05 JANUARY 2010

GALP ENERGIA

COMPANY REPORT

OIL & GAS

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The journey never ends

A new strategic focus in challenging yet promising times

- After reviewing Galp's strategy and market outlook, our FY10 price target is **€14.10** per share and recommendation is to buy.
- We welcome Galp's strategic shift towards **E&P** now that the oil market is recovering from the present crisis and demand for oil products is expected to keep on increasing. We value proved, probable and contingent reserves in Angola and Brazil identifying and valuing major managerial flexibilities with real options.
- The current outlook for the **refining market** denotes several challenges: tightening of the gasoline/crack spread and surplus of refined products even in Iberian countries. So, we project Galp's refining margin to be under pressure in the next year, and then start recovering yet at a slow pace as the diesel crack spread finds its ascendant path and Galp's conversion project is concluded.
- Galp will maintain its competitive advantage in the **marketing segment** especially in the wholesale market. The competition in the retail market was augmented by supermarkets' entrance, however collaborative strategies are limiting their growth and preventing them from threatening supermarkets.
- In **G&P**, the rationalization of Capex, reprogramming CCGT and cancelling wind projects, diminished the potential value of the portfolio. Regulated gas keeps contributing to cash flow's stability.
- All in all, although the current challenges and uncertainties, Galp is creating strong roots for future success with E&P providing the company's **earnings and growth momentum**.

Company description

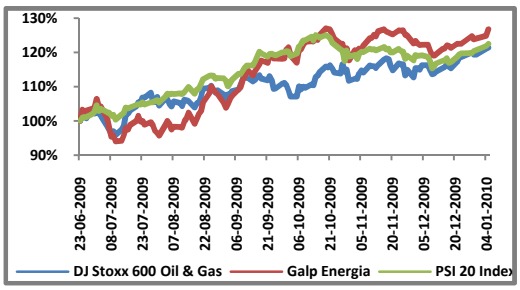
Galp Energia is a multi-energy operator with three main business segments: exploration and production (E&P); refining and marketing (R&M); and gas and power (G&P). The company main business area is R&M (leader in Portugal) being E&P the current value driver given the promising exploration portfolio held (Angola and Brasil). Additionally, Galp is also leader in domestic natural gas market and is expanding to power generation.

Recommendation:	**BUY (High risk)**
Vs Previous Recommendation	*Buy*
Price Target FY10:	**14.10 €**
Vs Previous Price Target	*14.10 €*
Price (as of 5-Jan-10)	**12.74 €**
Upside potential	10.68%

Reuters: Galp:LS, Bloomberg: Galp:LP

52-week range (€)	12.95-7.22
Market Cap (€m)	10,561.46
Outstanding Shares (m)	829

Source: Bloomberg



Source: Bloomberg

(Values in € millions)	2008	2009E	2010E
Sales	15,188	11,851	12,639
Operating costs	(14,906)	(11,069)	(11,793)
Operating costs RCA	(14,200)	(11,183)	(11,761)
EBITDA	282	782	846
EBITDA RCA	988	667	878
EBITDA margin (%)	2%	7%	7%
EBITDA RCA margin (%)	7%	6%	7%
Operating profit	1	457	484
Operating profit RCA	693	334	460
Operating profit margin (%)	0%	4%	4%
Operating profit RCA margin (%)	5%	3%	4%
Net income	(8)	345	306
Net income RCA	478	247	265
EPS (adj)	0.58	0.30	0.32
ROCE	12%	5%	5%
Net debt	1,864	2,282	3,058
Net debt/Equity	85%	96%	123%
Net bebt/EBITDA	1.9	3.4	3.5
P/E (adj)	12.50	41.01	44.05
EV/EBITDA RCA	7.3	17.2	13.5

Source: Galp Energia, Analyst estimates

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Executive summary

Future prospects are attractive yet challenges are substantial

More than ever focus is necessary

The present company report aims to highlight the opportunities, threats and decisions Galp will face looking forward in E&P, R&M and G&P segments. We recognize the coming years to be of crucial importance for the overall success of the company. Still, we are sure that the roots being created will sustain an attractive growth rate if Galp responds wisely to the actual challenges especially in R&M and focus its attention in E&P, namely in Brazil and Angola.

A strategic focus shift to E&P is needed

We identify the major managerial flexibilities Galp has in its E&P projects which have a positive option value that must be considered and priced. We agree with Galp's strategic shift to E&P since it is where the main growing opportunities are. Consequently, we expect high returns as well as high risks due to development and exploration uncertainties. On the contrary, the outlook for R&M is not as bright, namely regarding refining margins. The years to come will imply a global restructuring in the refining sector and Galp will be affected as well, especially due to the surplus in Iberia of refined products. However, we consider the current conversion project and the differentiation it allows, to be a key success factor.

Refining environment will post main challenges

Galp's marketing competitive advantage has strong roots

As to marketing, Galp has a natural competitive advantage in wholesale since it has priority access to resources: due to its refineries. Regarding the retail market, supermarkets will continue to growth yet collaborative strategies will limit it. The recent economic downturn and the longer than expected recovery make us revise downward Galp's natural gas volume projections. Spain will become a key market for both refined products and natural gas. Finally, Power assets and projects are significantly de-valued given the recent cancellation of wind projects.

Price target of €14.10/share with an upward potential of €16.85 per share

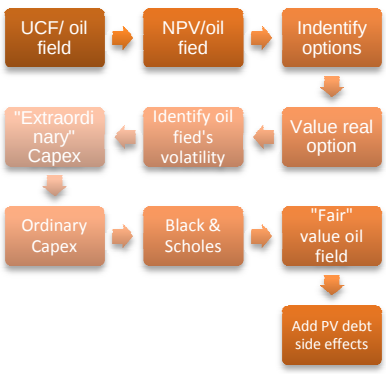
Our price target FY10 is €14.10/share having an upward potential of €16.85 /share if we consider the value of managerial flexibilities embedded in oil fields.

Valuation

Valuation according to enterprise DCF model

We value Galp according to a sum-of-the-parts (SOTP) method. Non-operating assets include nonconsolidated subsidiaries and other equity investments. Nonequity financial claims comprise total consolidated net debt, pension shortfalls and minorities. Regarding the E&P segment, the enterprise value was found using the Adjusted Present Value (APV) method as each oil field is a single time-limited project and thus the level of debt is generally known over the life of the project. Even though the length is uncertain, the exploration period can be plausibly forecasted knowing the amount of recoverable reserves. Unlevered cash flows were discounted at the unlevered cost of equity and then the present value of tax shield was measured. As oil fields have embedded various operating and strategic options, the E&P segment was analysed/valued with real options. Regarding other areas, the discount rate used was the weighted average cost of capital. Our explicit forecast period comprises 10 years – from the end of 2009

Figure 1: Oil field valuation chain



Source: Analyst estimates

10 years of explicit forecast period

Steady-state after the explicit forecast period

until 2020. By 2020, we expect the current projects to be fully implemented and Galp to reach a steady state, with constant growth, margins, capital turnover, and WACC. In order to assess the continuing value, we use the value driver formula[1].

Valuation betas found with segment specific comparables

For each segment a set of comparables was identified to find the unlevered industry beta. Regarding E&P, comparables were companies that only produced and explored petroleum offshore as they are a proxy for Galp's systematic risk. The same applies for R&M, Gas and Power areas. The difference in terms of political risk – which is notably different among Angola, Brazil and in Europe – was considered in the risk free rate. Thus, the higher cost of equity for Angola reflects the higher political risk compared to Brazil measured in terms of the yield on national treasury long term bonds[2]. However, the higher political risk of Angola is compensated by the higher technological risk of Brazil. Finally, market risk premium was set in 6%, reflecting market's inherent and future volatility in accordance with financial literature[3]. A special treatment must be devoted to regulated gas activities: with comparables, the weighted average cost of capital after tax is 6.32%. However, to the extent that regulatory risks are not customary in the overall equities market, it may be argued that regulatory risks will not be incorporated into the market's estimate of required return. Thus, regulatory risk would be a form of non-diversifiable risk that would need to be compensated for in addition to our 6.32% estimation. These risks include: disallowance of capital expenditure and of certain costs incurred in the operation of the business; asymmetric expectations relating revenues; and discretionary behaviour of the regulator. These requires setting a target return under regulation higher than the required return implied by CAPM to compensate investors for the expected loss due to regulatory risk[4]. Regarding cost of debt, we rely on Galp's historical average effective interest rate; default premium actual and expected; and current and forecasted capital structure for each area (interest bearing debt-to-equity).

Political risk is a major source of risk

Regulatory risk comes in addition to the market's estimate cost of capital

Cost of debt and debt to equity ratio reflects target future capital structure

Table 1 – Valuation assumptions[5]

		Risk free	Market premium	Beta levered	Gross cost of debt	Cost of equity	D/E	WACC	Terminal growth	Method used
E&P	Brazil	6.40%	6.00%	0.792	7.76%	11.15%	50%			APV/Real options
	Angola	6.65%	6.00%	0.792	7.96%	11.40%	50%			APV/Real options
R&M	Refining	3.05%	6.00%	1.547	5.20%	12.34%	96%	8.23%	0%	DCF
	Marketing	3.05%	6.00%	1.547	5.20%	12.34%	96%	8.23%	1%	DCF
G&P	Gas Regulated	3.05%	6.00%	0.862	5.18%	8.22%	110%	8.09%	1%	DCF
	Gas Liberalized	3.05%	6.00%	0.796	5.20%	11.21%	80%	8.20%	0%	DCF
	Power	3.05%	6.00%	0.796	5.20%	11.21%	80%	8.20%	1%	DCF

Source: Analyst estimates

[1] $Continuing\ Value_t = \frac{NOPLAT_{t+1}\left(1-\frac{g}{RONIC}\right)}{WACC-g} * \frac{1}{(1+WACC)^t}$; *we assume* $RONIC = ROIC = \frac{Average\ NOPLAT\ over\ the\ explicit\ period}{Invested\ Capital\ over\ the\ explicit\ period}$

[2] 10Y "Letra do Tesouro Nacional" for Brazil and 10Y "Obrigações de Tesouro Angola" for Angola (some analysts use the 5Y since it is more liquid). The difference in terms of the risk free rate also reflects the different inflation rate among countries: Europe, Brazil and Angola

[3] Cf. Mehra, R.; and Prescott, E. C. "*The equity premium in retrospect*"; Handbook of the economics of Finance; 2003

[4] $E(r_i)^{regulation} = \frac{K^{Inv}}{K^{Reg}} * E(r_i)^{CAPM} + \frac{K^{Inv}}{K^{Dis}} * 0\% + \varepsilon_i$; $K^{Inv} = funds\ invested$; $K^{Reg} = regulatory\ asset\ base$; $K^{Dis} = disallowed\ investment$; $\varepsilon_i = premium\ reflecting\ the\ discretionary\ behaviour\ of\ regulator$. Historically for Galp, out of what is invested, 85% is considered and the remaining 15% is not allowed by the regulator (Source: ERSE). This includes ongoing fixed assets. Finally the discretionary component is fixed at 0.7%. So, the post-tax cost of capital comes: $E(r_i)^{regulation} = \frac{K^{Inv}}{K^{Reg}} * E(r_i)^{CAPM} + \frac{K^{Inv}}{K^{Dis}} * 0\% + \varepsilon_i = \frac{1}{85\%} * 6.32\% + \frac{1}{15\%} * 0 + 0.7\% = 8.09\%$

[5] Cost of equity and cash flows in E&P are denominated in US dollars assuming an annual inflation rate of 2% as to update lifting and other operational costs and beta and cost of equity are unlevered, whereas for R&M and G&P they are denominated in European € assuming and inflation rate of 2%. For those, the risk free rate corresponds to the 10-year German Eurobond and the implied effective tax rate is 25%. The terminal growth rate is presented in real terms. Regarding D/E assumed, it is substantially smaller than actual and projected for the near future, since the actual high leverage is a consequence of large investments in a period of tight profitability and earnings. Thus, D/E is projected to converge to the mentioned targets.

Table 2: Equity investments forecasting drivers

Equity Investments	*Forecasting driver*
CLH	R&M Sales
CLC	R&M Sales
International pipelines	NG Sales
SetGás	NG Sales
Others	Consolidated sales

Source: Analyst estimates

Managerial flexibilities can boost value, in addition to the €14.10/share, up to €2.75/share

Concerning non-operating assets, we consider nonconsolidated associates that include investments in international pipelines, oil and refined products storage and non-consolidated natural gas investments. Galp regularly receives dividends coming from these investments. Therefore, after finding an appropriate forecasting dividends driver, the Gordon Dividend Growth Model[6] was applied. The discount rate used in the model is the weighted average cost of capital of which the investment refers to, i.e., investments in natural gas associates are discounted with the discount rate for that area. Regarding non-equity financial claims, net debt consists of interest bearing debt net of operating cash. Pension shortfalls were estimated according to the assumptions and forecasts provided by Galp.

Based on our estimations we value Galp as €14.10 per share, without flexibility.

Table 3: SoTP Valuation

€ Million	EV[7]	% fo EV	EV/EBITDA 10E	€/Per Share	Valuation method
Angola					
Block 14	447.54			0.54	APV/Real options
Block32	623.88			0.75	APV/Real options
Block 14K-A-IMI	100.01			0.12	APV
Interest tax shield	123.05			0.15	APV/Tax shield effect
Brasil					
Tupi (BM-S-11)	2,168.41			2.61	APV/Real options
Iara (BM-S-11)	1,316.08			1.59	APV/Real options
Bem-te-vi (BM-S-8)	279.27			0.34	APV/Real options
Caramba (BM-S-21)	146.31			0.18	APV/Real options
Júpiter (BM-S-24)	665.05			0.80	APV/Real options
Interest tax shield	927.61			1.12	APV/Tax shield effect
Exploration and production	**6,797.13**	**49%**	**31.91**	**8.20**	
Refining	1,830.04	13%		2.20	DCF
Marketing	2,534.63	18%		3.06	DCF
Refining & Marketing	**4,364.67**	**31%**	**10.29**	**5.26**	
Gas	2,570.63	18%		3.10	DCF
Supply	1,297.23			1.56	DCF
Infrastructures	1,273.40			1.54	DCF
Power	172.34	1%		0.21	DCF
Gas & Power	**2,742.97**	**20%**	**14.77**	**3.31**	
Total EV	**13,904.77**			**16.77**	
Net debt FY10e	2,560.98			3.09	
Pension shortfalls FY 10e	279.01			0.34	
Minorities FY10e	28.08			0.03	
Associates	656.14			0.79	Dividends Growth Model
27% EMPL - Europe MaghrebPipeline, Ltd	*286.58*				
33% Gasoduto Al-Andaluz, S.A.	*44.70*				
49% Gasoduto Extremadura, S.A.	*59.16*				
65% CLC - Companhia Logística de Combustíveis, S.A.	*98.50*				
5% CLH - Compañia Logística de Hidrocarboros, S.A.	*63.98*				
45% Setgás, S.A.	*74.01*				
41% Tagusgás, S.A.	*29.20*				
Equity	**11,692.85**				
# Shares (m)	**829.25**				
Per share	**14.10**				

Source: Analyst estimates

Sensitivity analysis

Variables chosen embody many of the uncertainties faced by Galp

We consider four main factors that can influence greatly our price target: discount rate and terminal growth rate; Brent prices and exchange rate ($/€). Other risks could be considered, however these reflect much of Galp's major uncertainties.

Discount rate has a great impact in Galp's value

If the discount rate increases due to an increase in cost of debt or equity, our price target tends to decrease. The increase in cost of debt, usually due to an higher D/E and consequently default premium, does not lead directly to an increase in

[6] $Value_0 = \sum_{i=1}^{T} \frac{Div_t}{(1+r_{WACC,})^t} + \frac{Div_T*(1+g)}{(r_{WACC}-g)*(1+r_{WACC})^T}$

[7] Economic value presented represents value for Galp considering its share in each project. Figures in € Million

Changes in TGR slightly affect our price target

the discount rate: only if the marginal cost (bankruptcy and financial distress costs) is higher than the marginal benefit (cost of debt smaller than cost of equity). Cost of equity can increase due to investors' risk perception change relating to assets. Terminal growth rate affects slightly our price target, since, only in natural gas, power and marketing a terminal growth rate was assumed yet small reflecting market's maturity, but for natural gas distribution given its early stage. As oil fields are time limited and refining market is stagnated, we assume no growth rate.

