem much more similar and representative of the South American cement industry. However, due to lack of data about Supremo, only the PBV and EV/Sales multiples can be computed.

Company Name	PBV	EV/(Current) Sales	EV/(Expected) Sales
Compania Industrial El Volcan S.A.	1,1	1,9	1,9
Cemento Andino	1,2	2,9	2,9
Inversiones Argos	0,6	3,0	3,0
Eternit S.A.	1,9	0,9	0,9
Cementos Pacasmayo SAA	3,6	3,4	3,4
Juan Minetti S.A.	1,5	1,0	1,0
Magnesita Refratarios S.A.	0,6	1,0	1,0
Average	**1,5**	**2,0**	**2,0**
Supremo implied valuation:	Market Cap **137.322 €**	Enterprise Value **77.931 €**	Enterprise Value **389.654 €**
Lowest	57.722 €	36.542 €	182.708 €
Highest	330.231 €	131.469 €	657.343 €

Figure 88: Supremo Peer Group in thousands of € (Source: Damodaran.com & own calculations)

For PBV the reported Supremo's book value of assets (92.805 €) was considered. For the EV/Sales multiple (since no EBIT or EBITDA is available for a full-year) two scenarios were assumed: using the current sales value and using a sales value five times higher than the

current, reflecting the impact of the new plant which should increase the company's cement production capacity by five times in 2014. In this scenario I am assuming that Supremo's capacity utilization will remain the same and therefore the increase in capacity will be proportional to the increase in production. Both scenarios use the peer group's EV/Sales multiples reported by Damodaran.

As commented before in the Secil case, the PBV should yield a lower market capitalization than the company's true value, due to the industry's specificities. This fact is useful to make clear that using the current sales to compute the company's enterprise value would result in a tremendous undervaluation. This is why the second scenario was assumed.

Supremo's enterprise value is significantly higher when using future sales as the estimation basis. This, however, is a very optimistic scenario, as it assumes that Supremo would produce at full capacity and sell all the production at the current price. For this reason, a more realistic approach was taken. The value considered for Supremo is the average between the "current sales" scenario and the mid-value between the pessimistic and the average in the "expected sales" scenario. The result is a 182 M€ enterprise value.

As a feasibility check, this value can be compared to Secil's enterprise value. Under these assumptions, Supremo is worth about 19% of Secil's estimated enterprise value, under a multiples' approach. This value is somewhat comparable to the ratio between the capacities: Supremo's expected 1.750 thousand tons represent 26% of Secil's 6.850 thousand tons capacity.

The implied lower valuation of Supremo is logical, given that it is a much more recent company, with most of its value relying on the future impact of its investment plan, which is obviously not straightforward to forecast accurately.

8.4. ETSA Group

ETSA was also valued under a multiples approach. The peer group was composed by European profit-seeking companies operating in the environmental and waste industries with revenues below $150 M. From this group were excluded the companies that expect to decline in sales in the future and that have negative ROIC and net income.

Company Name	Country	Trailing PE	EV/EBIT	EV/EBITDA
Lucent Oil AB	Sweden	15	6	5,0
Augean plc	United Kingdom	23	26	5,7
Environnement, S.A.	France	11	10	6,2
Average		**16**	**14**	**5,6**
ETSA implied valuation:		Market Cap	Enterprise Value	Enterprise Value
		45.134 €	**63.630 €**	**45.495 €**
Lowest		29.925 €	25.300 €	40.500 €
Highest		64.151 €	121.891 €	50.220 €

Figure 89: ETSA Peer Group in thousands of € (Source: Damodaran.com & own calculations)

This selection was enough to filter the peer group down to three truly comparable companies. The PE multiple yields the highest enterprise value (67.834 € by adding net debt), which transpires the market's confidence in this industry's high growth rates. On the other hand, EV/EBITDA yields the lowest. However, whichever multiple is considered, all values fall within each other's feasible interval.

To roundup, I considered an average of the EV computed by the three multiples, thus resulting in an assumed enterprise value of 58.986 €.

8.5. Holding

The last component of Semapa, which cannot be disregarded is the Holding itself. As a holding company, it has costs that have to be taken into account to reach the company's final value. As there is almost no visibility into the type of costs the holding company has I have taken the last year's reported costs and assumed they grow in line with inflation. The reported depreciations, amortizations and capital expenditures were also considered in the same way, however they barely have any impact in the valuation.

t =	**25,60%**
Rf =	**1,37%**
Country risk premium =	**6,30%**
Beta =	**1,01**
E/V =	**0,5**
German market premium =	**6%**
Kd =	**5,3%**
Ke =	**13,7%**
g =	**1%**
WACC =	**9,7%**

Figure 90: Holding WACC calculation (Source: Semapa Annual Reports, Reuters, Bloomberg, The Economist Intelligence Unit, damodaran.com & own calculations)

The FCFF was discounted at a 9,7% WACC, computed by taking the same general assumptions used for Portucel. The beta was computed as a weighted average of the betas of Secil and Portucel, while the Kd was computed based on the holding's outstanding loans, detailed below:

Bond loans	**2012-2015**	**2012-2017**	**2006-2016**	**2006-2016**	Bank loans	**non-current**	**non-current**
Amount	300.000€	128.100€	175.000€	50.000€	**Amount**	133.079€	12.000€
Maturity	march 2015	april 2017	april 2016	may 2016	**Maturity**	5+ years	5+ years
Interest rate	6,85%	Euribor 6m	Euribor 6m	Euribor 6m	**Interest rate**	Euribor 6m	Euribor 6m

Figure 91: Semapa Holding Outstanding Debt 2012 (Source: Semapa Annual Report 2012)

The Euribor 6m indexed loans were assumed to pay a default spread of 1,15% above the Euribor 6m estimated earlier. This spread is based on an AA credit rating which is attributed to a company with an interest coverage ratio of 6,5 as was reported in BESI's analysis of Semapa (see Appendix 10).

000€	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	Terminal
EBIT * (1-tax)	(9.345)	8.045	1.815	(10.995)	(16.972)	(14.495)	(14.154)	(14.409)	(14.697)	(15.006)	(15.321)	(15.627)	
Depreciations and amortizations	144	142	152	161	267	331	338	344	351	359	366	374	
(Capital Expenditures)	(214)	(163)	(201)	(47)	(689)	(750)	(767)	(781)	(796)	(813)	(830)	(847)	
FCFF	**(9.415)**	**8.024**	**1.766**	**(10.881)**	**(17.394)**	**(14.914)**	**(14.583)**	**(14.845)**	**(15.142)**	**(15.460)**	**(15.785)**	**(16.100)**	**(130.393)**
							PV =	(13.533)	(12.583)	(11.712)	(10.901)	(10.136)	(82.090)

Figure 92: Holding FCFF and Terminal Value calculation in thousands of € (Source: Semapa Annual Reports & own calculations)

To the sum of these present values, it is necessary to deduct the total net debt, in order to achieve the holding's final market capitalization, which is significantly negative; -961,3 M€ in total.

Enterprise Value	**(140.955)**
Net debt	(820.300)
Market Cap	**(961.255)**

Figure 93: Holding Enterprise Value and Market Cap calculation (Source: Semapa Annual Reports & own calculations)

8.6. Semapa final valuation

Finally, Semapa's estimated value can be obtained by the sum of the parts approach, based on the equity values computed above for the four companies owned by Semapa, deducted of the Holding's value.

Semapa	EV	Market Cap
Portucel	2.842.223 €	2.379.763 €
Secil	979.055 €	852.680 €
Supremo	182.056 €	171.456 €
ETSA	58.986 €	36.286 €
Holding	(140.955 €)	(961.255 €)

Figure 94: Final EV and Market Caps for 100% Equity in thousands of € (Source: Semapa, Secil and Portucel Annual Reports & own calculations)

However, when valuing Semapa we can only take into account the stakes that Semapa has in each company. The latest reported ownership stakes of Semapa in each of the companies was considered and the EV and market cap of each company is thus computed directly:

Semapa	EV	Market Cap
Portucel (78,1%)	2.219.776 €	1.858.595 €
Secil (100%)	979.055 €	852.680 €
Supremo (50%)	91.028 €	85.728 €
ETSA (96%)	56.627 €	34.835 €
Holding (100%)	(140.955 €)	(961.255 €)
Sum of the parts	**3.205.531 €**	**1.870.582 €**

Figure 95: Sum of the Parts Valuation in thousands of € (Source: Semapa, Secil and Portucel Annual Reports & own calculations)

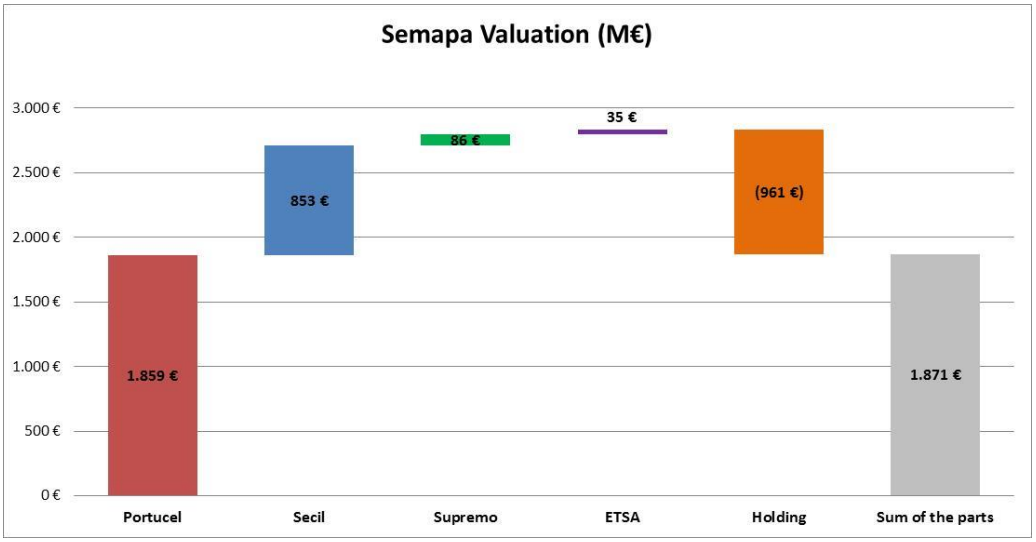

Figure 96: Semapa Valuation in millions of € (Source: Semapa, Portucel and Secil Annual Reports & own calculations)

Considering that Semapa has 112.884.470 shares, the intrinsic value of each share is 16,57 €. This compares to the 7,19 € per share at which the company closed the trading session of 08/02/2013, signifying a +130% upside potential.

