CATÓLICA LISBON
SCHOOL OF BUSINESS & ECONOMICS

UNIVERSIDADE CATÓLICA PORTUGUESA

Gonçalo Morgado
152109078

Equity Valuation - Group EDP – 2011

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Dedicated

To my parents, for all their love. For everything.

And Girlfriend.

Abstract

Valuation is as important as difficult and is far from being an exact science. The aim of this dissertation is to analyze EDP – Energias de Portugal, SA under the theories and works of many authors that give all their work to develop the best techniques and assumptions to came up with the best valuation possible. Still, the debate will continue and many other opinions will appear.

Group EDP is enormous. Hence, this dissertation focuses on the most important business segment: Electrical business in Portugal and Spain. This work is done meanwhile Portugal is under financial intervention and it will affect directly EDP as it will be totally private.

The final objective is to compare my work with Caixa Banco de Investimento in their report of December 2010.

Table of Contents

I – Literature Review

1. Introduction

1.1 What is Valuation?

"Every asset, financial as well as real, has a value" (Damodaran, 2002). Knowing that, the point is how and when to measure it. There are plenty of options to do it. Somehow, there are some saturation of different methods, so it is fundamental to choose the best one giving the different assets as "managing assets lies in understanding not only what the value is but also the sources of the value" (Damodaran, 2002).

Valuation is an Art. It is a tough job to do it giving that there are some ideas that do not correspond to the truth. Damodaran (2002) points out some "Myths" that must be taken into consideration. The first one is that "Since Valuation Models are quantitative, valuation is objective" (Damodaran, 2002). The true behind this myth is that, a correct valuation is somehow in the middle of a strong quantitative evaluation but also taking into account several points that are not pure "sum-of-parts". All businesses and companies are different, even though sharing some characteristics that an Analyst can exploit to come up with better evaluations. A simple example is that, evaluate a Mature company is not the same as evaluate a start up, not only because of their cash flows but also because one can be in a stable market and the other in a turmoil situation. It is easy to understand that only by looking at different Equity Research from different Investment companies. Evaluation is also a question of beliefs in the future and since future is unpredictable, people may analyse it in a different way, hence, different values will come up.

"When the facts change, I change my mind. And what do you do, sir?" – Lord Keynes (Damodaran, 2002). This sentence explains other myth that Damodaran stresses: "A well-research and well-done valuation is timeless". Everything changes, even more in the economy, so all the assumption that analysts take to evaluate one company can change quickly so; they must be aware of that and change it on a regular basis in order to have credible final value. The author continue to point other myths such as "A good valuation provides a precise estimate of value" or that "the more quantitative a model, the better the valuation" (Damodaran, 2002) among

others that are not important to focus now for the rest of the work, but to remember meanwhile analysts develop their evaluations.

1.2. Different Valuation Methods – General Review

Main Valuation Methods					
Balance Sheet	**Income Statemen**	**Mixed (GoodWill)**	***Cash Flow Discuntin***	**Value Creation**	**Option**
Book Value	Multiples	Classic	*Equity Cash Flow*	EVA	Black and Scholes
Adjusted book value	PER	Union of European	*Dividends*	Economic Profit	Investment option
Liquidation Value	Sales	Accounting Expert	*Free Cash Flow*	Cash Value Added	Expand the project
Substantial Value	P/EBITDA	Abbreviated income	*Capital Cash*	CFROI	Delay the Investment
	Other Multiples	Others	*APV*		Alternative uses

Source: Pablo Fernandéz, Company Valuation Methods, 2002.

As mentioned above, there are plenty of options to do a company valuation, and Fernandéz (2002) summarizes it quite well in the table above. There are several ways to evaluate and all of them will come up with different values as all of them start and focus on different assumptions – the price is not the point, the value is. “A company’s value is different for different buyers and it may also be different for the buyer and the seller” (Fernandéz, 2002). Not surprisingly, it is of extreme importance to understand whether there is some manipulation or not of the different methods.

Fernandéz (2002) develop an extensive explanation whether one method is better than other knowing that people may prefer different ones. The purpose of this work is not to describe each one of them but to have a brief idea of all the option and the reason why to focus on a specific one.

Starting with the balance sheet methodology we have that some valuations can be made through the observation of the balance sheet forgetting future opportunities, only looking to the “year photo” of the company. Inside this method we have the Adjusted Book Value and “this method seeks to overcome the shortcomings that appear when purely accounting criteria are applied in the valuation” (Fernandéz, 2002). The aim here is to match book values with market values.

The second valuation option mentioned by Fernandéz, P. (See table above) is the income statement-based methods which "seek to determine the company's value through the size of its earnings, sales and other indicators" (Fernandéz, 2002) commonly known as Multiples that are one of the most important evaluation methods and will be deeply analyze afterwards given their importance and appliance to any valuation. The third one, Mixed (Goodwill) – "Goodwill is the value that a company has above its book value or above Adjusted Book Value. (…) Seeks to represent the value of the company's intangible assets (…), contribute an advantage with respect to other companies operating in the industry" (Fernandéz, 2002)

The 4th given method, Cash flow Discount, is the most important one. Any credible valuation must have it and this work will focus on it this method, as well as with the Multiples. It is a very well known method and its likely to be the only one that can be assumed to base final decisions. Fernandéz (2002) summarizes it as all other authors as "this method seeks to determine the company's value by estimating the cash flows it will generate in the future and discounting them at the discount rate matched to the flow's risk" (2002).

Still, it is important to clarify the statement "discount rate matched to the flow's risk" and it can be summarized in the table below.

Cash Flows	Appropriate Discount rate
FCF. Free Cash Flow	Wacc. Weighted Average Cost of Capital
ECF. Equity Cash Flow	Ke. Required Return to Equity
CFd. Debt Cash Flow	Kd. Required return to debt

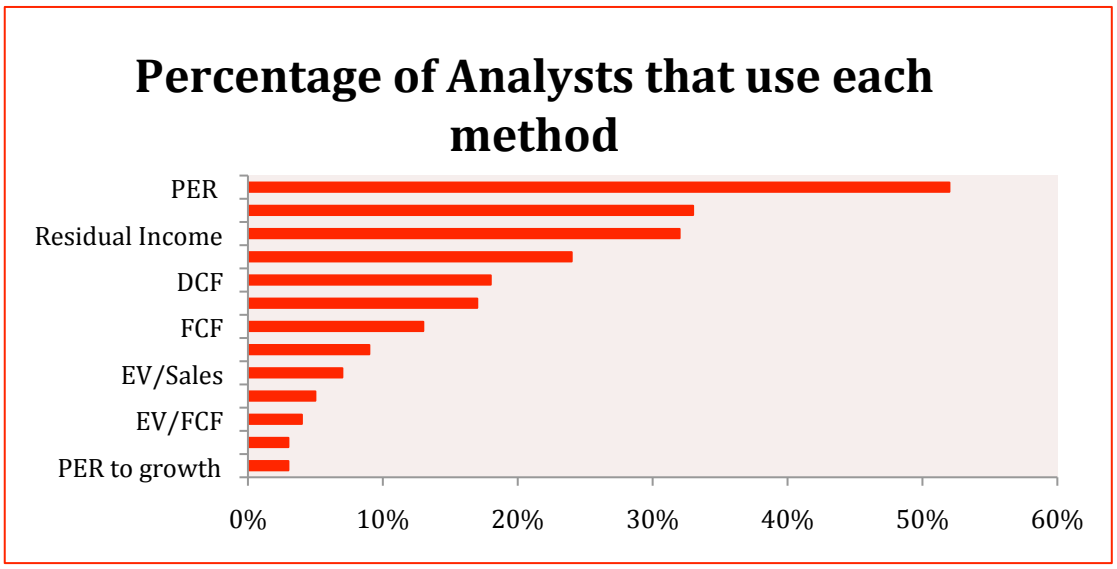
Source: Fernandéz, P. "Company Valuation Methods" (2002)

A company valuation can be made from different perspectives; generally speaking, it can be whether focusing on free cash flow from operations or from equity cash flows. Giving that, we must be aware that they have different risks, so they must be discounted at different discounts rate.

The fifth method, value creation is more used to evaluate some projects inside the company, as they are easy to compute and directly compare the return and associated risk.

Finally, Options valuation is very useful to do valuations when dealing with commodities traded in the market or investment opportunities whether to develop or stop. Hence, companies with high exposure to this kind of assets must consider this valuation tool as a good option.

After this brief introduction about all available methods to do companies valuation according to the actual *state of art,* Fernandéz (2002) presents a table from Morgan Stanley that put it clear that the PER is the most widely used method – See table below. The reason behind it might be that it is an easy method to compute and get the information as well as simple to compare between two companies. All the others are more complex and require more assumption mainly – again – DCF methods.



Source: Morgan Stanley Dean witter Research – Paper: Fernandéz, P. – Valuation using multiples, 2001.

Fernandéz (2001) states that "Multiples are useful in a second stage of valuation: After performing the valuation using another method, a comparison with the multiples of comparable firms enable us to gauge the valuation performed and identify differences between the firm valued and the firms it is compared with".

2. Valuation Methods

2.1 Relative Valuation - Multiples

Multiples are widely used as confirmed before. They are a rich and useful valuation method. "The valuation principle behind Multiples is the relative valuation" as Damodaran, A. (2006) points out – "In relative valuation we value an asset based upon how similar assets are priced in the market" (Damodaran, 2006). In relative valuation we can compare everything, the big problem is what can be compare exactly. Compare two different companies, even though, they are in the same industry is much harder and easy to make mistakes. All companies are different, no matter if in terms of business or in their financial statements and that affect decisively the conclusions and efficiency of the Multiples doing valuations. Damodaran, A. (2006) put it clear comparing with the DCF methods in a simple way: "In discounting cash flows, we are attempting to estimate the intrinsic value of an asset based upon its capacity to generate cash flows in the future. In relative valuation, (…) making a judgement on how much an asset is worth by looking at what the market is paying for similar assets". Still, Damodaran, A. (2006) points one common factor between these two methods: "Every Multiple, (…), is a function of the same three variables – Risk, Growth and cash flow generating potential" as well as DCF assumptions. In line with this finding, other authors find that "Investment banks and appraisers regularly use valuation by multiples, such as P/E multiple, instead of or as a supplement to DCF analysis" (Lie and Lie, 2002).

Damodaran, A. (2006) distinguishes Multiples into three major groups: Earnings, Revenues and Book Value. Moreover, Damodaran, A. (2006) and other authors stresses the fact of what is a "comparable firm", the main difficulty to correctly use Multiples. Damodaran (2006) defines it, as "one with cash flows, growth potential, and risk are similar to this firm being valued". Goedhart et al. (2005) make it clear: "Multiples are often misunderstood and, even more often, misapplied. (…) The use of the Industry average (…) overlooks the fact that companies, even in the same Industry can have drastically different expected growth rates, return on invested capital and capital structure". Goedhart et al. (2005) suggest that the way to do that is by "matching those (companies) with similar expectations for growth and ROIC".

Goedhart et al, (2005) goes more into detail in where he defines as a "well-tempered Multiples". The author states that the best way to avoid errors that can put in stake the valuation results are:

i. Use peer with similar prospects for ROIC and growth;
ii. Use forward-looking multiples
iii. Use enterprise-value multiples;
iv. Adjust the Enterprise-value-to-EBITA multiple for non-operating items.

It is important to notice that is possible to end up with only one "comparable" firm. However, Andreas Schreiner (2007) argues, "If we end up with fewer than two peers, we must either ease the restrictions or use another valuation method. If we have more than two peers, an examination of financial ratios and multiples of the remaining follow". Adding to that, when computing the multiples it is fundamental to have high sensitivity to the specific business and Goedhart et al. (2005) consider it as the difference between "sophisticated veterans from newcomers". In the second point, Goedhart (2005) find with evidence that there is lower dispersion comparing forward-looking multiples than with historical data. This point agrees with the findings of Lie and Lie (2002) where they find out "that the P/E multiple based on forecast earnings provides more accurate estimates than the P/E based on historical earnings" (Lie and Lie, 2002). Third, the opinion that we should use enterprise-value multiples come up from the two flaws of the P/E multiples. First, "systematically affected by capital structure" (Goedhart et al., 2005) and, second, "P/E ratio is based on earning, which include many non-operating items". Hence, his "alternative to the P/E ratio is the ratio of enterprise value to EBITA. (…) Is less susceptible to manipulation by changes in capital structure" (Goedhart et al., 2005). Finally, the author finds it essential to adjust the Enterprise-value-EBITA multiple for non-operating items because, otherwise, we will be generating "misleading results" (Goedhart et al., 2005).

Lie and Lie (2002) states that "a direct comparison of the multiples that provide estimates of Equity value versus those that provide estimates of total

enterprise value may not be entirely fair but (…) provide valuable insights". Their three main findings are interesting in this point of the study:

i. Forecasted against historical values. Same conclusion as Goedhart et al. (2005)
ii. Adjusting for the cash levels has an ambiguous and marginal effect on valuation accuracy. Here, we have same discussion when comparing the two authors, Goedhart (2005) and Lie and Lie (2002).
iii. Of the total enterprise value multiples the asset multiple provides the most accurate and the sales multiples the least accurate estimate. (Lie and Lie, 2002)

Table: Fundamentals determining Equity Multiples.

Multiples	Fundamental Equity Multiples
PER	Expected Growth, Payout, Risk
P/BV	Expected Growth, Payout, Risk, ROE
P/sales	Expected Growth, Payout, Risk, Net Margin
EV/EBITDA	Expected Growth, Payout, Risk, ROC, Tax Rate
EV/Capital	Expected Growth, Payout, Risk, ROC, Tax Rate
EV/Sales	Expected growth, Reinvestment rate, Risk, Operating Margin

Source: Damodaran, A. Valuation Approaches and Metrics, 2006.

A clear common factor in the table above is the expected growth rate. Still, even in the same industry companies can be in different growth stages and that affect their cash flows.

According to Fernandéz (2001) the most widely used Multiples are: PER and EV/EBITDA. However, he notices that depending on the Industry some Multiples may have more relevance than others. To confirm, separate different industries and checked which multiples are more useful.

Industry	Sub-Sector	Most commonly used Multiples
Utilities		PER and P/CE
Oil and Gas	Integrated	PER and EV/CE

Source: Fernandéz, P. Valuation Using Multiples, 2001.

PER = Market Capitalization / Total Net Income = Share Price / Earning per share (Price Earning Ratio)

P/CE = Market Capitalization / (net income before depreciation and Amortization) (Price to Cash Offering)

Source: Fernandéz, P. Valuation using multiples. 2001

Again, according to Fernandéz, P. (2001), similarly with Damodaran (2006), divides the multiples into three groups:

i. Multiples based on the company capitalization (Equity Value: E)
ii. Multiples based on company's value (Equity and Debt value: E+D)
iii. Growth reference multiples.

However, Fernandéz (2001), points out that multiples show high dispersion and the PER, the most used one is also the one with higher dispersion. The table below represents the average volatility of several parameters used for multiples.

	Equity Value	Profit after Tax	EBITDA	Dividends	Book Value	ROE	ROA	PER
Average Volatility	41%	49%	59%	20%	18%	4%	2%	76%

Source: Fernandéz, P. Valuation using Multiples. How do analysts reach their conclusions, 2001. Multiples of 26 Spanish companies between 1991-1999.

Fernandéz (2001) presents that multiples are useful and important but face some important limitations, where the first one, is their dispersion and that may affect brokers decisions.

Adding to "dispersion" Lie and Lie (2002) found that "valuations are more accurate for large companies". The second conclusion is clear: "large companies are undervalue". Third, no matter company size, "the asset multiple yielded the most accurate assessments whereas the earning-based multiples yielded the least accurate" and, finally, "a combination of multiples perform better than individual multiples. (…) Companies with high earnings, earnings-based multiples produce

positive valuation biases whereas the asset multiples yield negative biases". (Lie and Lie, 2002).

Andreas Schreiner (2007) concludes, in line with other authors, the strengths and weaknesses of Multiples (See Table)

Strengths and Weaknesses of the Standard Multiples methods

Conceptual Strengths	*Conceptual weaknesses*
Simplicity of Application	Simplicity of Assumption
Understandability	Shortsightedness
Accessibility through financial press	Antagonism when valuing public firms
Allows fundamental Screening	Allows manipulation of values
Reflect current mood of the market	Affected by market bubbles

Source: Andreas Schreiner, Equity valuation using Multiples, 2007

2.2 Discounted Cash Flow (DFC) Methods

"Value – measured in terms of discounted cash flows – is the best metric for company performance that we know" (Thomas E. Copeland, 1994)

Discounted Cash Flow (DCF) is the best method to evaluate a company, and it is impossible to run a firm valuation without considering it. Among other reasons, because cash flows are believed to be less susceptible to manipulation as some accounting standards (Juliet Estridge and Barbara Lougee, 2007). Cash Flows are kings in valuation. In fact, there are several methods to do valuation but also when considering DCF there are some different approaches. Fernandéz, P. (2002) considers 10 methods from 9 theories. The most important conclusion is that results should be the same as all of them evaluate the same reality under the same assumptions (Fernandéz, 2002). Jacob Oded and Allen Michel (2007) summarize in four methods as well as Cooper and Nyborg (2006). And they are:

i. Adjusted Present Value (APV)
ii. Capital Cash Flow (CCF)

iii. Equity Cash Flow (ECF)

iv. Firm Cash Flow (FCF)

There is consensus here, the discussion is that, when to use each method. In the case, and according to literature, the more appropriate is Discounting the free cash flow with WACC (Cooper and Nyborg, 2006). These two authors defend existing literature and explore the well-known theory of Modigliani-Miller and Milles-Ezzell. The way to run valuations is by discounting future cash flows – nothing new here – but with which discount rate? WACC appear to be the best one as combines the Kd and Ke, depending on the specific weight of Equity and Debt. Moreover, it should be After-Tax, in order to get the tax shields. According to literature the problem remains how to evaluate the Tax shields, as literature dos not give an exact method. All the rest are, more or less, well explained in the actual state of art. Finally, Jacob Oded and Allen Michel (2007) argue that it is possible to reconcile all DCF methods and they will have all the "unique value" of the firm. The authors criticize the fact that the choice of each method depends on the debt rebalancing. In their opinion, it is not necessary, as all methods should lead to the same firm value even if companies change their debt.

2.2.1 Weighted Average Cost of Capital (WACC) - in detail

The traditional approach of WACC is well known and it is as follow:

WACC = Rd (1-T)(D/V) + Re (E/V)

Although not common, Ross, Westerfield and Jordan (2006) recall the fact that we should add to the WACC formula **Rp^{1}. (P^{2}/V)** whenever we are valuing a company with preferred stock as financing source.

WACC is fundamental to run any valuation through DCF. It is the required rate of return on the overall firm (Ross, Westerfield and Jordan, 2006). The criticism about the formula is because of their assumptions. Ramiz ur Rehman and Awais Raoof (2010) summarize it:

i. All Dividends should be paid out as dividends

[1] Cost of Preferred Stock
[2] Value of the Preferred Stock

ii. Growth rate will be zero

iii. Market value of Debt is equal to book value

According to the literature, it is more accurate to value a company through the sum of the PV of debt and the PV of Equity at their specific discount rate, Rd and Re, respectively (Fernando Llano-Ferro, 2009). Rehman and Raoof (2010) although points out some criticisms about the paper of Llano-Ferro (2009) even though agree with the fact that the alternative approach to get the WACC is more accurate and provide better results.

2.2.2 Tax Shields

When considering the value of the tax shields (VTS), literature is not conclusive. Hardly we get a clear way to calculate it even though such an important value to consider when valuing companies. In a perfect scenario there are no taxes so it is indifferent whether to use or not debt (Modigliani-Miller, 1963). Still, real world is much more complex and there are taxes and other external costs, such as bankruptcy costs. Giving that, companies to maximize value use different debt strategies whether by using fixed target debt ratios or adapting it frequently. As it depends on many factors, literature does not provide a clear answer, it leaves on the decision of who is performing a valuation (Copeland, Koller and Murrin, 2000, Fernandéz, 2002). The following table summarizes the different perspectives of different authors, considering the Value of Tax Shields (VTS) in perpetuities.

Theories	*VTS*	*VTS in perpetuities*
Correct Method	PV(Ku; D T Ku)	DT
Damodaran (1994)	PV(Ku; DTKu - D(Kd-Rf)(1-T))	<DT
Practitioners	PV(Ku; T D Kd - D (Kd-Rf))	<DT
Harris-Pringle (1985), Ruback (1995)	PV(Ku; T D Kd)	<DT
Myers (1974)	PV(Kd; T D Kd)	DT
Miles-Ezzell (1980)	PV(Ku; T D Kd)(1+Ku)/81+Kd)	<DT
Modigliani-Miller (1963	PV(Rf; D T Rf)	DT

Source: Fernandéz, P., 2002. Table 1. Comparison of the VTS in Perpetuities[3]

[3] VTS = Value of the tax shields; Ku = Unlevered cost of Equity; Kd = required return on debt; T = Corporate tax rate; D = Debt Value; Rf = Riskfree rate; PV (Ku; D T Ku) = Present value of D T Ku discounted at the rate Ku.

Even though there is some discussion on how should be calculate the tax shields, some authors must be taken into consideration more carefully, such as Fernandéz (2002) and Ian A. Cooper and Kjell G. Nyborg (2005) that contradicts the first one, defending past authors and existing literature.

The first one to consider is Fernandéz (2002) that come up with a new way to calculate the tax shields going against some existing literature normally accepted. His point is clear: Tax savings should not be thinking as the Present Value (PV) of a cash flow, but the difference between the cash flows of an unlevered company with a levered one (Fernandéz, 2002). The author also adds ""discounting value of tax shields" in itself is senseless" (2002). The way he sees it is as: **VTS = Gu[4] – Gl[5]**. It is this difference that gives us the VTS that increases company's value and not the PV of tax shields due to interest payments (Fernandéz, 2002) and that leads us, to a well know formula: **VTS = D.T**. Even though it is not a new idea in the specific literature the author derives it in a different way as previous literature add an "α" (Fernandéz, 2002). For this specific α, Modigliani-Miller (1963) suggests the Rf[6] and Myers (1974) the Kd[7]. Fernandéz (2002) maintain it simple and, in this specific case of perpetuities, the author concludes, again, "the value of tax shields is the difference between Gu and Gl, which are the present values of the two cash flows with different risks: The taxes paid by the unlevered company and the taxes paid by the levered company" (Fernandéz, 2002).

In his paper, Fernandéz, P. (2002) agrees that the VTS should be calculated differently depending on company's debt strategy. If the strategy is to have a fixed debt target (D/(D+E)), according to Milles-Ezzell (1980) the first year should be discounted at Kd and the rest with Ku[8]. On the other hand, if the company has a more flexible debt target, it should be calculated according to Myers (1974).

In the opposite way, Cooper and Nyborg (2005) defend the existing literature by pointing out some results that are not correct under Fernandéz (2002) theory.

[4] PV of the taxes paid by the unlevered company
[5] PV of the taxes paid by the levered company
[6] Risk-free rate
[7] Cost of Debt
[8] Cost of the Unlevered company

The main conclusion is simply that "the value of debt tax saving is the present value of the tax savings from interest" (Cooper and Nyborg, 2005). What they criticize in Fernandéz (2002) is that he mixed Miles and Ezzell and Modigliani-Miller framework. Moreover, Fernandéz (2002) used some assumptions that must be proved and not only assumed, such as Ke[9] that does not grow even though we have a g[10] > 0. Adding to that, Fernandéz (2002) is supposed to be working in a standard Milles-Ezzell (1980) framework but with "an alternative interpretation" (Cooper and Nyborg, 2005). The author works with a constant leverage ratio, thus, his assumption of VTS = DT is not correct, as the tax shield is risky. The authors also critic that "if the discount rate for the cash flows is a constant that is independent of growth, Fernandéz's assumptions are internally inconsistent" (2005)

To conclude, its clear that there are no consensus in this field, that Fernandéz (2002) presented a good idea to calculate the VTS but he made few mistakes according to Cooper and Nyborg (2005) that defend the existing theory. Thus, and also regarding those other authors, as mentioned above, leave to the preference of each reader to decide, it is more coherent to focus on the existing literature in spite of adapt to a new theory that, per se, is not conclusive.