Table 4: Galp's price target for different discount rates and terminal growth rates (TGR)

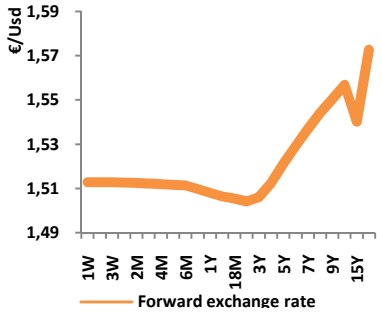
Change in TGR (% increase in the base case)	Change discount rate (% increase in the base case)						
	-15%	-10%	-5%	0%	5%	10%	15%
-15%	17.74	16.39	15.18	14.07	13.05	12.12	11.26
-10%	17.76	16.41	15.19	14.08	13.06	12.13	11.27
-5%	17.78	16.42	15.20	14.09	13.07	12.14	11.28
0%	17.80	16.44	15.21	**14.10**	13.08	12.14	11.28
5%	17.82	16.45	15.22	14.11	13.08	12.15	11.29
10%	17.84	16.47	15.24	14.12	13.09	12.16	11.29
15%	17.87	16.49	15.25	14.13	13.10	12.16	11.30

Source: Analyst estimates

An appreciation of US dollar increases our price target

The most relevant variable seems to be the exchange rate. When the exchange rate increases, meaning that US dollar depreciates, our price target decreases. Conversely a valorisation of the US dollar leads to an increase in our price target. So, the stronger the dollar, the higher is our price target. A significant portion of Galp's costs and revenues are generally denominated in or tied to US dollars. Moreover, changing the exchange rate indirectly changes oil prices since they are denominated in dollars and so the effect is magnified. For the next year exchange rate is expected to stabilize around $1.51 per €1. Then, US dollar is expected to further depreciate as signals regarding the recovery of US economy are still weak. We have incorporated this forward exchange rate in our model assuming a long term exchange rate of $/€ 1.54. On the other hand, the effect of changes in Brent prices seems to be weaker. Actually, effects are greatly balanced by the nature of Galp's activities, in fact, they provide a natural hedging to changes in energy prices. An increase in the price of Brent leads to an increase in revenues from E&P that eventually will be offset by the increase in raw materials' prices (crude oil used in Galp's refineries; natural gas purchases; deterioration of the international refining margin). Thus, the effect is balanced. When Galp had a smaller exposure to E&P, stock prices were more affected by changes in oil prices. Nowadays, the high exposure to E&P made Galp more dependent on the strength of dollar[8].

Graph 1: Forward €/Usd Exchange rate



Source: Bloomberg; as of 14 December, 2009

Galp activities provide a natural hedging regarding changes in crude oil prices

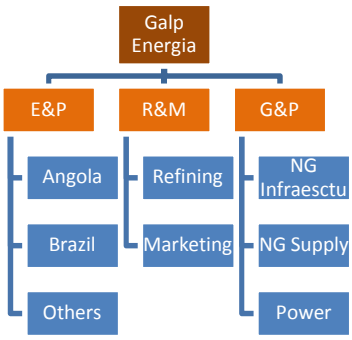
Table 5: Galp's price target for different Brent prices and Exchange rates.

Change $/€ (% increase in the base case)	Change Brent Prices (% increase in the base case)						
	-15%	-10%	-5%	0%	5%	10%	15%
-15%	17.58	17.42	15.92	16.41	16.23	22.64	15.72
-10%	16.54	16.42	14.81	15.55	15.43	14.15	15.03
-5%	15.62	15.53	13.69	14.78	14.70	13.48	14.42
0%	14.78	14.73	12.36	**14.10**	14.06	13.15	13.87
5%	14.02	14.00	10.14	13.47	13.49	12.81	13.37
10%	13.33	13.34	9.88	12.91	12.83	12.46	12.91
15%	12.70	12.74	9.57	12.39	12.44	12.11	12.50

Source: Analyst estimates

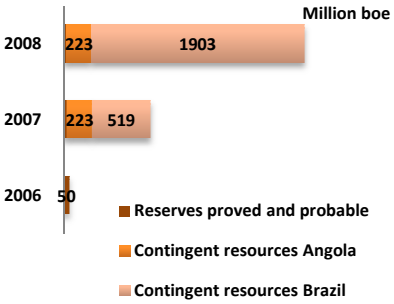
[8] The market is now becoming aware of this. In fact in the last three years, the correlation between changes in Galp's stock prices and changes in Brent's prices was 0.503 (p-value: 0.086); whereas the correlation with changes in exchange rate was 0.933 (p-value: 0.040). Source: Bloomberg and Galp Energia.

Figure 2- Galp's organizational chart



Source: Galp Energia

Figure 3: Galp resources base according to its stake in exploration projects in which it is involved



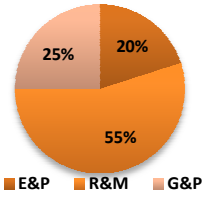
Source: Galp Energia

Table 6: E&P; R&M and G&P KPIs

	2006	*2007*	*2008*
Average working interest production (kbbl/d)	9.5	17.0	15.1
Products processed (Million tonnes)	14.7	13.8	13.1
Refined product sales (Million tonnes)	16.2	16.0	16.0
Sales to direct clients (Million tonnes)	9.0	9.4	9.6
Natural gas sales volumes (Million m^3 [9])	4,596	5,377	5,638
Number of natural gas clientes ('000)	757	816	868
Electric power generation (GWh)	577	594	489

Source: Galp Energia

Graph 2: Share of business segments in Galp's operating profit RCA (2008)



Source: Galp Energia

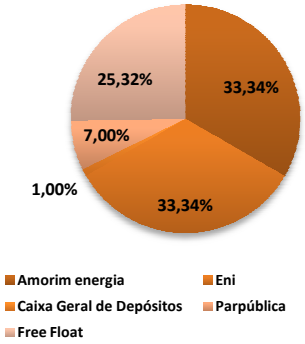
Company Description

Founded in April 1999 following the restructuring of the energy sector in Portugal, Galp is one of the major Portuguese economic groups and one of the few presented with major growing opportunities. Galp is an integrated oil company with operations covering primarily three business segments: Exploration & Production (E&P); Refining and Marketing (R&M); and Gas & Power (G&P). Through the E&P segment, Galp explores and produces oil and natural gas in offshore and onshore oil fields. It comprises more than 37 worldwide oil projects, yet mainly focused in Brazil and Angola. Developments in Brazil, and to a lower extent in Angola, boosted Galp's resource base to 2.1 billion boe[10] of contingent reserves[11]. Tupi's discovery by the end of 2007 early 2008 was the main responsible of this enlargement. Development started in March of 2009. So far the extended well test (Tupi's EWT) performance has been positive, with flow rates increasing to 20 kbbl/d[12] from 14 kbbl/d at the very start. In spite of these developments in Brazil, currently Galp's entire oil production comes from Block 14 in Angola: working interest production of 15.1 kbbl/d in 2008. Through Sines and Matosinhos refineries, Galp processes all products that are refined in Portugal. Sines' refinery has current distillation capacity of 220,000 bbl/d whereas Matosinhos is smaller with 90,000 bbl/d. Both refineries are now under a conversion project aiming to convert heavier fractions of crude oil into light and medium distillates[13]. Actual production is not refined in Galp's refineries since Galp produces heavier oil than what it refines, however after the conversion project, it can start refining heavier crude. Marketing activities include wholesale and retail sale of refined petroleum products. Spanish activities were substantially enhanced by Galp's acquisition of Exxon's and Agip's Iberian subsidiaries adding more than 450 service stations to Galp's network - 80% of which was located in Spain. After 2005 Natural Gas business reorganization, Galp's activities comprise the sourcing of natural gas through long term contracts; the storage of natural gas; the supply to large industrial customers and to anyone entitled to the liberalised market; and regulated distribution through its subsidiaries. Regarding power, the existing portfolio consists of four cogeneration plants with a total installed electrical capacity of over 180 MW. Portcogeração will join the current portfolio by the end of 2009 and other projects are being considered. Historically, R&M provides the highest contribution to the operating profit, however E&P is the main focus of the group receiving almost 50% of estimated CAPEX from 2009-13. G&P, namely regulated activities, continues a source of cash flow's stability. Near challenges are related with the financing of the ambitious investment plan.

[9] Cubic metres
[10] Billion barrel of oil equivalent
[11] Potentially recoverable from known accumulations but not currently considered to be commercially viable
[12] Thousand barrels of oil per day
[13] Refined products include: Naphtha (3%); Gasoline (22%); Aromatics (3%); Diesel (37%); Jet (6%); Fuel oil (17%); and others (4%). In brackets are the proportions of the total production, in 2008 .Naphtha, Gasoline and Aromatics are light; Diesel and Jet are medium; and Fuel oil/Others are heavy distillates.

Shareholder structure

Graph 3: Shareholder structure as of 31 December 2008



Source: Galp Energia

Amorim Energia and Eni are the two main shareholders with 33.34% of the company's equity. Portuguese state controls 8% of the company either directly, through Parpública or indirectly through CGD. The remaining capital is traded freely in Euronext. 80% of the free float is controlled by institutional investors. From those, 91% are international. We highlight the relevant stake that Angola's state-owned oil company (Sonangol) has through its 45% stake in Amorin's equity. Amorim Energia, CGD and Eni are parties of a shareholder agreement which regulates a number of aspects covering the terms on which shares in Galp may be sold during a lock-up period up to 31 December 2010. From 1 January 2011 onwards any party may sell its holding in full. Even after the lock-up period, the agreement entails CGD with preferential rights to acquire all or part of shares sold in case other shareholders want to sell their stake. The shareholder agreement establishes payout of at least 50% of net profit, provided Net debt/EBITDA ratio does not exceed 3.5. In order, to fund its investment program, shareholders agreed to a fixed dividend €0.2 per share between 2009-13. If a capital increase was required to strengthen Galp's financial position during the look-up, it would be extremely difficult for all parties to arrive at an agreement. After that, we believe that the only part interested could be Sonangol. Recently, however there has been news that Petrobras could be interested in buying the stake of ENI. We expect further developments on this.

Sonangol and Petrobras could be interested in a capital increase

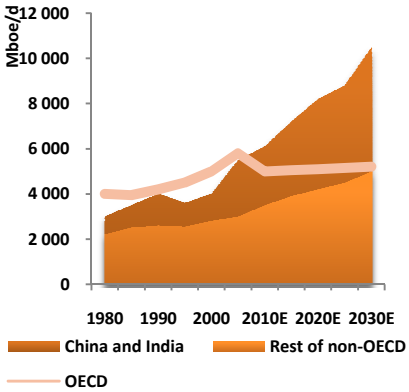
Exploration & Production (E&P)

Will the oil market recover quickly?

Oil companies' success does not depend solely on their mastery to identify and manage attractive projects, rather it is much more dependent on how well the oil market responds to the current uncertainties. We start with an overview of the oil and gas market. Then, major exploration areas are analysed. Subsequently, we explain our valuation approach and finally, we provide our summary valuation.

Market environment

Graph 4: World primary energy demand

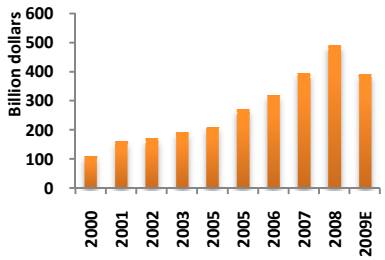


Source: IEA World Energy outlook 2009

Countries' energy consumption current slowdown was motivated by the present economic slowdown and the raising uncertainty about the future. According to IEA[14], primary energy consumption in 2009 is projected to decline by roughly 2%. However, under current economic policies, demand will faster than expected recover and will return to its long-term upward trend. According to IEA, world primary energy demand is expected to increase by 1.5% per year between 2007 and 2030, from around 12,000 Mboe/d[15] to 16,800 Mboe/d, an overall increase of 40%. Fossil fuels will continue to supply most of the boost in demand. Actually, they will account for 77% of the increase in world primary energy demand. **Oil**

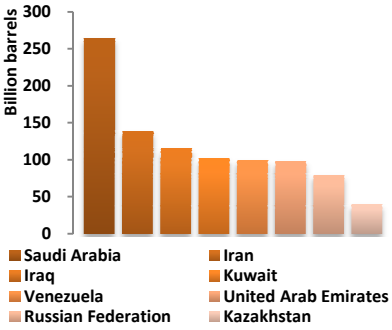
[14] International Energy Agency, "World Energy Outlook 2009", 10 November
[15] Million barrels of oil equivalent per day

Graph 5: Worldwide upstream oil & gas capital expenditures



Source: IEA World Energy outlook 2009

Graph 6: Word Proved Oil reserves



Source: BP world oil outlook

Political risk will be a major driver of the industry's growth

Galp has stakes in five important fields in the pre-salt area

Table 7: Brazil gross reserves and expected year of production

	Gross reserves (Mboe)	*Expected year of production*
Tupi (BM-S-11)	6,500	2010
Júpiter (BM-S-24)	3,400	2014
Iara (BM-S-11)	3,500	2013
Bem-Te-Vi (BM-S-8)	1,400	2014
Caramba (BM-S-21)	1,000	2014

Source: Analyst estimates

demand is expected to increase from 85 Mbbl/d[16] in 2008 to 88 Mbbl/d in 2015 and 105 Mbbl/d in 2030. Estimations are that the transportation sector will be responsible for 97% of the increase in oil use. Non-OECD countries will account for 93% of the increase while in OECD demand will be flat. In China, oil demand evolution is astonishing. In 1995 the Chinese market used 2.5 Mbbl/d, less than 15 years ahead, China consumed 8 Mbbl/d and a similar growth rate is expected to be maintained. So, demand is expected to grow in the future even though at a lower path than previously as a consequence of the actual economic slowdown.

In 2010 existing oil fields will mature and they will fall by roughly two-thirds in 2030. According to IEA, in order to balance the decline from existing oil fields, additional capacity of 45 Mbbl/d - equivalent to four times the actual capacity of Saudi Arabia – is needed. Yet, the lower oil prices of 2008 led oil companies to revise downwards global upstream oil and gas budgets for 2009 as compared to 2008: a reduction of over $90 billion. The decrease in investments contrasts with the increase in costs. In the 90s a "mega project" could cost between $500 million and $1,000 million. Today, the same project would cost between $5,000 million and $10,000 million since recoverable reserves are in much demanding fields[17]. Given that 15 of the 20 major oil companies are state owned, political risk and social conflicts will drive the evolution of energy markets. Especially since the majority of proved reserves are in potentially instable regions. For instance, in 1998 Iran, Iraq, Nigeria and Venezuela produced 12.7 Mbbl/d. Expectations were to produce 18.4 Mbbl/d in 2008. Instead of that, they produced 10.2 Mbbl/d due to social conflicts, war and inadequate investments and production decisions[18].

Given this outlook and despite the rising environmental concerns and the advent of "clean" energies, oil and gas market will continue to prosper. Thus, Galp's E&P portfolio will comprise significant value. Galp aims to focus on **three** geographical areas: Brazil, especially in pre-salt Santos Basin; Angola; and Venezuela.

Brazil

In May 2008, partners in BM-S-8 announced that the 1-SPS-52A (Bem-te-vi) reservoir had proved oil reserves in the pre-salt on the Santos Basin. Preliminary tests indicated an API gravity of 25-28 similar to others in Santos Basin. The first appraisal well was scheduled for 2009, however due to rig availability, the consortium is planning it for 2010. We assume gross reserves of 2.5 billion boe. Caramba discovery was announced in December 2007. It is also located in the Carioca-Sugarleaf with 1.0 billion boe of reserves. In November 2007, Petrobras announced that Tupi had reserves between 5-8 billion boe. It is also estimated that around 85% of these reserves are oil and around 15% natural gas. We

[16] Million barrels of oil per day
[17] Source: Foreign Policy; "Petróleo – O longo adeus"; November/October 2009; Number 12
[18] Source: Foreign Policy; "Petróleo – O longo adeus"; November/October 2009; Number 12

Table 8: Estimated Capex (Million €)

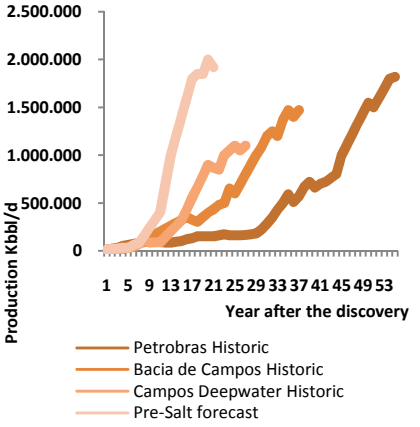
Blocks	*Galp Capex(2009-13)*	*Galp Capex (2009-20)*
Brasil		
Tupi (BM-S-11)	689.14	1,028.57
Iara (BM-S-11)	325.71	814.29
Bem-te-vi (BM-S-8)	70.80	1,045.21
Caramba (BM-S-21)	47.20	1,600.00
Júpiter (BM-S-24)	107.14	2,142.86
Total	**1,240.00**	**6,630.93**

Source: Petrobrás; Galp and Analyst Estimates

Jupiter is one of the largest discoveries in the pre-salt Santos Basin...