This very optimistic scenario is partly supported by the company's historical trading price. Since 2006, Semapa had its worst performance during 2012, which is clear in the image below, revealing a clearly undervalued company.

Figure 97: Semapa Share Price 2006-2013 (Source: Yahoo Finance)

The first months of 2013, which are already visible in the graph below, suggest a clear recovery as was predicted throughout this paper, reaching its highest value since July 2011, still beneath the potential 16,57 €.

The highest value at which Semapa's shares traded since 2006 was 13,55 €, in July 2007, right before the crisis struck. However, since then the company has undergone very significant changes. It has invested heavily in Secil and Supremo, two companies that offer high growth potential, and also in the new Portucel paper mill, which increased by more than 30% the capacity of the most profitable of the group's products: paper.

All of these factors together explain for the most part this unusual upside potential, which is intensified by the undergoing crisis that noticeably created pessimism in the markets and led to the undervaluation of most companies, which are trading well below their true potential value.

8.6.1. Sensitivity Analysis

In this section I will test the impact of some key drivers on the estimated share price of Semapa. This will allow a more comprehensive understanding of the importance of each of the main value drivers as well as a perspective of the company's value under more pessimistic or optimistic scenarios.

The most relevant value drivers for each company are the selling price (cement/paper) and the expected terminal growth rate. These are also the variables more susceptible to change, in the sense that they are harder to predict with precision than other variables.

Considering that Portucel and Secil represent over 90% in absolute of the total Enterprise Value of Semapa, these should be considered the key drivers of value for the Group. However, for comparison purposes, two scenarios were also considered for Supremo and the Holding: for the Holding, I assumed a ± 20% variation to the Holding's costs, whereas for Supremo I considered the current sales for the pessimistic scenario and 5x the current sales for the optimistic scenario, considering the average of the peer group, without the adjustment made in section 8.3.

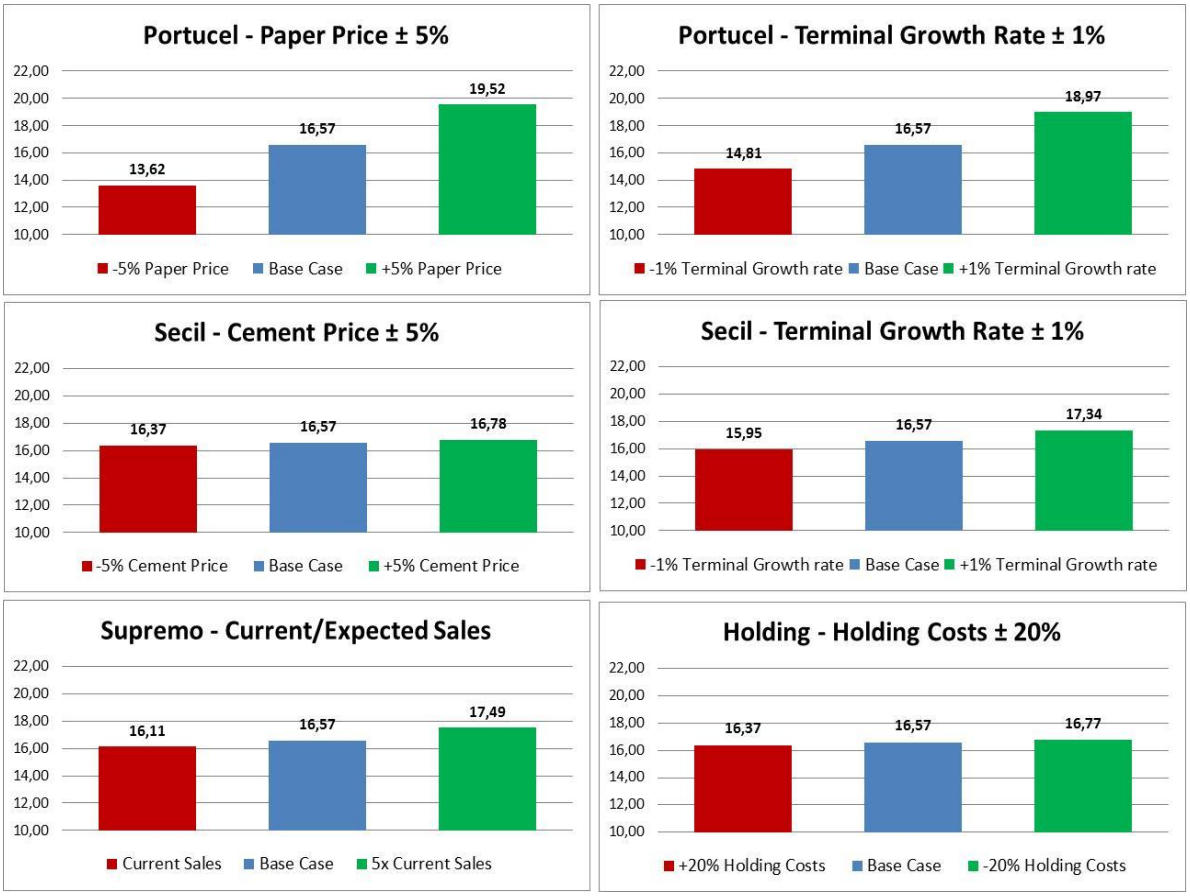

Figure 98: Semapa Share Price Sensitivity Analysis (Source: own calculations)

Semapa's share price is most sensitive to paper price. This is not a surprising outcome, since paper and Portucel represent the largest portion of Semapa's value and price is clearly the main value driver of Portucel. Nevertheless, it is noteworthy that only a 5% change in the price of paper affects Semapa's share price by 18%, deeming this a crucial factor, as was referred in section 8.1.1.4. However, as pointed out in section 8.1.1.4, paper prices have historically been very stable, even during crisis periods, and therefore a drastic change that could impact Semapa's share price is not expected.

The same effect on cement prices doesn't have quite the same impact through Secil – a ±5% variation in cement prices only affects Semapa's share price by ±1%. The impact would be the same for cement quantities sold, which is good for Semapa, since Secil's prices and quantities sold are much less predictable than Portucel's, that operates at full capacity and sells all the production, whereas Secil operates in fast growing but unstable markets and is quickly growing its operations.

As in any valuation, terminal growth rate also plays an important role – a 1% variation impacts Semapa's share price 14% through Portucel and 4% through Secil. This is one of the reasons why there are often claims that valuations are easily manipulated. However, if instead of trying to find out the exact value of the company we consider the range of values [13,6 ; 19,5] given by this analysis, we can have a good idea of the intrinsic value of the company, which is ultimately the goal of this paper.

Finally, we can see that, as expected, there is no significant difference through Supremo (-3% or +6%) or the Holding (±1%). This allows us to conclude that in the most impacting scenario of a paper price fluctuation of ±5%, the company's share price would range between 13,6 € and 19,5 €. This analysis, however, assumed static scenarios where all other variables remain constant while one changes. In practice, this impact would tend to be partly mitigated by management adjustments, narrowing the gap to a smaller range of values within the same interval.

Comparison with BESI valuation

The report prepared by Banco Espírito Santo de Investimento S.A. (BESI) was published in January 17th 2011, prior to the disclosure of the company's 2010 year-end results, although it already considered the 3Q results and good indications into the 4Q. For this reason, there are significant discrepancies between the analyses, resulting mainly from the two big events in mid-2012: the acquisition of Supremo and the acquisition of the remaining 49% stake in Secil.

The bank's research also used a sum-of-the-parts DCF approach with an explicit period until 2015. The report proposes a BUY rating for both Portucel and Semapa, with a target price for year-end 2011 of 13,93€ for Semapa and 3,20€ for Portucel, comparing to current prices (as of January 2011) of 8,63€ and 2,35€, respectively, representing upside potentials of 61% for Semapa and 36% for Portucel.

However, in order to compare to this dissertation's results, these values should be adjusted in order to account for current stakes in Secil in Portucel and to exclude Supremo from the valuation, since it wasn't valued by BESI. Figure 99 below shows that under the current shares of Secil and Portucel, BESI's valuation would suggest an 18,34€ price target for Semapa, which compares to a 15,81€ price target resulting from the exclusion of Supremo from the dissertation's valuation, 14% below BESI's target.

DISSERTATION VALUATION (excluding Supremo)

Semapa	EV	Market Cap
Portucel	2.842.223 €	2.379.763 €
Secil	979.055 €	852.680 €
ETSA	66.243 €	43.543 €
Holding	(140.955 €)	(961.255 €)

Semapa	EV	Market Cap
Portucel (78,1%)	2.219.776 €	1.858.595 €
Secil (100%)	979.055 €	852.680 €
ETSA (96%)	56.627 €	34.835 €
Holding (100%)	(140.955 €)	(961.255 €)
Sum of the parts	3.114.503 €	1.784.854 €

Price Target 15,81 €

BESI VALUATION

Semapa	EV	Market Cap
Portucel	3.168.200 €	2.434.500 €
Secil	1.040.588 €	953.137 €
ETSA	41.000 €	30.700 €
Holding	(150.300 €)	(813.100 €)

Semapa	EV	Market Cap
Portucel (77%)	2.439.514 €	1.874.565 €
Secil (51%)	530.700 €	486.100 €
ETSA (80%)	32.800 €	24.560 €
Holding (100%)	(150.300 €)	(813.100 €)
Sum of the parts	2.852.714 €	1.572.125 €

Price Target 13,93 €

BESI VALUATION - UNDER CURRENT STAKES

Semapa	EV	Market Cap
Portucel	3.168.200 €	2.434.500 €
Secil	1.040.588 €	953.137 €
ETSA	41.000 €	30.700 €
Holding	(150.300 €)	(813.100 €)

Semapa	EV	Market Cap
Portucel (78,1%)	2.474.364 €	1.901.345 €
Secil (100%)	1.040.588 €	953.137 €
ETSA (96%)	39.360 €	29.472 €
Holding (100%)	(150.300 €)	(813.100 €)
Sum of the parts	3.404.012 €	2.070.854 €

Price Target 18,34 €

Figure 99: Comparison between the Dissertation and BESI's Final Valuations and Price Targets in thousands of € (Source: Companies' Annual Reports, BESI report & own calculations)

We can see from Figure 100 and **Error! Reference source not found.** that the Enterprise Value computed by BESI is lower for Secil, ETSA and the Holding while it is higher for Portucel. The group's total Net debt was 4,2% higher in January 2011 because of the company's recent investment in the new Setúbal mill, through Portucel. All other three companies had lower net

debt in January 2011, compared to 2012. In fact, Portucel is the only company that reduced its net debt, while the Holding increased its debt significantly due to the 2012 acquisitions.