2.2.3 Adjusted Present Value (APV)

"APV always work when WACC[11] does, and sometimes when WACC doesn't because it requires fewer restrictive assumptions" (Luehrman, 1997) First of all, APV is also a DCF method. However, the idea that WACC is obsolete and only a standard method gave to APV the belief that this new method is more "transparent" (Luehrman, 1997). Another similar characteristic is that APV is useful to value operations and assets-in-place. The main difference to mention is that APV relies on value adding by splitting the problem in as much as possible different situations. The method general formula is as follow:

APV = Base Case Value + Value of all financing side effects.

[9] Cost of Equity
[10] Growth rate
[11] Weighted Average Cost of Capital

In the base case it is considered the value of the unlevered company all Equity financed. Therefore, the discount factor will be the Ke[12]. From financing side effects it is considered parts such as interest tax shields, costs of financial distress, subsidies among others. The discount factor should reflect only time value and riskiness of the project (Luehrman, 1997). When comparing with WACC that gather everything in the same model, here we have to focus on all separate parts and, finally, sum them all.

To conclude, APV is an interesting method, believe to be the best one and is substituting the WACC that all people are used to. The reason behind that is because its simpler and separate operations that as consequence, provide better information to take decision and understand exactly from where value is being created.

2.3 Equity Cash Flows (ECF) – FCFE

Luehrman (1997) believe that it is a more specific method and it is important as a third possible method. The support of this method is that sometimes it is worth to accept projects with negative NPV. Moreover, when considering companies with high leverage and in business trouble, shareholders can act as if they own an Option. This means, if equity gains are high enough, they will exercise it, otherwise, they do not and left the company to debtholders (Luehrman, 1997). This method are good to know how shareholders are being remunerated and if they are satisfied or not. ECF is a good method to do financial institutions (Banks and Insurance) valuation. It is not the case hence this point will not be further developed.

2.4 Option Valuation

Literature finds it more useful than ever. It presents a variety of opportunities for business decision makers, however, some problems for those who want to do valuation considering it. First of all, Options can be used with success in every Industry. In the case, we are evaluating an electric company; several benefits can be exploit from their use. Thomas E. Copeland and Philip T. Keenan (1998) summarizes it as follows:

[12] Cost of Equity

Option Valuation in different Industries	
Energy	Learning options in timing the development of oil and Gas fields

Source: Thomas E. Copeland and Philip T. Keenan, Making Real Options Real, 1998.

By revising the literature about the usefulness of Option valuation it is possible to find that all the authors agree that Option Valuation is an important complement to DCF methods, but not a complete substitute. A common thing they present in their papers: DCF undervalues Investment opportunities. (Simon Wooley and Fabio Cannizzo, 2005). In the same line, Thomas E. Copeland and Philip T. Keenan (1998) points that the exclusive use of "Net Present Value (NPV) and Economic Profit have been responsible for systematic underinvestment and stagnation" (1998).

The main advantage of using real option valuation is Flexibility. Moreover, when we are considering assets traded in the market and long-term investment periods. "In the long-run, commodity prices tend to revert to fundamental levels, a characteristic know as "mean reversion" (Simon Wooley and Fabio Cannizzo, 2005), hence, the use of Black-Scholes tend to overvalue long term options. In order to avoid that, the authors found as solution the use of the same discount rate as in the DCF method and not the Riskfree rate as previous authors believed. Finally, these two author conclude that, if in one hand, an increase in the volatility of the project increase their value, on the other hand, an increase in the rate of the mean reversion leads to a reduction in the project value (2005). Tom Arnold (2004) shows that using risk-adjusted discount rates produces a real option valuation identical to that obtained from a risk-neutral option valuation, this means that, NPV and risk neutral option valuation are equivalent.

Considering an Electric utility (as It is the case) the importance of options valuation is to do some "pecking order" of the different possibilities to produce energy whether it should be done, at a certain moment in time, by coal, gas, nuclear plants or renewable sources. All the different possibilities, face different prices in the markets so, by using option contracts, the Electric Company can do some kind of "pecking order" with their resources in order to maximize their profits over time.

Moreover, the decision of construct a new central will depend on the value of the resources in the market. All these decisions can be based in options valuation. Thomas E. Copeland and Philip T. Keenan (1998) separate these options in two groups:

1. Compound Options: When exercised gives the option to enter in a new option (continue investing in a new investment)
2. Learning Options: Learn about the uncertainty (Prices volatility in the market)

Still, the authors conclude that, the value of each option is more valuable than the sum of each one of them. Adding to that, they found it extremely useful in Cyclical Industries (as EDP with different demand in the summer and winter) that must decide over time the use of different factories or supply contracts. Again, an option contract is only useful whenever the information can modify future investment decision (Thomas E. Copeland and Philip T. Keenan, 1998)

However, Option valuation presents a considerable problem. They are hard to analyse and, most times, only the top managers are aware of them and can value. Outside people hardly know whether there exist or not, and even more difficult to understand what is its value. Concluding, authors found it extremely useful as a complement to DCF methods or other, but of difficult access for outside investors that are not in the decision-making.

3. Risk Factor

3.1 Riskfree Rate

Damodaran (2008) define the riskfree asset as: “An investment can be riskfree only if it is issued by an entity with no default risk, and the specific instrument used to derive the riskfree rate will vary depending upon the period over which you want the return to be guaranteed”

Usually, the Riskfree rate is simplified with looking at the rate of government bonds in a specific market and must have the two following characteristics:

i. No default risk
ii. No reinvestment risk (Damodaran, 2008)

Considering the first point, automatically exclude corporate bonds because, even if it is an extremely stable and profitable company, it always copes with default risk. Hence, only government bonds can be considered as riskfree rates, but not always. The principle behind it is that the government print their currency, so, at least, in nominal terms the repayment is guaranteed (Damodaran, 2008).

The riskfree rate is very important and the starting point of any valuation as it influences all other rates and, as consequence, will impact on the company value that can lead to lower company value. (Damodaran, 2008) That impact influence both Equity premium and Debt rate. The riskfree rate is the base and we only add the Equity premium or Spread - the base of CAPM[13]. So, the higher the riskfree, the higher will be both Equity premiums and Debt that will influence negatively the valuation of the company.

Another point to take into consideration when considering which riskfree rate we will use is the Duration. Damodaran (2008) think that, when comparing 10 or 30 years government bond rates, should be used the 10-year bond rate to discount cash flows, at least in mature markets. (Damodaran, 2008) After that, Damodaran focus the point that, the choice of the riskfree rate must be considering the country's currency. In his paper (2008) he notices the specific case of Europe that, even though all government trade their bonds in Euros, they all have different rates, as investors are aware that the capacity to repay the bonds differs considerably. Consequently, Damodaran (2008) believes that in Europe the different countries face some default risk, as they do not control their currency. Giving that, 10-years German bonds are assumed as the riskfree rate in the European market (And this Equity Research will have it as Riskfree rate too).

Finally, riskfree rate must be in real terms instead of nominal, in order to know the real return. Moreover, the riskfree rate is highly influenced by the inflation, so the lower it is, the lower it will be the riskfree rate (Damodaran, 2008).

[13] Capital Asset Pricing Model

3.2 Betas - β

Betas (β) represent the systematic risk that cannot be eliminated by diversification (Barr Rosenberg and James Guy, 1995). It affects all Industries even though in different levels depending on the Industry volatility and market impact on their results. As characteristics Damodaran, A. (1996) defines it more generally as:

i. Risk Added on to a diversified Portfolio;
ii. Measure the relative risk.

Barr Rosenberg and James Guy (1995) identify the use of Betas for three different purposes:

i. Performance valuation;
ii. Investment Strategy;
iii. Valuation: "The higher the underlying risk, the more likely the security price change (…) Knowledge the value of Beta permits prediction of one important element of risk"

Continue with the same authors they believe that Beta vary between 0 and 3 but also "recall that we never observe the "true" Beta but rather outcomes that are randomly distributed about an expected value" (1995).

According to Damodaran (1996) when considering Betas some points must be considered. First of all, the more securities an Index has, the better it is. Secondly, it is important to consider a time horizon relatively large in order to get better results even though companies change that may affect the true values. Finally, choose the return interval. If it is too long, it decreases the number of observations that, consequently, will lead to lower correlations.

Other authors considered in this specific point, Paul D. Kaplan and James D. Peterson (1998) prove that when considering the Beta should be from the same Industry, what they call "Pure Plays Portfolio" (1998). It is extremely difficult to get companies that are 100% in the same Industry. But only when considering it, we have the better outcomes. Additionally, they found out that conglomerates and companies with high market capitalization tend to have lower betas than small companies.

	Number of Firms	Av. Beta	Market D/E Ratio	Tax Rate	Unlevered Beta
Electric Utility (Central)	23	0,78	96,84%	25,40%	0,45
Electric Utility (East)	25	0,73	74,73%	30,56%	0,48
Electric Utility (west)	14	0,75	83,18%	31,47%	0,48

To conclude, beta is fundamental to get information about the Industries that are being evaluated. Moreover, as it defines Industry and are affected by the economic environment, the higher the beta in one Industry, the higher company's returns will fluctuate. Electric companies are expected to have values approximate or lower than 1, this means, follow the market movements in a slower level.

Source: Damodaran, A. Data base, Betas By Industy

3.3 Equity Risk Premium (ERP)

"Equity risk Premium is a key component of every valuation" (Damodaran, A., 2008). And it is generally defined as the difference between the risky security return and the risk free security. However, it is still a narrow subject as its values depend on different perceptions of the market by the different players. It is a fundamental part to assess the risks of the Industry, company or asset, so a correct value is essential to run valuations. More generally, Damodaran (2008) considers the determinants of the Equity Risk Premium (ERP) as: *Risk Aversion*; *Economic Risk*; *Information*; *Liquidity*; *Catastrophic Risk*; *Behavioural/irrational component*.

Fernandéz (2011) separate it into four parts:

- *Historical* Equity Premium: Easy to calculate and equal to all investors
- *Expected* Equity Premium: Investors and Academics have different expectations
- *Required* Equity Premium: Crucial parameter to determine both Equity return and WACC
- *Implied* Equity Premium: is the implicit REP used in the valuation of a Stock (or market index) that matches the current market prices. Still, it is no common for all investors.

However, Fernandéz (2009) says that: "The *required MRP* and the *Expected MRP* do not exist: Different market participants require different MRP and have different expectations". In his paper the author run an interesting survey by indentifying what Market Return Premium professors around the world and other market participants use. Most relevant results are shown bellow:

		USA	Euro	UK	Canada	Australia	Other
MRP used in 2008	Average	6,3%	5,3%	5,5%	5,4%	5,9%	7,9%
	St.Dev	2,2%	1,5%	1,9%	1,3%	1,4%	3,9%

Source: Fernandéz, P. 2009. Market Risk Premium used in 2008 by 884 finance Profs.

	Number of Answers	Average	St.Dev
France	45	6,0%	1,5%
Portugal	33	6,5%	1,7%
Spain	930	5,9%	1,6%
Germany	71	5,4%	1,4%

Source: Fernandéz, P. 2009. Market Risk Premium used in 56 countries in 2011: a survey with 6,014 answers

Considering the data the author notice the fact that European professors consider a lower MRP comparing with their colleagues in the USA. Moreover, the author emphasize an important fact: Considering the MRP Puzzle most market participants use historical data and data from finance professors (such as Damodaran Database).

4. Growth Rates

4.1 Estimating Growth

Estimating growth is a critical step to run a valuation. Growth should reflect the future, but no one knows it. Only by adding a growth rate can be assessed the PV of the future cash flows to do the valuation. Damodaran (2002) suggest three different ways to consider:

i. Historical growth rates – Useful input when value stable firms (the case)
ii. Trust Equity Research analysts
iii. Estimate growth from a firm's fundamental.

According to the literature, the best way to get a realistic growth rate is by using historical growth rates and consider, afterword, a reasonable growth rate such as

the GDP growth rate + inflation. The reasons behind it are mainly because it is considered an electric company, with a considerable value of assets in place, with predictable cash flows and highly dependent on the growth of the Portuguese economy, albeit it is also considered the Spanish market where there are some more growth opportunities. However, cash flows are still predictable, only depending on the market share and the country's economic performance.

4.2 Terminal Value

Companies are assumed to have infinite lives. However, it is impossible to calculate each future cash flow because neither it is necessary nor it is realizable. As consequence, it must be added a "terminal value". Damodaran (2002) divides it in three different possibilities:

i. Assume company liquidation
ii. Relative Valuation – Multiples
iii. Cash flow of the firms will grow at a constant rate forever.

Considering the last point as more important and more accurate, the constant growth rate is supposed to be the GDP growth + Inflation. Moreover, this thesis is focusing on an electric company with complete dominance of the market. It is not coherent to assume high future growth rates above national economic growth. Giving their positioned in the Industry is not likely their bankruptcy so, "infinitive" lives can be assumed, thus the "terminal value" to conclude the valuation should be the one point out above, also in line with theory, that explicitly argue that should be assumed a stable growth. Moreover, a company in a stable growth is assumed to be less risky as their cash flows are more predictable (Damodaran, A. 2002)

5. Cross Border Valuation

With globalization markets are more open and growth opportunities, sometimes, are only available in other markets. EDP is one more case of that.

This paper will focus on the Iberian Market. EDP has the monopoly in Portugal and is now in Spain with a considerable business volume. First of all, cross

border valuation has some specific points to consider as mentioned in the article of "Cross Border Valuation" (Harvard Business School, 1997):

i. Currency to use
ii. Cost of Capital
iii. Period to evaluate the cash flows from the foreign participation
iv. Specific political risks of the country.

The same article suggests that authors should use DCF models using the After Tax WACC. Regarding this point, some coherence is founded when comparing different authors, namely, Mimi James and Timothy M. Koller (2000). Adding to this, when valuing outside operations it is needed to use internal references for cost of Debt and Equity according to the capital markets there. Regarding to the currency, in the case it is not important given the fact that both Portugal and Spain have Euro (€) as currency and are part of the European Union which, per se, provide some stability in terms of monetary volatility, political risks and capital movement. However, the author suggests that the use of different currencies to DCF should lead to the same values.

In term of *Taxes*, even the fact that Portugal and Spain are in the European Union and share the same currencies, Taxes are different among the countries (Even if there is the debate in the European institutions for future harmonization), which provide some difficulties as well as opportunities. Giving that, the article from Harvard (1997) provide two different alternatives:

1. Common tax situation. Worldwide "Tax Credit" – Use the higher corporate Tax rate, unless specific tax provisions dictate otherwise.
2. "Tax exemption" – Preferred to calculate the After Tax Free Cash Flow (FCF) if the company are exempt in their home country.

Regarding the point *Earned vs. remitted cash flows* the article state that "among major industrialized nations (which is the specific case – Portugal and Spain), earned cash flows should be used immediately to the parent" (1997) mainly because of results to their home shareholders and for the value of their investment participations. *Discount rates* are expected to be from their home country and then

properly converted afterword to the foreign reality. Other point that the author focus is the difference between having *segmented vs. integrated capital markets.* Here, clearly EDP has an advantage in their market in Spain. Both are part of the European market and there is plenty of information about Equity risk and capital markets information essential to assess market conditions and risks. Moreover, as they share the same market, systematic risks of the economic zone are clearly identified for both. The author comment that the larger the portfolio, the better information we have (1997)

Risks as inflation, expropriation and other country-level risks should be done through higher risk premiums or by using insurances for expropriation, for instance. In this case, literature is not conclusive. Mimi James and Timothy M. Koller (2000) believe that it is not the solution. Risks must be analyzed individually otherwise it would be committing huge errors. Add all the risks to the DCF valuation will lead to results that are likely to be wrong giving the fact that it is being added to much conditions. Moreover, Koller (2000) stresses the fact that regarding expropriations Banks and Energy companies (the case) the risk is much higher than a single retail chain. Adding to this, some macroeconomic situation, such as currency devaluation may benefit some industries and hurt strongly others. Another point that Koller (2000) considers important is that country risk (expressed in bond rates) is not the same as Equity risk and that lead to errors when valuing. Still, Koller (200) agree with the fact that DCF is the best model to evaluate foreign operations. In the article from Harvard (1997) it is suggested to use the APV, or "valuation in parts", when dealing with several operations in different economic scenarios.

Finally, *Real Option and cross border Investment (1997)* when buying one operation that can have a "follow-on" opportunity, which can be valued through Options Theory. Mainly in business with market priced assets, it is more useful. In industries where assets are not traded in the market this option cannot be used with the same accuracy and DCF models must be done properly (1997)

6. Conclusion

After go through all the different valuation models available for the specific company and Industry, literature, and Investment banks reports the valuation models to be used should be: DCF using WACC and the Multiples. Both are essential to run a valuation, and by using only one would make the Equity Research too simple and without conclusive results. Other methods such as Option valuation and APV are both interesting, but face some problems. Regarding Option valuation, it is impossible to get important information to compute a good valuation. The second one, APV, appear to be an almost perfect substitute to DCF using WACC but Investment banks reports still does not give the same importance as they do to WACC. Giving that, in order to make the best valuation possible, DCF with WACC and Multiples will be selected.

II – Company Analysis and Industry Review

Why Group EDP?

The purpose of the thesis is to run an Equity Research about a listed company, with preference, in the PSI-20 or the IBEX 35, Portuguese and Spanish capital markets, respectively. Giving that, Group EDP came up as an interesting opportunity not only because of its dimension and importance for Portuguese economy and presence in the Spanish market but also because there was no previous Equity Research in the University about EDP. So, I decided to take the challenge.

Group EDP has many different companies; hence the purpose of this thesis is not to evaluate each company but to evaluate the Electrical business in the Iberian Market and sum the value of the other companies through the use of multiples and approximate values to get the final Equity Value of Group EDP.

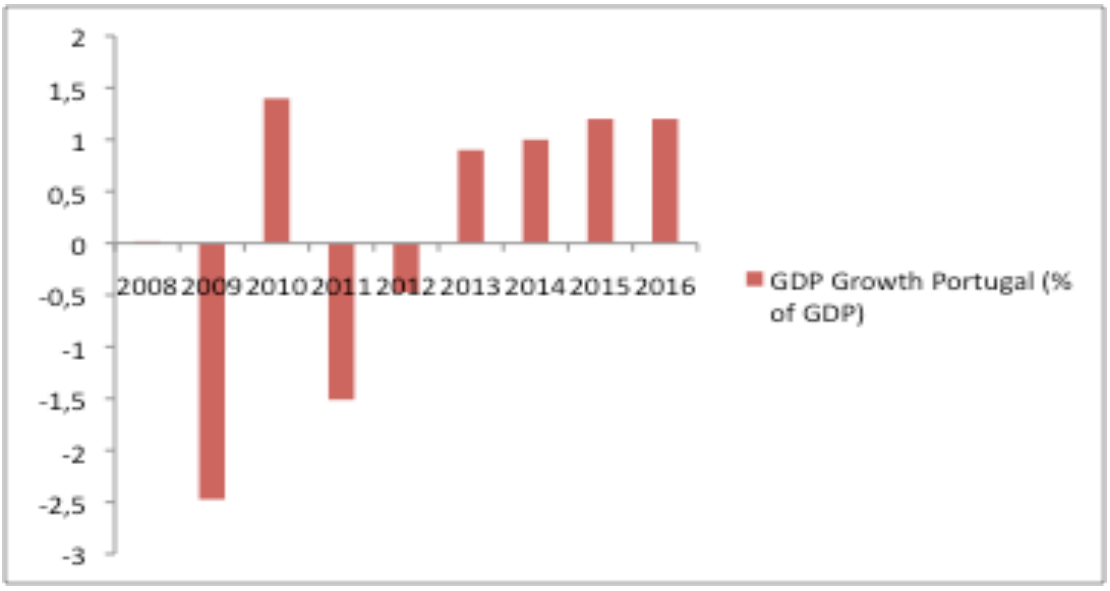
INDUSTRY ANALYSIS

1. Portuguese and Spanish Macroeconomic Environments

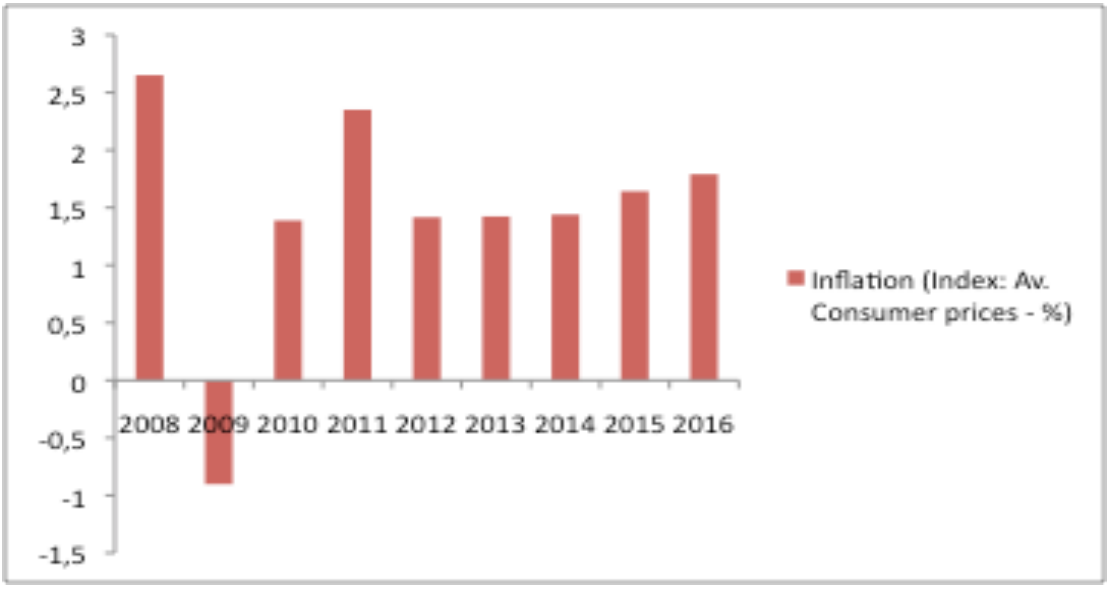
1.1 Portuguese Macroeconomic scenario

Portuguese economy faces a decisive phase. Portugal is under an external intervention by International Monetary Fund (IMF), European Union (EU) and Europe Central Bank (ECB) with a very tight programme that will govern Portugal for, at least, the next three years. This intervention and the measures influence all the economy and companies performances inside Portugal. Group EDP is partially public hence their impact is even worse not only regarding debt financing but also the business itself. As it is the main supplier and their growth is highly correlated with economy's performance, the future perspectives are not the bright.

Following the main figures of Portuguese Economy is presented: GDP expected growth and Inflation.



Graph 1: Portuguese GDP expected growth, IMF projections, 2011.



Graph 2: Portuguese expected Inflation, IMF projections, 2011.

The information above presents some concerns about the Portuguese economy that will be considered to evaluate the company. As it was mentioned in *section I.4.1 and I.4.2* Company's growth will depend on the Sum of GDP plus inflation, as it is a utility highly correlated with economy's performance. It is unrealistic to expect high growth in a recession scenario considering only Portuguese operations.

1.2. Portugal: Memorandum of understanding on specific economic policy conditionality – Electrical Market.

Regarding the fact that, by the time this thesis is being done, Portugal is under external financial intervention, related measures with electricity market are important to mention. The first general idea of the understanding is to go further and quickly to a complete liberalized electrical market through the promotion of MIBEL agreement - *more in detail in Annexe B*. Moreover, it is indicated to develop and incentive renewable sources (in the case EDP Renováveis, part of group EDP) in order to reduce Portuguese energy dependence.