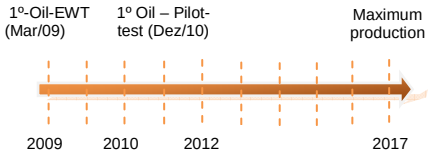
...yet its unit value is quite smaller than Tupi

Graph 7: Production time frame per area



Source: Petrobras Business Plan, 2009-13

Figure 4: Tupi's production chain



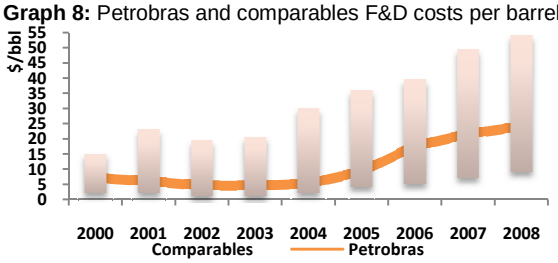
Source: Petrobrás; Galp Energia; Analyst estimates

assume recoverable reserves of 6.5 billion boe. Petrobras started a long term production test (EWT) on Tupi in March 2009 that will last for 15 months. After this, a pilot project is scheduled to begin in year end 2010 with an annual average production of 100 kbbl/d and 4 million cubic meters of gas. Although the strong results of EWT, recoverable reserves were not updated upwards since the recovery factor (assumed to be between 25-30%) was not possible to increase given the nature of the sand, the permeability of soil and the crude[19]. The BM-S-11 partners announced the Iara discovery in August 2008 with an average API gravity of 30º. Further drills are currently being made to evaluate deeper horizons for it. Development is thought to be similar to Tupi. Jupiter discovery, in January 2008, is believed to contain large natural gas and condensate reserves. Wells drilled provided positive information regarding its feasibility. The consortium approved an initial evaluation plan and expects to drill an appraisal well in 2010. We assume reserves of 3.4 billion boe. Jupiter field is of the same nature as Tupi, however, it is likely to have a lower unit value since: the gas price will trade at a discount to oil; the development is likely to take place later than Tupi; and production will be at a lower extraction rate and over a longer period than Tupi. We estimate Capex according to operator's projections and field's complexity. Galp's onshore Brazil operations are smaller. Most of Galp's onshore Brazilian fields are owned 50% by Galp and 50% by Petrobras, being Galp the operator on much of them. Galp sees this onshore activity as a way of strengthen its partnerships with Petrobras and as a field training experience. No substantial developments are expected in this area for the next four years.

Petrobras is one of the most efficient companies exploring oil in deepwater and the one with the highest share in deepwater production. Thus, Galp benefits from Petrobras' know-how and cost efficiency. In fact, Petrobras has been improving its production process and achieving maximum production faster than before while controlling lifting costs. Compared to major oil companies[20], Petrobras' F&D costs are very competitive and it has kept costs low despite the recent oil discoveries in unconventional areas. According to IEA, pre-salt is forecasted to be the area with the highest production efficiency compared to actual producing oil fields. Based on this forecasts and on the features of each block, we estimate F&D costs, lifting costs and royalties, updated at the expected inflation rate over the life of the reserves. The life of the reserves was estimated according Petrobras' projections for the pre-salt area. For instance, in Tupi the EWT test started on March 2009. The pilot test is expected to be in line by December 2010. Maximum production (4,000 kbbl/d) is expected to be achieved by 2017.

[19] In the North sea, when some fields were at the stage of the Santos basin, the recovery factor was assumed to be 20% - 25% similar to the one of Tupi, and there are fields that have already recovery factors of about 50%.
[20] Total; ENI; BP; Chevron; Shell; ConocoPhillips; Pioneer; Marathon; Occidental; Murphy; Apache; BG; Hess; Devon; ExxonMobil; Lukoil; PetroCanada; Woodside; Murphy; StatoilHydro; and Anadarko

Graph 8: Petrobras and comparables F&D costs per barrel. **Figure 5:** Petrobras lifting costs and royalties per barrel

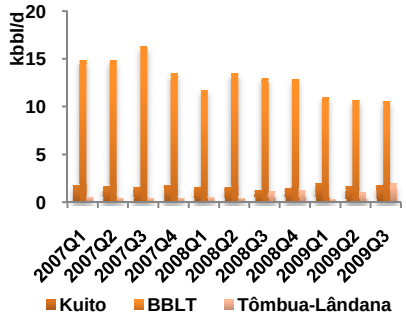


Source: Petrobras Business Plan, 2009-13

(Figures in $/bbl)	*2007*				*2008*				*2009*		
	1Q	*2Q*	*3Q*	*4Q*	*1Q*	*2Q*	*3Q*	*4Q*	*1Q*	*2Q*	*3Q*
Lifting costs without royalties	7.20	7.33	7.65	8.60	8.66	9.88	10.21	8.24	7.82	8.72	9.32
Lifting costs with royalties	16.24	17.95	20.13	23.16	24.82	31.08	30.27	18.11	14.69	19.5	20.18

Source: Petrobras Business Plan, 2009-13

Graph 9: Galp's total working interest production by oil field



Source: Galp Energia

Table 9: Angola offsore projects

	Gross reserves (Mboe)	*Expected year of production*
Tômbua-Lândana	350	End 2009
Other:	600	2013
Block 14		
Block 14K	100	2014
Block 32	1,500	End 2014

Source: Analvst estimates

Table 10: Projected CAPEX (Million €)

Blocks	*Galp Capex (2009-13)*	*Galp Capex (2009-2020)*
Block 14	500.81	695.57
Block32	110.99	554.94
Block 14K-A-IMI	48.20	104.50
Total	**660.00**	**1,355.01**

Source: Analvst estimates

Galp enjoys good relations with PDVSA

From all other international major possessions, Venezuela is the most attractive and active

Angola

Five development areas on Block 14, in which Galp has a stake of 9%, have been declared commercial: Kuito, Benguela, Belize, Lobito and Tomboco (BBLT); Tombua Landana (TL), Negage and Gabela. Kuito, BBLT and TL are currently the only producing oil fields. Production in BBLT and Kuito is declining although beneficiation works aiming to increase the recovery rate are underway. TL field was under development through a compliant piled tower. The production derived from this project started earlier than expected – September 2009. The field is operated by Chevron and the project is expected to achieve peak production of100 kbbl/d in 2011 and recoverable resources are estimated to reach 350 Mboe. Galp has also a 4.5% stake in block 14K-A-IMI, which is a joint development area established by the governments of Angola and Congo. Chevron is the operator of the block. Production is estimated to begin by 2014 and recoverable reserves are estimated to be 100 Mboe. In block 32, Galp has a stake of 5%. Until now, there have been around thirteen discoveries on the block. Total is the operator of the field and reserves are estimated to reach 1,500 Mboe and production to start before 2015. We proceed in the same way we did in Brazil, by looking at the operator's main costs and production estimates. Given that, oil from Angola has a lower API gravity than dated Brent, we have assumed a constant discount of 1 $/bbl lower than the historical average of 2.14 $/bbl, reflecting the higher quality from TL and Block 32 fields. Worth mention is the fact that Angola has recently joined OPEC. Since 2008, Angola has operated under a quota of 1.9 Mbbl/d, that affected all companies operated there as well as Galp.

Venezuela[21]

Galp is considering joining Statoil and Petrobras with a 10% stake in the auction of Caraboco. The total investment is projected to reach €9 billion. Investment decision is scheduled for 2010. In Boyava-6, reserves in place must be certified. Initial estimations indicate 70-80 billion barrels, with 12-16 bn recoverable. Galp estimates total costs to be in the vicinity of $10 billion. Galp has a stake of 15% in a transportation and liquefaction of gas project from the exploration fields on platform Deltana and Mariscal. Total processing capacity would be 12 bcm/year (billion m^3). The investment decision is scheduled for 2010. This would allow

[21] Galp considers Venezuela as having "low risk". Source: Galp 1Q08 results conference call

LNG project could provide supply flexibility for Iberian natural gas marketing

Galp to purchase up to 2 bcm/year of natural gas providing additional supply sources. Galp is optimistic about Venezuela. However, we do not share the same optimism. Only oil and LNG projects could add value, but neither of these projects have been finally established. Moreover, following the recent aggravation of fiscal policy in Venezuela and the nationalisation of Exxon's and Conoco's assets, we see operations in Venezuela as very risky and highly uncertain, which reduces the value of any agreements that may eventually be established with PDVSA. Thus, we have not considered any future cash flow coming from Venezuela at least until agreements and commitments are tangible.

Any cash flow considered from Venezuela assets

Other international stakes

The time is for focus not for dispersion...

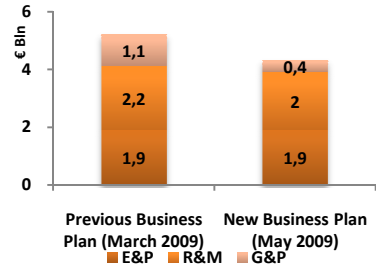
...yet "windows of opportunity" are still open

Galp has also other stakes in oil fields in Mozambique, Portugal and East Timor. This represented Galp's effort of diversifying E&P operations. All these ventures are in early pre-exploration phases with any relevant oil discovery released yet. The only development expected in these areas is the effort to find recoverable resources through campaigns for acquisition of 3D and 2D seismic data.

Capital expenditures

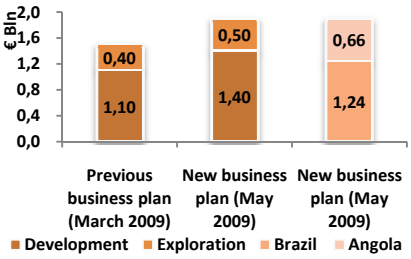
E&P capital expenditures are estimated to amount to €1.9 million from 2009-13. This represents an extraordinary boost in investments as compared to historical: €950 million in Brazil from 1997 until today; and €708 million from 1987 in Angola. In only four years Galp plans to spend almost the same amount, which portrays the vast opportunities and the commitment to E&P. Capex will be mostly allocated to Brazil and to the development of oil fields, as mentioned, whereas in Angola it will be mostly directed to exploration and maintenance. Moreover, new license auctions are projected, notably in Venezuela and São Tomé e Príncipe where Galp wants to be present, without having an aggressive behaviour.

Graph 10: CAPEX E&P 2009-13



Source: Galp Energia

Graph 11: CAPEX E&P 2009-13



Source: Galp Energia

Valuation

Flexibility is an important source of value

We value exploration assets in Brazil and Angola using real options[22] since the typical DCF does not take into account existing **managerial flexibilities** and their value. Besides the general assumptions of the model, four steps were used:

- Valuation of the project without flexibility using DCF
- Capture the most relevant uncertainties and so volatility of projects
- Identify the most relevant and feasible project flexibilities
- Value the project according to Black & Scholes (B&S) framework

Four steps used to value offshore oil fields

To compute the value of the project without flexibility we use the APV method[23]. For each of the oil fields considered, unlevered cash flow was found based on the public information about recoverable reserves, lifting costs, operational F&D costs, size of investments projected and expected year of reserves' exhaustion.

[22] The methodology is based on Copeland & Antikarov (2001), Brandão *et al.* (2005a), and Godinho (2006)
[23]

Table 11: Galp's oil fields portfolio stages

Offshore Oil projects	*Stage*	*Stake*
Brazil		
Tupi (BM - S - 11)	Development	10%
Lara (BM - S - 11)	Exploration	10%
Caramba (BM - S - 21)	Exploration	14%
Bem-te-Vi (BM - S - 8)	Exploration	20%
Júpiter (BM - S - 24)	Exploration	20%
Onshore	Pre-Exploration	20%
Angola		
Block 14	Production	9%
Block 32	Exploration	5%
Block 14k - A - MI	Exploration	4.5%
Venezuela	Pre-Exploration	15%
Mozambique	Pre-Exploration	10%
East Timor	Pre-Exploration	10%
Portugal	Pre-Exploration	30%

Source: Galp Energia, Analyst estimates

Oil prices volatility is the most important source of uncertainty in development field

Oil prices volatility estimated to be 39.7%

Table 12: Costs' volatility considered in Monte Carlo simulation

Annualized volatility	
Lifting costs	16.9 %
Royalties	46.2 %
F&D costs	57.1 %

Source: Analyst estimates

Table 13: Monte Carlo simulation for Tupi

Present value (€mn)	
Minimum	-7,969.72
Maximum	60,246.18
Mean	29,347.02
Std Deviation	13,854.89
Simulations	100.00

Source: Analyst estimates

As Galp is not the operator in any of the fields, it is subject to the operator's decisions and so its power regarding managerial decisions is substantially limited. Thus, we value these oil fields in the perspective of the operator allocating the total economic value of the field according to Galp's share on it. Pre-exploration reserves will not be valued since there is no data available regarding projections of reserves in place, lifting and development costs and even total investment needed. On top of that, many of those oil fields are in recent discovered areas and because of that no comparables could be identified.

Project's uncertainties depend greatly on their stage. Concerning development and exploration stages, main uncertainties are related with the recovery rate and with future extraction and operation costs: how much recoverable reserves are there and how costly will it be to extract them. The most relevant uncertainty is the **oil and gas prices volatility**. There are several ways of estimating volatility: volatility implied in past returns – historical volatility; the forward-looking implied volatility on forward prices; and complex dynamic models (e.g. GARCH). Out-of-sample tests, revealed that implied volatility outperform other methods over short term (i.e., up to two-weeks). However, for longer terms, historical volatility outperforms other methods[24]. Thus, as we are dealing with long period investments, we rely on historical volatility. We model the uncertainty in oil prices, using as proxy the historical volatility in Brent prices[25] and a Geometric Brownian Movement process. We simulate oil prices over the duration of the oil field production arriving at an annualized volatility of 39.7%. Although oil&gas volatility is the most important source of uncertainty, operating cash flows are expected to be more volatile due to uncertain fixed costs and production conditions.

As such, we use Monte Carlo simulation[26] to calculate the overall volatility of oil fields' cash flows by modelling the main sources of risk. A Lognormal distribution was chosen to model the changes in oil and gas prices, lifting costs, royalties and F&D costs. The distribution chosen was lognormal since such inputs cannot be negative. The mean and the standard deviation used in simulations consider the standard deviation of the mentioned historical costs, using the historical data on operator's existing fields. The higher the uncertainty of costs, the higher the project's cash flows volatility. Moreover, projects that present a higher amount of fixed costs relative to recoverable reserves will have also greater volatility. Therefore, beginning development projects are riskier than Tupi, in which a WTE test has been performed successfully and both reserves and costs are known with more certainty. For instance, by modelling Tupi's cash flows as explained,

[24] Source: Sharma; N. "Forecasting oil price volatility"; Virginia State University; May 1998. Other studies have also shown that more complicated methods provide little improvement in forecasting stock market volatility as compared to historical volatility specially for longer periods: "Hansen; P. and Lunde; A. "A comparison of Volatility Models: Does Anything Beat a Garch (1,1)"; 2001.
[25] Brent is the international benchmark for crude oil and Galp's realized sales price is established according to a discount to Brent
[26] Monte Carlo simulations allow to simulate a specific output, in this case oil field's value, assuming that certain inputs, i.e., costs and oil prices, can vary in the future according to a specific distribution. The software used here is @ Risk [TM], which is produced by Palisade Corporation of Newfield, New York

Table 14: Monte Carlo Simulation volatility

Offshore Oil projects	*Projects' volatility*
Brazil	
Tupi (BM - S - 11)	47.2%
Lara (BM - S - 11)	52.2%
Caramba (BM - S - 21)	140.4%
Bem-te-Vi (BM - S - 8)	69.3%
Júpiter (BM - S - 24)	89.9%
Angola	
Block 14	32.4%
Block 32	48.2%
Block 14k - A - MI	49.8%

Source: Analyst estimates

Stop production, adjust rate of production and switch technologies existing options yet out-of-the-money

Selling share in oil fields without value

Table 15: Exercise price and underlying asset for selected oil fields ($, million)

OffShore Oil projects	*Exercise price (K)*	*Underlying asset value (S)*
Brazil		
Tupi (BM - S - 11)	9,237.54	36,958.28
Lara (BM - S - 11)	7,580.41	18,129.35
Caramba (BM - S - 21)	6,149.00	7,094.39
Bem-te-Vi (BM - S - 8)	7,149.58	9,582.73
Júpiter (BM - S - 24)	15,355.19	20,730.73
Angola		
Block 32	5,967.77	19,358.68
Block 14k - A - MI	2,109.96	4,411.35

Source: Analyst estimates

"Extraordinary" capital expenditures are required to develop the oil field, whereas "ordinary" are needed to maintain it

we arrive at a distribution of its economic value with a mean of $29,347 million. The estimated standard deviation of Tupi's economic value is $13,855 million, or about 47% proving the amplification effect of fixed operating costs.

After arriving to the project's volatility, the main flexibilities can be identified. The only relevant source of flexibility is the possibility to delay development costs looking for more attractive exploration conditions, i.e., higher oil prices or lower production costs. In fact, the consortium may delay the major expenditures required for further study, engineering, and /or development looking for more attractive oil/gas prices. Such expenditures may be deferred for up to 4-5 years without losing the opportunity to make them, which is the license period. Thus, the operator can decide to start production now, or wait for higher expected payoffs[27]. In Brazil, the operator, is the state owned Petrobras, there is a possibility to delay production costs more than 4 years suggesting that option value may be underestimated. Other options include the option to stop production, to adjust the rate of production or to switch technologies. The "shutting in" option is clearly an out of the money option. Marginal revenue for a producing well is substantially higher than marginal costs (disregarding stopping and re-starting costs). Hence, producing oil fields can be treated as assets-in-place whose value is given by the raw APV. Finally, Galp could consider the possibility of selling its share in the consortium for the market price of reserves in place. Even though this possibility exists the actual focus on E&P does not call for it and it could harm Galp's relationships with actual strategic partners.