Globally, BESI values Semapa's Enterprise Value 9% above the dissertation's valuation (excluding Supremo) while the market cap is 12% higher.

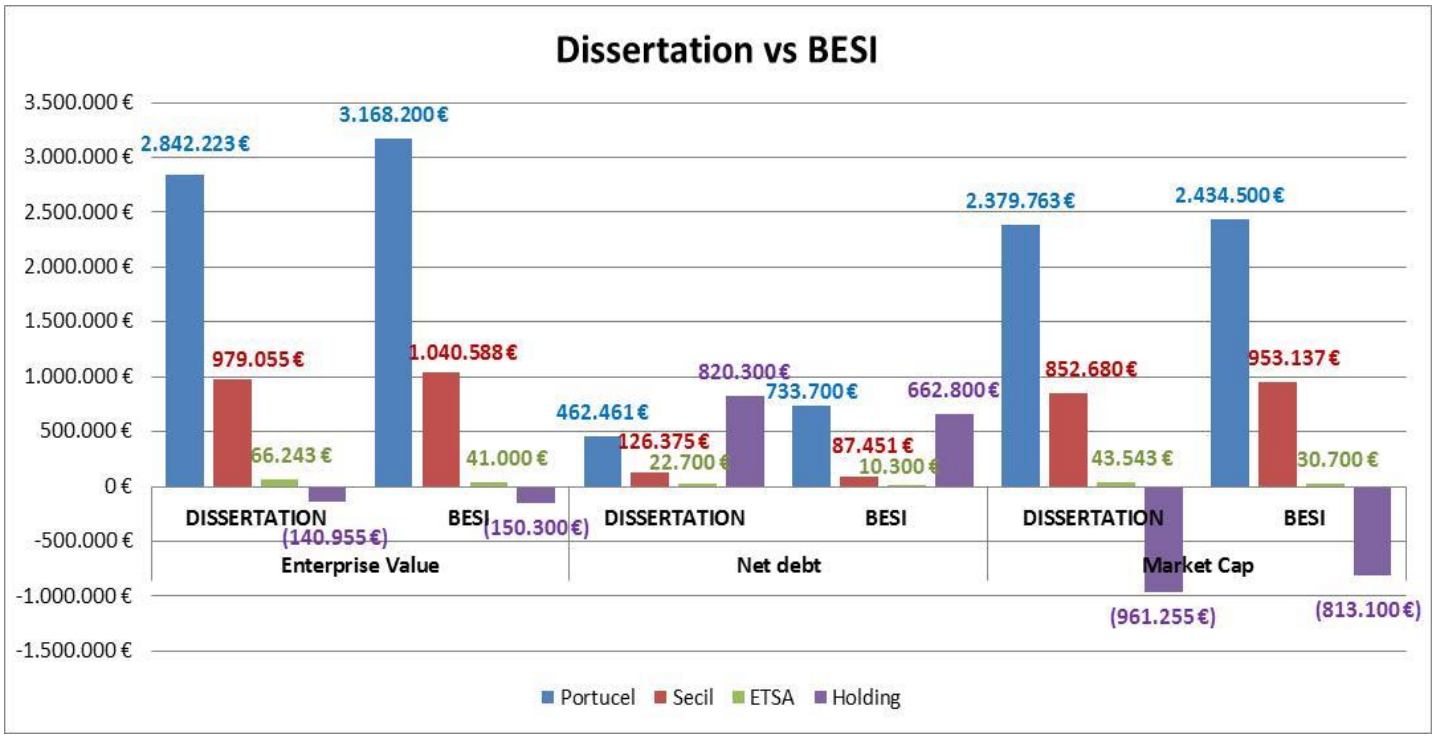

Figure 100: Comparison between the Dissertation and BESI's valuations in thousands of € (Source: BESI report, Annual Reports & own calculations)

Portucel

The difference in Semapa's Enterprise Value is explained in a large part by Portucel's different outcome. This differential in turn is a result of significantly different approaches to the company's expected EBITDA margins. This is the consequence of two different factors.

EBITDA Margin	2008	2009	2010E*	2011E*	2012E	2013E	2014E	2015E	2016E	2017E
Dissertation	23%	22%	29%	26%	26%	24%	23%	23%	23%	21%
BESI	23%	22%	30%	32%	31%	30%	29%	29%	29%	29%

Figure 101: Portucel's estimated EBITDA Margins (Source: BESI report & own calculations)

The first is that BESI's valuation was conducted before the first full-year report after the opening of the new mill was disclosed. For this reason, they did not have full visibility into the investment's impact. Therefore, the bank assumed a 30% EBITDA margin based on the first 3Q of 2010, which was very close to the effective full-year result of 29%. However, BESI had no visibility into 2011 results, which evidenced an EBITDA margin reduction to 26%.

In section 8.1.2.2 I argued that, since paper has a higher variable cost than pulp, as Portucel moves its sales more and more into paper, in detriment of pulp, the variable cost of each unit sold will increase. BESI admits the same idea – that the EBITDA margin will gradually decrease after the opening of the new mill, due to the higher sales margin of paper over pulp.

However, BESI's valuation stood upon the expectation that the new mill would further increase its EBITDA margin to 32% and only then start a slow reduction, but the 2011 and mid-2012 evidence showed that in fact the EBITDA margin was being undercut at the same rate as paper was outpacing pulp in the company's total sales.

For this reason I believe the assumption made in this paper is more accurate and BESI's valuation was affected, in this case, by the unpredictability of the new mill's true impact, whereas this dissertation benefited from an additional full-year report to conclude with more precision.

The WACC underlying assumptions are another source of disagreement between the two papers:

While in this dissertation I assumed a cost of debt indexed to the Euribor 6m (as stated by the company's annual reports), the BESI report assumes a fixed 6,5% rate. This assumption seems flawed in two different ways: it assumes a flat rate, when the company clearly expresses all the major loans' indexation factor as the Euribor 6m, and it assumes an excessively high cost of debt – in order for the cost of debt to be 6,5%, either the Euribor 6m would have to be constant and equal to 4% (which only happened for 20% of the recorded months since 1999 and hasn't happened since 2008) or the default spread would have to be assumed as higher than 4%.

BESI also assumes a 4,5% risk free rate although at the date the report was published the 10-year government bond yields were below 3% and had been so and decreasing for the entire previous year. Therefore, there is no clear explanation of why this rate was used.

Lastly, the unlevered beta was assumed to be 1,00, which is an incorrect simplification, since the company's returns are clearly not perfectly correlated to the market's.

Secil

BESI valued Secil based on different estimates for each country. The estimates for cement consumption were based on a model grounded on the same assumption made in this paper - that until a certain level of GDP per capita consumption per capita increases and then starts to decline.

However, each country's potential and expected growth timings were classified differently. For instance, BESI classified Tunisia as a high growth potential market; however it was assumed that this growth would not start until 2015.

Furthermore, the BESI report was published before Secil reinforced its strong internationalization intents. For this reason, it assumes that the sales in Portugal don't reduce but instead remain fairly stable, with the investments being focused in this country. This results in a higher share of sales for Portugal, which has lower prices, which, in turn were assumed even slightly lower under BESI's assumptions compared to this dissertation. The result was a somewhat lower EBITDA margin that explains the lower Enterprise Value estimated by BESI.

Portugal share of Revenue	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Dissertation	73%	68%	67%	65%	61%	58%	55%	52%	49%	46%
BESI	71%	66%	66%	63%	64%	64%	64%	64%	65%	65%

Figure 102: Share of Portugal & Others cement sales in Total Salers (Source: BESI report, Secil Annual Reports & own calculations)

Once again, it is evident that the 2011 and mid-2012 results offered some important insights that were not considered by the BESI report. In this case the tendency to underinvest in Portugal (compared to the African countries) is unmistakable, however the tendency was greatly reinforced by the 2011 and mid-2012 reports, which included notes from the Directors highlighting the strong intent to pursue an international diversification market.

Furthermore, the WACC underlying assumptions are, again, difficult to understand, for the same reasons: the risk free rate was, again, assumed as 4,5%; the cost of debt was assumed as fixed but this time at an even higher rate of 7%.

ETSA

In this case the valuation methods were significantly different. The BESI analysts valued the ETSA group using a DCF approach. However, they assumed a no-growth scenario, with stable EBITDA margins (28%) and sales growing in line with inflation.

This report used a sensitive multiple approach valuation to value ETSA. Consequently it is not feasible to compare the two valuations. Nevertheless, it seems clear that a no-growth scenario isn't realistic, considering the company's historical growth rates, which were considerable and stable.

Additionally, if we consider the average Enterprise Value computed by the worst case scenario multiple valuation in section 8.4, using the three different multiples, we achieve an Enterprise Value of 45,5 M€ which is still higher than BESI's valuation of the company assuming no growth.

Holding

Alike this dissertation, BESI valued the Holding as a sum of its net debt and the present value of the future costs. The assumption to estimate the Holding's future costs was that they would grow in line with inflation; however the bank used only the value reported in the previous year as the basis for this growth as a conservative approach, since it was the highest reported value to date, while in this paper I assumed the average of the last three years. Furthermore, despite differences in the assumptions regarding the WACC variables, the final WACC used by BESI to value the Holding was very similar to the one used in this paper (10% vs 9,7% in this dissertation).