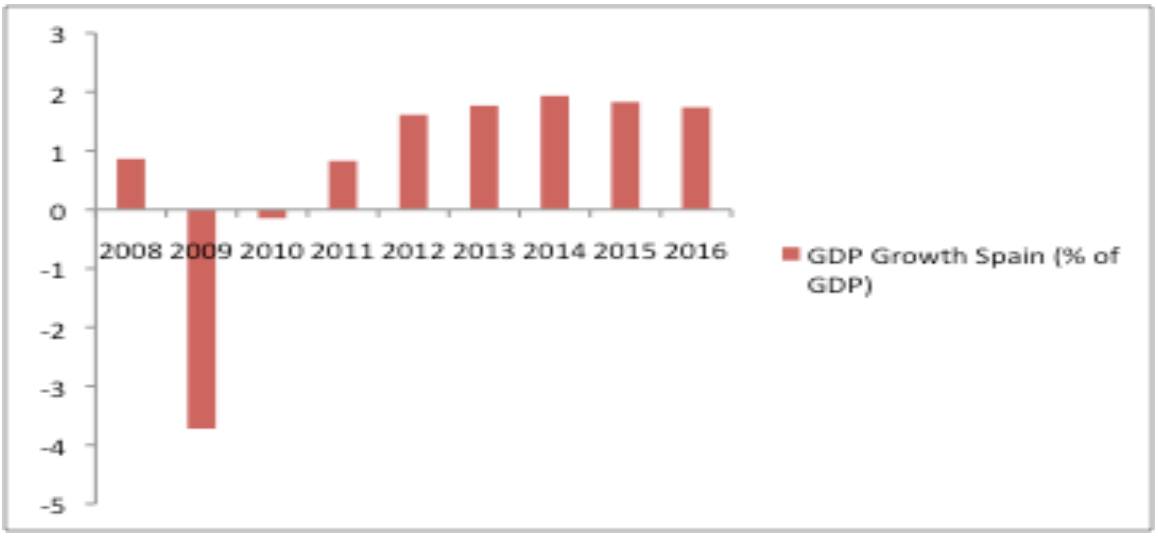
In a more specific look the memorandum is particularly clear in the point that regulated tariffs must end and also reduce cross-subsidisation. Regarding renewable

sources, government is also advised to reduce through renegotiation the feed in tariffs.

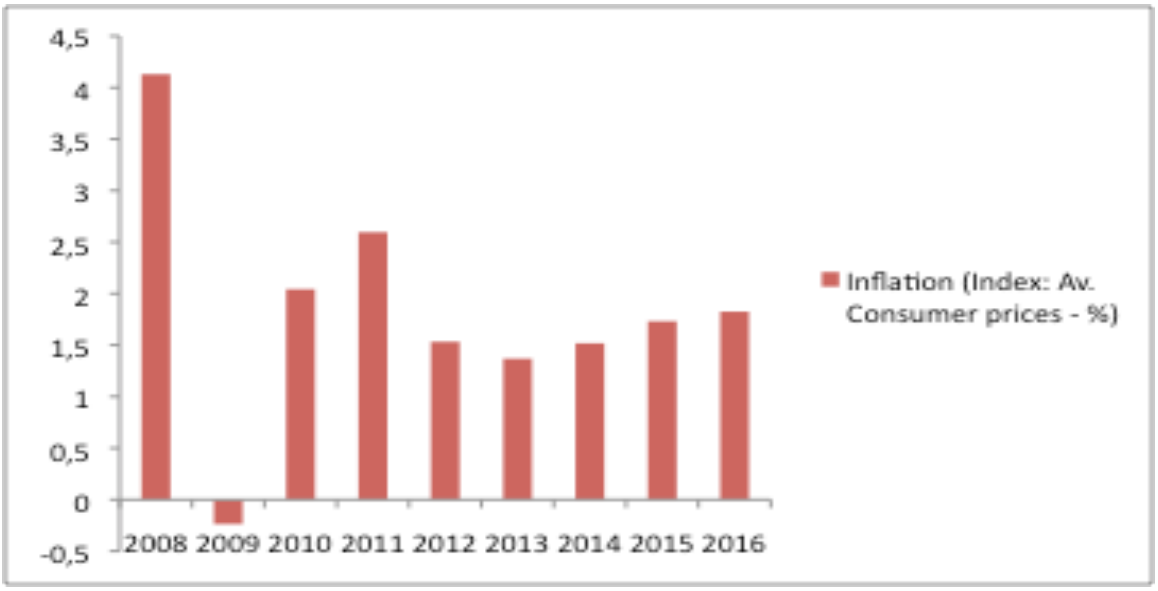
Finally, in terms of performance and taxation the memorandum defines that should be created energy efficiency incentives. Regarding taxation, the objective is to increase the VAT tax rate in electricity (presently at 6%) to the standard rate of 21%. However, one point is clear, electricity prices will increase hence the demand is supposed to stagnate or reduce.

1.3 Spanish Macroeconomic scenario

Even though Spanish economy is not under external intervention economy perspectives are not the best. The main figures are also presented.



Graph 3: Spanish GDP expected Growth, IMF projections, 2011.

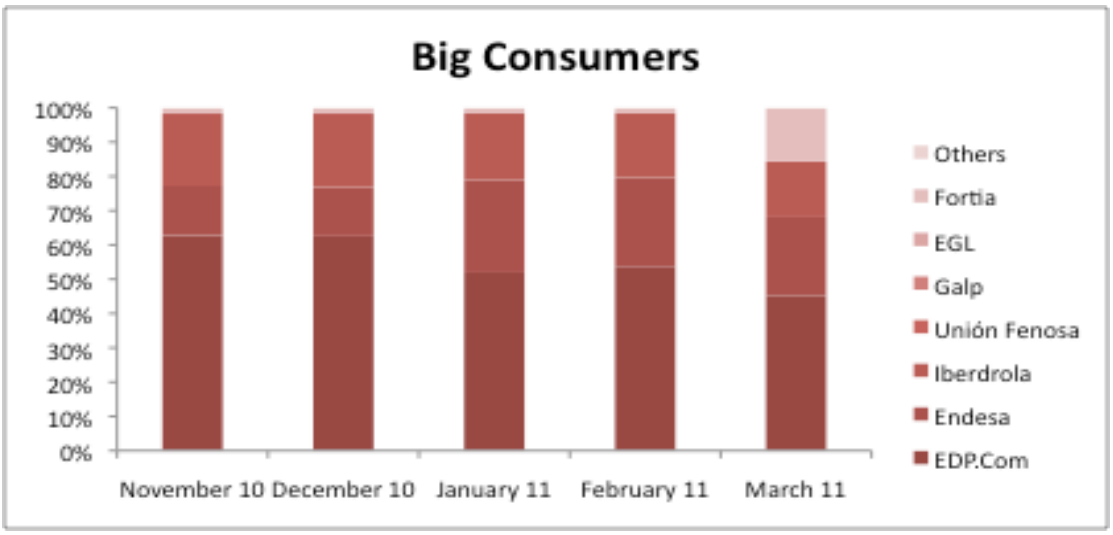


Graph 4: Spanish expected Inflation, IMF projections, 2011.

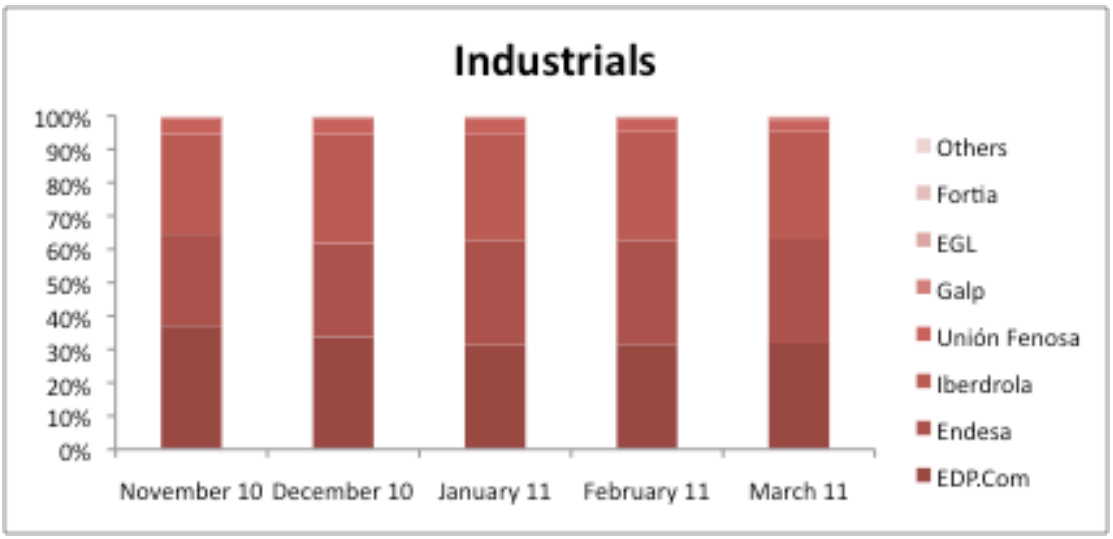
As in the Portuguese case, the information above will be used to run the company valuation, as the same assumptions will be done to growth rates and terminal value.

2. Portuguese Electrical Market – Market Shares by sector.

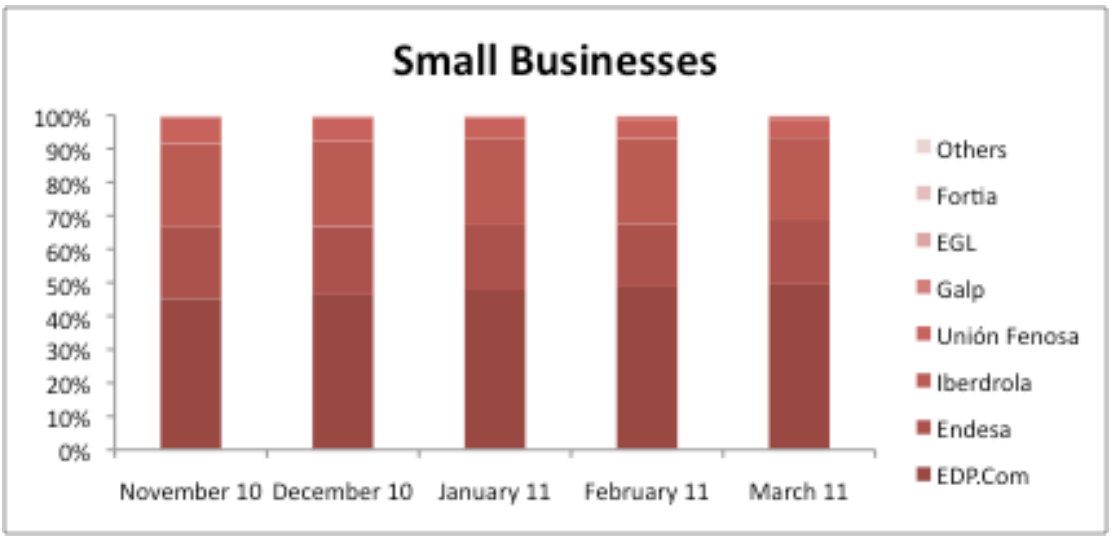
Portuguese electrical market is suffering a considerable change and it is expected to continue over the next years. Not only by the declared intention by both governments of Portugal and Spain to integrate and liberalize the Iberian Market but also now by external imposition as mentioned above. Considering this, competition is expected to increase and benefit costumers. However, liberalization is having a different impact considering the sectors that are consider. The market shares can be observed in the graphs bellow, where it is possible to emphasize the fact that *Home Costumers* are those more in the regulated sector and, in opposite, *Industrial sector* is where it is observed considerable competition.



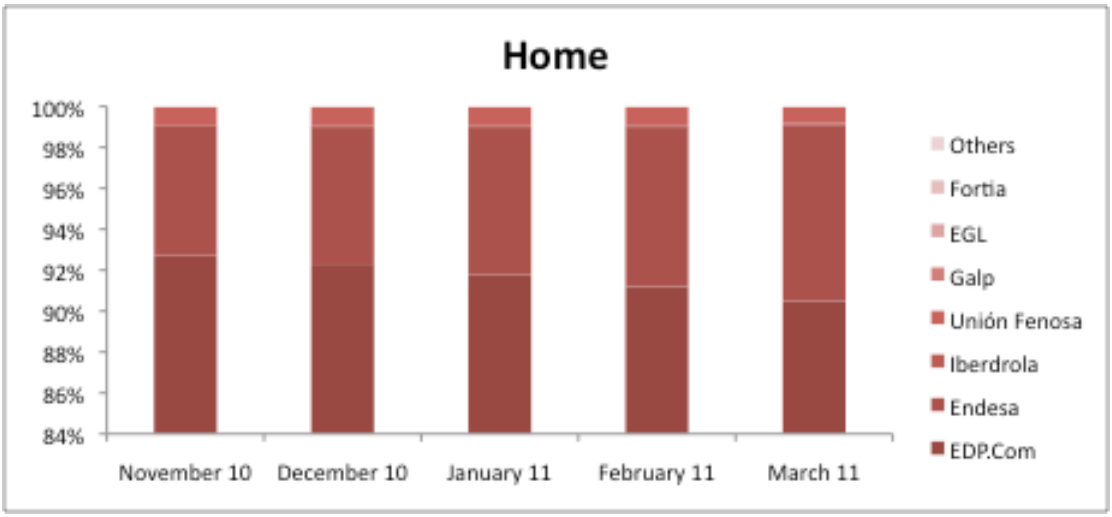
Graph 1: ERSE, 2011.



Graph 2: ERSE, 2011.



Graph 3: ERSE, 2011.



Graph 4: ERSE, 2011.

Analysing the information above it comes up that EDP must be worried by the decline of their market share in important sectors such as *Industrials,* in first place, but also *Small Businesses.* It looks clear that liberalization is already a reality. Giving that, EDP is expected to introduce new plans in order to avoid the competition. On the other hand, *Home* sector continue with low competition. Here, EDP still has a dominant position even though the numbers are reducing month by month during the considered period. In the *Small Businesses* EDP has a stable positioning. Considering the above results **Endesa** and **Iberdrola** are the main competitors. However, other point that is important is the fact that there are

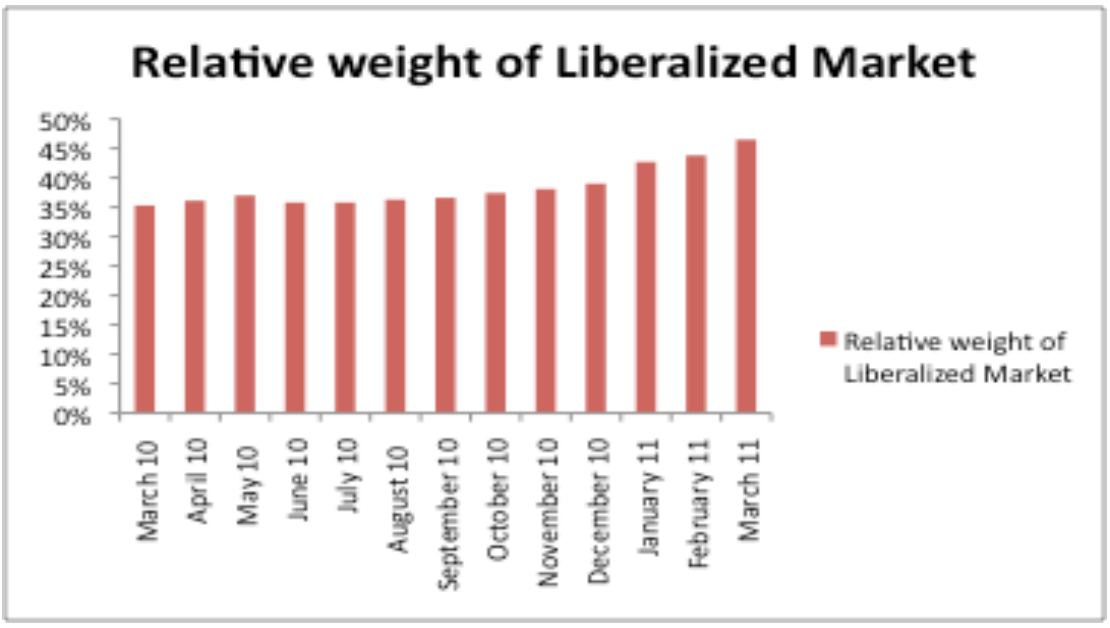
considerable number o competitors, even though; in some cases their market shares are almost insignificant.

Supplier Change Balance in LM		Entry (LM)	Exit (LM)	Result (Entry - Exit)
Without Contract	Nr. Clients	198	1311	↓ -1113
	Consume (GWh)	127,4	13,7	↑ 113,7
Regulated Market (From/To)	Nr. Clients	4346	1994	↑ 2352
	Consume (GWh)	1290,3	9	↑ 1281,3
Liberalized Market (From/To)	Nr. Clients	770	770	0
	Consume (GWh)	63,7	63,7	0
Total	Nr. Clients	5314	4075	↑ 1239
	Consume (GWh)	1481,4	86,4	↑ 1395

Source: ERSE, 2011.

This table presents the movement (Entry or Exit) both in the Regulated market and Liberalized market in terms of number of clients and consume. As main conclusion, there is the fact that there is a positive and increasing value in the Liberalized market in line with previous graph in the different industries.

Finally, and to conclude this section, according to EDP information, also add the relative weight of the liberalized market. See table below:



Graph 5: EDP.pt

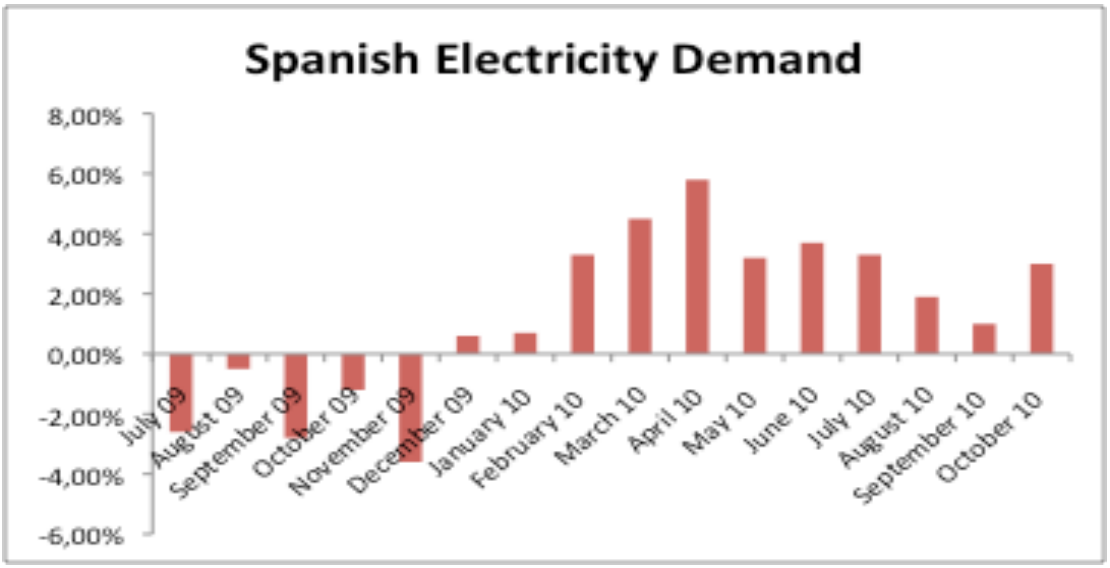
The trend is pretty clear. The relative weight of the liberalized market is increasing and is reaching almost 50% of the total market. After the moment that *Home* costumers start entering in a considerable amount to the liberalized market the relative weight should increase. Concluding, liberalization and competition is

expected to become even more aggressive and that can benefit the overall market, however, reducing EDP dominant positioning.

3. Spain – Market Analysis

3.1 Previous year Demand Review

Electricity Industry shows some patterns year-by-year regarding demand. It is not only associated with GDP growth and overall economic performance but It also can be in line with climate changes, hence, month variations according to the expected weather for a specific month.



Source: J.P. Morgan CAZENOVE, 2010

Looking at this information came up the fact that the considered period the demand was considerably low with an approximate average value of 1,27%. Some variations may occur in the next years; still, using this information it is possible to assess a possible demand variation during next years.

3.2 Spanish electrical Industry deficits and challenges

Spanish market is expected to face some problems. The major threat to Spanish Market is the fact of high tariffs deficits. The deficit is a consequence of the regulated market and the fact that the prices do not compensate the “system costs”.

This deficit is also associated with the "Regulatory Risk[14]" and it is not expected to reduce considerably over the next years, at least, until 2013. The solution is the continuous securitization of the tariff deficit. However, the structural problem remains. In the table below it is summarized and explained how the deficit will continue over the next years.

Tariff Deficit will continue to build beyond 2013	*2010*	*2011E*	*2012E*	*2013E*
Volume (Twh)	233	235	237	240
Market Access Rate (€Mwh)	52,51	55,56	61,22	67,34
Market Access Rate Growth	47%	6%	10%	10%
Market Access Revenue (€m)	12,211	13,073	14,525	16,137
Tariff Revenue/Others (€m)	-	-	-	-
Revenues (€m)	12,211	13,073	14,525	16,137
Quotas (€m)	(1,369)	(1,422)	(1,477)	(1,534)
Electricity (€m)	-	-	-	-
Special Regime	(5,814)	(6,005)	(6,180)	(6,370)
Transport (€m)	(1,397)	(1,467)	(1,540)	(1,617)
Distribution (€m)	(4,893)	(5,137)	(5,394)	(5,664)
Others (€m)	(2,409)	(2,870)	(3,214)	(3,549)
Previous years adjusts (€m)	-	-		
Costs (€m)	(15,882)	(16,900)	(17,805)	(18,734)
Outstanding Deficit - YE (€m)	(3,671)	(3,827)	(3,280)	(2,597)
Acc. Deficit 2010-2013	(3,671)	(7,498)	(10,779)	(13,376)

Source: CNE and Morgan Stanley Research Estimates

Adding to that, Spanish market also faces low growth perspectives for the next years in line with economic recovery but also because it is highly dependent of international prices, such as gas. Moreover, this Industry is still capital intensive for what next years can be tough as consequence of the crisis that is affecting the all economy. As conclusion, is possible to understand the fact that the fundamentals of the electricity industry are weak and it is not likely to have a turnover in the market in the short haul.

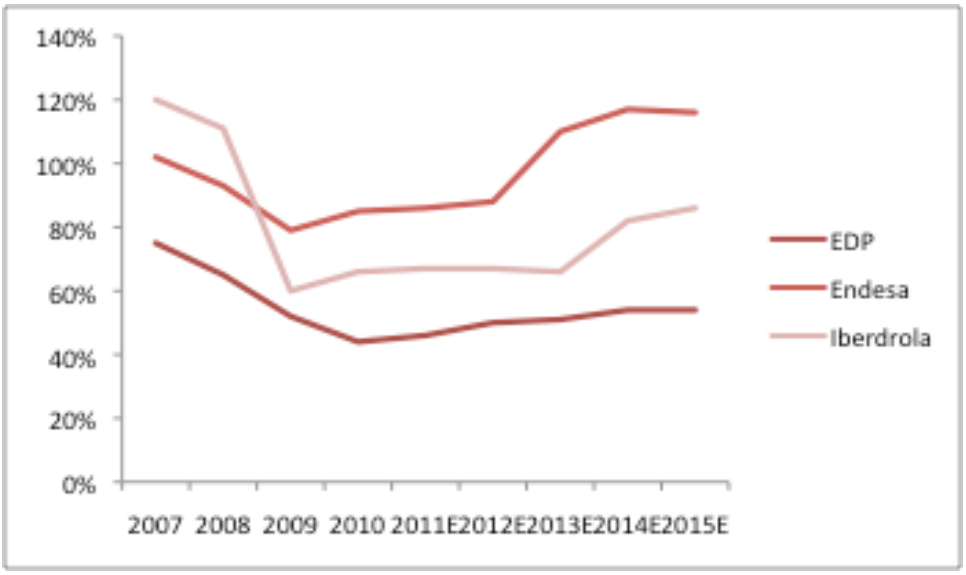
4. CAPEX and ROCE perspectives

Both figures are expected to reduce over the next years. This information is useful to understand the fact that the industry fundamentals and growth potential are under pressure. Considering CAPEX reducing it can help cash flow generation but

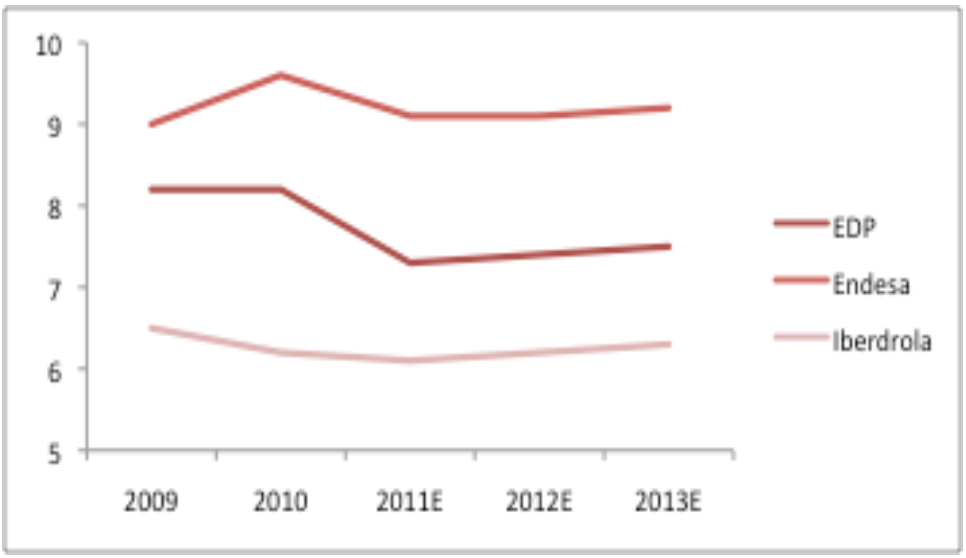
[14] Morgan Stanley Research, Southern European Utilities, October 2010

it will undermine possible future growth as maintenance CAPEX must continue, as it has to be done sooner or later.