Finally, B&S model[28] was used to value this option. As seen, oil field's operator, will own an American call option on net cash flows that follow the development capital expenditures. This means that the operator must pay an exercise price to be entitled to receive future cash flows. Analogue to the exercise price is the capital expenditure required to develop the reserves. Thus we define the development period allocating 60% of the total projected investment in the oil field to those years. This 60% will be the "extraordinary" capital expenditures that are large compared to the "ordinary" expenditures. So the overall exercise price will be the present value of the capital expenditures during the development phase[29]. The underlying asset value is identified as discounting the projected net cash flows, including the "ordinary" and excluding the "extraordinary" capital expenditures. Both, will be discounted at the cost of equity used in APV calculations[30]. The time to maturity is the development period and the discount rate is the risk free rate. Finally volatility is just the project's volatility identified

[27] The payoff in any point in time is the difference between oil field's economic value if production starts immediately and expected development Capex. The operator will compare the present with future payoffs. Whenever, he believes the future payoff is higher, he will wait and start production only in the future.
[28] B&S considers 5 variables: exercise price (K); underlying asset (S); time to maturity (T); risk free (r_f); and volatility (σ). Even though, this is an American call option that can be exercised earlier, since it does not pay dividends, the value of an American is equal to a European (only exercised at maturity).
[29] Exercise price embodies several assumptions, the most important is that development costs will be the same no matter when Galp exercises the option.
[30] We are assuming that the risk contained in capital expenditures is systematic. Moreover, S and K are assumed to be independent. However, note that, in general, if S and K are positively correlated, option value will be reduced.

above. By construction, it was assumed no early exercise. Managers can argue that valuable resources, people, systems or expertise may be lost if exercise is delayed. Another possible "dividend" is an increase in development costs, which can decrease the overall option value and make it optimal to exercise earlier.

Increase in development costs was the only "dividend" considered

Table 16: Decrease in option's value due to the increase in capital expenditures

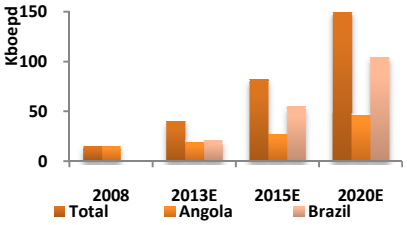
OffShore Oil projects	*Decrease in options' value*
Brazil	
Tupi (BM - S - 11)	-22.03%
Lara (BM - S - 11)	-33.23%
Caramba (BM - S - 21)	-34.09%
Bem-te-Vi (BM - S - 8)	-34.85%
Júpiter (BM - S - 24)	-34.49%
Angola	
Block 32	-35.77%
Block 14k - A - MI	-43.99%

Source: Analyst estimates

Early Exercise: Increase in Capital Expenditures

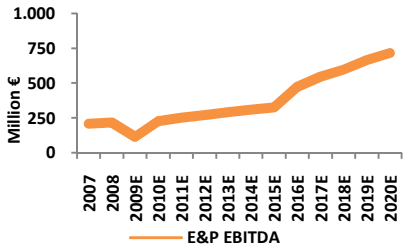
If we rely on Petrobras' data, F&D costs have increased over the past years: 23.35% per year from 2000-2008. As such, the increase in capital expenditures can be seen as a dividend over the underlying asset. We assume the growth rate of capital expenditures throughout the time to maturity equal to the mentioned historical growth rate. We cannot use B&S, since it is an American Call option that can be exercised earlier. So we rely on the binominal model to compute the value of the option when capital expenditures increase over time. The underlying asset will be same as before, however the strike price will increase over time by the growth rate of capital expenditures. Using the binominal model – defining up and down movements according to the volatility of the oil field – we actually see the option value to decrease 34% on average. In each point in time, the operator will compare again the expected economic value of starting production now with the capital expenditures that increase over time augmenting the likelihood of early exercise. In some fields, it becomes almost indifferent between invest immediately or postpone investments, notably in the case of Tupi and Iara. This happens because the value without flexibility is close to the value with flexibility.

Graph 12: Galp's working interest production



Source: Galp Energia, Analyst forecasts

Graph 13: Galp's E&P EBITDA



Source: Galp Energia, Analyst forecasts

Summary Valuation

Summing up our valuation considers: Brazil ramp up boosting production at double digits with Tupi's pilot and additional projects coming in line. EWTs of Iara, Bem-te-vi, Caramba and Jupiter to start in 2012/13. Moreover, working interest production benefits from continued growth in Angola namely with the execution of TL. It is expected that the aim of producing more than 150 kboep/d is achieved by 2020, when major projects are in line. Accordingly, EBITDA is expected to growth 34% from 2008 to 2013 reflecting this boost in oil field's production.

Real option increases E&P value by € 2.75 per share

As such, we value E&P assets in €8.19 per share if no managerial flexibility is considered and €10.96 per share if we account for managerial flexibility.

Table 17: Valuation summary of E&P assets

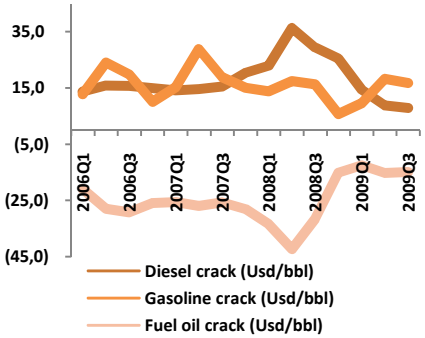
Blocks	Recoverable reserves Mboe	NPV $/bbl	Total Value M$	Galp Energia Share				Option value	Total value
				%	M $	M €	€/Share	€/Share	€/Share
Tupi (BM-S-11)	6,500.00	5.06	30,357.79	10%	3,035.78	2,168.41	2.61	0.13	2.74
Iara (BM-S-11)	3,500.00	5.26	18,425.06	10%	1,842.51	1,316.08	1.59	0.03	1.63
Bem-te-vi (BM-S-8)	1,400.00	1.99	2,792.67	14%	390.97	279.27	0.34	0.39	0.72
Caramba (BM-S-21)	1,000.30	1.02	1,024.15	20%	204.83	146.31	0.18	0.85	1.03
Júpiter (BM-S-24)	3,400.00	1.16	5,819.23	20%	931.08	665.05	0.80	1.19	2.00
Total value production	**15,800.30**		**58,418.89**		**6,405.16**	**4,575.12**	**5.52**	**2.60**	**8.12**
Total interest tax shield						**927.61**	**1.12**	**0.00**	**1.12**
Total value						**5,502.65**	**6.64**	**2.60**	**9.24**
Block 14	950.00			9.0%		447.17	0.54	0.06	0.60
Block32	100.00			5.0%		623.88	0.75	0.08	0.83
Block 14K-A-IMI	1,500.00			4.5%		93.08	0.12	0.01	0.13
Total value production	**2,555.00**					**1,164.12**	**1.41**	**0.15**	**1.56**
Total interest tax shield						**127.93**	**0.15**	**0.00**	**0.15**
Total value						**1,292.05**	**1.56**	**0.15**	**1.71**
Total Value E&P						**6,794.70**	**8.20**	**2.75**	**10.95**

Source: Analyst forecasts

Refining and Marketing (R&M)

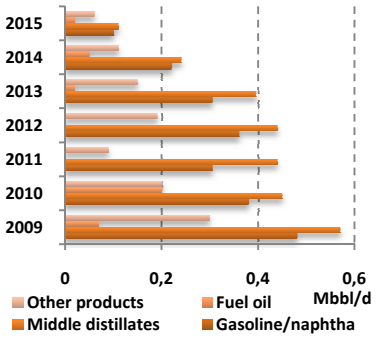
Refining is an international industry rather than local

Graph 14: Rotterdam refining products crack



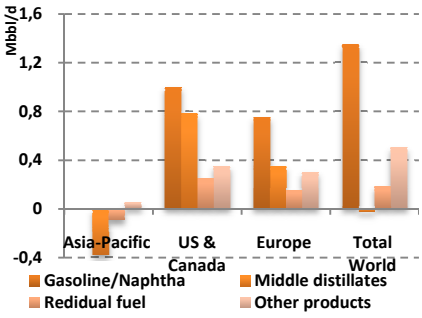
Source: Galp Energia, Bloomberg

Graph 15: Potential incremental product output from existing projects



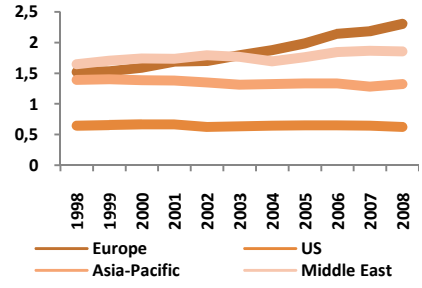
Source: OPEC World Oil Outlook 2009

Graph 16: Expected surplus/deficit of incremental product output from existing refining projects (2008-2015)



Source: OPEC World Oil Outlook 2009

Graph 17: Middle distillates consumption /Gasoline consumption (xtimes more)



Source: BP World Review

The current economic crisis will have a dramatic implication in refining and marketing. Given the high liquidity and the interdependence among economies, what matters for Galp is the international refining market and its interactions. We start with a worldwide market outlook. Then, we focus in Portugal and Spain analysing Galp's refining margin and competitive advantage. After, we analyse Iberian wholesale and Retail markets. Lastly, we present our valuation summary.

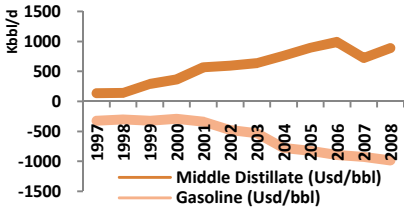
Market environment

After a long period of capacity adjustments, the rush in consumption of refined products in 2004 and 2005, especially middle distillates associated with tight product specifications in developed countries, led to an increase in refining margins and profitability due to the increase in diesel crack spread notably from 2007 until middle of 2008. The boost in profitability, significantly enhanced the attractiveness of the industry leading refiners to consider numerous options for further capacity expansion, namely through conversion projects meant to increase middle distillates production. Recently the implosion of the financial system and the subsequent economic contraction has provoked refining margins to collapse.

According to OPEC world oil outlook, by 2015 refined products global demand will be little more than 5 Mbbl/d higher than in 2007. However, the expected increase in refining capacity is significant due to crude distillation and conversion projects aiming to produce more middle distillates and consequently exploit the high diesel crack spread. According to specialized institutions (Purvin & Gertz; Hart; Tumer), there will be a 6 Mbbl/d and 5 Mbbl/d additional capacity by 2015 coming from existing crude distillation and conversion projects. Therefore, distillation capacity surplus is projected to widen to over 4 Mbbl/d by 2010 and around 5 Mbbl/d by 2012 being constant thereafter. This will jeopardize refinery utilization rates: according to OPEC, without capacity reductions, global refinery utilization rates will decrease from around 89% to below 80% through 2020.

US & Canada will be the regions most severely affected, as well as, Gasoline/ Naphtha. The growth in demand from Asia-Pacific will offset the increase in capacity. Europe will be affected as well; however its efforts towards dieselization will help European refineries. Europe was the region in which the middle distillate consumption relative to Gasoline increased the most. In 1995, the ratio was 1.4; whereas in 2008 it had risen to 2.4 and Europe has been consistently importing middle distillates. This trend is motivated by subsidies and tax incentives to diesel making diesel prices at the pump 20%-25% less than for gasoline. So, conversion projects aim to exploit this and to comply with the legislation intended to produce sulphur free fuels: a 10 and 15 ppm sulphur forced limit on gasoline and diesel.

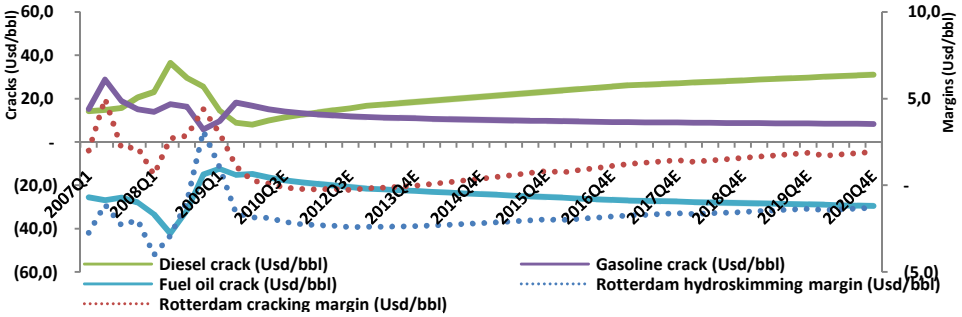
Graph 18: European net imports



Source: BP World Review

Succinctly, the market is seeing a progressive rise in the price of gasoil/diesel relative to crude due to a sustained incremental demand for middle distillates and a decline in that of gasoline. Smaller and gasoline oriented refineries will be the most affected. We expect diesel crack to recover alongside the economic upturn and the expected surplus in gasoline to continue to jeopardize its crack spread. As a result international cracking margin is expected to increase slightly.

Graph 19: Historical and expected refined crack spreads and Rotterdam international refining margins



Source: Bloomberg, OPEC World Oil Outlook, Analyst estimates

Portugal and Spain Market Outlook

Portugal and Spain are also net importers of diesel and gasoline

Spain and Portugal present a similar consumption pattern as Europe. In fact, both countries are net importers of diesel. In 2008, Portugal imported 1.4 and 0.1 million tonnes of diesel and gasoline. Portugal presents one of the lowest import rates of gasoline (7%) compared to the average EU of 29.6%. Regarding diesel, Portugal imports 19% of total consumption, also substantially lower than the EU average of 38%. Concerning Spain, imports are higher: 13% and 41% of total consumption for gasoline and diesel, respectively. The refined products deficit led Iberian refineries to invest in new conversion projects. Galp conversion project is expected to cost €1,315 million and be completed on 2011Q2. By the nine months results, the conversion project was going "on schedule, and very well".

Conversion projects aiming to capture the deficit of middle distillates

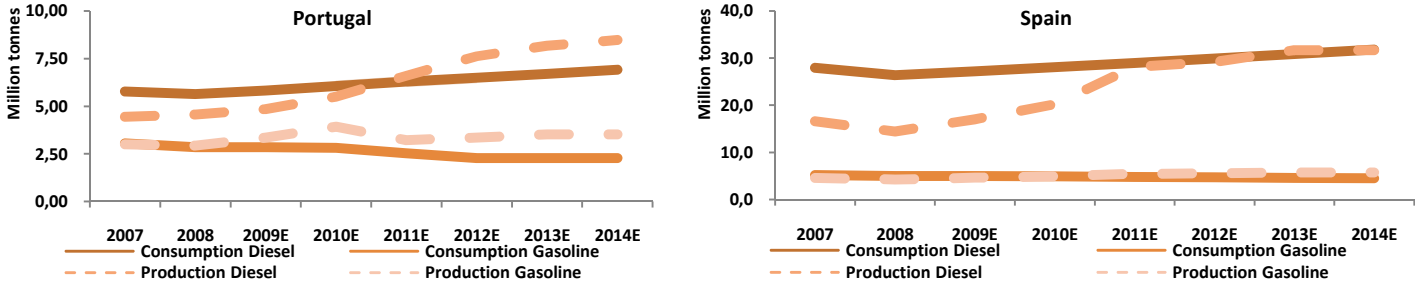
Additionally, we expect the market to growth only at a marginal rate reflecting the present economic crisis and the longer than expected economic takeoff. We estimate the overall evolution of the oil market considering the expectations regarding the growth of GDP and the evolution in refined products price[31].

Table 19: Oil market expected volume growth, per year

Oil market	*Expected growth rate 2010-2014*
Portugal	2%
Spain	3%

Source: Analyst estimates

Graph 20: Expected consumption and production after the conversion investment projects for both Portugal and Spain



Source: Galp Energia, Analyst estimates

[31] $\Delta Oil\ market_t = 1.320\Delta GDP_{t-1} - 0.737\Delta Oil\ market_{t-2} - 0.062\Delta Brent_{t-1}$
$[0.0140] \quad [0.002] \quad [0.084]$
In brackets we present the p-values of each coefficient. At a 10% significance level, all coefficients are significant. The Breusch-Pagan-Godfrey F-heteroskedasticity test is 0.675. Therefore we do not reject the null hypothesis of no heteroskedasticity. The Breusch-Godfrey Serial Correlation LM test F-statistic is 0.695, so we do not reject the null hypothesis of no serial correlation. The Jarque-Bera normality test gives a p-value of 0.642, so we do not reject the null hypothesis of normality. Data source: INE and Galp Energia. Regarding GDP we use the forecasts provided by OECD Economic Outlook.