All in all, BESI's approach to value the Holding was similar, which is natural given the lack of options that result from the scarce information on the relevant costs reported by the company. Despite some minor variances in the assumptions and the values used to estimate WACC and FCFF, the outputs were consistent. The slight difference in the EV is mainly explained by the different basis used to estimate the future cash flows of the Holding.

Main Conclusions

The first and most evident conclusion is that there is no universal method. Each company and each circumstance requires a certain approach and a particular type of analysis. The academic community has thoroughly analyzed every aspect of each valuation approach, but there is still large divergence of opinions as to what method is more appropriate to each type of company.

What becomes apparent from this debate is that no research will suffice to single a general-purpose model that is the obvious best valuation model for any valuation in any part of the world - no model fits all, and each model adds to the other, complementing each other.

The second conclusion is that no matter which model is used, if each model's defects are mitigated correctly and the assumptions are accurate and identical, the outcome should be the exact same.

This opens the door to the perception of a third conclusion: a valuation's true value and accuracy is in the assumptions. These are the true differentiators of valuations, and these are the true drivers of accuracy and feasibility. In fact, a perfectly applied valuation model will result in a bogus outcome if the assumptions it is grounded on are not correctly aligned with reality.

Furthermore, it is remarkable how some of the assumptions made by a prestigious investment bank like BESI seem subjective and utterly unsupported by data. Some of these assumptions seem to be driven by a certain outcome expectation, which is not only incomprehensible, but also worrisome. It doesn't seem reasonable nor understandable that a valuation conducted by an investment bank is grounded on unjustified assumptions that don't match publicly reported figures and that seem strangely rounded to simplistic whole figures (e.g. 1,00 unlevered beta; 4,50% risk free rate; 0,50 debt/equity ratio; 7,00% cost of debt; 5,00% equity risk premium; 10,00% WACC).

Finally, this dissertation brought on the understanding that every valuation is at the mercy of the information it has access to. While it is a quoted company, with all the most significant information disclosed to the public, it revealed very problematic to get information from the company's Investor Relation department on the details that were not included in the company's reports. This was particularly felt on the valuation of ETSA, Supremo and the international divisions of Secil.

This difficulty to access the entirety of the required information can be a very relevant barrier to any independent valuation since, as mentioned before, a valuation is only as good as the assumptions its grounded on which, in turn, are necessarily constructed upon the available information.

Bibliography

Fernandez, 2003, "Equivalence of Ten Different Methods for Valuing Companies by Cash Flow Discounting", IESE, University of Navarra

Fernandez, 2004, "How to value a seasonal company discounting cash flows", IESE, University of Navarra

Fernández, 2004,"The value of tax shields is NOT equal to the present value of tax shields", Journal of Financial Economics

Fernandez, 2008, "Company valuation methods. The most common errors in valuations.", IESE, University of Navarra

Young, Sullivan, Nokhasteh and Holt, 1999, "All Roads Lead to Rome: An Integrated Approach to Valuation Models", Goldman Sachs Investment Research

Goedhart, Koller and Wessels, 2005, "The Right Role for Multiples", McKinsey on Finance

Luerhman, 1997 "What's It Worth? A General Manager's Guide to Valuation", Harvard Business Review

Sabal, 2007, "WACC or APV?", Journal of Business Valuation and Economic Loss Analysis

Damodoran, A., 2006 "Valuation Approaches and Metrics: A Survey of the Theory and Evidence"

Liu, Nissim and Thomas, 2000, "Equity Valuation Using Multiples", Journal of Accounting Review

De Heer, Koller, Schauten and Steenbeek, 2000 "The Valuation of Cyclical Companies"

Damodoran, 2009, "Ups and Downs: Valuing Cyclical and Commodity Companies"

Branch, 2002, "The Costs of Bankruptcy: A Review", International Review of Financial Analysis

Warner, 1977, "Bankruptcy Costs – Some Evidence", The Journal of Finance

Miller, 1977," Debt and Taxes", The Journal of Finance

Oded and Michel, 2009, "Why does DCF undervalue equities", Journal of Applied Finance

Fernandez, 2007, "A more realistic valuation: APV and WACC with constant Book Leverage Ratio"

Penman, 1998, "A Synthesis of Equity Valuation Techniques and Terminal Value Calculation for the Dividend Discount Model", Review of Accounting Studies

Biddle, Bowen and Wallace, 1999, "Evidence on EVA", Journal of Applied Corporate Finance

Black and Scholes, 1973, "The Pricing of Options and Corporate Liabilities", Journal of Political Economy

Bhojraj and Lee, 2001, "Who is my peer?", Journal of Accounting Research

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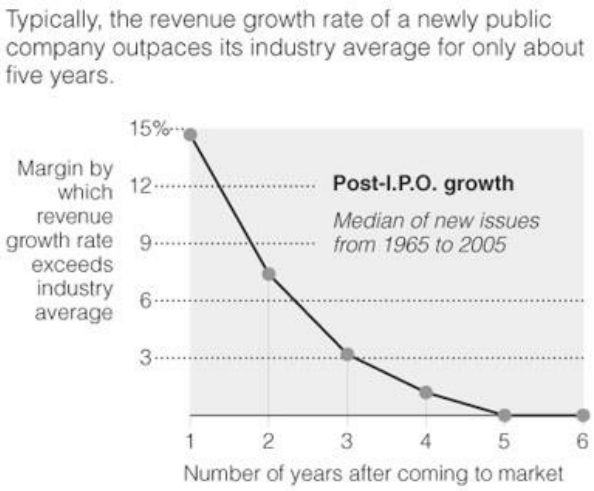
1. See Stewart C. Myers. 'Interactions of Corporate Financing and Investment Decisions - Implications for Capital Budgeting." *Journal of Finance*. vol. 29, March 1974, pp. 1.25.

Websites:

"Growth Rates and Terminal Value" Damodaran http://people.stern.nyu.edu/adamodar/pdfiles/ovhds/dam2ed/growthandtermvalue.pdf (accessed 15/10/2012)

"Closure in Valuation" Damodaran http://people.stern.nyu.edu/adamodar/pdfiles/eqnotes/dcfstabl.pdf (accessed 16/10/2012)

Appendix



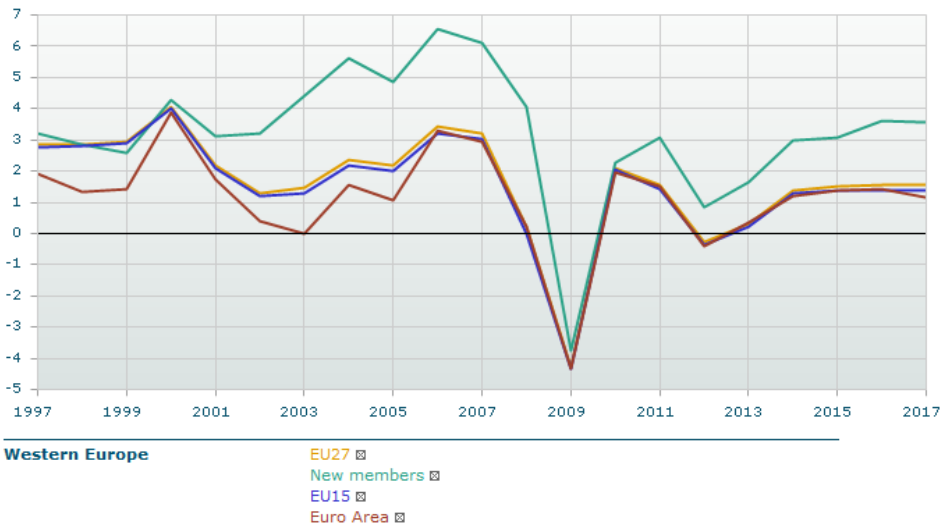
Appendix 1: Growth rate vs Industry average (Source: Damodaran, "Closure in Valuation")

(% change)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GDP growth										
Euro area	0.2	-4.3	2.0	1.5	-0.4	0.4	1.2	1.4	1.4	1.2
EU27	0.2	-4.3	2.1	1.5	-0.3	0.4	1.4	1.5	1.5	1.5
EU15	0.0	-4.3	2.1	1.4	-0.4	0.3	1.3	1.4	1.4	1.4
New members[a]	4.1	-3.8	2.3	3.1	0.9	1.7	3.0	3.1	3.6	3.5
Consumer price inflation										
Euro area	3.2	0.3	1.6	2.6	2.3	1.8	2.0	2.1	2.1	2.0
EU27	3.5	0.8	2.0	2.7	2.4	2.1	2.1	2.3	2.2	2.1
EU15	3.3	0.6	1.9	3.0	2.4	2.0	2.1	2.2	2.1	2.1
New members[a]	6.2	3.2	2.9	3.9	3.6	3.1	2.8	2.7	2.7	2.6

[a] Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia (excl Malta).