Considering ROCE[15] it is also bad news in the Industry. Adding the fact that the economic growth perspectives are low, companies also present low capacity to increase their returns in their investments. The expected trend in the Industry is as follows.



Source: CNE and Morgan Stanley Research Estimates. ***CAPEX***



Source: CNE and Morgan Stanley Research Estimates. ***ROCE***

[15] Return on Capital Employed

5. Industry Debt Levels – a concern

When considering the three main players in the Iberian electricity Industry, Group EDP, Iberdrola and Endesa, one topic is common to all of them: high debt levels. As it is a capital-intensive industry and with stable cash flows, following the literature review it is normal to have high debt in this type of companies. However, it is a concern regarding the fact that both Portugal and Spain are under pressure of Capital markets because of their public debt and economic stagnation. Adding to that, it is the fact the Industry follow the economic growth and debt refinancing will face difficulties and the cost of capital can increase during the next companies refinancing programs.

Net Debt/EBITDA	2010	2011E	2012E	2013E
EDP	4,5	4,8	4,6	4,6
Endesa	2,1	1,7	1,4	1,2
Iberdrola	4,0	3,7	3,5	3,2

Source: CNE and Morgan Stanley Research Estimates

Net Debt	2010	2011E	2012E	2013E
EDP	16,363	17,096	16,959	18,245
Endesa	15,497	11,357	9,987	8,718
Iberdrola	28,668	26,831	26,274	25,239

Source: CNE and Morgan Stanley Research Estimates

Analysing both **Net Debt/EBITDA** and **NET DEBT** it is easy to understand the high value of Debt and the impact of the debt over EBITDA. Regarding this information, EDP is the one that is expected to increase both Net Debt and its impact over the EBITDA. On the other hand, Iberdrola and Endesa are reducing both figures. A trend that EDP must follow in the next years giving the mentioned facts above: High debt and refinancing difficulties with possible increase of the cost of capital and low economic growth expectation in the two considered markets, Portugal and Spain.

6. Comparing Iberian companies performance with their European peers

Source: CNE and Morgan Stanley Research Estimates

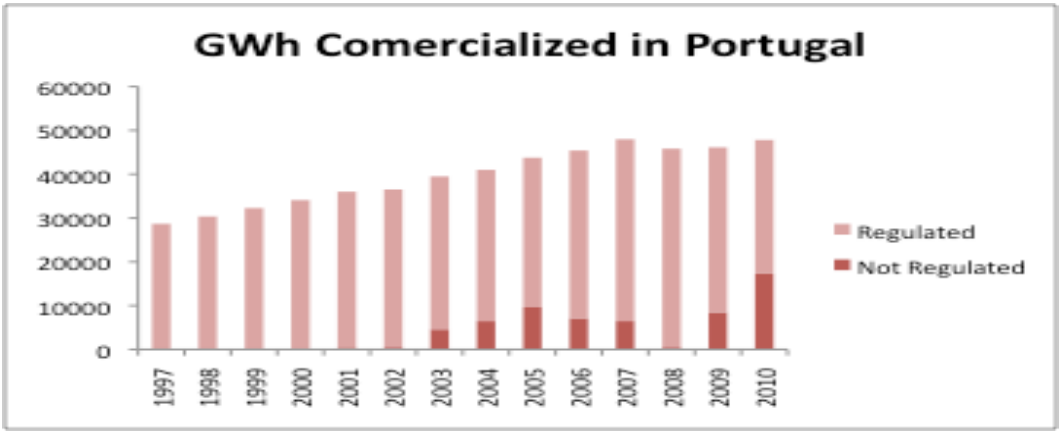
Company	Absolute Share Price Performance (%)				Rel. Perf. Vs MSCI Europe Utilities (%)			
	1 Mth	3 Mth	12 Mth	YTD	1 Mth	3 Mth	12 Mth	YTD
EDP	4,6	7,3	(14,5)	(13,8)	4,6	3,6	(10,3)	(3,7)
Endesa	2,5	8,9	(14)	(16,3)	2,5	5,1	(9,7)	(6,5)
Iberdrola	2,0	12,6	(7,5)	(12,3)	2	8,7	(2,9)	(2,1)

Finally, only comparing Iberian companies with their European peers, in terms of price share performance, there are a good news: Iberian companies outperformed their despite the fact of the increasing of the regulatory risk that is supposed to be a threat for the Iberian companies.

7. Company Analysis

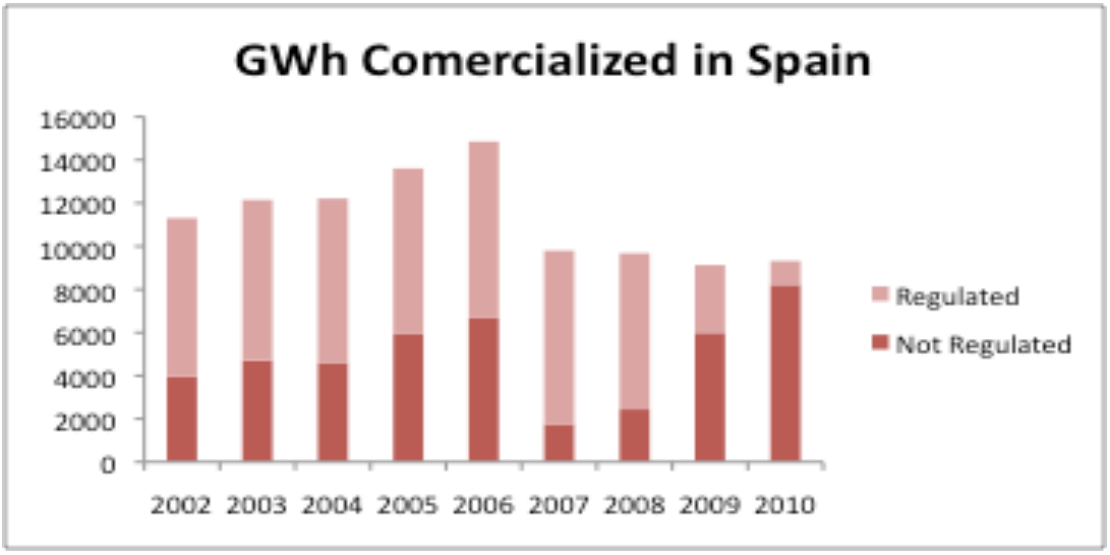
7.1 EDP – Activity figures

In terms of activity, this section aim is to understand more in detail values such as *Gwh commercialized* both in Portugal and Spain but also the *number of clients* that the company serve. By gathering both figures it is possible to understand how EDP is performing giving the fact that competition is increasing. In first place, *Gwh commercialized* both in Portugal and Spain.



Graph 1. EDP.pt

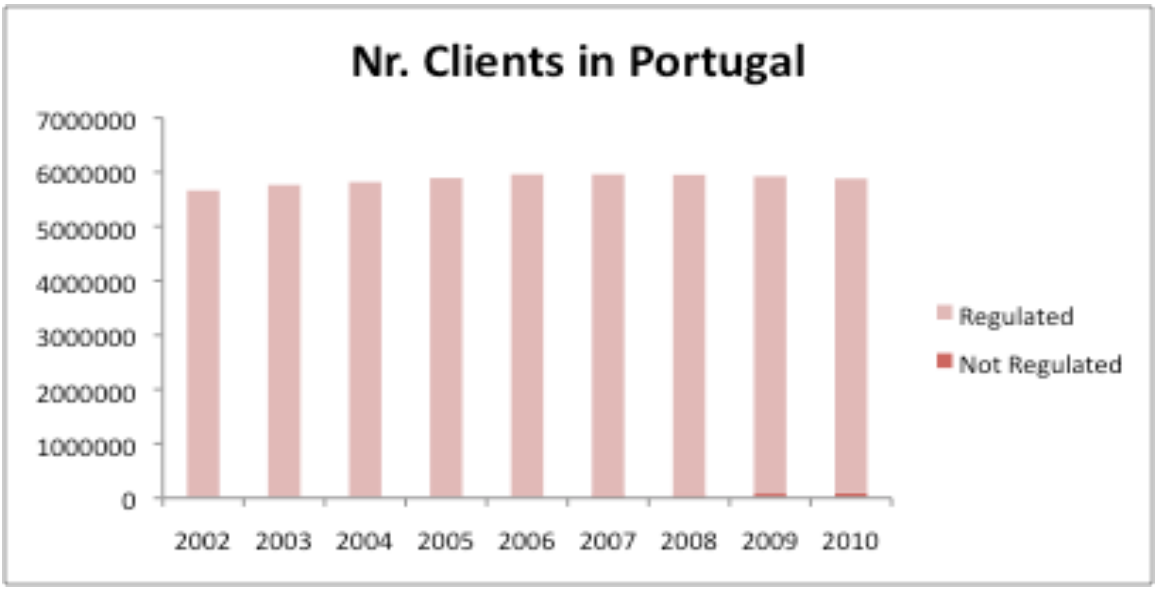
Graph 2. EDP.pt



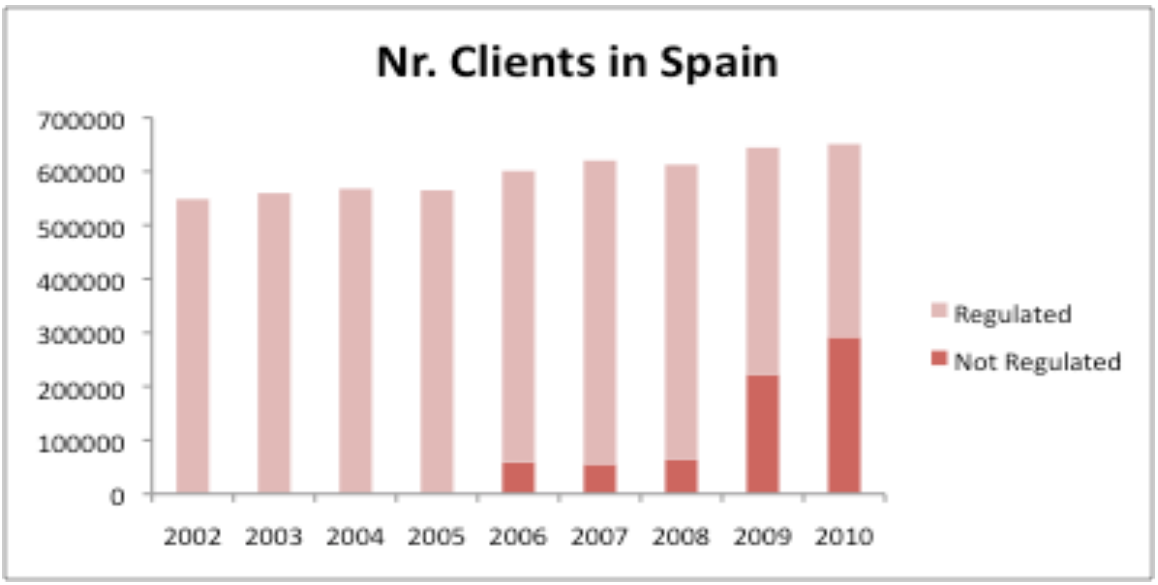
According to the two graphs above it is clear that EDP has a much higher and stable position in Portugal mainly because it was the dominant and the market was regulated until 2003 when it first come some production commercialized outside the regulated sector even though in low value. Since then, despite 2008, the not regulated sector is increasing year by year whereas the total value of commercialized production is stagnating or even reducing. Not surprising, given all the above information.

Regarding Spain, since 2002, the entrance in the Spanish market, the trend is not clear. EDP faces high competition and values show highly volatile. The first point to mention is the fact that it is a much lower commercialized value when comparing to Portugal. In second place, not regulated sector has a higher relative value. This means that EDP entered in areas that are outside the regulated sector with no capacity to enter in the *Home* sector. Finally, values from last year show that the positioning in Spain in almost all in the liberalized market. Still, absolute values are reducing since 2006.

In second place, it also comes appropriate to present the *number of clients* in both markets to understand market penetration and not only consume.



Graph 3. EDP.pt



Graph 4. EDP.pt

Assessing the two graphs only few notes are relevant. In Portugal, EDP has a high number of clients as it is natural as it comes from a monopoly and covered all the market so the expected trend is to maintain or reduce over the next periods as it is already the case, although in insignificant value.

In Spain, the numbers are good as well as the trend. The number of clients is increasing and, again, more in the liberalized market. Spanish market has more potential clients so the perspectives are good enough for the next years as long as penetration increase.

7.2 EDP Installed Capacity and Key factors

After analysing EDP's *Gwh commercialized* and *number of clients* in *section 7.1.* both in Portugal and Spain, it is the moment to present company's installed capacity and the key factors according to the last data available provided by the company.

The data presented regarding their capacity show the aggregate value of both ***Conventional Regime*** and ***Special Regime***. Inside these two figures, it is separated the different sources and production. *Conventional Regime* still represents

the higher value summing 72,9 GW (1T11) and CCGT [16] and Hydro are those with higher percentage of the total value. On the other hand, *Special Regime*, that represent renewable source, has a lower value of 41,1 GW but presents an higher growth increase when comparing with the Conventional Regime, 5,2% and 4,1%, respectively. Moreover, it is expected to increase giving the fact that investment in renewable source is increasing.

Finally, in terms of total installed capacity, there is an increase considering the two periods of 4,5% to a total value of 114 GW. Next table presents the value in detail both by source and type of regime.

Electricity - Installed capacity	***Iberian Peninsula***		
(GW)	***1T11***	***1T10***	***Δ%***
Hydro	21,2	21,2	-
Nuclear	7,5	7,5	-
Coal	12,6	12,6	-
CCGT	28,7	24,1	19%
Fuel/Gas/Diesel	2,9	4,7	-38%
Conventional Regime	72,9	70	4,1%
Wind	24,3	22,3	8,6%
PRE's (Others)	16,9	16,8	0,6%
Special Regime	41,1	39,1	5,2%
Total	114	109,1	4,5%

Source: EDP Results, 1T11

Key Factors	***1T11***	***1T10***	***Δ%***
Hydrological Coeficient (1,0 = Average year)			
Portugal	1,15	1,52	-24%
Espanha	1,06	1,54	-31%
Observed Electricity Price (€/MWh)			
Portugal	45,4	25,2	80%
Espanha	45,2	25,4	78%
Final Electricity Price (€/MWh)			
Espanha	55,7	35,5	57%
CO2 Emissions Rights (€/Ton)	15,3	14,4	6,80%

Source: EDP Results, 1T11

[16] Combined Cycle Gas Central

The table above that presents the **Key Factors** also from the last period considered, 1st trimester of 2011, provided by the company summarizes some important points. The first one, hydrological coefficient, show a considerable decrease both in Portugal and Spain. The second one, Observed electricity price, for both markets presents huge increase in terms of prices with values of 80 and 78%, for Portugal and Spain, respectively. In third place, Final electricity price, with information only for Spain, where there is an increase of 57%, which is a very high value.

Finally, **CO2 Emissions rights**, more detail in next *section 7.3*, and according with the table above there is a small increase of this figure, which represents a cost for the company.

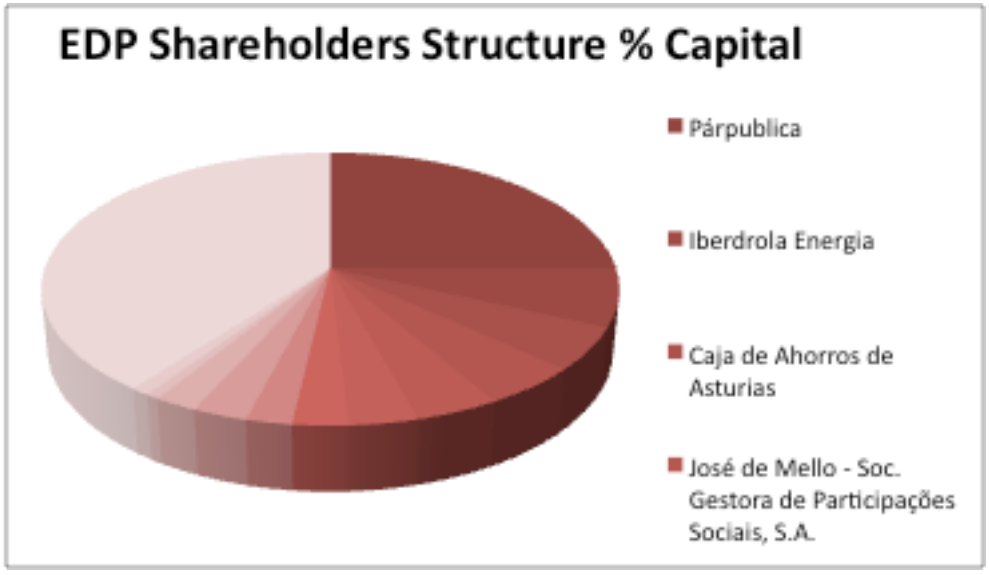
7.3 Emissions Trading

Briefly explaining this point, Emissions trading are a consequence of Kyoto protocol but with specific objectives inside the European Union that created a cap-and-trade system where countries and companies are obliged to respect CO2 or any other polluting gas emissions to the atmosphere. Companies, such as EDP, can sell emissions rights and make profits from that if the company did not need all their rights. Still, if company does not control their emissions, will have to buy it in the market. All this values are included inside National Plans for all countries inside the European Union. As consequence, Emissions trading became an important point to companies as it can represent better or worse financial results and production strategies are made according with their emissions rights.

7.4 EDP Capital Structure and Market Performance

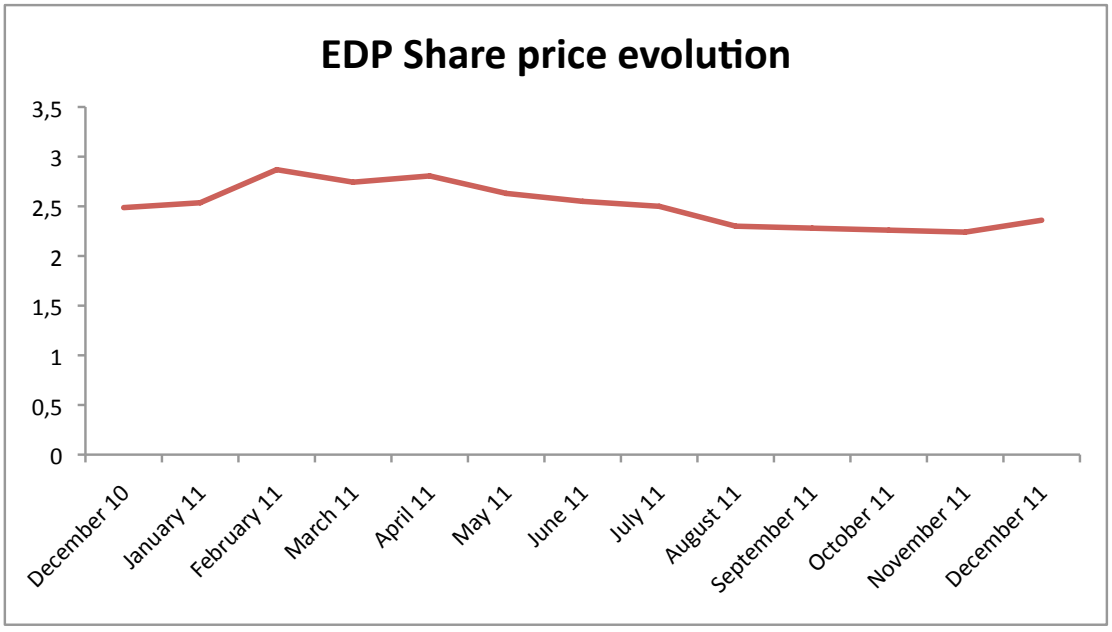
After the brief analysis of the Tri-party agreement regarding Portugal financial and economic - in *section 1.2* it is mentioned the fact that Portuguese government must sell their part in the company's capital, represented in the chart by the public owned company, Párpublica. This stake must be sold during the next months as it is already schedule, what open space to new outside shareholders or current shareholders to increase their participation. Apart from Párpublica with

25,05% of EDP's capital, all other shareholders have similar stakes and Iberdrola, one of EDP main competitors, follow as the second one with more capital in the company. This means that, after the government sell their part, there are no reference shareholders regarding their actual participations in the company. The referred capital distribution is as follows.

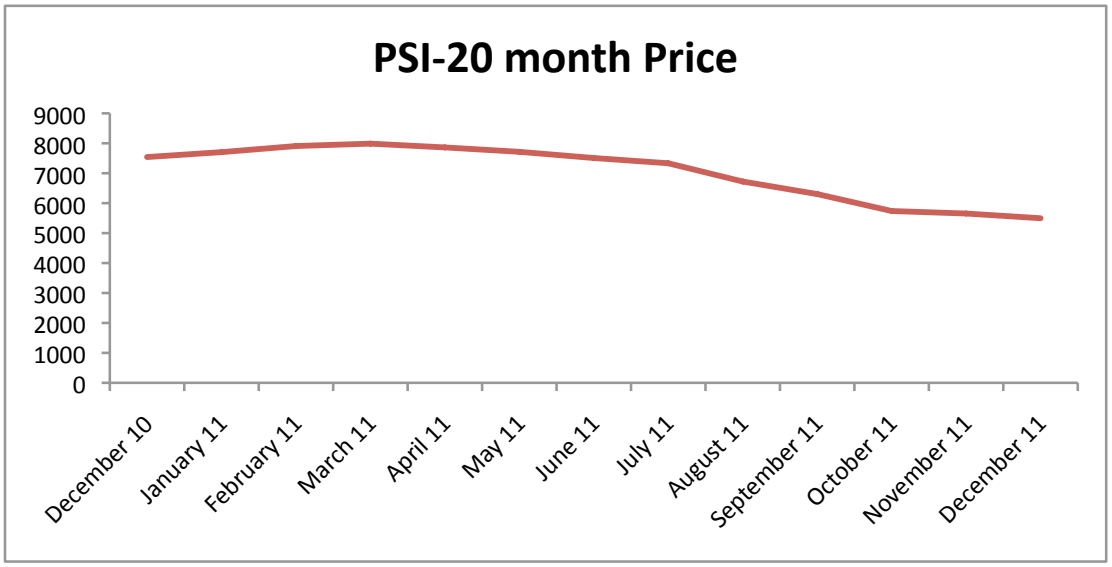


Source: EDP.pt

In terms of **Market Performance**, according to Bloomberg, EDP and main Indexes and PSI-20 had the following movements.