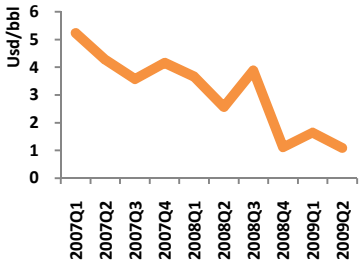
Conversion projects create a surplus of refined products

Table 20: Current and projected refined product mix and type of crude processed

	2009Q2	*2013E*
Target refined product mix		
Gasoline	23.5%	19%
Middle distillates	42.4%	57%
Fuel Oil	15.9%	11%
Others	18.2%	13%
Type of crude processed		
Heavy	26.2%	46.3%
Light	35.5%	23.4%
Medium	38.2%	30.3%

Source: Galp strategic update, Analyst forecast

Graph 21: Galp's implied buying price discount relative to Brent price



Source: Galp Energia, Analyst estimates

We assume a long term implied discount of $1/bbl

Table 21: Portuguese ports and capacity of reservoirs used for imports (first and second tables, respectively)

	Reservoirs North ('000 m3)	*% of Total*	*Reservoirs South ('000 m3)*	*% of Total*
Galp	[120 - 130]	57.5	[460 – 470]	82.5
Repsol	[50 - 60]	25		
Cepsa	[40 - 50]	17.5	[30 - 40]	5
BP			[60 - 70]	12.5
Overall	**[210 - 240]**	**100**	**[550 - 580]**	**100**

Zone	Port	Concessio-naire	Regime	Tanker Capacity (ton)
North	Leixões	Galp	Public	80 000
	Leixões	Galp	Public	30 000
South	Sines	Galp	Public	135 000
	Sines	Galp	Public	150 000
	Sines	Galp	Public	135 000
	Setúbal	Galp	Private	23 000
	Lisboa	Galp	Private	20 000
	Lisboa	Group LBC	Public	24 000

Source: Autoridade da concorrência (AdC), Analyst estimates

In Portugal, after the full integration of upgraded refineries in 2011, national diesel production will surpass the overall diesel market creating a surplus. Similarly, in Spain after the complete integration of the conversion projects, diesel production is expected to match the overall market consumption or even creating a residual surplus. Regarding gasoline, the surplus will be more evident in both countries. Increasing diesel's production will inevitably expand that of gasoline.

Galp's conversion project will boost middle distillates production twofold due to: the increase capacity coming from conversion projects and to increasing diesel yield in the total production mix. In fact, the weight of middle distillates in total production by the third quarter of 2009 was 42.4%, whereas the target is for Galp to increase middle distillates production to 57% decreasing both the production of gasoline and fuel oil in 2012. Also, the project aims to produce a higher fraction of light products out of heavy oil that has historically been cheaper than light crude oil. In fact, Galp has been buying crude oil cheaper than international benchmark prices. Nonetheless, the implied discount has been decreasing in the past two years, reflecting on the one hand, the increase in production of middle distillates that uses lighter raw materials, and recently, OPEC's production quotas reduction that led to higher consumptions of heavier crude and therefore to a reduction in the spread to light crude. Furthermore, existing worldwide upstream projects suggest that the average crude slake will get lighter. According to OPEC world oil outlook, non-OPEC production quality is expected to rise: average API gravity is projected to be 33.5º by 2030 when in 2005 it was 32.9º. Moreover, the average sulphur content is expected to decline from 1.05% to 0.9%. Regarding OPEC, API gravity and sulphur content are expected to improve slightly. So, we assume a long term Galp's implied buying price discount of $1/bbl relative to Brent. Despite this, the worldwide increase in NGLs and condensates production justifies investments and technological solutions to modernize refineries.

Based on international refining cracks and on conversion project aims, we expect Galp's refining margin to keep at 2009 levels for more 2 years, and then, as the market takes off, we expect it to increase reflecting both the higher diesel crack spread and the higher production of diesel**.** Galp's refining margin is expected to keep being higher than international margins reflecting Galp's refineries competitive advantage. This competitive advantage comes mainly from two sets of reasons: the cost associated with transport (freight, insurance, ports' commissions and losses) between international refineries with excess capacity and Portuguese refineries - therefore imports coming from other international refineries will entail additional costs. The second concerns the constraints related with imports: ports and reservoirs. From the 8 docking berths that allow effective imports of refined products, only one is managed by a company other than Galp. All majors are managed by Galp. Besides that, ports in the North and Barreiro

present operational levels that suggest congestion meaning higher utilization costs. Concessions have an average life of 25 years and were signed by 2004-2006. Moreover, Galp has 82.5% of import's storage capacity in the South and 57.5% in the North. Thus, anyone who wants to import refined products will not find available storage facilities, especially in the South. Due to environmental and operational constraints, capacity additions are unlikely to happen looking forward. Thus, the roots of Galp's competitive advantage are strong and persistent.

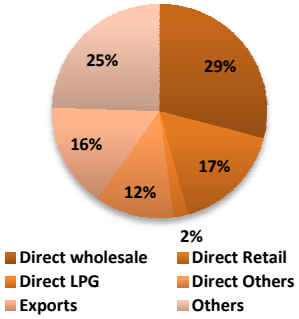
Galp's refineries enjoy a strong competitive advantage

Wholesale and Retail markets

Galp's markets refined products either directly or indirectly through exports and sales to other service stations owned by other oil companies. As of 2008 results, direct wholesale sales represented the biggest portion of the sales pie (comprising transportation; industry; aviation; construction; and others) followed by direct retail sales (i.e., service stations) and LPG and Others. Galp has almost 50% of the wholesale market in Portugal. Galp benefited from 2008 Agip's and Exxon's networks acquisition to avoid losing market share from 2007 to 2008. Wholesale market is highly concentrated in the major oil companies: they represent more than 90% of the overall market. Galp's market share is explained because it has its own refineries and access to the major distribution facilities. Moreover, small independent operators hardly have the capacity to commit themselves to long term expensive contracts. In fact, the critical success factors are the ability to have a widespread presence in the market and the financial capability to sustain storage centres. So the wholesale market is not competitive it is dominated by few players because of the constraints in terms of storage and imports capacity, as mentioned above, and new entrants are unlike to succeed in the market given the high initial investments in infrastructures required to succeed.

On the contrary the retail market is competitive in Stackelberg equilibrium. Major players can be divided in two: major oil companies and independents. Demand is very disperse and each individual consumer has a small power in influencing the dynamics of the market. Moreover, refined products are homogeneous (despite minor differences in composition). Suppliers have also access to the same product at the same price (although price can differ depending on the contract). Major oil operators have 80% of the market. Independents, such as Azoria, Avia and Alves Bandeira, have 8% and supermarkets have 12%. Galp's networks acquisition helped to maintain the same market share. Given that the top end of the market is oligopolistic, major operators have almost the same price. Furthermore, given the small dimension of independents, they have also a price similar to supermarkets. Only supermarkets have lower prices. In 2008, the difference between prices in supermarkets and prices at branded service stations was €9.4 and €9.7 cents/l for diesel and gasoline, on average. Supermarkets compete through low prices, high volumes and reduced service levels, whereas, majors prefer better service levels.

Graph 22: Refined product Sales (2008)



Source: Galp Energia

Table 22: Portuguese wholesale market share

	2007	*2008*
Galp	[50%-55%]	[45%-50%]
BP	[15%-20%]	[20%-25%]
Repsol	[15%-20%]	[20%-25%]
Cepsa/Total	[5%-10%]	[0%-5%]
Esso	[0%-5%]	
Agip	[0%-5%]	
Others	[5%-10%]	[5%-10%]
Total	**100%**	**100%**

Source: Galp Energia, BP and Repsol

Table 23: Portuguese retail market share

	2007	*2008*
Galp	[35%-45%]	[35%-45%]
Repsol	[10%-20%]	[10%-20%]
BP	[10%-20%]	[10%-20%]
Cepsa/Total	[5%-10%]	[5%-10%]
Agip	[0%-5%]	-
Esso	[0%-5%]	-
Independents	7.30%	7.70%
Supermarkets	9.00%	12.00%
Total	**100%**	**100%**

Source: Galp Energia, BP and Repsol

Only supermarkets deviate their prices from market's average

Supermarkets have lower operational costs since they have lower fixed costs

Table 24: Interaction between Major's and Supermarket's strategies (in brackets are the payoffs of the strategy in € million – the first is for supermarkets whereas the second is for majors).

		Majors	
		Decrease price	*Not Decrease price*
Supermarkets	*Enter*	(10;239)	(39;304)
	Not Enter	(0;299)	(0;349)

Source: AdC, Analyst estimates

In 2008, major's retain net margin was, on average, 6.6 €cents/l

In the case supermarkets enter, majors can either keep their retail price or decrease prices

Table 25: Policy of reducing the retail price to the supermarkets level in next years

	2008	***2009E***	***2010E***
Market share			
Supermarkets	12.00%	15.00%	18.00%
Major oil companies	80.30%	77.30%	74.30%
Discount Supermarkets			
Gasoline (€)	-0.094	-0.094	-0.094
Diesel (€)	-0.097	-0.097	-0.097
Net Gain			
Gasoline (Mm €)	19.329	24.161	28.703
Diesel (Mm €)	38.931	50.221	62.676
Net Loss			
Gasoline (Mm €)	-32.896	-31.667	-30.134
Diesel (Mm €)	-65.128	-64.701	-64.678
Net balance from this policy			
Gasoline (Mm €)	-13.567	-7.506	-1.431
Diesel (Mm €)	-26.197	-14.480	-2.002

Source: AdC, Analyst estimates

Only if supermarkets increased their market share more than 20%, would majors decrease prices

In Portugal there are slightly more than 150 supermarkets' service stations. In 2008, supermarkets had a market share of 9% according to the number of service stations and 12% according to volumes. So far, major oil companies have not responded strongly to the increase in the market share of supermarkets. If supermarkets were out of the market, major oil companies would have a market share of 92.3% and a net margin of €349 million. If they decreased their price by €9.5 cents/l (equal to the average discount of supermarkets) their net margin would decrease to €299 million (eventually demand would increase responding to the lower price, however not enough to compensate the decrease in net margin given the inelasticity[32] of demand). Now, if supermarkets decide to enter in the refined products retail market with their actual discount of €9.5 cents/l as compared to majors' retail prices, depending on majors reactions, they would gain sales. Under such event, majors have two alternatives doing nothing (keeping their prices) or decreasing prices to supermarkets level or close. If they do not decrease prices, supermarkets would have a market share of 12% in volume, and a net margin of €39 million (notice that their net margin per unit is smaller than majors since they decrease prices and the lower amount of operational costs, namely in terms of service level, is not sufficient to compensate it). Majors would see their net margin decreasing to €304 million, clearly losing as compared to the situation where supermarkets were out of the market. However, if, in the event that supermarkets enter, major decide to decrease their prices they will lose even more. Even though, they prevent supermarkets from having the 12% market share being able to gain more volume, they will have to reduce prices across all consumers decreasing the net margin coming from existing sales. Thus, majors would have a net margin of €239 million and supermarkets of €10 million (notice that supermarkets would still have a residual market share of 3.1% since there would be customers that would refuel when going to supermarkets). Therefore, **dominant strategy is for supermarkets to enter in retail market and majors to keep prices**. So, retail market is currently in an oligopolistic equilibrium. Yet, there will be a supermarkets' market share in which decreasing prices is the best strategy for majors. Supermarkets are currently in the market with a market share of 12%. Let's assume that they maintain the same discount compared to majors prices (€9.5 cents/l on average). Under such situation, they will increase market share throughout the years, at least, in the same proportion as the market's growth. In that sense, we analyze again the payoffs of the major's decreasing price strategy to the supermarkets' level. Again, majors would gain additional volume coming from supermarkets, representing a net gain, but they would have to reduce the price for existing customers as well, representing a net loss. The net balance (payoff) would be negative up until **supermarkets' market share is 20%.**

[32] In 2008, the price-demand elasticity for diesel is -0.14 and-0.96 for Gasoline; since from 2007 to 2008, price increased 16.7% and 5.08% and demand decreased 2.34% and 4.89% for diesel and gasoline, respectively. Notice that elasticity is defined as the change in quantity dividend by the change in price

Supermarkets are not buying refined products to Galp, but to independent wholesalers

If supermarkets bought their refined products in Galp's refineries, Galp's lost in retail would be partially compensated by the increase in wholesale sales. However, in spite of Galp's networks acquisitions in 2008, wholesale market share decreased from 2007 to 2008, which was due to: the drop in the overall oil market by 2.8%; and supermarkets buying in other wholesale suppliers. So, it can be argued that supermarkets are buying to wholesalers others than Galp, namely independents. In fact, small wholesalers can be the ones who benefit the most, since if they gain volume and scale, they can more effectively and competitively import larger quantities of refined products on their own.

Table 26: Collaborative strategy promotions

% that adhered to the promotion	*Discount for customers who adhered (€/customer)*	*Discount for those that do not have adhered*	*Average discount /customer*
25%	0.05	0	0.0125
50%	0.05	0	0.0250
75%	0.05	0	0.0375
100%	0.05	0	0.0500

Source: AdC, Analyst forecasts

Supermarkets and majors have a strategic option: cooperate or not cooperate

As a collaborative strategy, Galp and major operators established partnerships with potential entrants. Clearly, this strategy decreased the aggressiveness of supermarkets. Usually, the discount is around 5 €cents/l and can be used in specific service stations either supermarkets' or majors' being revenues shared by both. Thus, the discount is supported by both. Moreover, the discount depends on consumers' adherence to a sort of special card that augments the bureaucracy associated with the promotion and thus the overall opportunity costs for consumers. Here, we are in the actual situation where supermarkets decided to enter in the market. So, supermarkets and majors have two alternatives either they cooperate or they don't. If they don't, the payoff will be the same as the previous equilibrium. If they cooperate, that is, if they share risks by implementing the abovementioned partnership, both will gain compared to the actual situation: net margin of €45 million and €318 million. This happens, because supermarkets will enter with a price that does not need to be as low as before (discount of 5€ cents/l compared to the €9.5 cents/l). Actually, even though supermarkets' market share decreases to 7%, their net margin per unit is now higher than before and so the payoff is higher. The same happens regarding majors. They decrease the price, not as much as before and not for all customers but only for those that adhered to the promotion thus their payoff will be higher. Nevertheless, this is not the dominant strategy, since each player would have **incentives to deviate**: not to cooperate. In fact, if supermarkets agree to enter with a lower discount, majors will have an incentive to keep prices since supermarkets would "steal" a lower market share. In turn, if majors' collaborate with supermarkets by providing at their service stations a €5 cents/l discount, supermarkets can establish an attractive discount independent from majors, sufficient to gain market share and still benefit from the discount of majors. So, the **dominant strategy is no cooperation**. This is close to the Prisoners' Dilemma in which the Nash equilibrium strategy is clearly not the best strategy. Both will be better off if they actually collaborate: sharing risks and discounts. Only with **reinforcement strategies** that forces commitment will the better deal for both be achieved. The commitment must be visible; understandable and credible. As such, public announcements, formal contracts, and signaling are

Table 27: Interaction between major's and supermarket's strategies (in brackets are the payoffs of the strategy in € million – the first is for supermarkets whereas the second is for majors).

		Majors	
		Coop	*No Coop*
Supermark	*Coop*	(45;318)	(38;323)
	No Coop	(49;261)	(39;304)

Source: AdC, Analyst estimates

Deviation incentives are higher than cooperation incentives

The dominant strategy is no cooperation, however the better strategy is cooperation

Commitment strategies would direct players to cooperation

examples of commitments. In fact, they materialize in advertising or marketing campaigns that associate majors with supermarkets. On example of this, is the partnership Galp has with Sonae, through Modelo and Continente. They give a discount of 12 €cents/l that is divided in 6 €cents/l in the service station itself and the others 6 €cents/l in Modelo and Continente.

There are still supermarkets that plan to open more service stations in the future. Some are being more aggressive than others. The actual economic situation led some supermarkets to revise their investment in service stations. The two most aggressive groups are Auchan and ITMI. With these additions, supermarkets' market share is expected to reach 15% by 2011. In light of these projections, we revise the number of service stations hold by Galp in the future. They increased in the fourth quarter of 2008 as a consequence of the networks' acquisitions. Up until now, Galp has been trying to rationalize its distribution network. We believe that this effort will be maintained in the future, due to the presence of supermarkets and to the maturity of the Portuguese oil market. The effort of selling duplicated assets has already started. In December 2009, Galp sold assets acquired for €46 million. In our view, private labels are there to stay and the only way major oil companies can succeed is through diversification. So, Galp's competitive advantage must be focused on **differentiation and value added products**.