Appendix 2: Western Europe GDP growth and inflation forecast (Source: The Economist Intelligence Unit [October 17th 2012])



Appendix 3: Western Europe GDP growth (Source: The Economist Intelligence Unit [October 17th 2012])

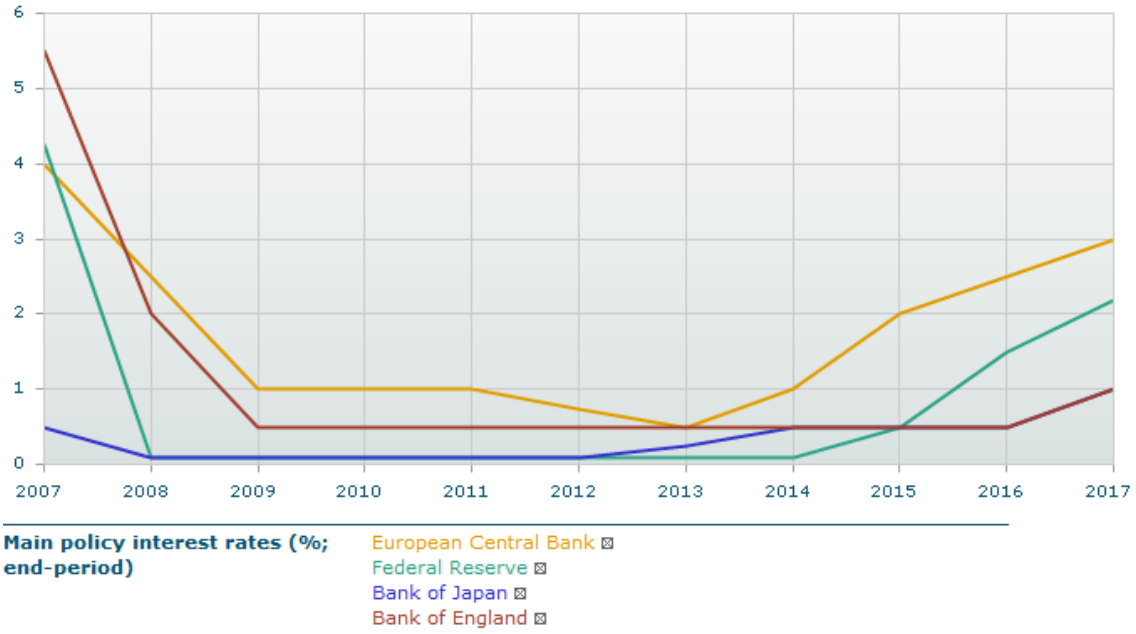
(% change)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Real GDP growth (PPP exchange rates)										
World	**2.4**	**-0.8**	**5.0**	**3.8**	**3.1**	**3.5**	**4.0**	**4.1**	**4.1**	**4.1**
OECD	0.1	-3.6	2.9	1.8	1.4	1.6	2.1	2.1	2.2	2.0
Non-OECD	5.8	3.1	7.7	6.3	5.1	5.8	6.1	6.3	6.3	6.2
Real GDP growth (market exchange rates)										
World	**1.3**	**-2.3**	**3.9**	**2.6**	**2.2**	**2.5**	**2.9**	**2.9**	**3.0**	**2.9**
North America	-0.3	-3.0	2.5	1.9	2.1	2.1	2.3	2.3	2.4	2.4
Western Europe	0.1	-4.2	2.3	1.7	-0.1	0.5	1.3	1.4	1.4	1.4
Transition economies	4.6	-5.6	3.4	3.8	2.5	2.9	3.7	3.7	3.9	4.1
Asia & Australasia (incl Japan)	2.8	0.7	6.8	3.5	4.2	4.2	4.5	4.4	4.3	4.1
Latin America	3.9	-1.9	6.0	4.3	3.1	3.8	4.0	3.9	4.0	4.1
Middle East & North Africa	4.4	1.3	5.2	3.4	3.4	3.8	4.7	4.9	5.3	5.0
Sub-Saharan Africa	4.8	1.2	4.4	4.4	4.1	4.4	5.0	5.0	5.3	5.0
Inflation (av)										
World	**4.9**	**1.5**	**3.0**	**4.1**	**3.4**	**3.4**	**3.4**	**3.3**	**3.3**	**3.2**
OECD	3.6	0.5	1.8	2.8	2.2	2.1	2.2	2.2	2.2	2.2
Trade in goods										
World	**2.4**	**-11.7**	**14.3**	**6.3**	**3.3**	**4.5**	**5.3**	**5.6**	**5.7**	**5.7**
OECD	1.7	-12.4	13.1	5.5	3.0	3.8	4.4	4.6	4.7	4.7
Non-OECD	6.3	-8.8	15.5	7.9	4.3	6.0	7.1	7.4	7.5	7.4

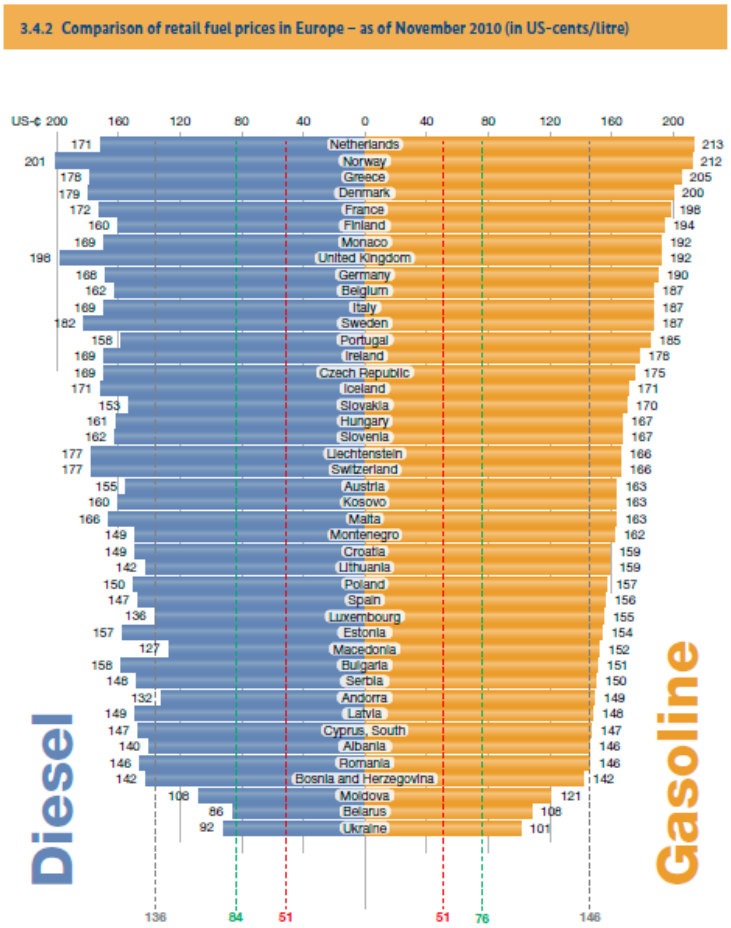
Appendix 4: World Economic Forecast (Source: The Economist Intelligence Unit [October 17th 2012])

Main policy interest rates (%; end-period)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
European Central Bank	4.000	2.500	1.000	1.000	1.000	0.750	0.500	1.000	2.000	2.500	3.000
Federal Reserve	4.250	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.500	1.500	2.175

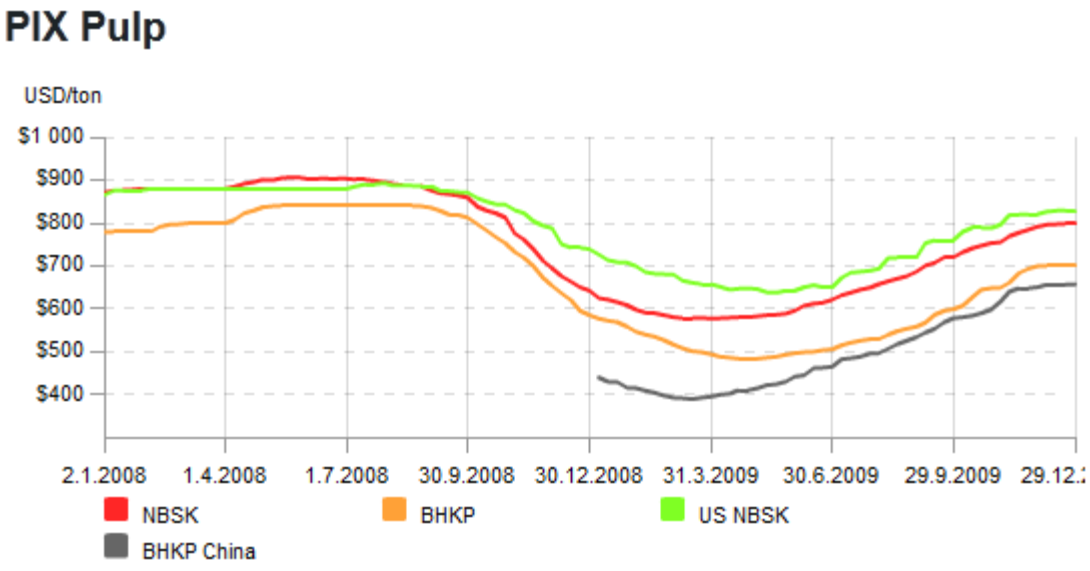
Appendix 5: Main Policy Interest Rates of the European Central Bank & Federal Reserve forecast (Source: The Economist Intelligence Unit [October 17th 2012])



Appendix 6: Main Policy Interest Rates forecast (Source: The Economist Intelligence Unit [October 17th 2012])



Appendix 7: Comparison of retail fuel prices in Europe as of November 2010 (in US-cents/Litre) (Source: GIZ - German Federal Ministry for Economic Cooperation and Development)



Appendix 8: PIX Pulp prices in USD/ton 2008-2010 (Source: FOEX [23rd October 2012])

Annual variations (000 €)	2006	2007	2008	2009	2010	2011
Goodwill	0	0	0	0	0	0
Other intangible assets	-11.038	-786	3.182	-2.260	-2.247	2.682
Property, Plant and Equipment	-66.182	-33.898	166.816	406.344	-22.262	-74.421
Biological Assets	-12.943	-371	-98	-4.537	-7.787	267
Available-for-sale financial assets	516	-386	0	0	-4	0
Investment in associates	-358	0	0	0	516	1.262
Deferred tax assets	-21.593	-18.620	-6.040	276	5.201	23.308

Annual % of non-current assets in absolute value	2006	2007	2008	2009	2010	2011
Goodwill	0%	0%	0%	0%	0%	0%
Other intangible assets	1%	0%	0%	0%	0%	0%
Property, Plant and Equipment	4%	2%	10%	19%	1%	4%
Biological Assets	1%	0%	0%	0%	0%	0%
Available-for-sale financial assets	0%	0%	0%	0%	0%	0%
Investment in associates	0%	0%	0%	0%	0%	0%
Deferred tax assets	1%	1%	0%	0%	0%	1%

Appendix 9: Portucel Non-Current Assets annual variation 2005-2011 (Source: Portucel Annual Reports & own calculations)