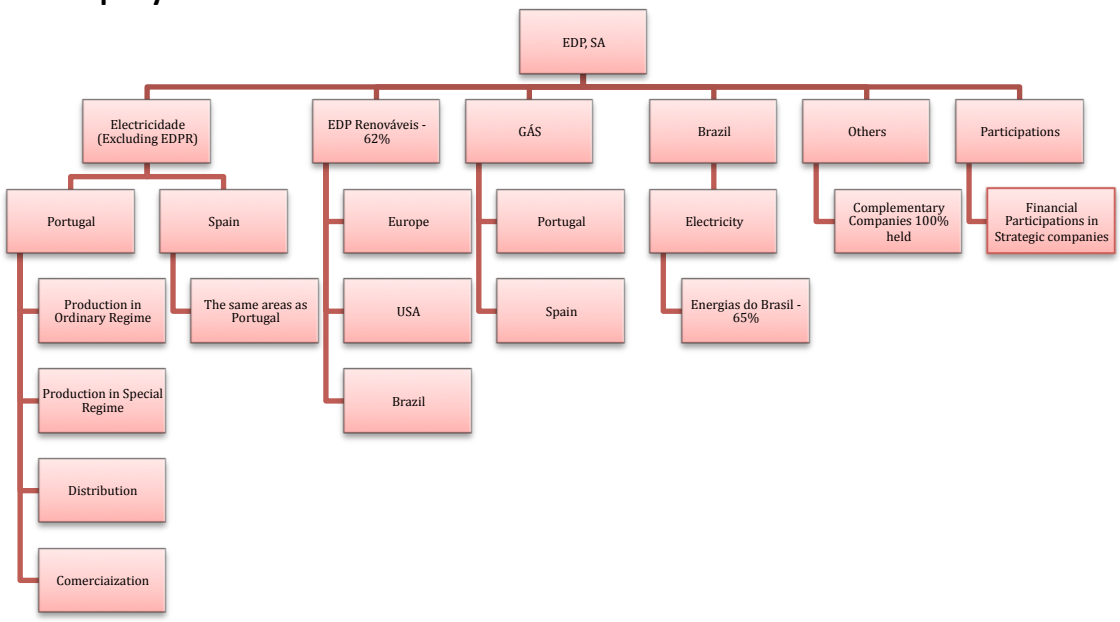
Source: Bloomberg



Source: Bloomberg

Looking at the two graphs, EDP shows that it follows index movement and is even more stable than the Index. EDP is an utility and usually utilities follow market movements, without big valuations or devaluations regarding the Indexes, what, in terms of businesses, present some stability and provide a safe stock to external investors as EDP is recommended by majors Investment banks as safe investment with some good future perspectives in terms of businesses outside Portugal and Spain.

7.5 Company Businesses Structure



Source: EDP

EDP businesses are separated into five major groups: Electricity, Renewable, Gas, Brazil, Others and Financial Participations.

Inside these five different group businesses, they are divided according to the country and objectives with total independence. EDP Renováveis is also listed in the capital markets. Both EDP Renováveis and Brazil are getting more and more relevance to the overall group performance and are, with any doubt, give future investment opportunities. Gas is in line with Electricity, only an asset diversification, but also in Portugal and Spain. Finally, Others and Participations, do not represent the core business of EDP. Both represent small participations of the company, not only financial but also complementary companies.

The purpose of this thesis is to analyse the first segment, Electricity. All the others will be valued through multiples or market value.

7.6 Competitors

Considering EDP competitors, there is two main players in the Industry and both Spanish companies, Iberdrola and Endesa. As the Industry is electricity, differentiation through product is impossible, as the competition is done mainly by price and service quality. Both companies are now operating in the Portuguese market with a big presence both in Industrial and small businesses segments (see table in section **4.**), with an increasing trend in all segments. Home segment is still almost totally dominated by EDP and only with full market liberalization can be possible to both companies to steal market share from EDP.

In terms of businesses, both companies are, as mentioned before, Spanish, and both are dominant in the electrical market as well as other businesses that are not relevant at the moment, such as Gas and Renewable. In line with EDP these two companies have high investments outside Iberian Market, not only to diversify their assets and seek investment opportunities as it is the only way to keep growing at interesting rates regarding the fact that both Spain and Portugal do not present enough businesses opportunities and future economic growth rates, which is bad news in Industries such as Electricity. However, their dominant position in the Spanish market provide them a large financial support in terms of results to invest outside.

Finally, and again, as EDP, these two companies in terms of financial figures present high and stable cash flow generation, same CAPEX and very high debt - See tables in *sections 6. and 7.*

III – Valuation

1. Investment Case

At this point of the project, the objective is to understand whether EDP is a good company to Invest, or not. All the Equity Research comes to an end by answering this question. Many opinions can be done, and none of them are completely correct and represent exactly the reality as future is unpredictable and a Valuation is supported by beliefs about what can happen in the future, supported with historical values.

Giving that, in my point of view, EDP is a good Investment and my recommendation would be to **Maintain** or **Buy**, depending on the horizon the Investor consider. Comparing the actual market Price with the one I get, **€2,31**, the opinion is to **Maintain** as it is close to the actual Market Value of **€2,41** (21-10-2011). However, the future perspectives are good in terms of business as a whole for the group and I believe the Share price will grow according to my data but also because the share price are expected to grow also, as Capital Markets are suffering huge devaluation in this period, related to the Euro crisis in Europe.

I support my recommendation considering few points in terms of business and company policy:

i. Share price are expected to grow in the next periods and years, so it represent an opportunity to **maintain** or **buy** more shares as, even though at this moment, the price I get is lower than the actual market price, my predictions for 2012 are for an higher price than the actual one, €2,71
ii. EDP business profile: Dominant position in the Portuguese market, still with very high value in long term contracted business and opportunity to grow more in Spain.
iii. Portuguese government will sell their stake in the company and open the company capital to the market, what can make an opportunity to new shareholders and business perspectives.
iv. Debt is believed to reach the higher value these years (2010 and 2011), decreasing over the next periods.

v. Good growth opportunities both with EDP Renováveis and EDP Brazil, both operating mainly outside Portugal and with good perspectives. Their percentage in terms o Enterprise Value are expected to grow in the next years.
vi. According to Company administration, the Dividend Policy is very attractive, with a high Dividend Payout Ratio and growth for it for the ongoing years.
vii. ROE is also attractive with an expected value of 16% in 2011 but reducing to 11% in 2012 until it stabilize, according to my data, near 13% over the next years until 2016.

However, some threats affect my opinion for EDP. From those, I emphasize three of them:

i. High Debt value, even though with perspectives to reduce it.
ii. EDP is highly exposed to Portuguese economy and the future is not bright for the country with GDP reduction and Credit Risk increasing.
iii. Moderate growth assumptions for Portugal and Spain, assuming a correlation between the sum of GDP Growth plus Inflation for both Markets.

Concluding, in my opinion, EDP is a good Investment or, at least, an Investment to maintain at this moment. Its risks are more associated with Portuguese and Spanish economy than with Business management and opportunities. Moreover, the percentage of the Net Income, coming from outside of Portugal is increasing and it is a clear strategy from the company in order to reduce its external risks. EDP Renováveis and EDP Brazil are the main source of business opportunities. Adding to that, EDP debt necessities for the next years are fulfilled according to management.

2. Methodology

To run this project I follow both Finance literature as well as Equity Researches from Investment Banks.

From literature review that is in line with Market practice, I decide to do both a DCF valuation complemented with a Multiple Comparison.

To do the DCF I used mainly information available in the market, such as Risk free rate, Tax rate, Equity (Re) and Debt Risk (Rd) and Capital Structure to get WACC that is used to compute Cash flows. At the beginning the idea was to evaluate in separate the valuation of Portugal and Spain, consider the different business units. However, as the Tax rate in Portugal (29,5%) got very close to the Spanish one (30%), and the company finance process are centralized in EDP Finance BV, the difference between Portugal and Spain were marginal so the option was to evaluate as a whole the Iberian Market.

To do that, I divide Portugal and Spain in three different businesses: Production, Commercialization and Distribution and then aggregate for the Iberian Market each one of them to finally get the consolidated P&L statement and Balance sheet for the Iberian Market. Here was the main difficulty of the project. EDP does not provide individual Balance sheets for all the businesses, only the P&L Statement, that I used to get the consolidated one. Giving that, the option was to get the Consolidated EDP Balance sheet, which includes both the Iberian Business but also EDP Renováveis and EDP Brazil, and deduct the last two one, in order to get an approximation to the real Balance Sheet of Portuguese and Spanish operations. Still, I recognize that this approach is not the more accurate but it was the only option at the moment, as the idea was to evaluate a specific part of the business and not the whole EDP Group. It was the option, and I got the value to calculate some figures such CAPEX and Depreciation, but, obviously, it reduced the quality of the data.

Finally, the valuation was complemented with a Multiple comparison where I used both Market available information from Investment Bank, in the case,

Millennium BCP Investment Bank, but also Reuters to get the Figures to the Peer Group that I consider complemented with the Data I got.

2.1. Peer Group Considerations

To do any Multiple Comparison, the Peer group must be chosen carefully and coherently in order to represent an accurate comparison. The choice was limited to six companies that are: *Endesa* (Spain), *Iberdrola* (Spain), *E.ON AG* (Germany), *ENEL* (Italy), *EDF* (France) and *Scottish & Southern Energy* (UK). The main criteria were the business profile, of course. All of them are electrical companies and have also an arm company in the Renewable Industry such as Endesa or Iberdrola who compete more directly in terms of business with EDP both in Portugal and Spain. The others are more a comparison as they have different markets to focus on. EDP Renováveis, as it has more international business, compete more with those companies.

Again, the same problem arises to my project. As the objective was not to evaluate the whole group some Multiples may look very different and not comparable as for some of them I used data from the specific businesses I analyse and it is compared with the Multiples of the whole company. However, it was the most accurate comparison possible to make, and I believe the approximation is acceptable. A point that came up clearly is that, in terms of Market Capitalization, EDP is much smaller than all the other companies. It is normal, giving the markets they operate and, consequently, the dimension that they can get. The Industry is clearly defined as dominant companies in each country markets as all of them arises from Natural Monopolies - it is developed in *Annexe A - Natural Monopolies*.

The considered Multiples were: Dividend yield, EV/EBITDA, P/CE, Net Debt/EBITDA and P/CF. The decision was made considering literature review that emphasize the fact that it is important to distinguish the multiples according to different Industries. Giving so, I used those that were considered more relevant to have a good Multiples analysis. The considered Multiples are focused on Dividends, capacity to generate Cash Flows, Market Cap. and Debt. Multiple results will be presented afterwards in *III.9 – Multiples Valuation*.

3. EDP Group Financial Statements – Historical Resume and base for Valuation

To perform the valuation, it is necessary to have a base of work. Main assumptions must be supported by historical values in order to be reliable information. Main figures (P&L statement, Operational Results, Financial Results, Operational Investment and Debt) are in *Annexe 1.*

In terms of ***P&L*** there is a moderate growth of the Net Income of 6% from 2009-2010, recovering from a reduction during the year before. **EBITDA** and **EBIT** follow the same trend in these. In the next section - *4.1. Data- Growth Rate* **–** my growth assumption lead to smaller values in order to reflect a more defensive valuation giving all instability in the economy but also because all the P&L Results does not present a clear growth for the next periods.

In terms of costs, the perspectives are good. They are controlled and had a growth of only 3%. For my assumption, I followed the same rational of Cost efficiency.

Regarding ***Operational Results***, the main points to focus are:

i. Reduction in Iberian Production;
ii. Considerable reduction in terms of liberalized market;
iii. Finally, main operational growth comes from all activities outside the core business (Electricity in Portugal). They are: Gas, Renewable and Brazil.

These results are not a surprise and are a key drive value creation for EDP for the forthcoming years.

Considering **Operational Investment**, there is a clear sign of Investment reduction which a valuable data to consider figures such as CAPEX and Depreciation for the company as EDP plays in a Capital Intensive Industry.

There is a reduction of 23% in Expansion Investment as well as a reduction of 25 and 34% in Contracted Production and Liberalized Activities, respectively. In terms of the overall group the reduction is 18%. Summing up, EDP is reducing their investments expansion mostly in the areas that this project covers.

Finally, there is ***Debt*** that is the main weakness of the company. EDP is highly leveraged even when considering with other peer group companies that, normally, have also high values in this figure.

In the last semester of 2011 EDP presented a net debt of €16.879 Million. Even though administration ambition is to deleverage the company and during this instable period in Portugal, EDP has their financial necessities controlled, the value can be frightening. Adding to this, both short and Mid-Long term debt increased 10%. Their debt is also, comprehensively, in Euros with 72% of the total debt. Instability in Euro can also affect this fact.

4. Data

4.1. Growth Rate

As explain in the Methodology (Section III.2), Portuguese and Spanish Market were analysis as specific group, and they were only consolidated in the end to get the Consolidated P&L and Balance Sheet. In line with the assumption, Portugal and Spain had different growth rates as the tables below show:

ortugal	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
eal GDP (Annual % Change)	0,018	-2,474	1,398	-1,512	-0,476	0,9	1	1,2	1
nflation	2,651	-0,903	1,389	2,351	1,417	1,424	1,44	1,643	1,7
otal Growth (g)	2,669	-3,377	2,787	0,839	0,941	2,324	2,44	2,843	2,9
pain	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
eal GDP (Annual % Change)	0,864	-3,722	-0,147	0,829	1,613	1,768	1,935	1,83	1,
nflation	4,13	-0,238	2,043	2,596	1,533	1,369	1,518	1,732	1,8
otal Growth	4,994	-3,96	1,896	3,425	3,146	3,137	3,453	3,562	3,5

Source: IMF, 2011.

Growth rates are expectation of the overall economic performance in both countries and not full considerations about company's possible performance. It was assumed that in such an extreme economic conditions, especially in Portugal, it would not be reasonable to consider higher growth than the economy. What can happen is that the GDP Growth rate and Inflation are over valuated right now giving the daily negative progress of the economy. Still, I believe it is correct to consider

this rates, even though moderate, express closely the possible real company performance in both countries.

4.2. Cost Structure and Other Revenues Data

This point was sensible and hard to determine. It is impossible to do it exactly as they are assumption of some possible management strategy for the ongoing years but always trying to be the more coherent with company's profile - *See Annexe 2*

Again, this part also distinguishes between Portugal and Spain, as some costs are not expected to be the same despite follow the same logic behind.

The idea to compute values was to be the more defensive as possible. If revenues are growing slowly or, in some cases, reducing, costs must be cut of improve efficiency.

Starting by *Electricity Acquisition Costs,* it was assumed that it would follow the same trend as previous years as function of the total revenues. Electricity is also traded in the market, and with high volatility which difficult future projections. Giving that, the idea to get a trend in line with revenues came up as acceptable. In terms of *Distribution*, it is assumed the same trend with an efficiency objective of 75% between 2011-2013 and 70% from then on. Finally, Commercialization, the value is expected to be high and I consider that an objective of 80% efficiency is a good estimate. Same rationale is used to compute the values for Spain, depending on the efficiency objective level and function of revenues.

In terms of *Personnel Costs* and *benefits with employees*, the base is the same of Group Financial Statement in *Section 3***.** However, some assumptions are done. First of all, EDP is expected neither to fire employees nor to hire new ones. This means that, as aggregate, values are expected to be stable. In terms of *Personnel Costs* the assumption is that wages will grow in line with inflation plus a premium of 2% in aggregate. In terms of *Benefits with employees,* it is assumed a reduction as in 2009-2010, to grow again after 2014, 5% when it is expected to Portugal overcome the crisis that are living in at the moment. Again, the same idea for Spain differing in values.

Considering Inventories, only production has a value high enough to consider, in the case, 25% of the total Revenue. Distribution and Commercialization are not expected to have high inventories so their values are not representative.

Finally, in terms *Other Revenues and Costs* and Outsourcing services, it is reduced to: Between Other Costs and Revenues, 10% efficiency in the difference. I mean, reduction of 5% in Costs and increase of 5% in Revenues. Outsourcing Services, the idea is to expect a growth of 4% for the next years.

4.3. Data Assumptions

Data to Valuation							
Risk Free - German	3,25%	Rf GBP	3,75%	Rf USD	2,125%	Rf JPY	1,10%
Risk Free - Portugal	11,17%		**5,75%**		**4,125%**		**3,10%**
Risk Free - Spain	5%						
Risk Premium	6,28%						
Tax rate - Portugal	29,50%						
Tax rate - Spain	30%						
Beta Industry (Unlevered)	0,39	0,62					
Beta EDP	0,65	0,74					
target D/V	40%						
Re	7,90%						
Rd	4,76%	**5,25%**					
WACC - Portugal	6,22%						
WACC - Spain	6,07%						
WACC Iberia	6,14%						

Source: Bloomberg, Reuter and Damodaran, 2011

A fundamental part of an Equity Research is the Data assumed to compute the valuation. A significant part of the quality of the final conclusion is whether the assumptions are strong enough to support final conclusion. The main focus is to have the more trustworthy data and real data. It is fundamental to be in line with reality and future perspectives. Future is unknown, so the valuation must be supported under strong fundamentals that markets provide.

Saying that, to get Weighted Average Cost of Capital (**WACC**), final objective, some data are essential to get there. The first one is the Risk free rate (**Rf**). Usually this value come as a benchmark from the market and represent the value of the public debt assumed as Risk free from the country in consideration. However, giving the financial crisis in the Euro area, we hardly can assume any country as Risk free at

the moment. Still, Germany, as Portugal is inside the European union and it is assumed free capital movement, 10 years German bunds are assumed as the Risk Free rate. For Debt in other currencies, such as GBP, USD and JPY, it is assumed their treasury 10-year bonds. For these countries the risk is assumed as lower as there is, in fact, stability and low uncertainty about the future of these currencies. They are not assumed to can vanish in the near future. Not surprisingly, the possible Portuguese Risk free rate is too high to can be considered as a benchmark rate, moreover, when EDP has resources to buy capital outside their borders. Spain has an acceptable rate but it cannot be considered as a reference as it is not a powerful benchmark inside the Euro area.

In terms of Country Risk Premium, the value was extracted from a database of Damodaran with Moody's. It is explained how the value was computed in *Annexe 3*.

Regarding **Tax rate** both Portugal and Spain are very close in terms of value with 29,5 and 30%, respectively.

The levered beta of EDP was extracted from Reuters. Data is trustworthy to be used to get to the final value of WACC. Finally, other important assumption is the capital structure **D/V.** Here, the idea was to understand and follow previous years situation and what I consider a reasonable value for the upcoming years. 40% is a high value but totally in line with the Industry and company's financial situation. Past values are in *Annexe 4*.

After all the assumption, the final value of WACC can be reached. The first idea was to separate between Portugal and Spain. However, with the external intervention in Portugal and the rising of the tax rate in Portugal the difference between Portugal and Spain tax rate, 0,5%, was insignificant, for what making a distinction was no longer acceptable. Giving that, the WACC Iberia is used to compute the final valuation. To get to this final WACC, it is the average of the WACC of Portugal and Spain. To get the value, the WACC formula was applied with the assumed values. The final value of WACC Iberia is ***6,14%*** and I believe is still in line

with the reality and, also important, in line with other investment banks perspectives.

4.4. EDP Rating

In *annexe 5*, there is the actual rating of the company according to Standard&Poors, Moody's and Fitch. EDP provide that information to the markets through their website. According to Moody's, EDP Rating is **Baa3/Neg/P3.** In *annexe 5.1.* it is possible to see what does that impact in terms of spread to the risk free rate and that was used to get it. EDP is seeing their rating deteriorate mainly because of their exposure of Portuguese country risk and Euro crisis as it was already developed.

5. Dividend Policy

EDP is considered a good investment, not only by their growth potential but also because of their Dividend Policy, which is very attractive. Since 2008 the **PayOut Ratio** was almost 50% of the total net income, 47% to be more exact. From then on the percentage was always higher than 50% and it will continue to be during the period of time considered to this valuation. I assume that following Administration ambition for the next years with an expected growth of **0,015€** in absolute terms.

Data Below resume EDP's Dividend Policy:

Dividend Policy	Payment Date	Ex-Div Date	Gross Div	PayOut Ratio	Div. G
2008	14 May 2009	11 May 2009	0,140	47%	
2009	13 May 2010	10 May 2010	0,155	55%	
2010	13 May 2011	10 May 2011	0,170	58%	
2011YE	13 May 2012	10 May 2012	0,185	61%	8,11%
2012YE	13 May 2013	10 May 2013	0,200	65%	7,50%
2013YE	13 May 2014	10 May 2014	0,215	56%	6,98%
2014YE	13 May 2015	10 May 2015	0,230	56%	6,52%
2015YE	13 May 2016	10 May 2016	0,245	51%	6,12%
2016YE	13 May 2017	10 May 2017	0,260	53%	0,00%

Euro'000	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
	1067813	1078659	1347893	1443794	1670349	1706180
Net Income	1067	1078	1347	1443	1670	1706
Shares	3496	3496	3496	3496	3496	3496
EPS	**30,52%**	**30,84%**	**38,53%**	**41,28%**	**47,77%**	**48,80%**
EPS	0,305	0,308	0,385	0,413	0,478	0,488
Gross Div	0,185	0,200	0,215	0,230	0,245	0,26
PayOut Ratio	**60,61%**	**64,86%**	**55,80%**	**55,72%**	**51,29%**	**53,28%**
Net Income	1067813	1078659	1347893	1443794	1670349	1706180
PayOut Ratio	60,61%	64,86%	55,80%	55,72%	51,29%	53,28%
Dividend	**647253**	**699627**	**752138**	**804522**	**856699**	**909056**

From the first table in consideration its possible to see the Gross Div growth year-on-year and the correspondent Payout Ratio and Dividend growth in relative terms. EDP has the possibility to follow with their Investment policy without forgetting their shareholders and markets, which appreciate returns on their investment, Dividends, in the case.

The main points to retain from this Dividend policy are:

i. EPS are expected to grow all the considered years;

ii. Payout ratio always higher than 50% of the Returns;

iii. Consequently, Growing dividend absolute values over the considered years.

6. Financial Ratios Forecast

Ratios	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Net Debt/Equity (x)	2,63	1,78	1,50	1,28	1,14	1,03
Net Debt/EBITDA (x)	9,10	9,68	6,99	6,31	5,52	4,96
Interest Cover	7,30	9,75	10,12	10,95	15,70	15,67
CAPEX/D&A	427,98%	384,31%	432,92%	373,85%	359,67%	353,36%
CAPEX/Revenue	10,17%	9,52%	11,00%	9,75%	9,59%	9,54%
NWC/Revenue	-12,04%	-0,97%	1,67%	0,09%	0,42%	0,11%
ROE	16%	11%	13%	12%	13%	13%
EBITDA Margin	15,84%	13,95%	17,88%	18,32%	19,39%	19,87%
EBIT Margin	13,10%	11,03%	14,90%	15,34%	16,35%	16,81%

The table above resume some important financial ratios calculated during company valuation in order to understand present and future company's performance. At a first glance, there are some good figures to consider. Moreover, they must be contextualized with the actual company life cycle and economic environment.

The first one to consider is **Debt** over **Equity** and **EBITDA**, as Debt is largely the main threat for the company's future. Giving that, both ratios present good perspectives. The weight of Debt on both is expected to decrease during the upcoming years, hence, **Interest Cover Ratio** will increase, which is a very good sign as it is a considered figure to Ratings attribution. **Net Debt/EBITDA** present a very good forecast reducing from 9,10x in 2011 to 4,96x 2016YE by stabilizing debt growth compensated with expected business growth.

The next main figure to consider is **CAPEX**. High Capital Expenses are a common characteristic of this specific Industry as analyzed before in *Section II – Company and Industry analysis.* Saying that, not surprisingly, CAPEX ratios are very high also in EDP. Both CAPEX ratios (with D&A and Revenue) are high. Still, for the next years, the trend is to reduce comparing with D&A and stabilize around 10% over Revenues. The same happen with **Net Working Capital** that will have stable trend over Revenues. Both CAPEX and Net Working Capital are analyzed more in detail afterwards.

Considering **Return on Equity (ROE)**, an important figure in terms of Investment markets, the value is expected to reduce in the 2012YE from 16 to 11% and from then on stabilize in 13%. Per se, it is not a bad figure, however, it is more useful to analyze in **Multiple Comparison** in *section 9.*

Finally, in terms of margins, both for EBITDA and EBIT, it is normal that both follow similar values. It is not an extraordinary value, but, highly stable with a small growth trend which is important in terms of business profile.

To sum up, presented figures resume a mature company in markets with low growth opportunities and innovation where main opportunities are outside and in new resources. Still, financial ratios and fundamentals are good enough for the next years and present a strong company and Investment.