The integration of Agip's and Exxon's networks in 2009 has been proving very successful. These acquisitions increased Galp's market share in Portugal by approximately 3% and 10% in Spain. Galp is selling as many refined products in Spain as in Portugal and 45% and 55% of the 1,509 service stations are located in Spain and Portugal. The purchase cost of these two entities amounted €695 million. The EBITDA of Agip and Esso was €60 million. Besides that, Galp synergies are expected to reach €35 million from improved supply management, rationalization of the procurement of end products – particularly diesel, reduced logistic costs, and fixed costs dilution. Moreover, Galp also believes network benefits will reach €25 million in the long term, which include the better utilization of its customer base via loyalty cards – migration of clients to Galp Frota. Synergies are being captured faster than expected. Thus, these acquisitions are expected to increase Galp's EBITDA by around €120 million per year.

African market

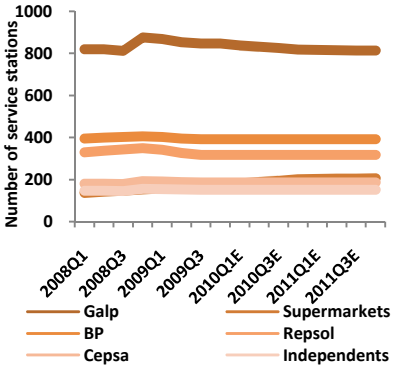
Galp markets refined products through 12 associates operating in six African countries in the retail, wholesale and LPG segments. Although they are not large-sized – 0.5 million tonnes – Galp's operations in Africa generate positive cash flows and strengthen the close relationships Galp has in these countries. Thus, it leaves the door open for future exploration developments. We believe that with the current focus in Brazil and Angola the investments in these areas will be limited.

Table 28: Projected opening of new supermarkets service stations by the most important supermarket chains

	2010E	2011E	2012E
Auchan	8	3	4
ITMI	13	13	13
Leclerc	2	2	2
Prio	1	2	2
Sonae	1	1	1

Source: Analyst estimates

Graph 23: Actual and projected number of service stations in Portugal



Source: Analyst estimates

Table 29: Retail network of Galp and Agip in Spain – breakdown of market share per region

	Galp	Agip	Galp+Agip
Galicia	5.50%	1.80%	7.30%
Castilla-León	1.50%	3.40%	4.90%
Extremadura	6.50%		6.50%
Madrid	4.20%	1.30%	5.50%
Castilla-La Mancha	1.80%	3.80%	5.60%
Andalucia	2.00%	1.00%	3.00%
Murcia	1.20%	4.10%	5.30%
Valencia	3.80%	5.30%	9.10%
Aragón	0.80%	3.60%	4.40%
Cataluña	2.90%	6.80%	9.70%
Astúrias		10.50%	10.50%
Cantabria		3.50%	3.50%
Pais Basco		3.00%	3.00%
Navarra		5.50%	5.50%
La Rioja		1.00%	1.00%

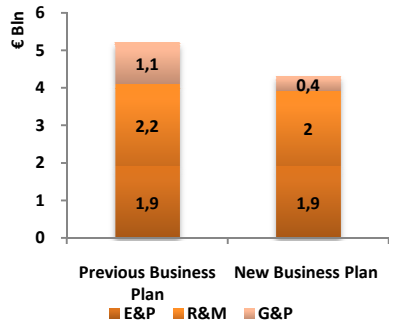
Source: Galp Energia, analyst estimates

Table 30: Main indicators of the African business

Country	Sales ('000 ton)	# of service stations	Tank farms
Mozambique	69	28.00	1.00
Angola	210	9.00	-
Guinea-Bissau	22	8.00	3.00
Cape Verde	129	24.00	4.00
Gambia	32	9.00	-
Swaziland	68	19.00	1.00
Total	530	97.00	9.00

Source: Galp Energia

Graph 24: CAPEX (2009-13)



Source: Galp Energia

Capital expenditures

Capex from 2009 to 2013 is estimated to be €2 billion. Capex is mainly driven by the conversion project at Sines and Porto. After 2013, we do not consider any major project. The decrease of around €200 million, compared to the previous plan, is due to the rescheduling of some projects in the Biodiesel business. Actually in the third quarter results conference call, Galp's CEO announced the postponement of the 2nd generation biofuels plant unit in Sines scheduled to be on stream by 2010. Mr. Ferreira de Oliveira said that he was waiting for clarification in the legislation on biofuels. As such, biofules are out of the 2009-13 strategic plan. Engineering costs were expected to reach €220 million. So we exclude biofuels projects from our SOTP valuation, which only accounted for €40 million.

Valuation Summary

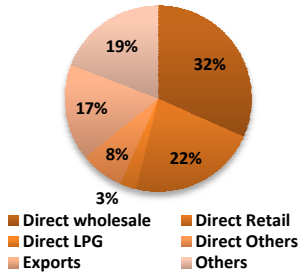
Our results are in line with Galp's 2012 outlook despite the longer than expected economic recovery. R&M valuation assumptions are the following:

- Diesel crack spread will continue increasing due to dieselization in Europe;
- International refining margins to increase slowly;
- Galp's utilization rate to decrease from 86% to 80% reflecting Iberian surplus;
- Galp's refining margin to keep under pressure until 2010, slowly increasing thereafter as a consequence of the increase in diesel crack spread and the conversion project that increase middle distillates production mix to 57%;
- Supermarkets to achieve a market share of 15% by 2013 and collaborating strategies to continue as a preventive strategy by major operators;
- Alternatives to refined products, such as electrical cars to achieve residual success and not affecting Galp's sales at least in short/medium term;
- Presence in Spain to stabilise around the actual 10% market share;
- No terminal growth rate in the case of the refining business, since it will still be under pressure looking forward, although no clear pattern can be recognized;
- By 2012, direct wholesale and retail will be responsible for the largest portion of Galp's marketing sales pie. Their weight will increase as compared to 2008 reflecting the strengthening of operations in Spain;
- R&M EBITDA cumulative growth of 14% from 2008 to 2013 sustained by marketing activities, in line with Galp's strategic plan, as of March 2009 .

Under these assumptions, we estimate the total economic value for R&M to amount to €4,361.95 million or €5.26 per share.

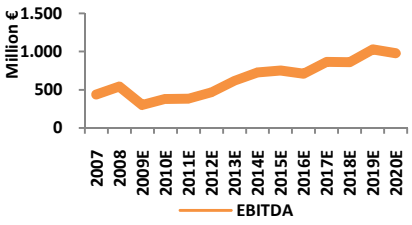
Table 31: Galp and analyst forecasts of marketing volumes by 2012.
Graph 25: Share of each segment in 2012 total marketing sales.

Marketing volumes (Million Tonnes)	
Galp Energia	**2012E**
Direct sales	**13.6**
Retail Sales	**4.0**
Wholesale	**7.1**
LPG	**0.6**
Others	**1.9**
Analyst estimates	**2012E**
Direct sales	**13.6**
Retail Sales	4.7
Wholesale	**6.7**
LPG	**0.6**
Others	**1.6**



Source: Galp Energia, Analyst estimates

Graph 26: EBITDA R&M



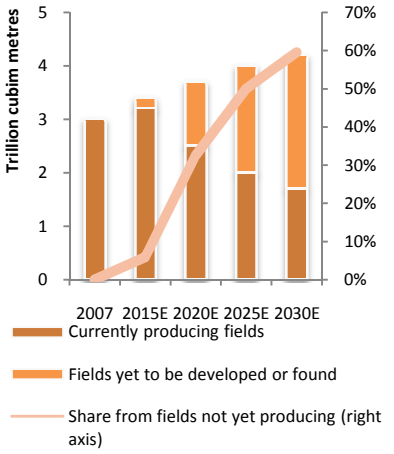
Source: Analyst estimates

Table 32: Refining and Marketing valuation summary (million €)

	PV explicit period 2010-2020	*Terminal value*	*Growth rate*	*wacc*	*Total economic value FY10*	*€/Share*
Refining	337.71	1,492.32	0%	8.23%	1,830.04	2.21
Marketing	865.86	1,666.06	1%	8.23%	2,531.92	3.05
Total R&M	**1,203.57**	**3,158.38**			**4,361.95**	**5.26**

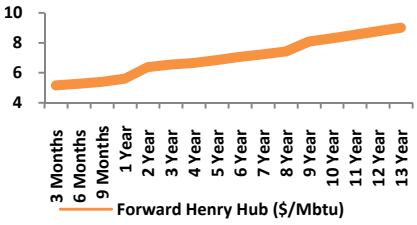
Source: Analyst estimates

Graph 27: Natural gas production by oil field type



Source: IEA Energy Outlook 2009

Graph 28: Henry Hub forward prices



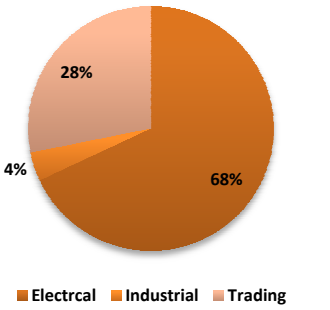
Source: Bloomberg, as of 14 December 2009

Nuclear is monopolistic...

Costs inflated...

Nuclear, wind and geothermal energies with residual growth looking forward

Graph 29: Breakdown of Galp's liberalized natural gas sales (2008)



Source: Galp Energia

Natural Gas

Worldwide natural gas demand is expected to increase. According to IEA, it is expected to reach 4,300 bcm[33] in 2030 from the actual 3,000 bcm. Thus given the current capacity, the world is short in terms of natural gas. Actually, additional capacity of around 2,700 bcm, or 4 times current Russian capacity, is needed by 2030 – half to offset decline at existing fields and half to meet the increase in demand. Close to three-quarters of the world's gas reserves are in either OPEC countries or Russia. Natural Gas use, alongside with coal, is expected to boost especially due to its use for electricity generation: according to IEA in 2008 there were 1.5 billion people without access to electricity. Wind, solar and geothermal energies can be an alternative to Natural Gas. However, even after the large investments in China and Europe, wind produces less than 2% of world electricity.

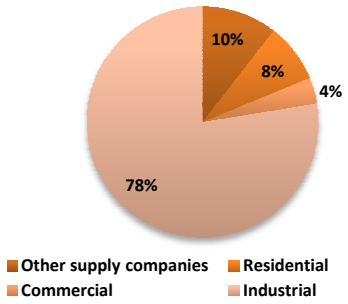
Nuclear produces 13.8% of total electricity: a share constant from 1980. Nuclear is not only clean (without CO_2 emissions) and expandable, it is also efficient: 1 thousand m^3 of uranium produces the same amount of energy as 80 thousand crude oil barrels. In 2008, 20% and 80% of U.S. and France electricity came from nuclear. However, nuclear energy does not come without costs. The top are the likelihood of accidents (e.g. Three Nile Island and Chernobyl) and the treatment of wastes. On top of that, nuclear power facilities are expensive. Actually in less than a decade, overall production costs increased four times. Higher prices for cement and steel, the complexity of building new designs for the first time and onerous safety requirements are all increasing costs and threatening profits. The monopolistic nature of nuclear supply-chain (there is only one supplier in the world for some components) and the sudden will of governments to ignite nuclear facilities construction are also sources of inflation. According to Moody's, in 2007 renewable energies attracted €50.7 billion of private capital whereas nuclear attracted almost zero. Maintenance requires huge capital expenditures as well. EDF (*Electricité de France*) will need to extend the life of its French reactors from 40 to 60 years. A few years ago it was thought the cost would be negligible, but now it recognizes it will need to spend €400 million on each plant. Given this, no many substantial investments are projected in nuclear. Coal can also be an important source of energy in the future given its use in electricity production.

Galp activities: liberalized market

In 2008, Galp sold a total of 5.6 bcm of natural gas. Galp sells natural gas in regulated and liberalized markets. Gas supply segment operates in the liberalized market, acquiring natural gas and selling it to large customers (industrial and electrical) and trading. Gas infrastructure acts in the regulated market. Moreover, Galp has also natural gas caverns (i.e., NG storage). Activities are spread

[33] Billion cubic meters. Source: International Energy Agency, "World Energy Outlook 2009", November 2009

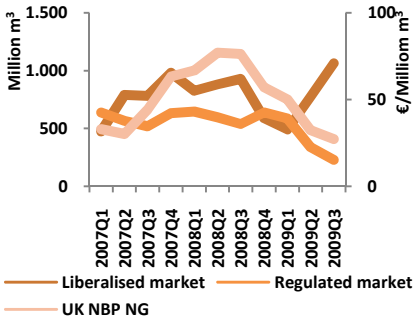
Graph 30: Breakdown of Galp's regulated natural gas sales (2008)



Source: Galp Energia

Acquisitions in Spain allowed Galpt to recover its second place in Iberia: market share of 16.3%

Graph 31: Evolution of Regulated and Liberalized market sales and UK NBP prices



Source: Galp Energia, Bloomberg

Table 33: OECD economic Outlook

	2009E	*2010E*	*2011E*	*2012E*
GDP Growth				
Portugal	-2.75%	0.82%	1.49%	1.54%
Spain	-3.59%	-0.26%	0.90%	1.50%
GDP Deflator				
Portugal	0.59%	0.22%	1.01%	2.00%
Spain	0.29%	0.18%	0.02%	2.00%
Unemployment rate				
Portugal	9.20%	10.10%	9.90%	9.50%
Spain	18.09%	19.34%	18.96%	18.25%

Source: OECD economic outlook

between Portugal and Spain where the main growing opportunities are, since Spanish industrial sector is ten times as large as the Portuguese (demand of 15 bcm in 2008). Currently in Spain, Galp has only 14 industrial clients that represent 0.4% of Spanish market or 114 million m^3 in sales of natural gas.

Galp and Morgan Stanley Infrastructure announced in December 2009 that they have entered into a definitive agreement to acquire Spanish Gas Natural's gas distribution and supply businesses in the region of Madrid. The total cost is €800 million however Galp's investment is only €50 million equivalent to the number of clients involved, whereas Morgan Stanley acquires all distribution assets worth €750 million and comprising regulated low pressure assets that connect 504,000 homes. In turn, the supply business comprises regulated and liberalized gas supply of about 412,000 customers with annual consumption of 0.4 bcm. Thus, to the 900 thousand clients Galp has in Portugal, it adds now these reaching 1.32 million recovering its second place among Iberian natural gas suppliers with a market share of 16.3% right behind Gas Natural. This materializes Galp's long term strategy of developing the supply business in Iberia. Galp will also provide electricity to over 8.000 customers providing it with know how needed for future operations in the Portuguese market. Actually, bundled offers of electricity and gas will be far more common in future and Galp is in a good position to lead this trend.

Regulated and liberalized sales show an opposite evolution pattern: in general, when one increases the other decreases. Natural Gas sales, in Portugal as well as in Spain are highly dependent on the growth rate of GDP, on the change in the NBP UK[34] gas prices, on the temperature, since Natural Gas is widely used for heating[35]. Actually, when GDP increases, we expect natural gas consumption to increase since if the industrial sector is more active, it grows. Moreover, the price of NBP UK as compared to the price of coal, makes less or more attractive the use of natural gas in power generation: utilization tends to increase when prices are comparatively low. We rely on OECD economic assumptions regarding the evolution of Portuguese and Spanish economies. According to NCEP[36] Portugal is in a region were the overall rainfall rate is expected to decrease and temperature to increase. Rainfall will be more intense and concentrated in some parts of the year. Regarding the NBP forecasts we considered the forward prices[37]. Prices are expected to increase, since the NBP UK gas forward prices curve is increasing. We expect Portuguese market to reach 5.7 bcm in 2012 from 4.6 bcm in 2009, revising downwards Galp's estimates of 6.5 bcm.

[34] National Balancing Point (NBP) is a location for purchase and sale of UK natural gas being the most liquid gas trading point in Europe.

[35] $\Delta NG_t = \underset{[0.078]}{3.089}\Delta GDP_{t-1} - \underset{[0.002]}{0.688}\Delta NG_{t-4} - \underset{[0.082]}{0.061}\Delta Temp_{t-1}$ In brackets we present the p-values of each coefficient. At a 10% significance level, all coefficients are significant. The Breusch-Pagan-Godfrey F-heteroskedasticity test p-value is 0.883. Therefore we do not reject the null hypothesis of no heteroskedasticity. The Breusch-Godfrey Serial Correlation LM test F-statistic is 0.682, so we do not reject the null hypothesis of no serial correlation. The Jarque-Bera normality test gives a p-value of 0.606, so we do not reject the null hypothesis of normality. Data source: INE and Galp Energia

[36] National Weather Services (USA) – National Centers for Environmental Prediction

[37] Prices from Bloomberg adjusted by the Exchange rate (£/€), as of 14 December 2009

Opportunistic behaviour to take advantage of prices between regulated and liberalized markets

From 2010 onwards consumers who are willing to change from the regulated market to the liberalized can do it without additional fees. Thus, consumers tend to explore the attractiveness of one market compared to the other taking advantage of lower tariffs. As such, when the liberalized market is increasing, usually the regulated market is falling and vice versa[38]. If prices tend to increase, consumers look to the regulated market as a safe heaven, in contrast, when prices are falling consumers move to the liberalized market to take advantage of lower tariffs. Additionally, the rainfall rate has a substantial impact concerning liberalized sales. The higher the rainfall rate, the higher the availability of water and so electricity can be generated through hydroelectric plants. Additionally, the new cogeneration in Sines in line from the second semester of 2009 and the cogeneration in Porto will boost the use of Natural Gas by the electricity segment in 520 million m^3.