For large manufacturing firms			
If interest coverage ratio is			
>	*≤ to*	*Rating is*	*Spread is*
-100000	0,199999	D	12,00%
0,2	0,649999	C	10,50%
0,65	0,799999	CC	9,50%
0,8	1,249999	CCC	8,75%
1,25	1,499999	B-	6,75%
1,5	1,749999	B	6,00%
1,75	1,999999	B+	5,50%
2	2,2499999	BB	4,75%
2,25	2,49999	BB+	3,75%
2,5	2,999999	BBB	2,50%
3	4,249999	A-	1,65%
4,25	5,499999	A	1,40%
5,5	6,499999	A+	1,30%
6,5	8,499999	AA	1,15%
8,50	100000	AAA	0,65%

Appendix 10: Credit Ratings & Default Spreads (Source: Damodaran, http://pages.stern.nyu.edu/~adamodar)

Last updated: January 2012

Ten year government bond spreads

Country	Latest yield	Spread vs bund	Spread vs T-bonds
Australia	3.17%	+1.80	+1.55
Austria	1.77%	+0.40	+0.15
Belgium	2.18%	+0.81	+0.57
Canada	1.70%	+0.33	+0.09
Denmark	1.34%	-0.03	-0.27
Finland	1.64%	+0.27	+0.03
France	2.05%	+0.68	+0.43
Germany	1.37%	--	-0.24
Greece	16.23%	+14.86	+14.62
Ireland	4.67%	+3.30	+3.06
Italy	4.50%	+3.13	+2.89
Japan	0.71%	-0.66	-0.90
Netherlands	1.61%	+0.24	0.00
New Zealand	3.53%	+2.16	+1.92
Portugal	7.67%	+6.30	+6.05
Spain	5.34%	+3.97	+3.72
Sweden	1.47%	+0.10	-0.14
Switzerland	0.42%	-0.95	-1.19
UK	1.77%	+0.40	+0.16
US	1.61%	+0.24	--

Data delayed by at least 15 minutes.

Appendix 11: Ten year government bond spreads (Source: Financial Times [December 2012])

Country	Region	Local Currency Rating	Adj. Default Spread	Total Risk Premium
Germany	Western Europe	Aaa	0	6.00%

Appendix 12: Country Credit Rating & Risk Premium (Source: Damodaran, (http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html)

"This table summarizes the latest bond ratings and appropriate default spreads for different countries. While you can use these numbers as rough estimates of country risk premiums, you may want to modify the premia to reflect the additonal risk of equity markets. To estimate the long term country risk premium, I start with the country rating (from Moody's: www.moodys.com) and estimate the default spread for that rating (based upon traded country bonds) over a default free government bond rate. This becomes a measure of the added country risk premium for that country. I add this default spread to the historical risk premium for a mature equity market (estimated from US historical data) to estimate the total risk premium. In the short term especially, the equity country risk premium is likely to be greater than the country's default spread. You can estimate an adjusted country risk premium by multiplying the default spread by the relative equity market volatility for that market (Std dev in country equity market/Std dev in country bond). I have used the emerging market average of 1.5 (equity markets are about 1.5 times more volatile than bond markets) to

estimate country risk premium. I have added this to my estimated risk premium of 6% for mature markets (obtained by looking at the implied premium for the S&P 500) to get the total risk premium."

Source: Damodaran 2012 (http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html)

Changes in Provisions	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Provisions	1.499	26.047	9.946	13.540	(21.464)	1.165	(5.611)	(6.489)	6.570	3.796	1.733	(13.892)	21.412
Increases	**1.499**	**26.518**	**25.706**	**37.457**	**1.298**	**22.744**	**16.145**	**342**	**19.197**	**13.880**	**31.593**	**2.185**	**31.713**
Legal	1.499	458	395	1.919	687	2	383	0	927	321	239	1.709	359
Tax	0	13.919	11.684	0	0	10.966	15.762	0	0	13.083	13.083	0	13.083
Other	0	12.141	13.627	35.539	610	11.776	0	342	18.271	476	18.271	476	18.271
Decreases	**(37)**	**(471)**	**(15.760)**	**(23.918)**	**(22.762)**	**(21.579)**	**(21.756)**	**(6.831)**	**(12.628)**	**(10.084)**	**(29.859)**	**(16.077)**	**(10.301)**
Legal	(37)	(471)	(736)	(365)	(508)	(668)	(461)	0	(869)	(949)	(624)	(400)	(689)
Tax	0	0	(2.806)	(23.154)	(2.393)	0	(21.295)	0	(5.433)	0	(19.624)	(6.541)	0
Other	0	0	(12.218)	(398)	(19.861)	(20.912)	0	(6.831)	(6.326)	(9.135)	(9.611)	(9.135)	(9.611)
Direct utilizations	**(626)**	**(12)**	**0**	**(5.850)**	**0**	**(112)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Legal	(626)	(12)	0	0	0	(112)	0	0	0	0	0	0	0
Tax	0	0	0	(5.850)	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0
Provisions account at year-end	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Legal	1.801	1.776	363	1.917	2.097	1.432	1.354	1.354	1.412	784	400	1.709	1.379
Tax	0	13.919	31.397	2.393	0	10.966	5.433	5.433	0	13.083	6.541	0	13.083
Other	153	12.294	6.174	41.314	22.063	12.815	12.815	6.326	18.271	9.611	18.271	9.611	18.271

Appendix 13: Portucel Changes in Provisions forecast (Source: Portucel Annual Reports & own calculations)

000€	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Revenues	1.029.086	1.080.659	1.147.395	1.131.936	1.095.309	1.385.456	1.487.884	1.485.495	1.635.131	1.638.714	1.668.179	1.693.587	1.724.810
Other Operating Income	22.359	23.503	20.652	25.957	34.742	22.859	21.483	24.508	24.949	25.448	25.982	26.528	27.059
Change in the fair value of biological assets	2.214	(12.943)	(371)	(98)	(4.537)	(7.787)	267	0	0	0	0	0	0
Cost of inventories sold and consumed	(351.122)	(357.840)	(420.015)	(502.676)	(485.156)	(517.223)	(580.269)	(609.229)	(694.688)	(709.516)	(728.288)	(742.906)	(756.629)
Cost of materials and services consumed	(295.869)	(300.164)	(288.407)	(281.797)	(288.945)	(336.907)	(358.296)	(376.179)	(428.946)	(438.102)	(449.694)	(458.720)	(467.193)
Payroll costs	(115.955)	(107.850)	(113.844)	(112.046)	(114.744)	(127.020)	(133.713)	(125.884)	(124.501)	(123.133)	(122.145)	(121.250)	(120.458)
Other costs and losses	(20.386)	(11.410)	(7.252)	(17.148)	(15.857)	(13.575)	(13.530)	(14.491)	(14.752)	(15.047)	(15.363)	(15.685)	(15.999)
Variation in production	(3.384)	(1.436)	2.582	27.590	1.348	(5.635)	(38.753)	(943)	0	0	0	0	0
Provisions	(1.499)	(26.047)	(9.946)	(13.540)	21.464	(1.165)	5.611	6.489	(6.570)	(3.796)	(1.733)	13.892	(21.412)
EBITDA	**265.445**	**286.472**	**330.795**	**258.179**	**243.624**	**399.002**	**390.684**	**389.766**	**390.624**	**374.569**	**376.938**	**395.445**	**370.177**
Depreciation, amortization and impairment losses	(132.181)	(77.161)	(70.472)	(77.048)	(111.544)	(121.185)	(124.527)	(104.732)	(101.044)	(97.696)	(94.466)	(91.349)	(88.340)
EBIT	**133.264**	**209.311**	**260.323**	**181.131**	**132.080**	**277.817**	**266.156**	**285.035**	**289.580**	**276.873**	**282.472**	**304.097**	**281.837**
Share of loss/gains of associated companies	(124)	0	0	0	0	0	594	788	691	691	691	691	691
Net Financial Costs	(47.439)	(26.457)	(27.541)	(19.635)	(7.545)	(20.079)	(16.346)	(25.240)	(22.356)	(26.040)	(38.622)	(41.385)	(43.701)
Profit before income tax	**85.701**	**182.855**	**232.782**	**161.496**	**124.534**	**257.737**	**250.404**	**260.582**	**267.915**	**251.523**	**244.541**	**263.402**	**238.827**
Income tax	(22.415)	(58.184)	(78.811)	(30.423)	(19.462)	(47.157)	(54.058)	(73.224)	(75.284)	(64.390)	(62.602)	(67.431)	(61.140)
Net Profit	**63.286**	**124.671**	**153.971**	**131.073**	**105.072**	**210.580**	**196.346**	**187.359**	**192.631**	**187.133**	**181.938**	**195.971**	**177.687**
Non-controlling interests	(6)	(18)	(19)	(1)	(7)	(8)	(14)	(11)	(11)	(11)	(11)	(11)	(11)
Net profit attributable to equityholders	**63.280**	**124.653**	**153.952**	**131.072**	**105.065**	**210.572**	**196.331**	**187.348**	**192.620**	**187.123**	**181.928**	**195.961**	**177.677**

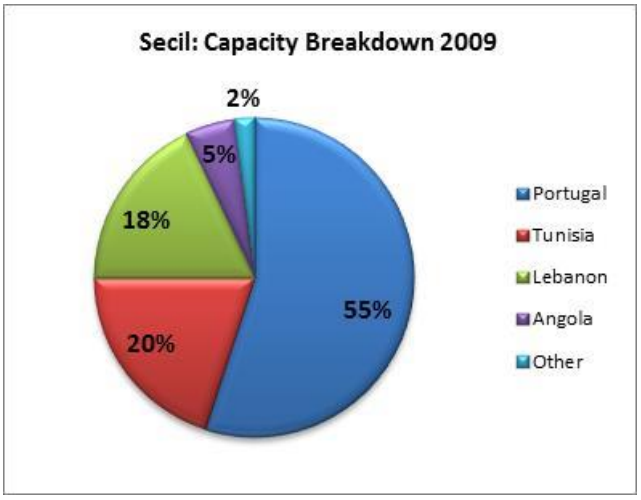
Appendix 14: Portucel Income Statement forecast (Source: Portucel Annual Report & own calculations)