7. EDP Profit & Losses Statements per Area: Production, Distribution and Commercialization

As mentioned before in section *III.2 – Methodology* business performance was evaluated in separated business areas in order to better understand the company.

Lets Start with **Production –** *See Annexe 6*. The first impression is that production is the one with higher Net income. In terms of *Business Revenues*, Production and Distribution are the ones with more impact in the Consolidated P&L – See Annexe 9.

Regarding the consolidated P&L, there is a constant growth in terms of Business Revenues reaching more than €1,4 thousand million in the last considered year, 2016. With a tight cost structure control, also **EBITDA** and **EBIT**, consequently, are expected to grow. Finally, the **Net Income** is projected to reach an impressive value of more than €1,7 thousand Million.

The final Balance Sheet of the analyzed area is presented in *Annexe 9*.

8. Debt

In terms of Debt, it was necessary to calculate at market values the issued Debt of EDP. For that, it was used market data according to different currencies that EDP issues, mainly through EDP Finance BV. Those values are presented in section *4.3. Data assumptions.* To get the Cost of debt per currency I used the Risk free per currency + rating from Moody's with Default Spread. Having that, I get a final value of 5,25% for debt in Euros, 5,75% for Debt in GBP, 5,375% for debt in USD and, finally, 3,10% for JPY. Some issued debt was privately placed for what I assumed a 3% interest rate. Hence, according with the currency I computed Debt cash flows. That information is in *Annexe 10, 10.1 and 10.2*.

Calculating Debt Cash flows using already placed debt I get a market value of €10.207.448.000. Still, using company information in *annexe 10.2*, the debt market value is €17.891.646.000€.

9. Multiples Valuation

After Peer Group Consideration in *section III.2.1* is now the moment to analyze Multiples and understand the position of EDP in the market. As it was developed in the literature review a Multiple valuation is as important as Discounted Cash Flows. If one is more focused in company internal analysis, DCF, the other is more in a comparison view, Multiples. One complements the other.

Peer Group Valuation		Date: 24 Jun 2011													
Company	Country	Rec.	Price (€)	Market Cap. (Mill. €	P/R Ratio	Div. Yield %	EV/EBITDA		P/CE		Net Debt/EBITDA		P/CF		
						5 years Avg.	2011	2010	2011	2010	2011	2010	2011	2010	2011
EDP	PT	Hold/Buy	2,40	8,426	7,85	3,91	7,05		3,46		4,29	8,53	9,10	-3,36	4,77
Endesa	ES	Hold/Buy	21,90	23,345	7,15	7,40	4,61	6,00	5,60	3,12	2,87	2,1x	2,7x	3,80	4,10
Iberdrola	ES	Hold/Buy	5,87	34,711	11,28	2,59	5,47	8,50	8,20	4,61	4,16	3,8x	3,7x	5,90	5,70
E.ON AG	DE	Hold/Buy	19,03	38,239	6,21	4,27	7,85	5,80	6,10	2,87	2,53	2,2x	2,3x	4,60	5,00
Enel	IT	Buy	4,28	40,359	8,89	7,07	6,52	6,10	5,90	1,72	1,59	3,0x	2,9x	3,70	3,60
EDF	FR	Hold/Buy	25,55	47,321	73,67	2,39	4,49	6,20	5,90	2,85	2,50	2,4x	2,3x	4,60	4,50
Scottish & Southern Ener	UK	Hold	1,54	11,684	8,57	5,09	5,41	9,40	9,10	4,18	3,30	3,5x	3,6x	7,70	7,30

Source: Reuters, and

Millennium Investment Banking EDP Equity Research 16 Nov 2010.

Table above resume my analysis using data from Millennium Investment banking for the peer group companies, as it was not mandatory to calculate for each company. Some other information was complemented with Reuter's information.

In common there is the fact that in terms of **recommendation** all of the have Hold/Buy position. A simple conclusion: Even though there is a serious crisis, these companies have strong financial fundamentals and, with the crisis, some of them can be underpriced presenting an opportunity to invest or accumulate.

Another point is that, easily came up the fact that, regarding **market capitalization**, EDP is a small company. That reflects the country and the market that operates.

Considering **Dividend yield**, a very important multiple for the market, EDP has a good value and, as it was analyzed in section *III.5. Dividend Policy,* it is expected to continue with a good performance for the markets. Regarding, **EV/EBITDA** it is a very good indicator for the company and it is in line with their peer group. Considering Price to Cash Offering **(P/CE),** EDP presents a relatively lower value than their peer with 3,46. Again, when considering Debt Multiples there is the

fact of the weight of Debt in EDP and the threat that it can be moreover when country's is in a finance struggle. **Net Debt/EBITDA** has a value of 4,29x, considerably higher than their peers. Finally, P/CF EDP presents a value in line with their peers even though, slightly lower.

To sum up, EDP in terms of Multiples analysis is in line with their peers. Some are better than their peers but, in other, worse. Giving that, and having in mind that EDP is smaller than their peers, It is possible to conclude that EDP even though does not present extraordinary multiples, it is strong comparing with their peers which is very important in terms of investment. The only relevant negative point is, again, their debt. It is smaller than their peers but has higher weight and dependency of debt over their EBITDA.

10. GAS Valuation

As it is not a core part of EDP business, here it will not be deeply analyzed. To come to their value the method to valuate this participation was in line with other investment banks. The valuation was done through multiplication of the number of years considered in the valuation (six, in the case) over EBITDA of the first considered year – **6xEBITDA**. EDP gas participation P&L is presented in *annexe 11* and, the value to the Sum-of-Parts Valuation is in *Section 13.*

11. DCF Valuation

To do the DCF some figures such as *Tangible Assets*, *Intangible Assets*, *Inventory* and *Net Working Capital* were calculated before to build the final valuation of the electrical business.

11.1 Tangible Assets

To start, it is important to mention that to get these values were necessary assume a "deconstruction" of EDP balance sheet. From the starting balance provided in the company reports, it was assumed that 70% of tangible Assets were affected to

the businesses I was analysing. The other 30% were assumed to be part of operation in Brazil and EDP Renováveis.

Having said so, the table in *Annexe 12 – Tangible Assets* were constructed in the first years with data from the company and from 2011 on, the considered valuation period, there was the cut of the 30% to get closer values. Impairment and amortizations were calculated considering previous amortization over the variation of the total tangible assets. Having those values, it was possible to calculate coherent values between previous and coming periods.

To get the mentioned "factor", It was calculated as follows:

Amortization/((Closing Balance – Acquisitions and Increases)/2)

With the percentages from 2008 to 2010 it was calculated an average for next years in order to get amortization. As the average of the growth in the previous two years were 99,42% there is a very small reduction in the factor that reduces year-on-year this figure.

The other figures were calculated considering the average of the previous three years.

11.2. Intangible Assets

Same logic was applied regarding Intangible Assets. However, the "factor" started in 2011 with 4,45% in 2011 and end with 4,32% in 2016YE. Intangible Assets construction is in *Annexe 13*.

11.3. Inventory, Clients, Trade debtors, Current Assets, Trade Creditors and Other Creditors

With the goal of calculate Net working capital, first, it is necessary to develop some important figures in the company activity as it is Inventory, clients and so on. Table in *Annexe 14* summarizes it. To construct the table I started with historical data and calculate historical ratios, as it follows:

i. **Inventory/COGS**
ii. **Trade Debtors/Revenue**
iii. **Other Current Debtors/Revenue**

iv. **Other Current Assets/Revenue**

v. **Trade creditors/COGS**

vi. **Other creditors/COGS**, where **COGS** are the sum of *Electricity and Gas acquisition cost* plus *inventory variation and costs with raw material* that were calculated in the consolidated P&L.

Obviously the percentage of each one varies, however, the logic behind the calculations were similar. After calculated historical values, I get an average of the previous three years. Then, I get an average from where I calculate future values depending on the projections I have already done in the P&L, depending whether there were **COGS** or **Revenues**.

These values were important to calculate company's net working capital that is analyzed in the next section.

11.4 Net Working Capital

When calculating the Net working capital, the idea is to understand the financial positioning of the company in terms of business. It is a very important figure to analyze because from it we can figure it out whether the company is strong or not in terms of daily operations. Here we have figures such as clients or debtors, that creates to the company capital necessity or not. Table in *Annexe 15* resumes it.

Surprisingly, EDP has a negative value regarding working capital during the considered period. However, this value consistently reduce year-on-year, even though, negative. What this means, is that, in terms of *Changes in Working Capital* the company has a positive value after 2012YE. Note that it is changes in working capital that affect the DCF.

What explains this negative working capital is mainly the very high value of *Trade Creditors*. The reason why that happens is because EDP comes with a very high value from their Current liabilities. That affected decisively the calculation for future years. However, it was the position of the company between 2008-2010 that expects to be compensated over the next years, with a positive change in net working capital.

11.5 CAPEX

Capital Expenses are considerable in EDP and is a common factor among the industry. The large volume of tangible assets and the constant necessity to invest in new infrastructures or to be always improving or maintaining the Assets in place characterizes this industry. Hence, not surprisingly, CAPEX comes up with an high value that influences the company valuation.

As there was the problem to separate the balance sheets, it was difficult to allocate the different assets to each business. Giving that, I assume and started with the assumption that 70% of the assets in the previous years was allocated to the businesses I was studying. The values I got to the final valuation are in *Annexe 16 – CAPEX.*

Capex are the sum of the expenses in tangible and intangible assets. Obviously, Acquisitions and increases were higher in tangible assets. In line with EDP reports – *Annexe 1 – EDP Financial Statements – historical resume* - Investment in expansion reduce 23% but in maintenance the value increase 3% and is expected to continue in the same line.

12. Valuation

Cash Flow Statement Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
EBIT	**1262103**	**1322509**	**1200754**	**1625612**	**1388030**	**1923379**	**2035137**	**2224422**	**2360380**
Income Tax	-254969	-223309	-251124	-457634	-462282	-577668	-618769	-715864	-731220
Annual Amortization	792077	830721	727337	294800	311883	328214	346058	362673	379134
Provisions and Impairments	21020	59346	59883	70111	82791	85494	79465	82583	82514
Changes in Working Capital		-994786	2445595	-1494086	-121552	215376	11510	57329	15261
Capex + Replacement Investments	2782424	2264231	1802424	1261697	1198612	1420911	1293740	1304421	1339690
FCFF	**-962193**	**719821**	**-2511169**	**1765279**	**243362**	**123133**	**536642**	**592065**	**735857**
				1765					

DCF Euro'000	2010	2011	2012	2013	2014	2015	2016
FCFF	-2511169	1765279	243362	123133	536642	592065	735857
Discount Factor	1	0,94145275	0,88633328	0,8344409	0,78558668	0,73959274	0,69629161
Discount Cash Flow	**-2511169**	**1875058**	**274572**	**147563**	**683110**	**800528**	**1056823**

Explicit Value	2326485
Terminal Value	16348367
Enterprise Value	**18674852**

Finally, we get to the final part of the Equity Research with actual valuation through the Discounted Cash Flow model. First of all, highlight the **EBIT** growth during the considered period reaching more than €2000 million in 2016. Obviously,

income Tax follows this growth in EBIT as it also influence company **net income** that can be analyzed in P&L Statement in Annexe 9.

Annual amortization reduces from 2010 to 2011 because of the assumption of balance sheet separation and reduction. Provisions and impairments are expected to follow a straight line around €80 millions.

Changes in Net working capital as it was explained before in *section 11.4,* start to be negative between 2011 and 2012, but assume a positive value from 2013 on, even if with a low value.

Capex and Replacement investment are the figure that influences more the company capacity to generate cash flows. As consequence of the high necessities in this field, the figure weight is considerable and in all considered years.

So, finally, we get the free cash flows. They are positive and with a growth trend. Between 2012 and 2013 there is a reduction but it recovers and grow in 2014 until the end of the valuation time horizon when it reaches the value of €735857 millions.

When discounted to the present value it is made a division between **explicit value** and **Terminal value**. The explicit value, resumes the free cash flows of the valuation horizon while the **Terminal Value** represents the assumption of a perpetual life to the company, and resumes it in the present value following the assumption and data before analyzed.

Giving all the figures before we end up with an **Enterprise Value** of €18 000 million. The final Equity value will be analyzed afterward in ***Sum-of-Parts Valuation*** in the next section as other variables must be include to get the Equity value.

13. Sum-of-Parts Valuation

EDP Sum-of-Parts (Euro'Millions)			
Business Unit	**Value**	**Method**	**Weight in EV**
Electrical Business - Iberia	18674	DCF	72,0%
EDP Renováveis @ 77,5% of EV	3042	Market Values - €4,50 per share	11,7%
GAS Iberia	1963	6xEBITDA 11E	7,6%
Energias do Brasil @ 65,8% of EV	1717	Market Values - 37,87 BRL and (€/BRL) = 2,2687	6,6%
Financial Investments			
BCP @ 3%	84	Market Values - €0,389 per share	0,3%
REN @ 3,5%	22	Market Values - €2,41 per share	0,1%
Others	449	Book Value	1,7%
Total EV	**25951**		100,0%

Adjusted Net Debt YE11E	**17891**
Equity Value	**8060**
Number of Shares (Millions)	3496
Price per Share	**2,31**

To end up the EDP group valuation, it must be concentrated all the business parts valuation. Obviously, the business analyzed in this project represent 72% of the total Enterprise value, even though in the future the percentage is expected to reduce in consequence of the growth of EDP Renováveis and EDP Energias do Brasil.

To get the final **Enterprise value** of almost €26 000 Million, I sum the business segments with the Strategic financial investments in other companies even if they are marginal with 2,1% of the total Enterprise value. The table below presents not only the value but also the used method. It summarizes all the work.

To get the final Equity value of €8060 million, I reduce the Enterprise value with the debt market value and end up with the final price per share of **2,31€**.

Information regarding the financial participations can be analyzed in *annexe 17*.

14. Comparison With Caixa Investment Bank Report

Caixa BI EDP Sum-of-Parts			
Business Unit	**Value EURm**	**Method**	**Weight in EV**
Electricity Generation - Iberia	12150	DCF	41,30%
Electricity Distribution - Iberia	4190	DCF	14,30%
Renewables @ 77,5% of EV	8107	DCF	27,60%
Gas Iberia	1800	8xEBITDA 2011YE	6,10%
Energias do Brasil @ 64,8% of EV	2558	Market Values, BRL 36 per share	8,70%
Financial Investments			
BCP @ 3,2%	94	Market Prices, EUR 0,63 per share	0,30%
REN @ 3,5%	49	Market Prices, EUR 2,63 per share	0,20%
Others	449	Book Value	1,50%
Total EV	**29397**		**100%**
Ajusted Net Debt 2011 YE	15880		
Regulatory Receivables	1128		
Provision Social Benefits and Others	1832		
Equity Value	**12815**		
Number of Shares (Million)	3657		
Value per Share (EUR)	**3,50**		

Caixa BI Main Assumptions of WACC	Generation	Distribution
WACC	**6,09%**	**6,26%**
Risk Free (ESN)	4,50%	4,50%
Market Premium (ESN)	4,00%	4,00%
Rd	6,00%	6,00%
Levered Beta	0,86	0,94
Re	7,90%	8,30%
Tax Rate	29%	29%
D/(E+E)	50%	50%

Source: Caixa BI – Banco de Investimento, Investment Reseach, 15 December 2010

First of all, it is important to mention that this is the only available report that Caixa BI allowed me to use. Some data are, obviously, out of date. However, my research focused on the same periods.

Caixa BI used the same model as I did. Given EDP dimension, the valuation is done through a Sum-of-Parts, using different valuation methods. The first difference is that Caixa BI divides Electricity Business in two areas: Generation and Distribution. I aggregated all the businesses, including Commercialization, which in this report looks like was forgotten. Still, the Valuation Method was the same: DCF. Literature and Investment reports are in line regarding this method when considering this business. Considering my valuation, Electricity business has higher weight in Equity Value – *Refer to section 13-Sum-of-Parts Valuation* – with 72% while here the sum is 56,60%. The big difference is in the weight of EDP Renováveis that in this Report reach almost 30% weight while in my work is only 11,7%. However, in this point we follow different valuation methods. ***Caixa BI*** used a DCF model and I used Market Prices. My valuation can be more influenced with Financial Markets turbulence that can undervalue EDP R share prices. Although I believe my Research highlights more the Electricity business in EDP Portfolio.

Considering Energies do Brasil, we both follow the same approach with market prices. The difference in terms of Weight in EV is less than 2% valuing more in Caixa BI Report. In this case, the reason can be the considered Exchange Rate at the valuation period. In the Gas Business, I follow the same rational as Caixa BI, using an EBITDA multiple. The difference was the considered period. I considered 6 years EBITDA while Caixa BI did with 8 years. Despite this difference, in terms of value, the Business gas has higher value and weight in EV in my Equity Reseach. Once again, the difference is small. Remark again that the biggest differences arise from the Electricity business that was the area I focus on.

Regarding *Financial Investments* their value are marginal considering the Enterprise value. There are some differences but it is consequence of different time period valuation when considering market prices.

Considering **Debt**, the value in my Research is higher than in *Caixa BI*. I believe my value is more adherent with reality has I used EDP Financial Reports with up to date information of Debt. On the other side, I did not considered in my research the Regulatory Receivables and Social Benefits as Caixa BI did.

Finally, we can compare the two target Prices. *Caixa BI* recommends a €3,50 per share, which comparing with 2011 prices evolution is highly overvalued this Caixa BI share price. The main reason is because they get an higher Equity Value as consequence of EDP R valuation that, in their case is not influenced by markets movements, and in my Report, can be. Still, I believe my Share price of €2,31 is more in line with reality.

Considering *Caixa BI* assertions for **WACC** and mine, the differences are not that relevant. If in the case of *Caixa BI* they get a WACC of 6,09%, in my case, it is 6,14%, which is marginal in terms of valuation – Refer to *Section 4.3-Data. Caixa BI* is slightly higher that mine, however, regarding, risk premium my value is higher. In both researches we supported our valuations with different databases. In my case, I considered Damadoran and Moody's database meanwhile Caixa BI refer to ESN. Considering Tax rate, my valuation is more up to date, even though the difference is 0,5%, considering 29% and the actual 29,5%. Again, this difference is marginal for the valuation and the final value of WACC is close in both valuations which demonstrate the same approach in term of assumptions.

In general terms and to compare both information, the Sum-of-Parts and the assumptions were the most important. However, Caixa BI provides more information regarding their valuation that can be analyzed in *Annexe 18* – Caixa BI, *Investment Research*.

15. Final Remarks

This Equity Research was developed during an uncertain period in Portugal and the application of the Agreement between Portugal and External Entities. One of the more important for this project is **EDP Privatization**.

Before in this work, it was said that Portuguese government would sell their 20% stake in the Company. As agreed, EDP will be totally private by selling to a Chinese company that stake for €2,1 thousand Million among with other negotiated condition. EDP was sold with premium regarding their market price at the time and also considering the price I got in this work. There is only one conclusion with that: EDP is a company full of potential and with many growth opportunities.

Annexes

a. Natural Monopoly

Even though the Electricity market is changing, even more, when considering the Iberian Market, still we have an economic condition in this specific industry that must be briefly analysed. EDP is the only Portuguese electricity provider thus it had the monopoly. It is a common situation when considering utilities, especially in electricity, as companies sell the same product and has economies of scale. Adding to that, the revenue that arises from one more costumer is negligible and only works to reduce the average cost of production.

Other reasons to the existence of natural monopolies are because it is a capital-intensive industry with high initial Investment requirements and with high economies of scale to exploit. Moreover, in this industries companies have very high fixed costs. Altogether, it works as entry barriers for potential competitors. Natural monopoly differentiates from other known monopolies as the company's average cost of production is minimized with the ideal size to supply the whole market (Wikipedia[17]). In order to minimize the costs to consumers, normally, government's act as regulators by fixing desirable prices for the economy, control companies objectives, promote competition and incentive the construction of necessary infrastructures even when it is not profitable.

As monopolies are not desirable for any economy, there are now ongoing some measures to liberalize the market with the entrance of competition, especially from Spanish utilities, as well as EDP in the Spanish market. Now, the relevant market is the Iberian Market, MIBEL (Mercado Ibérico de Electricidade)

b. MIBEL and OMIP

b.1 MIBEL – *Mercado Ibérico de Electricidade* - in Detail

MIBEL is the final designation for an agreement that was negotiated between November 2001 and January 2008 between the Portuguese and Spanish government with the aim of open the borders in order to construct an Iberian Electricity market

[17] http://en.wikipedia.org/wiki/Natural_monopoly#cite_note-1

also in line with European Union recommendation and future objectives of having a fully open electrical market. The transition and negotiation was difficult mainly because in this market there are natural monopolies inside two different countries with different regulations and tariffs.

The main objective is the full integration of the electrical systems between Portugal and Spain without operational borders. More than physical installations there is also a common place, a market, to place "buy" and "sell" orders, namely ***OMIP***. These two objectives have as fundamental a simple goal: *Create a completely liberalized Market.*

The first obstacle to merge the two electrical markets was the tariffs, which governments left to the free market trade to decide and converge, as it was expected. The agreements is way too large to describe in detail here (and it is not the purpose of this project) but the *objectives* should be summarized as follow:

i. Improve Service Quality
ii. Decrease electricity prices
iii. Improve development and competitive market
iv. More competition, Lower prices, both in Production and distribution.
v. Consumers are free to decide[18]

A Portuguese author, Maciel Barbosa, from FEUP, summarizes these goals from the agreement. As practical *consequences* of the agreement, it is that energy supply contracts are reciprocal and there is also the possibility to use short-term energy supply contracts. This means, more generally, that consumers can be either "Bound" or "No Bound". The good new here is that consumers are not obliged to be in a regulated market and they have actually an open free market that must have lower prices and presence in order to get higher market share, the only way to achieve competition in a market that is traditional regulated and controlled by governments. As conclusion note, European Union recommend, as starting point, a 10% of the installed capacity in exchange of electricity between two different countries. The future is not to have a MIBEL but to have an European Electricity market.

[18] *http://*paginas.*fe.up.pt/~fmb/GENER/Apontamentos%20GENER/Mibel.pdf*

b.2 OMIP - Practical part of MIBEL

MIBEL, as described in the section above, is the agreement in a general way, describing objectives, political treatments and expected results. OMIP, together with OMIclear, also part of the MIBEL agreement, is the concrete market that makes the agreement possible. The objective of this entity is:

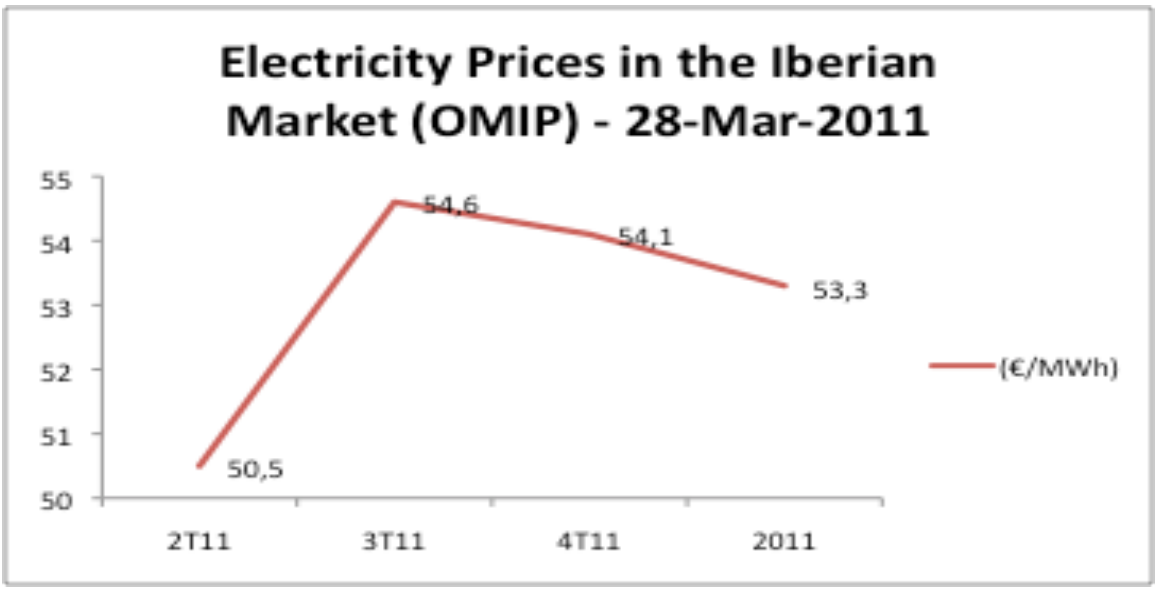
i. Contribute to the development of the Electricity Iberian Market
ii. Promote reference prices in this market
iii. Provide risk management instruments
iv. Overpass some limitation of OTC (Over the Counter Market) market.