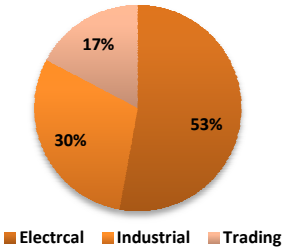
Table 34: Natural gas Sales volumes projected by Galp and Analyst

(volumes)	*2012E*	*2013E*
Galp Strategic Update Target (March 2009)		
NG Total Sales	**6.20**	**7.10**
Liberalized market Sales	**5.20**	**4.00**
Regulated market Sales	**1.00**	**3.10**
Nova Research Analyst		
NG total Sales	**5.79**	**6.02**
Liberalized market Sales	**4.70**	**5.02**
Regulated market sales	**1.09**	**1.01**

Source: Galp Energia, Analyst estimates

According to this methodology and to our estimates, we revise downward Galp's projections. We expect Galp sales to be lower than what was expected, from 6.20 bcm to 5.79 bcm in 2012. The difference is even more significant by 2013. The reason behind our smaller expectations is due to the longer than expected Portuguese and Spanish takeoff. According to OECD, it will take longer for Portugal, but especially for Spain to get out of this economic crisis. Furthermore, we believe that liberalized market will be the most preferred by customers. Since, we expect wholesale prices to increase, lower rainfall rate and simultaneously a progressive boost in economic activity. In addition, industrial sector will be far more important than before reflecting the swap to the liberalized market and the increase penetration in Spanish industrial segment.

Graph 32: Breakdown of Galp's liberalized natural gas sales (2013E)



Source: Analyst estimates

Galp's purchases are mainly through long-term contracts and occasionally spot markets. The majority comes from Nigeria and Algeria. Sonatrach is the supplier from Algeria to which Galp has contracted 2.3 bcm per year and the gas is transported to Portugal by the EMPL, Al-Andaluz and Extremadura pipelines. NLNG is the supplier from Nigeria to which Galp has contracted 3.42 bcm and natural gas comes liquefied. Although these contracts are valid for 20 years, they provide the possibility for renegotiation: next renegotiation during 2011 and 2012.

Regulated Market

They comprise storage, low pressure infrastructure and sales in wholesale and retail. Trangás Armazenagem, Galp's new company responsible for storage, explores one existing cavern at Pombal, with a storage capacity of 35 mcm (million cubic metres). In 2008, it started the production of a cavern expected to start operations by the second semester of 2011 with a projected capacity of 50 mcm. Moreover, Galp has subsoil usage rights to build up to four additional caverns with capacity of 110 mcm (to start in the beginning of 2015). ERSE will

Table 35: Storage regulated asset valuation assumptions

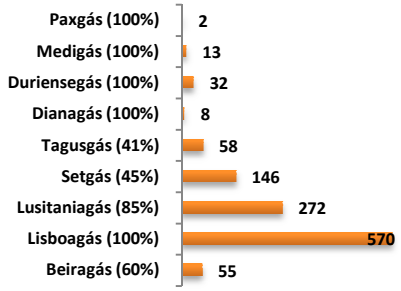
Parameters 2007-2047	
Allowed rate of return ROR (pre-tax)	8%
Regulatory asset base (RAB)	€17m
Concession period (Years)	40
Inflation rate (Years)	2%
CAPEX (2012-15)	€ 70m

Source: Analyst estimates

[38] In 2008, correlation between sales in the regulated and liberalized markets is -0.46

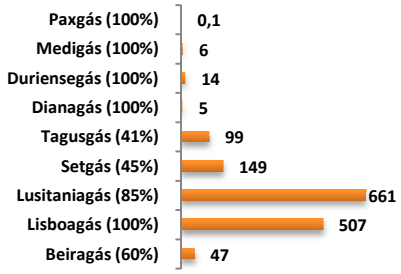
maintain the 8% rate of return. Assets will be updated at the expected inflation rate plus maintenance investments. Due to new storage facilities, we expect CAPEX to reach €70 million in 2012-15 and thereafter maintenance expenses.

Graph 33: RAB M€ by company at 31 December 2008 (in brackets % Galp)



Source: Galp Energia

Graph 34: Transported quantities in 2008 (Mm^3)



Source: Galp Energia

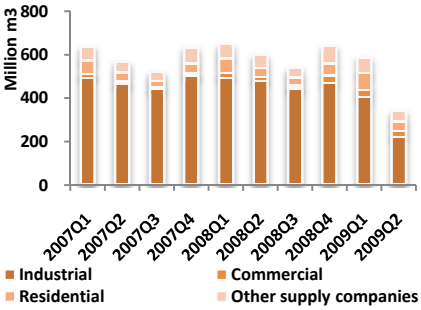
Strategic goal of connecting 40,000 homes and build 400-500 km of pipelines per year

Table 36: NG Distribution valuation assumptions

Parameters 2009-2013	
RAB (€Mn, 2008)	1,016
ROR (Pre-tax)	9%
Capex (€Mn, 2009,13)	279
Expansion (Km/year)	450
Additional clients (k/year)	40
Inflation (/year)	2%

Source: Analyst estimates

Graph 35: Regulated market sales by segment



Source: Galp Energia

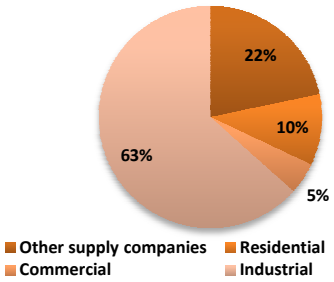
Regulated distribution

Natural Gas distribution in Portugal is divided into six local distribution companies (LDCs) and four AGUs (Autonomous Gas distribution units). Galp has a significant interest in five of the LDCs and has 100% interest in all AGUs, which supply natural gas to residential, commercial and industrial customers with an annual consumption below 2 mcm. They were established in areas where it was not economically viable to construct a high pressure network. Concessions last for 20 years. Likewise, LDCs have a 40-year exclusive concession, starting at 1 January 2008, for its respective local area. Under the new regulatory regime, announced in June 2008, allowed revenues equal the sum of the cost of capital (i.e., regulatory asset base times the rate of return plus depreciation), operating expenses and the tariff deficit. Concession assets are re-valued using past CPI inflation figures to establish an initial Regulatory Asset Base (RAB) at the start of each regulatory period (every three years). In 2008, RAB amounted to €1.192 million of which €1.016 million represent Galp's net interest. The cost of capital besides depending on the RAB also depends positively on the quantity of Natural Gas transported. In 2008, Galp's distributors transported close to 1.5 bcm of natural gas. The distribution network currently connects 905 thousand clients and has an extension of 10,462 km. Galp plans to connect about 40,000 homes per year and build between 400 and 500 km of pipelines a year. This program will require additional investments of €70 million per year amounting to €279 million from 2009 to 2013. The allowed rate of return (RoR) of 9% (pre-tax) is fixed for the next two regulatory periods (six years). RAB will be adjusted by Capex and depreciation, however it is not scheduled to be adjusted for inflation until the end of the first regulatory period (June 2011). By the end of 2013, we estimate RAB to amount to €1.36 million. We further assume that RoR remains at 9% (pre-tax). We estimate the regulated cost of capital as 8.74% (pre-tax) which is lower than the RoR representing an incentive to investments in the network explaining the forecasted Capex for network expansion.

Regulated Supply

As aforementioned, Galp's regulated sales aim the wholesale and retail markets. Regarding the wholesale market main customers are large industrial clients and other supply companies. Retail market comprises commercial and residential clients with an annual consumption smaller than 2 mcm. The huge drop in the second and third quarter of 2009 was due to the economic downturn. Allowed revenues were defined by the new regulatory regime announced in June 2008

Graph 36: Breakdown of Galp's regulated natural gas sales (2013E)



Source: Analyst estimates

comprising three main elements: net operating costs, including depreciation; a commercialization margin that remunerates the Supply businesses' working capital; and a client's remuneration of €4/client/year during the first five regulatory periods (15 years), in order to encourage Galp to connect new customers. Concerning revenues' breakdown, we expect industrial segment to decrease its weight in overall regulated sales given the shift to the liberalized market.

Natural gas valuation

We value natural gas assets by €3.10 per share and we recognize regulated activities as a source of predictable and constant cash flows.

Table 37: Natural Gas valuation summary.

	Economic Value (million €)	Value per share
Regulate activities		
Regulated distribution assets		
Lusitaniagás	348.71	0.42
Lisboagás	688.80	0.83
Duriensegás	37.05	0.04
Beiragás	64.49	0.08
Mediagás	32.85	0.04
Dianagás	9.01	0.01
Paxgás	6.75	0.01
Total distribution assets	**1,187.65**	**1.43**
Natural Gas storage	**56.71**	**0.07**
Regulated commercialization	**29.04**	**0.04**
Total regulated activities	**1,273.40**	**1.54**
Liberalized activities		
Total liberalized activities	**1,296.32**	**1.56**
Total economic value	**2,569.72**	**3.10**

Source: Analyst estimates

Power

Table 37: Added capacity (MW)

2009	80	Sines cogen
2010	80	Porto cogen
	160	Wind
2012/2013	800	CCGT
	310	Wind

Source: Galp strategic plan (2009-13)

Galp's long term goal is to achieve in 2013 a power generation capacity exceeding 1,200 MW through wind and CCGT additions. Galp's power generation portfolio currently comprises three cogeneration facilities (Carriço, Energin and Powercer) that are partially owned by Galp (65%, 35% and 70%, respectively), with a joint capacity of 80 MW. In 2008, these plants generated 1,548 GWh of electrical and thermal power and used 161 million m^3 of natural gas directly supplied by Galp. Cogenerations and wind are managed under the special regime, i.e., with priority access to the grid and sale at a regulated tariff, whereas CCGT aims the liberalized Portuguese market that had an average pool price of 5€/MWh higher than the Spanish average pool price, in 2008.

Sinecogeração and Portcogeração will add 160 MW to power generation capacity

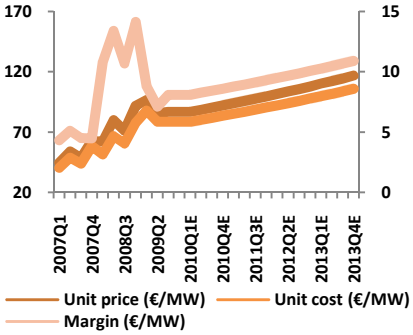
At the end of 2009, Sinecogeração, with a capacity of 80 MW, was connected to the electricity and natural gas grids, however, production only became effective in the second semester. Portcogeração is under construction and the plant is expected to come into operation at the Porto refinery by 2011. Besides a more effective integration between natural gas and power businesses, the goals of these projects are to enhance Galp's refineries energy efficiency, reduce thermal power costs and curb emissions of sulphur and nitrogen oxides. The increase in Galp's refineries energy efficiency alongside with other programs is expected to result in savings of $0.5 per barrel or EBITDA of around €40 million, in 2012E.

Cogenerations will boost efficiency of refineries leading to savings of $0.5/ barrel

Wind projects in stand-by

Regarding wind projects we do not consider any value. Ventinveste, a company 34% owned by Galp, planned to install power generation capacity of 480 MW in wind farms by the end of 2013. However, the company saw more than 90% of its total wind power investments being "not approved" by Portuguese authorities in September and November of 2009. Actually, from the overall 248 MW submitted, only 8 MW were approved. As consequence Galp's strategic commitment towards Power decreased. In fact, to save funds for E&P, Galp is cancelling and reprogramming investments in Power. One of the measures undertaken by Galp as to optimize its Capex, was to share CCGT projects with a partner instead of investing 100% on its own. Actually, engineering, procurement and construction (EPC) contract signing was expected for the second half of 2009, however, Galp submitted to the Portuguese authorities a proposal to extend the license for one more year, as to be able to find a partner.

Graph 38: Unit price, cost and margin historical and expected for the Power business (left axis: unit price; right: margin)



Source: Galp Energia, Analyst estimates

No value coming from projected wind projects

Thus, in our valuation we do not consider any value coming from wind power projects and we delay one more year CCGT allocating 50% of its value to Galp. Thus, we have assumed that Galp's power generation capacity rises to 640 MW by 2013, due to cogeneration plants and the CCGT. We expect average margins to decline from €14/MW in 2008 level to €12.3/MW in 2013, reflecting the increase in capacity not covered by special regime. We expect EV of €172 million.

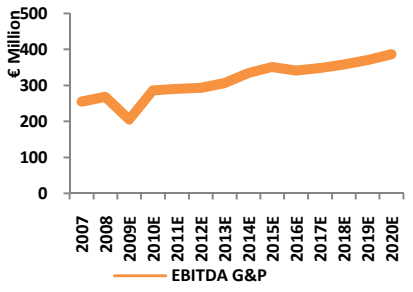
Table 39: Power generation assets valuation

Technology	Starting operations	Capacity (MW/h)	Capex	Galp PV at YE2010
Cogeneration				**129**
In place				**88**
Energin	2002-March	42		18
Carriço	2004-March	30.0		20
Powercer	2004-September	7.2		6
Sinecogeração	2009-Second semester	80	75	44
In construction				
Portcogeração	2011	80	75	**40**
Wind				**0**
2009	To be defined	108	4	0
2010	To be defined	64	9	0
2011	To be defined	76	11	0
2012	To be defined	224	31	0
2013	To be defined	8	1	0
CCGTs	2012	400	420	**44**
Total			**627**	**172**

Source: Galp Energia, Analyst estimates

Outlook for G&P earnings

Graph 39: G&P EBITDA



Source: Galp Energia, Analyst estimates

Overall we estimate, G&P EBITDA to increase by 14% from 2009-13 in line with Galp's projections. The rescheduling of some investments in Power was more than compensated by the enhancement in gas activities, especially following the acquisitions in Spain. CAPEX (2009-13) for the G&P segment was reduced to €400 million (from €1,100 million) as consequence of the cancellation of some acquisitions in the Gas downstream business and funding CCGT and wind projects through a project finance scheme. The projected CAPEX aims to strengthen Galp's gas distribution network and supply activities as mentioned. In fact, given the recent acquisitions in Spain, we do not expect more acquisition to happen until 2013. Regulated gas activities contribute to cash flow's stability.

Group earnings and financials

Operating profit RCA to increase by 45% mainly driven by E&P growth

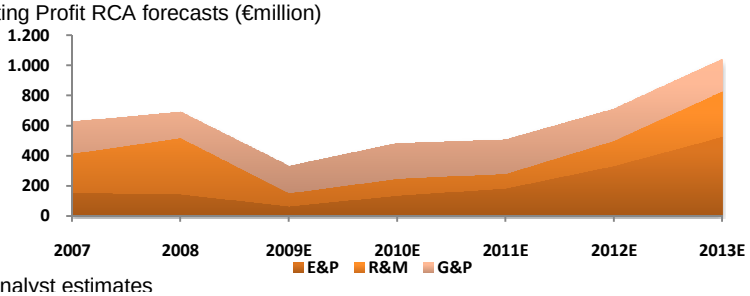
We anticipate a 45% cumulative growth rate in operating profit RCA 2007-13E, as compared to the expected 30% by Galp at the time of the strategic update presentation in March 2009. All three of Galp's core businesses are expected to grow, strongly in the case of E&P, over the next five years:

- E&P operating profit will likely see more than 100% CAGR over the next years. We expect the E&P business to provide the group's earnings momentum, as the Brazil takes over as the main generator of incremental earnings;

R&M will be the most affected looking forward

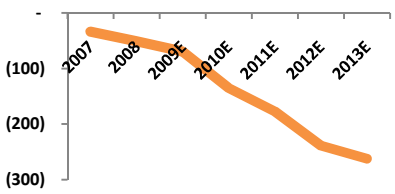
- R&M will suffer significantly in the following years as a consequence of the weak refining margins, gradually recovering in the longer term with the economic takeoff. Modestly if any growth from 2007 until 2013.
- G&P operating profit could see 10% growth to 2013E due to a stronger position in the Iberian market, yet balanced negatively by a weaker Power segment.

Graph 40: Operating Profit RCA forecasts (€million)



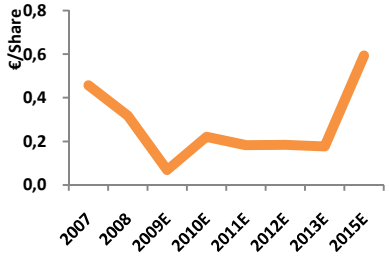
Source: Galp Energia, Analyst estimates

Graph 41: Net financial results (2007-13)



Source: Galp Energia, Analyst estimates

Graph 42: Dividend forecasts (€/Share)



Source: Galp Energia, Analyst estimates

A key feature in our P&L projections is the sharp rise in net interest expenses. This reflects the cash outflows and the rise in debt that we anticipate as investments in R&M and E&P rises. During the period to 2013E, the tax charge is expected to remain relatively stable in the range of 25-28%. In the longer term, we would expect the tax charge to rise as the share of earnings from the E&P business increases motivated by stronger output from Brazil.