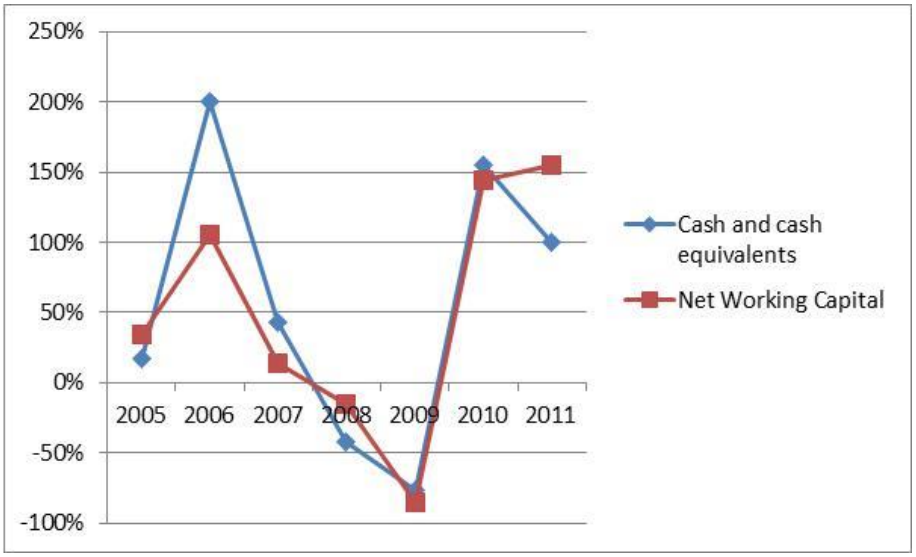
Assets													
Non-Current Assets	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Goodwill	376.756	376.756	376.756	376.756	376.756	376.756	376.756	376.756	376.756	376.756	376.756	376.756	376.756
Other intangible assets	13.243	2.205	1.419	4.601	2.341	94	2.777	3.812	3.812	3.812	3.812	3.812	3.812
Property, Plant and Equipment	1.153.312	1.087.130	1.053.232	1.220.048	1.626.391	1.604.130	1.529.709	1.497.353	1.462.033	1.419.693	1.379.012	1.339.904	1.302.284
Biological Assets	136.239	123.295	122.925	122.827	118.290	110.503	110.769	110.615	124.823	144.267	162.988	167.083	164.143
Available-for-sale financial assets	0	516	130	130	130	126	126	126	126	126	126	126	126
Investment in associates	358	0	0	0	0	516	1.779	1.752	1.101	1.101	1.101	1.101	1.101
Deferred tax assets	63.739	42.146	23.526	17.486	17.763	22.964	46.272	44.684	39.045	38.481	37.941	37.080	36.082
Total	**1.743.648**	**1.632.049**	**1.577.989**	**1.741.849**	**2.141.672**	**2.115.089**	**2.068.188**	**2.035.099**	**2.007.696**	**1.984.236**	**1.961.736**	**1.925.862**	**1.884.304**
Current Assets													
Inventories	131.113	117.556	141.835	240.318	147.269	172.900	188.691	184.665	203.568	203.540	206.720	209.705	213.569
Receivables and other current assets	226.498	249.541	318.463	199.553	168.191	212.840	242.257	271.673	299.483	299.442	304.120	308.511	314.197
State and other public entities	36.132	24.683	35.211	47.070	51.477	32.228	54.684	40.212	40.212	40.212	40.212	40.212	40.212
Cash and cash equivalents	89.521	268.899	385.165	222.549	52.549	133.959	267.432	183.812	164.110	144.407	224.705	188.336	151.967
Total	**483.264**	**660.678**	**880.674**	**709.490**	**419.486**	**551.926**	**753.064**	**680.362**	**707.372**	**687.601**	**775.757**	**746.764**	**719.946**
TOTAL ASSETS	**2.226.912**	**2.292.728**	**2.458.662**	**2.451.338**	**2.561.158**	**2.667.016**	**2.821.252**	**2.715.461**	**2.715.068**	**2.671.838**	**2.737.493**	**2.672.625**	**2.604.249**
EQUITY AND LIABILITIES													
Capital and Reserves	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Share Capital	767.500	767.500	767.500	767.500	767.500	767.500	767.500	767.500	767.500	767.500	767.500	767.500	767.500
Treasury shares	(54)	(54)	(54)	(24.431)	(26.788)	(26.788)	(42.155)	(88.896)	(88.896)	(88.896)	(88.896)	(88.896)	(88.896)
Fair value reserves	(1.506)	5.486	7.755	5.245	(1.456)	78	(523)	(144)	0	0	0	0	0
Other (legal) reserves	67.602	76.186	80.732	89.929	42.330	47.006	57.547	66.218	66.218	66.218	66.218	66.218	66.218
Currency translation reserve	(78)	43	37	261	242	882	(486)	(1.497)	0	0	0	0	0
Retained earnings from previous years	135.029	149.617	166.084	276.449	383.419	304.020	499.721	525.116	505.854	487.141	468.949	449.353	431.585
Net profit for the year	63.291	124.653	153.952	131.074	105.080	210.588	196.331	187.348	192.620	187.123	181.928	195.961	177.677
Shareholders' Equity	**1.031.784**	**1.123.430**	**1.176.007**	**1.246.027**	**1.270.326**	**1.303.286**	**1.477.935**	**1.455.645**	**1.443.296**	**1.419.087**	**1.395.699**	**1.390.135**	**1.354.084**
Non controlling interests	171	182	237	231	230	217	221	227	227	227	227	227	227
TOTAL EQUITY	**1.031.955**	**1.123.612**	**1.176.244**	**1.246.258**	**1.270.556**	**1.303.503**	**1.478.156**	**1.455.873**	**1.443.524**	**1.419.314**	**1.395.926**	**1.390.363**	**1.354.311**
Non-Current Liabilities													
Deferred tax liabilities	88.004	108.227	113.214	126.838	138.441	164.999	193.237	105.991	106.387	106.852	109.103	91.320	89.850
Pensions and other post-employment benefits	36.464	34.048	16.309	24.501	19.518	13.714	16.683	19.621	19.694	19.780	20.197	16.905	16.633
Provisions	1.954	27.989	37.935	45.624	24.160	25.213	19.603	20.788	20.865	20.957	21.398	17.910	17.622
Interest-bearing liabilities	747.420	738.495	692.012	686.887	420.985	729.697	566.813	501.235	681.533	461.831	742.128	705.759	469.390
Other non-current liabilities	32.675	21.652	20.602	17.522	28.077	24.471	18.109	19.514	19.587	19.672	20.087	16.813	16.542
Total	**906.517**	**930.410**	**880.073**	**901.372**	**631.182**	**958.094**	**814.444**	**667.148**	**848.066**	**629.091**	**912.914**	**848.708**	**610.038**
Current Liabilities													
Interest-bearing liabilities	78.240	10.464	60.856	16.095	331.312	91.250	164.085	235.912	35.912	235.912	35.912	35.912	235.912
Payables and other current liabilities	182.464	187.859	259.882	248.702	272.530	264.839	284.893	303.211	334.249	334.204	339.425	344.326	350.672
State and other public entities	27.737	40.384	81.607	38.912	55.578	49.329	79.673	53.317	53.317	53.317	53.317	53.317	53.317
Total	**288.440**	**238.706**	**402.345**	**303.708**	**659.420**	**405.418**	**528.652**	**592.440**	**423.478**	**623.432**	**428.653**	**433.555**	**639.900**
TOTAL LIABILITIES	**1.194.957**	**1.169.116**	**1.282.418**	**1.205.080**	**1.290.602**	**1.363.513**	**1.343.096**	**1.259.588**	**1.271.544**	**1.252.524**	**1.341.567**	**1.282.263**	**1.249.938**
TOTAL EQUITY AND LIABILITIES	**2.226.912**	**2.292.728**	**2.458.662**	**2.451.338**	**2.561.158**	**2.667.016**	**2.821.252**	**2.715.461**	**2.715.068**	**2.671.838**	**2.737.493**	**2.672.625**	**2.604.249**

Appendix 15: Portucel Balance Sheet forecast (Source: Portucel Annual Report & own calculations)

Secil Cement Sales (1000t)	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Portugal	3.474	3.551	3.217	2.779	2.712	2.603	2.040	1.932	1.829	1.732	1.657	1.586
Lebanon	806	965	989	1.086	1.112	1.150	1.260	1.341	1.414	1.477	1.542	1.595
Tunisia	1.130	1.155	1.297	1.335	1.362	1.170	1.349	1.418	1.520	1.629	1.763	1.942
Angola	174	237	295	307	196	229	294	345	395	441	483	525
Cape Verde	44	34	28	48	52	54	55	57	60	65	77	95

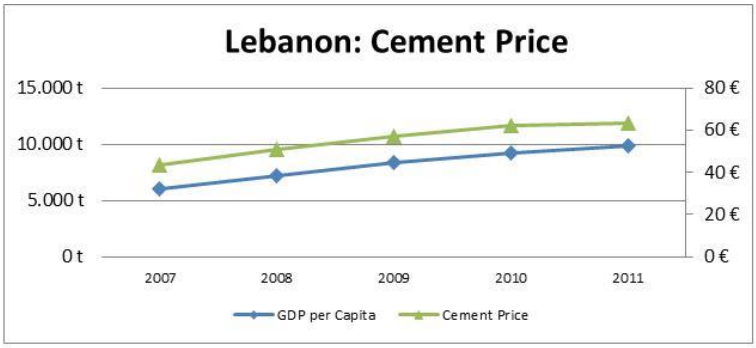
Appendix 16: Secil Cement Sales forecast in thousand tons (Source: Secil Annual Reports & own calculations)