OMIP is an essential entity in order to trade derivatives products, commonly used by electrical companies, for several reasons, as it is a *Pool* where different companies can "buy" and "sell" electricity as well as to mitigate risks. From the values it is possible to get future prices expectation for electricity prices. The projections are presented below.

	Spanish Power		Portuguese Power	
Unit: €/MWh	Base	Peak	Base	Peak
YR-12	52,75	57,14	53,18	
YR-13	54,00	58,39	54,43	
Q3-11	52,20	59,11	55,42	
Q4-11	54,20	58,37	54,41	
Q1-12	54,20	59,34	54,83	
Q2-12	50,06	53,70	50,55	
Q3-12	54,01	58,39	54,32	
Q4-12	52,72	57,12	53,01	
Mjun-11	53,35	56,74	53,57	
Mjul-11	55,95	60,10	56,17	
Maug-11	54,55	58,14	54,77	
Msep-11	55,10	59,18	55,32	
Wk21-11	49,25	52,41	49,62	
Wk22-11	50,13	53,30	50,48	
Wk23-11	52,63	52,81	52,98	
Day Ahead *	50,69 ↓	52,41 ↓	50,69 ↓	52,41 ↓
* Price Day-Ahead to 18/05/2011				

Source: OMIP.pt

The information above represent the expected prices in the market for next periods. According to this information electric companies can define their strategies by buying or selling energy or simply to hedge their exposure risks. The information is daily updated in the database and it is useful to predict future electricity prices. Group EDP also present in their reports the evolution of the prices according to OMIP. According to the last trimester report the evolution was as it follows:



Source: Group EDP report trimmest results, 1T11.

c. EDP SWAT Analysis

Strengths:	Weaknesses:
• Dominant Position in Portugal • Good Business Portfolio Diversification • Investment in Renewable sources and other sources, not too dependent in one source of raw material (Gas, Oil, etc.) • Decentralization of Business and growth opportunities. Not concentrated only in risky markets. • Balanced market positioning. • Development of Brazil and EDP Renováveis. • Good financial Figures: EBITDA Growth and stable. Dividend Policy. ROE. Cash Flow generation.	• High Leverage • Still too concentrated in Portugal as main market • Company Credit Risk correlated with Country's risk. • Loosing some markets inside Portugal with market Liberalization • Bad perspectives for Portuguese economy • Difficult to get a relevant position in Spain giving the competition • Industry with Intensive capital spending that may reduce Cash Flow generation
Opportunities:	**Threats:**
• EDP Renováveis and EDP Brazil • Possibility to increase Cash Flow generation by reducing some capital expenditures in a mature market as Portugal • Privatization • Deleverage the company • No huge capital necessities for the upcoming years	• Develop of the Liberalized Market and Lost of Dominant Positioning • Portuguese Economy can deteriorate even more in the next years • Shareholders competition with Privatization • Evolution of REAL BR.

1. EDP Financial Statements – Historical Resume

P&L Statement - Group EDP Euro'000 000	2010	2009	Δ%	2008	Δ%
Gross Margin	**5404**	**5105**	**6%**	**4897**	**4%**
Outsourcing Services Costs	862	768	12%	736	4%
Personnel Costs	575	540	7%	574	-6%
Benefits to employees	153	158	-3%	161	-2%
Concessions	251	249	1%	236	5%
Other Operational Costs (Gross)	-50	27	-	35	-23%
Operational Costs	**1791**	**1742**	**3%**	**1742**	**0%**
Gross Operational Results	**3613**	**3363**	**7%**	**3155**	**7%**
Provisions	104	75	39%	32	133%
Provisions and Impairment Losses	1446	1318	10%	1193	11%
Operation Result	**2063**	**1970**	**5%**	**1930**	**2%**
Resultados da Alienação de Activos Financeiros	61	60	2%	482	-88%
Financial Results	-485	-487	0%	-943	48%
Results in Associates	23	25	-7%	35	-27%
EBIT	**1662**	**1568**	**6%**	**1504**	**4%**
Tax and Deferred taxes	-427	-400	7%	-284	41%
Net Income	**1235**	**1168**	**6%**	**1220**	**-4%**
Attributed to:					
Shareholders	1079	1024	5%	1092	-6%
Non-Controlling Interests	156	144	8%	120	20%
Net Income	**1235**	**1168**	**6%**	**1212**	**-4%**

Operational Results - Group EDP Euro'000 000	2010	2009	Δ%	2008	Δ%
Iberian Production	**1235**	**1375**	**-10%**	**1172**	**17%**
Long-term Contracted Production	876,7	823,2	6%	849	
Liberalized Production	358,4	551,7	-35%	323	68%
Commercialization	58,2	54,7	6%	34	-7%
Distribution	697,8	670,9	4%	770	-10%
Gas	273	217,5	25%	209	4%
Eólico	712,7	542,5	31%	438	24%
Brazil	674	550,2	22%	562	-2%
Others and Adjustments	-38	-47,9	21%	-30	-62%
Consolidated	**3613**	**3363**	**7%**	**3155**	

Operational Investment - Group EDP Euro'000 000	2010	2009	Δ%	2008	Δ%
Contracted Production	96	127,6	-25%	140	-9%
Liberalized Activities	466,4	703,9	-34%	517	36%
Regulated Networks	369,3	366,7	1%	361	2%
Eólico	1231,7	1690,4	-2%	2091	-19%
Brazil	427,3	258,5	65%	429	-40%
Others	76,6	87,6	-13%	80	9%
Group EDP	**2667,3**	**3234,7**	**-18%**	**3618**	**-11%**
Expansion	**1972,9**	**2556,3**	**-23%**	**2838**	**-10%**
Maintenance	**694,4**	**678,5**	**3%**	**780**	**-13%**

Debt Euro'000 000	1S11	Dec-2010	Dec-2009	Δ%	Dec-2008	Δ%
Short term Debt		**2737**	**2549**	**7%**	**3669**	**-31%**
Bond Loans		1339	581	131%	1085	-46%
Bank Loans		547	318	72%	1204	-74%
Other Loans		14	10	32%	8	25%
Commercial Paper		837	1640	-49%	1372	19%
Mid term Debt		**14938**	**13578**	**10%**	**10992**	**24%**
Bond Loans		8798	8151	8%	5989	36%
Bank Loans		6038	5332	13%	4923	8%
Other Loans		102	95	7%	80	20%
Nominal Financial Debt		**17675**	**16127**	**10%**	**14661**	**10%**
Interests		265	246		142	
Covered Debt Fair Value		-48	-92		-117	
Consolidated Financial Debt		**17892**	**16281**	**10%**	**14686**	**11%**
Cash and Equivalents		1547	2274			
Debt	**16879**	**16345**	**14007**		**14686**	

Debt per Currency (%)	2010		2009
EUR	70	EUR	72
BRL	9	BRL	8
PLN	1	USD	20
USD	20	Total	100
Total	100		

2. Cost Structure and Other Revenues

Portugal	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
External Clients - Production	0,7	0,65	0,6	0,6	0,6	0,6
External Clients - Distribution	0,91	0,9	0,87	0,91	0,86	0,85
External Clients - Comm.	0,85	0,87	0,84	0,83	0,82	0,79
Intersegmental Clients - Production	0,3	0,35	0,4	0,4	0,4	0,4
Intersegmental Clients - Distr.	0,09	0,1	0,13	0,09	0,14	0,15
Intersegmental Clients - Comm.	0,15	0,13	0,16	0,17	0,18	0,21
Electricity acquisition Costs - Production	0,3	0,35	0,32	0,3	0,28	0,3
Electricity acquisition Costs - Distribution	0,75	0,75	0,7	0,7	0,7	0,7
Electricity acquisition Costs - Commercialization	0,85	0,85	0,8	0,8	0,8	0,8
Personnel Costs	4,351	3,417	3,424	3,44	3,643	3,791
	1,0431	1,03417	1,03424	1,0344	1,03643	1,03791
Benefits with Employees	0,97	0,97	0,97	1,05	1,05	1,05
Inventory variation and Costs with raw materials - Production	0,25	0,25	0,25	0,25	0,25	0,25
Inventory variation and Costs with raw material - Distribution	0,002	0,002	0,002	0,002	0,002	0,002
Inventory variation and Costs with raw material - Comm.	0,01	0,01	0,01	0,01	0,01	0,01
Other Revenues/(Costs) of Exploitation	1,05	1,05	1,05	1,05	1,05	1,05
Other Exploitation Costs	0,95	0,95	0,95	0,95	0,95	0,95
Outsourcing Sevices Costs	1,04	1,04	1,04	1,04	1,04	1,04

Spain	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
External Clients - Production	0,3	0,35	0,3	0,4	0,4	0,45
External Clients - Distribution	0,3	0,4	0,45	0,2	0,8	0,75
External Clients - Comm.	0,95	0,96	0,9	0,85	0,83	0,86
Intersegmental Clients - Production	0,7	0,65	0,7	0,6	0,6	0,55
Intersegmental Clients - Distr.	0,7	0,6	0,55	0,8	0,2	0,25
Intersegmental Clients - Comm.	0,05	0,04	0,1	0,15	0,17	0,14
Electricity acquisition Costs - Production	0,35	0,4	0,4	0,4	0,35	0,3
Electricity acquisition Costs - Distribution	0,1	0,1	0,1	0,1	0,1	0,1
Electricity acquisition Costs - Commercialization	0,94	0,95	0,9	0,9	0,9	0,9
Personnel Costs	5,596	4,533	4,369	4,518	4,732	4,825
	1,05596	1,04533	1,04369	1,04518	1,04732	1,0425
Benefits with Employees	0,97	0,97	0,97	1,05	1,05	1,05
Inventory variation and Costs with raw materials - Production	0,25	0,25	0,25	0,25	0,25	0,25
Inventory variation and Costs with raw material - Distribution	0,001	0,001	0,001	0,001	0,001	0,001
Inventory variation and Costs with raw material - Comm.	0,01	0,01	0,01	0,01	0,01	0,01
Gas acquisition Costs	0,004	0,004	0,004	0,004	0,004	0,004
Other Revenues/(Costs) of Exploitation	1,05	1,05	1,05	1,05	1,05	1,05
Other Exploitation Costs	0,95	0,95	0,95	0,95	0,95	0,95
Outsourcing Sevices Costs	1,04	1,04	1,04	1,04	1,04	1,04

3. Country Risk Premium

"To Estimate the long term country risk premium, I start with Country rating (From Moody's: www.moodys.com) and estimate the default spread for that Rating (US corporate and country bonds) over the treasury 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 the 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" (Damodaran, 2011)

4. Capital Structure Target

Target D/V Assumption	2008	2009	2010	
D	14686325	16280980	17891646	
V	35744969	40261557	40488853	
D/V	**41,09%**	**40,44%**	**44,19%**	**41,90%**

Source: EDP Financial Reports

Rating EDP	S&P	Moody's	Fitch
EDP S.A. E EDP Finance BV	**BBB/Neg,**	Baa3/Neg/P3	BBB+/cw-/F2
HC Energia		Baa/Neg/P3	BBB+/Cw-/F2
Energias do Brasil		Ba1/Aa2.br/Stab	
Bandeirante	BB+/brAA-	Baa3/Aa1.br/Stab	
Escelsa	BB/brAA/S	Baa3/Aa1.br/Stab	

5. EDP Ratings

Source: EDP Website, Investors relation, ratings, 2011.

Moody's rating Rating	Default Spread in basis points
Aaa	0
Aa1	20
Aa2	30
Aa3	40
A1	60
A2	80
A3	100
Baa1	140
Baa2	170
Baa3	**200**
Ba1	250
Ba2	300
Ba3	350
B1	450
B2	550
B3	650
Caa1	750
Caa2	900
Caa3	1000

5.1. Moody's Ratings

Source: Moody's, 2011

6. EDP Iberian Production P&L

Iberian Production P&L Statement	Euro'000	Adjustments 2008	2008	Adjustments 2009	2009	Adjustments 2010	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Business Revenues		**-8064**	**4095750**	**-52382**	**3708759**	**-13166**	**4131681**	**4225289**	**4282748**	**4397595**	**4524578**	**4596177**	**4745597**
External Clients			3449962	-36305	3256320	4965	2347235	2227144	2218630	2055672	2312739	2341379	2523981
Intersegmental Clients		-8064	645788	-16077	452439	-18131	1784446	1998145	2064118	2341923	2211839	2254798	2221616
Electricity acquisition Costs			-1086366	943	-877001		-1556279	-1358906	-1593155	-1562666	-1558378	-1432644	-1423679
Gas acquisition Costs							-255						
Inventory variation and Costs with raw material			-1489448	33600	-1126283	22454	-1024662	-1056322	-1070687	-1099399	-1131145	-1149044	-1186399
		-8064	**1519936**	**-17839**	**1705475**	**9288**	**1550485**	**1810060**	**1618907**	**1735530**	**1835056**	**2014489**	**2135519**
Other Revenues/(Costs) of Exploitation													
Other Exploitation Revenues			38497		22176		12441	13063	13716	14402	15122	15878	16672
Outsourcing Services		8064	-156499	2140	-156900	1902	-154071	-162212	-168700	-175448	-182466	-189765	-197356
Personnel			-113789	1030	-103335	1582	-104505	-111067	-115235	-119511	-124015	-128949	-134020
Benefits with Employees			-37901		-43302		-28032	-27191	-26375	-25584	-26863	-28206	-29617
Other Exploitation Costs			-78075	738	-49178	220	-41220	-39368	-37400	-35530	-33753	-32065	-30462
		8064	-347767	3908	-330539	3704	**-315387**	**-326775**	**-333994**	**-341671**	**-351976**	**-363107**	**-374783**
EBITDA			**1172169**	**-13931**	**1374936**	**12992**	**1235098**	**1483286**	**1284913**	**1393859**	**1483080**	**1651381**	**1760736**
Provisions			-17957		-26158		-29565	-34615	-40875	-42209	-39233	-40773	-40738
Depreciation			-419338		-445477		-429162	-173946	-184025	-193661	-204190	-213994	-223706
Impairments					-416		442						
Depreciation compensations			4047		5675		8357	22249	23539	24771	26118	27372	28614
EBIT			**738921**	**-13931**	**908560**	**12992**	**785170**	**1296975**	**1083551**	**1182759**	**1265775**	**1423987**	**1524906**
Gains/(Losses) Selling Financial Assets			51139		13251		7						
Other Financial Revenues		-112499	293258	-70845	508080	-50312	437411	490802	519150	499225	503059	507145	460056
Interest Gains			14571		22793		8099	15154	15349	12867	14457	14224	878
Other Financial Costs		112499	-264296	73234	-484767	74650	-372043	-367180	-246066	-311692	-303187	-230218	-242744
Interest Incurred			-156105		-178140		-205308	-173289	-116130	-147102	-143088	-108651	-114562
Gains/(Losses) in Associates			6322		993		-277	275	253	252	260	255	0
EBT			**683810**	**-11542**	**790770**	**37330**	**653059**	**1262736**	**1256108**	**1236310**	**1337276**	**1606743**	**1628534**
Tax			-158591	-4241	-152477	-13724	-195325	-375218	-372909	-367062	-396980	-477120	-483910
Gains/(Losses) Selling interrupted Operations													
Net Income			**525219**	**-15783**	**638293**	**23606**	**457734**	**887518**	**883199**	**869248**	**940296**	**1129622**	**1144624**

7. EDP Iberian Distribution P&L

Iberian Distribution P&L Statement Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Business Revenues	**6213227**	**4987805**	**5282933**	**5332005**	**5386366**	**5513137**	**5649704**	**5811828**	**5986902**
External Clients	6098633	4807368	4806553	4736295	4749801	4711589	4992858	4985187	5066453
Intersegmental Clients	114594	180437	476380	595709	636565	801548	656846	826641	920449
Electricity acquisition Costs	-4562113	-3419201	-3751334	-3875579	-3912467	-3737995	-3829407	-3938427	-4056350
Gas acquisition Costs									
Inventory variation and Costs with raw material	-10888	-11540	-6742	-10474	-10577	-10824	-11090	-11407	-11750
	1640226	**1557064**	**1524857**	**1445951**	**1463321**	**1764317**	**1809206**	**1861993**	**1918802**
Other Revenues/(Costs) of Exploitation									
Other Exploitation Revenues	66414	64001	95031						
Outsourcing Services	-344287	-352806	-375956	-390994	-406634	-422899	-439815	-457408	-475704
Personnel	-194658	-182753	-148351	-154998	-160525	-166227	-172189	-178719	-185608
Benefits with Employees	-135698	-97272	-105973	-102794	-99710	-96719	-101555	-106632	-111964
Other Exploitation Costs	-262188	-294193	-291850	-277258	-263395	-250225	-237714	-225828	-214537
	-870417	**-863023**	**-827099**	**-826261**	**-825492**	**-826059**	**-835762**	**-847301**	**-860462**
EBITDA	**769809**	**694041**	**697758**	**619690**	**637829**	**938258**	**973445**	**1014692**	**1058339**
Provisions	1326	-13942	-5808	-6800	-8030	-8292	-7707	-8010	-8003
Depreciation	-369687	-381575	-277546	-112493	-119012	-125244	-132053	-138393	-144674
Impairments									
Depreciation compensations	95320	92768	1112	2961	3132	3296	3475	3642	3807
EBIT	**496768**	**391292**	**415516**	**503358**	**513919**	**808018**	**837160**	**871931**	**909469**
Gains/(Losses) Selling Financial Assets	680	2	0						
Other Financial Revenues	2798	485	470	1235	730	812	926	823	853
Interest Gains	16434	90606	29971	45670	55416	43686	48257	49120	47021
Other Financial Costs	-5042	-42200	-405	-16583	-11113	-14077	-13693	-10398	-10963
Interest Incurred	-114977	-91572	-68793	-85955	-57603	-72965	-70974	-53893	-56825
Gains/(Losses) in Associates	0	0	0	0	0	0	0	0	0
EBT	**396661**	**348613**	**376759**	**447725**	**501349**	**765473**	**801675**	**857583**	**889555**
Tax	-91867	-75291	-65514	-132578	-148428	-226356	-237057	-253581	-263035
Gains/(Losses) Selling interrupted Operations									
Net Income	**304794**	**273322**	**311245**	**315147**	**352921**	**539117**	**564618**	**604002**	**626520**

8. EDP Iberian Commercialization P&L

Iberian Commercialization P&L Statement Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Business Revenues	**1129950**	**1784816**	**2775362**	**2847461**	**2917302**	**3001471**	**3095746**	**3199206**	**3307666**
External Clients	893260	1646693	2509067	2615566	2719283	2645846	2612440	2645599	2774364
Intersegmental Clients	236690	138123	266295	231894	198020	355625	483306	553606	533302
Electricity acquisition Costs	-1043675	-1682279	-2464370	-2596044	-2681073	-2608860	-2691451	-2781872	-2876573
Gas acquisition Costs	-2430	-5602	-6528	-7809	-8055	-8307	-8594	-8900	-9218
Inventory variation and Costs with raw material	-11984	-20553	-31280	-28475	-29173	-30015	-30957	-31992	-33077
	71861	**76382**	**273184**	**215133**	**199001**	**354289**	**364743**	**376441**	**388799**
Other Revenues/(Costs) of Exploitation									
Other Exploitation Revenues	34117	40643	39956						
Outsourcing Services	-49839	-52722	-162114	-168599	-175343	-182356	-189650	-197236	-205126
Personnel	-9815	-10780	-44824	-46870	-48577	-50333	-52175	-54193	-56299
Benefits with Employees	-320	-384	-5749	-5577	-5409	-5247	-5509	-5785	-6074
Other Exploitation Costs	-12149	-21549	-42273	-40159	-38151	-36244	-34432	-32710	-31075
	-38006	**-44792**	**-215004**	**-219251**	**-223429**	**-227926**	**-233200**	**-238929**	**-245028**
EBITDA	**33855**	**31590**	**58180**	**-4118**	**-24427**	**126363**	**131543**	**137512**	**143770**
Provisions	-4389	-19246	-24510	-28696	-33886	-34992	-32525	-33801	-33773
Depreciation	-3052	-3669	-20629	-8361	-8846	-9309	-9815	-10286	-10753
Impairments	0	0	0						
Depreciation compensations	0	51	19	51	54	56	59	62	65
EBIT	**26414**	**8726**	**13060**	**-41125**	**-67106**	**82118**	**89262**	**93487**	**99309**
Gains/(Losses) Selling Financial Assets									
Other Financial Revenues	1413	99	361	624	361	449	478	430	452
Interest Gains	554	423	418	465	435	439	447	440	442
Other Financial Costs	-616	-443	-482	-482	-482	-482	-482	-482	-482
Interest Incurred	-18316	-8328	-6631	-10007	-6706	-8495	-8263	-6274	-6616
Gains/(Losses) in Associates	0	0	0						
EBT	**9449**	**477**	**6726**	**-50507**	**-73487**	**74032**	**81452**	**87608**	**93113**
Tax	-4511	218	-4009	14832	21694	-22348	-24579	-26435	-28095
Gains/(Losses) Selling interrupted Operations									
Net Income	**4938**	**695**	**2717**	**-35675**	**-51792**	**51684**	**56873**	**61173**	**65018**

9. EDP Iberian Consolidated P&L and Balance Sheet

P&L Statement - Iberian Business Euro'000 €	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Revenues	**11446991**	**10533762**	**12203142**	**12404754**	**12586416**	**12912203**	**13270028**	**13607210**	**14040165**
Electricity acquisition Cost	-6692154	-5979424	-7771983	-7830529	-8186695	-7909522	-8079236	-8152944	-8356602
Gas acquisition Cost	-2430	-5602	-6783	-7809	-8055	-8307	-8594	-8900	-9218
Inventory Variation and Costs with raw mateiral	-1512320	-1191976	-1085138	-1095271	-1110437	-1140238	-1173192	-1192444	-1231226
	3240087	**3356760**	**3339238**	**3471145**	**3281229**	**3854136**	**4009005**	**4252922**	**4443119**
Other Revenues/(Costs) with Exploitation									
Other Exploitation Revenues	139028	126820	147428	13063	13716	14402	15122	15878	16672
Outsourcing Services	-558689	-564568	-694043	-713664	-744188	-773956	-804914	-837111	-870595
Personnel	-318262	-297898	-299262	-312935	-324337	-336071	-348380	-361861	-375927
Benefits to Employees	-173919	-140958	-139754	-135561	-131495	-127550	-133927	-140624	-147655
Other Exploitation Costs	-352412	-365658	-375563	-356785	-338946	-321998	-305898	-290603	-276073
	-1264254	**-1242262**	**-1361194**	**-1505882**	**-1525250**	**-1545173**	**-1577997**	**-1614320**	**-1653579**
EBITDA	**1975833**	**2114498**	**1978044**	**1965263**	**1755980**	**2308963**	**2431008**	**2638602**	**2789541**
Provisions	-21020	-59346	-59883	-70111	-82791	-85494	-79465	-82583	-82514
Depreciations	-792077	-830721	-727337	-294800	-311883	-328214	-346058	-362673	-379134
Impairments	0	-416	442	0	0	0	0	0	0
Depreciation Compensations	99367	98494	9488	25261	26724	28124	29653	31076	32487
	-713730	**-791989**	**-777290**	**-339651**	**-367950**	**-385584**	**-395871**	**-414180**	**-429161**
EBIT	**1262103**	**1322509**	**1200754**	**1625612**	**1388030**	**1923379**	**2035137**	**2224422**	**2360380**
Gains/(Losses) Selling Financial Assets									
Other Financial Revenues	408975	579502	488223	492218	519981	500141	504113	508078	461024
Interest Gains	31329	113523	38438	61097	71019	56851	62989	63620	48182
Other Financial Costs	-382453	-600644	-447580	-384228	-257650	-326249	-317352	-241090	-254183
Incurred Interests	-289398	-278040	-280732	-269251	-180439	-228562	-222325	-168818	-178003
Gains/(Losses) in Associates	0	0	0	0	0	0	0	0	0
EBT	**1030556**	**1136850**	**999103**	**1525447**	**1540941**	**1925561**	**2062563**	**2386213**	**2437400**
Taxes	-254969	-223309	-251124	-457634	-462282	-577668	-618769	-715864	-731220
Gains/(Losses) Selling Interrupted Operations	0	0	0	0	0	0	0	0	0
Net Income	**775587**	**913541**	**747979**	**1067813**	**1078659**	**1347893**	**1443794**	**1670349**	**1706180**