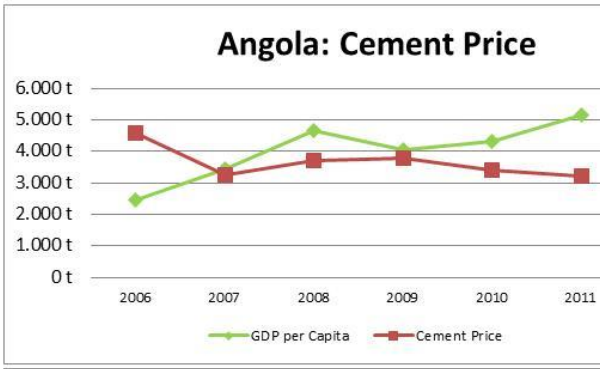


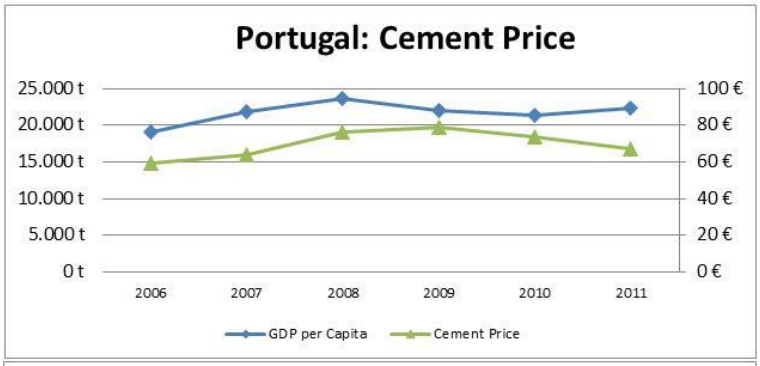


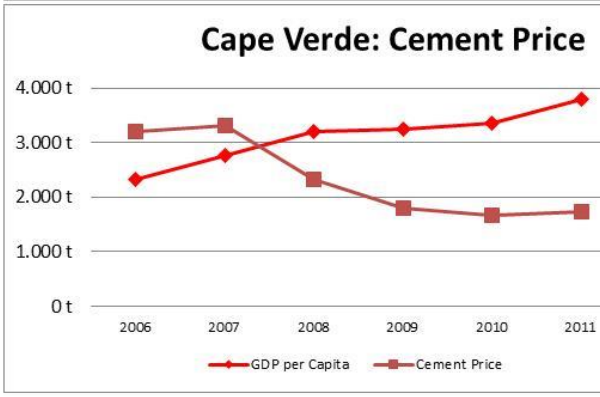
Cement Consumption Estimated Annual Growth

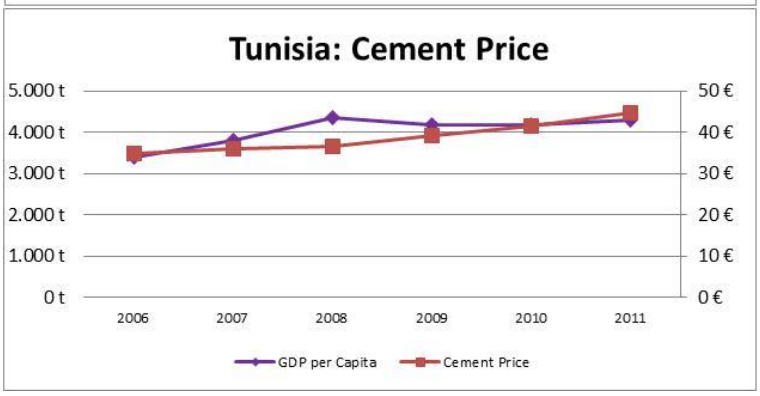
Country	Average	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Portugal	**-9%**	-11%	0%	-8%	-15%	-6%	-16%	-7%	-5%	-5%	-5%	-4%	-4%
Lebanon	**11%**	9%	18%	7%	7%	16%	7%	7%	6%	5%	4%	4%	3%
Tunisia	**2%**	2%	2%	3%	5%	10%	-8%	5%	5%	7%	7%	8%	10%
Angola	**18%**	26%	33%	20%	4%	-7%	29%	22%	18%	15%	12%	10%	9%
Cape Verde	**4%**		4%	26%	-17%	5%	2%	4%	4%	6%	8%	19%	23%











Revenue	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E
Portugal	339.138	366.221	380.998	335.540	304.909	274.201	238.464	236.889	231.533	226.305	221.569
Cement	207.036	226.992	246.291	218.617	200.123	174.116	141.844	141.788	138.739	136.397	132.787
Concrete	122.343	123.732	120.137	102.990	88.675	85.263	82.705	81.464	79.020	75.860	75.101
Other products	9.759	15.497	14.570	13.932	16.110	14.822	13.915	13.637	13.773	14.049	13.680
Lebanon	0	47.809	56.748	69.704	77.109	80.659	90.652	99.122	108.564	119.060	129.172
Cement	0	42.053	50.137	62.034	69.460	73.052	82.817	90.817	99.594	109.732	119.190
Concrete	0	5.756	6.611	7.670	7.649	7.607	7.835	8.305	8.970	9.328	9.981
Tunisia	43.744	46.659	53.447	60.372	64.818	60.910	62.234	66.355	73.283	86.418	99.961
Cement	39.309	41.534	47.424	52.426	56.626	52.381	53.193	56.590	63.226	75.254	88.574
Concrete	4.435	5.125	6.023	7.947	8.192	8.529	9.041	9.764	10.057	11.163	11.387
Angola	33.343	31.994	45.784	48.572	27.777	30.755	35.954	39.007	43.880	46.689	54.070
Cement	33.343	31.994	45.784	48.572	27.777	30.755	35.954	39.007	43.880	46.689	54.070
Cape Verde	10.101	7.033	4.887	6.404	6.079	6.630	6.626	6.607	6.687	6.929	8.338
Cement	8.786	7.033	4.071	5.397	5.399	5.827	5.799	5.749	5.779	5.950	7.175
Other products	1.315	0	817	1.007	680	804	827	858	908	979	1.163
Others	41.455	64.458	56.648	51.638	55.127	53.748	53.846	51.597	51.339	50.312	51.318
Revenue	**467.781**	**564.175**	**598.512**	**572.230**	**535.819**	**506.903**	**487.776**	**499.577**	**515.285**	**535.713**	**564.427**

	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Revenues	467.781	565.921	599.991	573.588	535.819	506.903	491.500	485.818	505.418	530.960	564.049	596.934
Earnings of associates and JV	2.336	922	325	24	(631)	349	198	198	198	198	198	198
Change in production inventories	(973)	2.227	7.750	(5.883)	227	2.594	(3.428)	1.006	5.172	(2.057)	604	1.301
Cost of sales and materials consumed	(117.251)	(153.444)	(168.452)	(149.150)	(142.181)	(157.782)	(152.071)	(144.993)	(143.316)	(146.571)	(153.978)	(160.754)
External supplies and services	(164.881)	(182.819)	(201.137)	(185.434)	(182.787)	(182.215)	(174.882)	(167.110)	(165.178)	(171.842)	(180.526)	(191.777)
Personnel costs	(67.682)	(78.563)	(80.189)	(80.763)	(82.600)	(81.485)	(82.962)	(84.150)	(85.151)	(86.534)	(88.030)	(89.457)
Impairment of inventories	0	(690)	(254)	324	(774)	(690)	(411)	(391)	(387)	(396)	(416)	(434)
Impairment of accounts receivable	(2.004)	(2.804)	(3.782)	(2.747)	(2.834)	(3.224)	(2.703)	(2.672)	(2.780)	(2.920)	(3.102)	(3.283)
Provisions	(14.262)	(81)	26	416	(141)	(3.417)	55	100	(65)	221	149	(96)
Other income and gains	91.882	12.536	78.805	37.245	45.216	63.569	56.209	50.560	53.888	56.057	54.178	53.671
Other costs and losses	(71.875)	(17.258)	(74.035)	(33.594)	(9.563)	(12.623)	(11.093)	(11.858)	(11.475)	(11.667)	(11.571)	(11.619)
Reversal of depreciations and adjustments	11.959	0	0	0	0	0	0	0	0	0	0	0
EBITDA	**135.286**	**145.947**	**159.049**	**154.026**	**159.874**	**131.863**	**120.412**	**126.508**	**156.322**	**165.449**	**181.554**	**194.684**
Depreciations and Amortizations	(56.694)	(61.487)	(56.793)	(53.284)	(81.930)	(85.137)	(86.550)	(90.077)	(91.314)	(93.522)	(95.863)	(97.805)
Imparment of depreciable assets	(37)	133	(2.486)	291	0	(827)	(88)	(88)	(88)	(88)	(88)	(88)
EBIT	**78.555**	**84.593**	**99.769**	**101.033**	**77.945**	**45.900**	**33.774**	**36.343**	**64.920**	**71.839**	**85.604**	**96.791**
Interest income	10.688	2.312	3.042	2.896	2.740	2.994	2.797	2.894	2.864	2.858	2.881	2.859
Interest expense	(19.528)	(11.775)	(11.689)	(8.260)	(7.638)	(9.163)	(10.913)	(10.305)	(10.871)	(10.591)	(11.478)	(11.227)
EBT	**69.715**	**75.130**	**91.122**	**95.669**	**73.047**	**39.731**	**25.658**	**28.932**	**56.914**	**64.105**	**77.007**	**88.422**
Income Tax	(11.588)	(19.763)	(20.790)	(12.896)	(16.553)	(10.227)	(6.286)	(7.088)	(13.944)	(15.706)	(18.867)	(21.663)
Net income	**58.128**	**55.367**	**70.332**	**82.773**	**56.494**	**29.504**	**19.372**	**21.844**	**42.970**	**48.400**	**58.141**	**66.759**
Attributable to:												
Equityholders		50.409	62.777	70.154	47.344	22.935	15.497	17.475	34.376	38.720	46.512	53.407
Minority interests		4.958	7.555	12.619	9.150	6.570	3.874	4.369	8.594	9.680	11.628	13.352
Dividends		19.009	42.020	37.017	28.754	18.348	14.722	13.980	22.344	25.168	27.907	32.044
Legal Reserves		2.520	3.139	3.508	2.367	1.147	775	874	1.719	1.936	2.326	2.670
Other Reserves		28.880	17.618	29.629	16.222	3.440	0	2.621	10.313	5.808	16.279	18.692
Retained Earnings		0	0	(40)	0	0	0	0	0	5.808	0	0
		50.409	**62.777**	**70.114**	**47.344**	**22.935**	**15.497**	**17.475**	**34.376**	**38.720**	**46.512**	**53.407**

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