Balance Sheet - EDP Iberian Business Assets Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Tangible Assets	13354418	14735482	9683169	14044821	15298760	16664483	17892976	19144666	20395986
Intangible Assets	2126371	2261639	6022572	1892145	2103357	2345662	2553544	2752800	2948414
Goodwill	1837305	1868903	2016944	1907717	1931188	1951950	1930285	1937808	1940014
Financial Investments in Associated Companies	129933	126570	98576	118360	114502	110479	114447	113143	112689
Financial Assets hold for Sale	307298	397643	391195	365379	384739	380437	376852	380676	379322
Tax Deferred Assets	483606	598162	440761	507510	515478	487916	503634	502343	497964
Clients	-6617	5060	11685	2569579	799445	1126903	1498642	1141663	1255736
Debtors and Other Assets	2508142	1806590	1549481	1954738	1770270	1758163	1827724	1785385	1790424
Non-Current Assets	**20740455**	**21800049**	**20214382**	**23360248**	**22917739**	**24825993**	**26698104**	**27758484**	**29320550**
Inventories	230553	226001	297378	277334	288869	281197	287498	290393	297929
Clients	1370086	1587350	1721367	1701273	1726187	1770868	1819943	1866186	1925565
Debtors and Other Assets	1209695	1318516	1906675	1600598	1624038	1666075	1712245	1755752	1811617
Tax Receivables	343278	356921	504335	434995	441365	452789	465337	477161	492343
Financial Assets at Fair Value through Profit and Losses	51832	52234	3951	36005	30730	23562	30099	28130	27264
Cash and Cash Equivalents	380413	1682406	1009820	1024213	1238813	1090948	1117991	1149251	1119397
Assets hold for Sale	26886	-3345	27408	16983	13682	19358	16674	16571	17534
Current Assets	**3612744**	**5220081**	**5470933**	**5091401**	**5363684**	**5304797**	**5449787**	**5583445**	**5691649**
Assets	**24353200**	**27020131**	**25685316**	**28451649**	**28281422**	**30130791**	**32147891**	**33341929**	**35012199**
Equity									
Capital	-283280	-312734	-338601	-311538	-320958	-323699	-318732	-321129	-321187
Share Capital	-536647	-528967	-524095	-529903	-527655	-527217	-528258	-527710	-527729
Share Premium	403482	400687	426343	410170	412400	416304	412958	413888	414383
Reserves and Retained Results	777422	1659820	2051963	1496402	1736062	1761475	1664646	1720728	1715616
Consolidated Profit attributed to Shareholders	845520	761407	835318	1067813	1078659	1347893	1443794	1670349	1706180
Total Equity attributed to Equityholders of the Parent	1206496	1980213	2450928	1879212	2103451	2144531	2042398	2096793	2094574
Non-Controlling Interests									
Equity	**1206496**	**1980213**	**2450928**	**4012156**	**4481959**	**4819287**	**4716806**	**5052918**	**5081839**
Liabilities									
Financial Debt	9987619	11870525	12698030	12022859	12197138	13570734	15463443	16823445	18017378
Benefits to Employees	1752509	1794946	1808521	1785326	1796264	1796704	1792764	1795244	1794904
Provisions	266986	271588	367714	302096	313799	327870	314588	318753	320404
Hydrological Account	-10964	-156475	-216688	-128042	-167068	-170599	-155237	-164301	-163379
Deferred Tax	639570	-328227	-461336	-49998	-279854	-263729	-197860	-247148	-236246
Trade and Other payables	3387347	4199125	3042398	3542956	3594826	3393393	3510392	3499537	3467774
Non-Current Liabilities	**16023068**	**17651482**	**17238639**	**17475197**	**17455106**	**18654372**	**20728091**	**22025530**	**23200835**
Financial Debt	3496204	2446884	2558825	2448842	1641091	2078772	2022049	1535398	1878740
Trade and Other payables	3304765	4090519	2974686	3895723	4057758	3949996	4038499	4079170	4185031
Tax payable	306826	851032	462237	619731	645508	628365	642444	648914	665754
Liabilities hold for Sale	15841	0	0	0	0	0	0	0	0
Current Liabilities	**7123636**	**7388435**	**5995748**	**6964296**	**6344357**	**6657132**	**6702993**	**6263482**	**6729524**
Liabilities	**23146703**	**25039917**	**23234388**	**24439493**	**23799463**	**25311505**	**27431084**	**28289012**	**29930360**
Equity and Liabilities	**24353200**	**27020130**	**25685316**	**28451649**	**28281422**	**30130791**	**32147891**	**33341929**	**35012198**

10. Debt

Issuer	Issue Date	Interest Rate	Coverage Type	Conditions/Refund	Value (Euro'000)	
Issue EDP, S.A.						
EDP, S.A.	March 03	Euribor 6 Month + 0,5%	n.a.	March 13	150000	
EDP, S.A.	May 08	Variable Rate (i)	n.a.	May 18	300000	
					450000	
Issue "Euro Medium Term Notes"						
EDP, S.A.	March 01	Fixed Rate EUR 5,875%	Fair Value	March 11	747352	
EDP Finance B.V.	August 02	Fixed Rate GBP 6,625%	Fair Value	August 17	320000	
EDP Finance B.V.	December 02	Fixed Rate EUR (i)	n.a.	December 22	93357	
EDP Finance B.V.	June 05	Fixed Rate EUR 3,75%	n.a.	June 15	500000	
EDP Finance B.V.	June 05	Fixed Rate EUR 4,125%	n.a.	June 20	300000	
EDP Finance B.V.	June 06	Fixed Rate EUR 4,25%	n.a.	June 12	500000	
EDP Finance B.V.	June 06	Fixed Rate EUR 4,625%	n.a.	June 16	500000	
EDP Finance B.V.	November 07	Fixed Rate USD 5,375%	Net Investment	November 12	748391	
EDP Finance B.V.	November 07	Fixed Rate USD 6,00%	Net Investment	February 18	748391	
EDP Finance B.V.	November 08	Fixed Rate GBP 8,625%	Fair Value	January 24	410314	
EDP Finance B.V.	November 08	Zero Cupon EUR (i)	n.a.	November 23	160000	
EDP Finance B.V.	February 09	Fixed Rate EUR 5,5%	Fair Value	February 14	1000000	
EDP Finance B.V.	June 09	Fixed Rate JPY (i)	Net Investment	June 19	78259	
EDP Finance B.V.	June 09	Fixed Rate EUR 4,75%	n.a.	September 16	1000000	
EDP Finance B.V.	September 09	Fixed Rate USD 4,90%	Net Investment	October 19	748391	
EDP Finance B.V.	February 10	Variable Rate USD (i)	Net Investment	February 15	74839	
EDP Finance B.V.	March 10	Fixed Rate EUR 3,25%	Fair Value	March 15	1000000	
EDP Finance B.V.	June 10	Variable Rate EUR (i)	n.a.	June 11	500000	
					9429294	
				Total	**9879294**	
(i) - Private Placements (Assume 3% IR)						
				Debt Market Value	**8960096**	**10207448**

Source: EDP Financial Report, 2011.

10.1 Debt Per Currencies

Debt	Fixed Rate GBP 6,625% Rd			5,75% Value		320000	
'000	2011	2012	2013	2014	2015	2016	2017
Interes Payments	18400	18400	18400	18400	18400	18400	338400
Discounted Debt payments	18400	17400	16453	15559	14713	13913	241963
Debt Market Value	**338400**						

Debt	Fixed Rate EUR (i) Rd		5,25% Value		93357							
'000	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Interes Payments	4901	4901	4901	4901	4901	4901	4901	4901	4901	4901	4901	98258
Discounted Debt payments	4901	4657	4424	4204	3994	3795	3606	3426	3255	3092	2938	55966
Debt Market Value	**98258**											

Debt	Fixed Rate EUR 3,75% Rd		5,25% Value		500000
'000	2011	2012	2013	2014	2015
Interes Payments	26250	26250	26250	26250	526250
Discounted Debt payments	26250	24941	23697	22515	428848
Debt Market Value	**526250**				

Debt	Fixed Rate EUR 4,125% Rd		5,25% Value		300000					
'000	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Interes Payments	15750	15750	15750	15750	15750	15750	15750	15750	15750	315750
Discounted Debt payments	15750	14964	14218	13509	12835	12195	11586	11008	10459	199225
Debt Market Value	**315750**									

Debt	Fixed Rate EUR 4,75% Rd		5,25% Value		1000000	
'000	2011	2012	2013	2014	2015	2016
Interes Payments	52500	52500	52500	52500	52500	1052500
Discounted Debt payments	52500	49881	47393	45029	42783	814914
Debt Market Value	**1052500**					

Debt	Fixed Rate EUR 4,25% Rd		5,25% Value	500000
'000	2011	2012		
Interes Payments	26250	526250		
Discounted Debt payments	26250	500000		
Debt Market Value	**526250**			

Debt	Fixed Rate EUR 3,25% Rd		5,25% Value		1000000
'000	2011	2012	2013	2014	2015
Interes Payments	52500	52500	52500	52500	1052500
Discounted Debt payments	52500	49881	47393	45029	857697
Debt Market Value	**1052500**				

Debt	Fixed Rate EUR 4,625% Rd		5,25% Value		500000	
'000	2011	2012	2013	2014	2015	2016
Interes Payments	26250	26250	26250	26250	26250	526250
Discounted Debt payments	26250	24941	23697	22515	21391	407457
Debt Market Value	**526250**					

Debt	Fixed Rate USD 5,375% Rd		4,125% Value	748391
'000	2011	2012		
Interes Payments	30871	779262		
Discounted Debt payments	30871	748391		
Debt Market Value	**779262**			

Debt	Fixed Rate USD 6,00%	Rd	4,125%	Value	748391			
'000	2011	2012	2013	2014	2015	2016	2017	2018
Interes Payments	30871	30871	30871	30871	30871	30871	30871	779262
Discounted Debt payments	30871	29648	28474	27346	26262	25222	24223	587217
Debt Market Value	**779262**							

Debt	Fixed Rate GBP 8,625%	Rd	5,75%	Value	410314									
'000	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Interes Payments	23593	23593	23593	23593	23593	23593	23593	23593	23593	23593	23593	23593	23593	433907
Discounted Debt payments	23593	22310	21097	19950	18865	17839	16869	15952	15085	14265	13489	12756	12062	209774
Debt Market Value	**433907**													

Debt	Zero Cupon EUR (i)	Rd	5,25%	Value	160000
'000	2011	2023			
Interes Payments	0	168400			
Discounted Debt payments	0	91133			
Debt Market Value	**91133**				

Debt	Fixed Rate EUR 5,5%	Rd	5,25%	Value	1000000
'000	2011	2012	2013	2014	
Interes Payments	52500	52500	52500	1052500	
Discounted Debt payments	52500	49881	47393	902726	
Debt Market Value	**1052500**				

Debt	Fixed Rate JPY (i)	Rd	3,10%	Value	78259				
'000	2011	2012	2013	2014	2015	2016	2017	2018	2019
Interes Payments	2426	2426	2426	2426	2426	2426	2426	2426	80685
Discounted Debt payments	2426	2353	2282	2214	2147	2083	2020	1959	63201
Debt Market Value	**80685**								

Debt	Fixed Rate USD 4,90%	Rd	4,125%	Value	748391				
'000	2011	2012	2013	2014	2015	2016	2017	2018	2019
Interes Payments	30871	30871	30871	30871	30871	30871	30871	30871	779262
Discounted Debt payments	30871	29648	28474	27346	26262	25222	24223	23263	563954
Debt Market Value	**779262**								

Debt	Variable Rate USD (i)	Rd	4,125%	Value	74839
'000	2011	2012	2013	2014	2015
Interes Payments	3087	3087	3087	3087	77926
Discounted Debt payments	3087	2965	2847	2735	66292
Debt Market Value	**77926**				

10.2 Debt Market Value

Euro'000	2011	2012	2013	2014	2015	next years	Total
Mid-Long Term Debt		2013432	2550417	2480825	1883759	5958762	**14887195**
Short Term Debt	3004451						**3004451**
	3004451	**2013432**	**2550417**	**2480825**	**1883759**	**5958762**	**17891646**

Euro'000	2011	2012	2013	2014	2015	next years	Total
Bank Loans	562399	715266	2350802	1344714	234044	1393476	**6600701**
Bond Loans	1590549	1285967	187576	1116915	1642282	4513745	**10337034**
Commercial Paper	837607						**837607**
Other Loans	13896	12199	12039	19196	7433	51541	**116304**
	3004451	**2013432**	**2550417**	**2480825**	**1883759**	**5958762**	**17891646**

11. GAS P&L

EDP Iberian Gas Euro'000	Adjustments 2008	2008	Adjustments 2009	2009	Adjustments 2010	2010	1S11	2011E
Business Revenues	**-142623**	**1442422**	**-97252**	**1189024**	**-197900**	**1686786**		
External Clients		1425448		1121570		1524865		
Intersegmental Clients	-142623	16974	-97252	67454	-197900	161921		
Electricity acquisition Costs	609	-159152		-143180		-187372		
Gas acquisition Costs	136789	-980441	97583	-725033	198438	-1103603		
Inventory variation and Costs with raw material	607	-1283		-5249		-8184		
	-4618	**301546**	**331**	**315562**	**538**	**387627**		
Other Revenues/(Costs) of Exploitation								
Other Exploitation Revenues	-620	13917	-86	5352	-36	12197		
Outsourcing Services	4380	-52484	1469	-55575	1041	-69160		
Personnel	374	-26463		-27950		-29332		
Benefits with Employees		-554		-630		-786		
Other Exploitation Costs	51	-27342	-617	-19241	-32	-27587		
	4083	**-93028**	**766**	**-98044**	**973**	**-114668**		
EBITDA	**-535**	**208518**	**1097**	**217518**	**1511**	**272959**	**163600**	**327200**

12. Tangible Assets

Tangible Assets Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Gross Assets									
Opening Balance	25176436	24417769	22771635	24464189	25533054	26718441	28034043	29223995	30454308
Acquisitions and increases	2460283	1893882	1457042	1019929	968933	1148635	1045832	1054466	1082978
Disposals	-78484	-43318	-85987	-69263	-66190	-73813	-69755	-69919	-71163
Transfers and Write-offs	-4136		-93603	-48870	-71237	-71237	-63781	-68751	-67923
Exchange Differences	-555614	229455	384615	19486	211185	205095	145255	187179	179177
Additions	162245	250015	30488	147583	142695	106922	132400	127339	122220
Closing Balance	**27160730**	**26747804**	**24464189**	**25533054**	**26718441**	**28034043**	**29223995**	**30454308**	**31699597**
Accumulated Depeciation and Impairment Losses									
Opening Balance	12553077	12174802	11354033	11579425	11488233	11419681	11369560	11331018	11309642
Amortization and Impairment	778483	755024	704124	361497	377541	391923	408400	423650	438640
Transfers and Write-offs			-51383	0	0	0	0	0	0
Disposals	-33021	-32026	-29867	-31638	-31177	-30894	-31236	-31102	-31078
Exchange Differences	-250168	-242630	-226273	-239690	-236198	-234053	-236647	-235633	-235444
Additions	-189290	-183585	-171209	-181361	-178719	-177096	-179059	-178291	-178149
Closing Balance	**12859081**	**12471585**	**11579425**	**11488233**	**11419681**	**11369560**	**11331018**	**11309642**	**11303611**
Net Value	**14301649**	**14276219**	**12884764**	**14044821**	**15298760**	**16664483**	**17892976**	**19144666**	**20395986**

13. Intangible Assets

Intangible Assets Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Gross Assets									
Opening Balance	1729734	1677610	1564513	1919578,83	2171604	2411392	2693684	2951720	3211758
Acquisitions and increases	322141	370349	345382	241767	229679	272276	247907	249954	256713
Disposals	-60113	-58302	-54372	-57596	-56756	-56241	-56864	-56621	-56575
Transfers and Write-offs	-26597	-25796	-24057	-25483	-25112	-24884	-25160	-25052	-25032
Exchange Differences	-85798	-83212	-77603	-82204	-81007	-80271	-81161	-80813	-80748
Additions	183215	177694	165715	175541	172983	171413	173312	172570	172432
Closing Balance	**2062581**	**2058343**	**1919579**	**2171604**	**2411392**	**2693684**	**2951720**	**3211758**	**3478547**
Accumulated Depeciation and Impairment Losses									
Opening Balance	267167	259116	241647	262210	279459	308034	348022	398176	458958
Amortization and Impairment	100796	97759	91168	92042	102278	113021	123997	134308	144643
Transfers and Write-offs	-15384	-14920	-13914	-14740	-14525	-14393	-14552	-14490	-14478
Disposals	-69	-67	-63	-66	-65	-65	-66	-65	-65
Exchange Differences	-15056	-14602	-13618	-14426	-14215	-14086	-14242	-14181	-14170
Additions	-47553	-46120	-43011	-45561	-44897	-44490	-44983	-44790	-44754
Closing Balance	**289901**	**281165**	**262210**	**279459**	**308034**	**348022**	**398176**	**458958**	**530133**
Net Value	**1772681**	**1777178**	**1657369**	**1892145**	**2103357**	**2345662**	**2553544**	**2752800**	**2948414**

14. Inventory, Clients, trade debtors, other trade debtors, other current assets and Trade creditors and other creditors.

	Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Inventory		230553	226001	297378	277334	288869	281197	287498	290393	297929
Clients (Trade Debtors)		1370086	1587350	1721367	1701273	1726187	1770868	1819943	1866186	1925565
Other Trade Debtors		1209695	1318516	1906675	1600598	1624038	1666075	1712245	1755752	1811617
Other Currents Assets (taxes)		343278	356921	504335	434995	441365	452789	465337	477161	492343
Trade Creditors		3304765	4090519	2974686	3895723	4057758	3949996	4038499	4079170	4185031
Other Creditors (Taxes)		306826	851032	462237	619731	645508	628365	642444	648914	665754

15. Net Working Capital

Net Working Capital	Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Inventory		230553	226001	297378	277334	288869	281197	287498	290393	297929
Trade Debtors		1370086	1587350	1721367	1701273	1726187	1770868	1819943	1866186	1925565
Other Current Debtors		1209695	1318516	1906675	1600598	1624038	1666075	1712245	1755752	1811617
Other Current Assets		343278	356921	504335	434995	441365	452789	465337	477161	492343
Trade Creditors		3304765	4090519	2974686	3895723	4057758	3949996	4038499	4079170	4185031
Other Creditors		306826	851032	462237	619731	645508	628365	642444	648914	665754
Working Capital		**-457978**	**-1452763**	**992832**	**-501254**	**-622807**	**-407431**	**-395921**	**-338592**	**-323331**
Changes in Working Capital			**-994786**	**2445595**	**-1494086**	**-121552**	**215376**	**11510**	**57329**	**15261**

16. CAPEX

CAPEX + Replacement Investments	Euro'000	2008	2009	2010	2011YE	2012YE	2013YE	2014YE	2015YE	2016YE
Acquisitions and Increases - Tangible Assets		2460283	1893882	1457042	1019929	968933	1148635	1045832	1054466	1082978
Acquisitions and Increases - Intangible Assets		322141	370349	345382	241767	229679	272276	247907	249954	256713
		2782424	**2264231**	**1802424**	**1261697**	**1198612**	**1420911**	**1293740**	**1304421**	**1339690**

17. EDP Financial Investments

17.1 EDP Renováveis

EDP Renováveis	
Price: EDP Ren dia 29/06	4,50
Outstanding Shares	872310000
Equity Value (P0*#shares)	3925395000
Group EDP Participation (77,5%)	3042181125
(in milion)	**3042**

17.2 EDP Brazil

Energias do Brasil	
Price: EDP Brasil Dia 29/06 (BRL)	37,87
(Eur/Brl)	2,2687
Price in Euros	16,6923789
Outstanding Shares	158805204
Equity Value (P*#shares)	2650836636
Group EDP Participation (64,8%)	1717742140
(in milion)	**1717**

17.3. BCP

BCP	
Price at 29 Jun (€)	0,389
Outstanding Shares	7207170000
Equity Value (P*#shares)	2803589130
Group EDP Participation (3%)	84107674
(in milion)	**84**

17.4 REN

REN	
Price at 29 Jun 2011 (€)	2,41
Outstanding Shares	261660000
Equity Value (P*#shares)	630600600
Group EDP Participation (3,5%)	22071021
(in million €)	**22**

18. Comparison with Caixa BI – Banco de Investimento

Caixa BI Profit & Loss (EURm)	2008	2009	2010	2011YE	2012YE
Sales	**13894**	**12198**	**13076**	**13416**	**14262**
Cost of Sales and Operating Costs	10739	8835	9507	9746	10303
Non Recurrent Expenses/Income	0	0	0	0	0
EBITDA	**3155**	**3363**	**3569**	**3671**	**3958**
EBITDA (Adj.)	**3155**	**3363**	**3569**	**3671**	**3958**
Depreciation	-1192	-1319	-1404	-1480	-1512
EBITA	**1963**	**2045**	**2165**	**2190**	**2446**
EBITA (Adj.)	**1963**	**2045**	**2165**	**2190**	**2446**
Amortisations and Write Downs	-32,1	-75	-68	-40	-40
EBIT	**1931**	**1970**	**2097**	**2150**	**2406**
EBIT (adj.)	**1931**	**1970**	**2097**	**2150**	**2406**
Net Financial Interest	-943	-487	-470	-507	-510
Other Financials	0	0	0	0	0
Associates	516	84,9	21	20	20
Other Non-Recurrent Items	0	0	0	0	0
Earnings Before Tax (EBT)	**1505**	**1568**	**1648**	**1663**	**1916**
Tax	-284	-400	-453	-482	-556
Tax Rate	18,90%	25,50%	27,50%	29,00%	29,00%
Discontinued Operations	-8,4	0	0	0	0
Minorities	-121	-144	-130	-150	-173
Net Profit (Reported)	**1,092**	**1024**	**1065**	**1031**	**1188**
Net Profit (Adj.)	**1,092**	**1024**	**1065**	**1031**	**1188**

Cash Flow (EURm)	2008	2009	2010	2011YE	2012YE
Cash Flow from Operations before Change in NWC	1928	2477	2646	2681	2893
Change in NWC	-997	1767	-1901	126	-158
Cash Flows from Operations	**932**	**4244**	**745**	**2808**	**2735**
Capex	-3618	-3235	-2850	-2200	-2000
Net Financial Investments	0	0	0	0	0
Free Cash Flow	**-2686**	**1009**	**-2105**	**608**	**735**
Dividends	-512	-567	-622	-676	-731
Other (incl. Capital Increase & Share buy Backs)	451	-645	259	-77,6	-100
Change in Net Debt	**-2747**	**-203**	**-2467**	**-146**	**-97**
NOPLAT	1419	1448	1489	1527	1708

Caixa BI Ratios	2008	2009	2010	2011YE	2012YE
Net Debt/Equity	1,6	1,4	1,6	1,5	1,5
Net Debt/EBITDA	4,4	4,2	4,6	4,5	4,2
Interest Cover (EBITDA/Fin.Interest)	3,3	6,9	7,6	7,2	7,8
CAPEX/D&A	296%	232%	194%	145%	129%
Capex/Sales	26%	27%	22%	16%	14%
NWC/Sales	-32%	-50%	-32%	-33%	-30%
ROE (Average)	17%	15%	14%	13%	14%
ROCE	6%	6%	6%	6%	6%
WACC	6%	6%	6%	6%	6%
ROCE (Adj.)/WACC	1,0	1,0	0,9	0,9	1,0

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Thank you,

Gonçalo Morgado
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