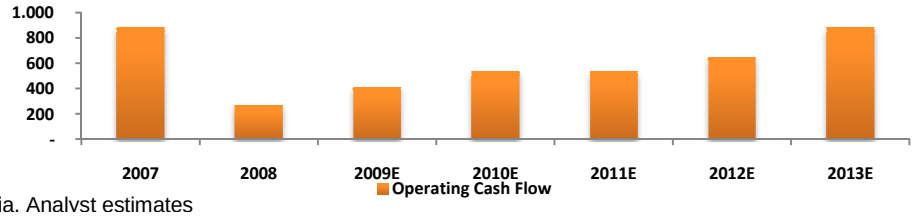
Galp's dividend policy was established in 2007 with a payout ratio at 50% of replacement cost net income. It also established half-yearly dividend payments. The half yearly interim dividend payment will be equal to 50% of the previous annual dividend. However, in 2009 the dividend policy was revised to €0.20 per share from 2009 to 2013, which was a consequence of Galp's new funding strategy. If Galp had not fixed the dividend, it would have paid €0.42 per share in 2009 and an annual average of €0.45 until 2013. Thus, savings would be up to €500 million. After this locked up period we expect a dividend payout ratio of 50% and dividend to arrive to €0.60 per share in 2015 reflecting strong earnings.

Galp's operating cash flow[39] is expected to increase strongly post 2012 reflecting:

- Boost in E&P activities especially Brazil's Tupi and Iara fields;
- Constant and predictable cash flow coming from G&P

[39] Operating profit adjusted for non cash costs (depreciation and procisions), net interest expenses, net income taxes paid and change in net working capital

Graph 43: Operating Cash Flow (€m)



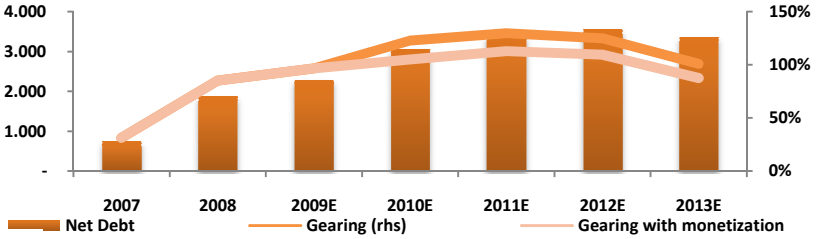
Source: Galp Energia, Analyst estimates

Maximum D/E of 130% in 2011

Debt and gearing (net debt-to-equity) are expected to rise sharply in the next years. In the short term, this reflects expenditures on upgrading the group's refineries. In the long run, the rise in debt reflects the early expenditures in pre-salt namely in Tupi, Iara and Jupiter. Our estimates point to a maximum debt to equity of 130% as of 2011 when we expect other offshore projects in Brazil to come in line namely: Lara; Caramba; and Bem-te-Vi. Galp's CEO stated monetization of regulated natural gas assets as a way of raising funds if debt goes out of control. The RAB of the regulated business amount to €1.1 billion, and 30-40% of that value can be, if necessary, placed in infrastructure funds or through the market or whatever decision is taken. Under that scenario, the maximum gearing would be 110%, still higher than Galp's ceiling of 100%. The monetization does not represent a divestment since Galp will continue operating the assets (i.e., sort of lease back). It can reduce the D/E ratio, however it increases financial/operational costs associated with the usage of assets reducing future EBITDA and eventually worsening the Net debt/EBITDA. Thus, enterprise value increases or decreases depending on the value of the assets and costs associated with its usage. We look forward for more details expected to be released in the first half of 2010.

Monetization can decrease D/E, however its impacts in valuation are not yet fully understandable

Graph 44: Outlook for debt and gearing



Source: Galp Energia, Analyst estimates

Coping with major risks

Will potential value of E&P really be delivered?

Besides macroeconomic, regulatory, political, fiscal, operational and technological risks, the largest risk for our valuation and positive outlook for Galp comes from the actual potential of Brazil. Namely, if recoverable reserves are lower than expected, if the complexity of deepwater production is higher than expected increasing lifting and F&D costs and if the Brazilian government feels tempted to increase royalties, our overall valuation will be significantly revised downwards. However, there are also potential upside risks too. In fact, volumes and recoverable rates can be higher than expected. For Tupi Galp's management team stated that the 30 billion barrels of oil in place and the 27% recoverable rate should not be regarded as the maximum possible. All these risks can affect positively or negatively our valuation and decrease future potential growth.

Will risks have an upside or downside potential?

Financial Statements

Income statement (Million €)	2007	2008	2009E	2010E	2011E	2012E	2013E	2015E
Sales	12,661	15,188	11,851	12,639	13,781	15,113	16,574	18,623
Cost of goods sold and materials consumed	(11,161)	(14,614)	(10,711)	(11,352)	(12,423)	(13,500)	(14,560)	(15,435)
Personnel expenses	(281)	(292)	(357)	(441)	(483)	(522)	(562)	(610)
EBITDA	**1,219**	**282**	**782**	**846**	**874**	**1,091**	**1,452**	**2,578**
EBITDA RCA	**898**	**988**	**667**	**878**	**967**	**1,107**	**1,469**	**3,266**
Depreciation and Amortization	(257)	(240)	(276)	(311)	(322)	(342)	(364)	(358)
Provisions	(21)	(42)	(49)	(49)	(66)	(50)	(53)	(58)
Operating profit	**941**	**1**	**457**	**484**	**486**	**699**	**1,036**	**2,161**
Operating profit RCA	**620**	**693**	**334**	**460**	**481**	**685**	**1,018**	**2,058**
Net financial results	(34)	(51)	(69)	(135)	(177)	(238)	(262)	(216)
Other financials	(9)	(10)	(4)	(8)	(8)	(8)	(8)	(8)
Results from associated companies	60	48	73	68	67	69	73	81
Results from investments	21	0	0	0	0	0	0	0
Earnings before tax (EBT)	**980**	**-12**	**457**	**409**	**368**	**521**	**838**	**2019**
Earnings before tax RCA (EBT)	**659**	**681**	**334**	**385**	**364**	**507**	**821**	**1916**
Income tax	(252)	9	(107)	(99)	(89)	(125)	(202)	(486)
Income tax RCA	(221)	(198)	(82)	(119)	(113)	(157)	(255)	(594)
Minorities	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Net profit	**723**	**-8**	**345**	**306**	**275**	**391**	**632**	**1528**
Net profit RCA	**433**	**478**	**247**	**265**	**251**	**350**	**567**	**1322**
ROCE (adj)	14%	12%	5%	5%	4%	5%	8%	15%

Balance Sheet (Million €)	2007	2008	2009E	2010E	2011E	2012E	20013E	2015E
Fixed assets	2,584	3,640	4,105	4,998	5,467	5,884	6,144	8,508
Other non current assets (liabilities)	(242)	(88)	(179)	(257)	(346)	(432)	(526)	(1,200)
Other current assets (liabilities)	6	1	0	0	0	0	0	0
Working capital	756	530	748	840	922	1,004	1,117	1,222
Invested capital	**3,104**	**4,082**	**4,674**	**5,581**	**6,043**	**6,456**	**6,735**	**8,530**
Short term debt	336	687	555	829	967	1,048	1,007	1,173
Long term debt	505	1,304	1,879	2,461	2,754	2,926	2,841	3,192
Total debt	**841**	**1,991**	**2,433**	**3,290**	**3,721**	**3,974**	**3,848**	**4,365**
Cash	110	127	151	232	330	413	500	1,079
Total net debt	**732**	**1,864**	**2,282**	**3,058**	**3,390**	**3,561**	**3,349**	**3,286**
Minority interests	**22**	**25**	**27**	**32**	**37**	**42**	**46**	**56**
Total shareholder's equity	**2,350**	**2,194**	**2,366**	**2,491**	**2,616**	**2,854**	**3,340**	**5,188**
Capital employed	**3,104**	**4,082**	**4,674**	**5,581**	**6,043**	**6,456**	**6,735**	**8,530**

Cash Flow (Million €)	2007	2008	2009E	2010E	2011E	2012E	2013E	2015E
Operating profit	941	1	457	484	486	699	1,036	2,161
Non cash costs	278	282	326	359	389	393	416	1,088
Sub total	**1,219**	**282**	**782**	**844**	**874**	**1,091**	**1,452**	**3,249**
Net interest expenses	(34)	(51)	(69)	(135)	(177)	(238)	(262)	(216)
Income taxes paid	(203)	(190)	(85)	(84)	(75)	(106)	(171)	(413)
Change in working capital	(97)	226	(218)	(92)	(82)	(83)	(112)	(61)
Cash flow from operating activities	**886**	**268**	**410**	**535**	**540**	**663**	**907**	**2,560**
Net capital expenditures and disposals[40]	(352)	(1,298)	(716)	(1,205)	(815)	(760)	(630)	(2,262)
Dividends paid / received[41]	(379)	(263)	(56)	(182)	(150)	(152)	(146)	(494)
Others (Cash paid to retire common stock)	(3)	164	(109)	(5)	(5)	(5)	(5)	(5)
							-	-
Total Free Cash flow[42]	**153**	**(1,129)**	**(470)**	**(856)**	**(431)**	**(254)**	**126**	**(201)**

Source: Galp Energia, Analyst estimates

Table 40: Key historical and forecasted ratios for Galp Energia

Key ratios	2008	2009E	2010E
Sales Growth	20.0%	-22.0%	6.6%
EBITDA Growth	11%	35%	8%
EBITDA RCA Growth	10%	-32%	31%
EBIT Growth	13%	20%	6%
EBIT RCA Growth	12%	-52%	38%
Net Profit Growth	-20%	-11%	-11%
Net Profit RCA Growth	10%	-48%	8%
ROE (adj)	22%	10%	11%
Capex/Sales	10%	6%	10%
Capex/D&A	651%	253%	403%

Key ratios	2009E	2010E
Enterprise Value (EV, Million €)	7,229	11,469	11,693
EV/Sales	0.5	1.0	0.9
EV/EBITDA RCA	7.3	17.2	13.3
EV/CE	1.8	2.5	2.1
Net Debt-to-equity ratio	85%	96%	123%
Net Debt-to-value ratio	46%	49%	55%
Net Debt-to-EBITDA	1.9	3.4	3.5
Payout ratio	55%	23%	38%
Dividend yield (gross)	3%	2%	1%

Source: Galp Energia, Analyst estimates

[40] Net capital expenditures and disposals include cash received and paid to investments that are included in other noncurrent liabilities. Thus, the change in fixed assets plus depreciation is slightly different from net capital expenditures and disposals
[41] The change in shareholder's equity plus period's net income is not equal to dividends paid for historical years since historical shareholder's equity changed not only by dividends but also due to hedging reserves and translation reserves that we have included in *Others*. However, from 2009 onwards the change corresponds to the amount of dividends paid during the year as we have assumed those items constant
[42] Historically the change in gross debt is not equal to free cash flow, since we were not able to identify the correct amount of cash used for others (e.g., cash paid to retire common stock). From 2009 onwards the change in gross debt is equal to the free cash flow

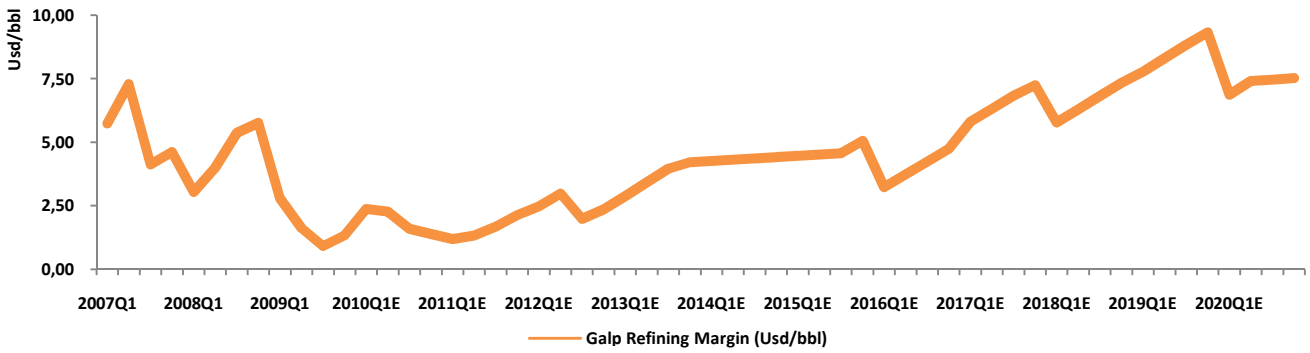
Appendixes

Appendix 1: Scheduled Iberian refineries' conversion projects

Country	Company	Refinery	Capacity kbbl/d	% Iberia	Project type	Conclusion Year	Add capacity (Kbbl/d)	CAPEX (M €)	Description
Portugal	Galp	*Leça da Palmeira (Porto)*	90	20%	Vacuum distillation unit	2011	15	315	Obtain vacuum gasoil from naphtha and gases
		Sines	220		Hydrocracker-distillate	2011	30	1,000	Process heavy gasoil for the production of diesel and jet fuels
Spain	Repsol	*Somorrostro Vizcaya*	220	46%	Coker-delayed	2011	36	900	Upgrade heavy residue feed to process high value transport fuels
		Cartagena, Múrcia	100		New hydrocracking and coker unit	2011	110	3,200	Adapt for the production of clean transportation fuels, promote the use of biofuels
		La Coruna	120		Coker fluid	2012	20	500	Greater efficiency from gasoline distillation to middle distillation
		Puertollano, Ciudad Real	140		Hydrockacker-Distillate	2013	20	500	Greater flexibility in processing different crude qualities
		Tarragona	160		Coker dealyed	2013	30	800	Increase mid distillates production from heavy crude oils
	CEPSA (Total)	*Gibraltar-San Roque, Cádiz*	240	27%	Hydrotreater-Diesel	2010	24		Higher flexibility in using different types of crude oils
		La Rábida, Huelva	100		Hydrocracker-Distillate	2009	37	1,650	Produce greater amounts of middle distillates
		Tenerife, Tenerife	90		Hydrotreater-Gasoline	2010	10		Middle distillate production will increase by 39%
	BP	*Castellón de la Plana*	104	7%	Hydrotreater-Diesel Hydrogen-Steam	2009	20	200	Produce greater amounts of middle distillates

Source: Companies' reports, Analyst estimates

Appendix 2: Galp historical and projected refining margin (Usd/bbl)



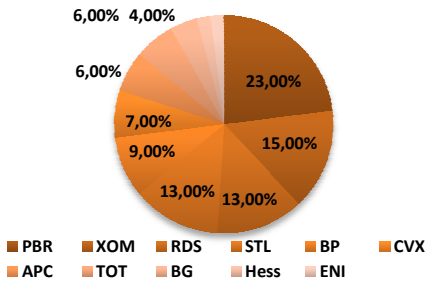
Source: Galp Energia, Analyst estimates

Appendix 3: Galp ongoing promotions

Type	*"Fast Card"*	*"Partnership Modelo Continente"*
Who	Only customers who adhere	Only service stations that adhere
How	Accumulated points	Receipts
What	Change points for gifts	6 €cents/l - Galp; and 6€cents/l - Modelo Continente
When	Anytime	Weekend

Source: Galp Energia

Appendix 4: Worldwide production in deep waters per operator in 2007



Source: Petrobras Strategic Plan 2009-13

Appendix 5: Descriptive Balance Sheet

Balance Sheet (Million €)	2007	2008[43]	2009E	2010E	2011E	2012E	2013E	2015E
Assets								
Non current assets								
Tangible fixed assets	2,108	2,760	3,076	3,914	4,328	4,689	4,895	7,149
Goodwill	17	172	186	186	186	186	186	186
Other intangible fixed assets	310	409	462	517	572	627	682	791
Investments in associates	149	297	378	378	378	378	378	378
Investments in other participated companies	1	1	3	3	3	3	3	3
Other receivables	89	84	79	86	99	106	119	129
Deferred tax assets	136	200	194	189	184	178	168	126
Other financial investments	1	5	1	1	1	1	1	1
Total non current assets	**2,811**	**3,928**	**4,378**	**5,274**	**5,751**	**6,168**	**6,431**	**8,764**
Current assets								
Inventories	1,347	1,076	1,148	1,291	1,417	1,544	1,717	1,879
Trade receivables	1077	988	922	1034	1135	1237	1376	1506
Other receivables	330	500	436	490	538	586	652	714
Other financial investments	6	3	1	1	1	1	1	1
Current Income tax recoverable	0	0	0	0	0	0	0	0
Cash and cash equivalents	110	5	151	232	330	413	500	1,079
Total current assets	**2,870**	**2,572**	**2,658**	**3,048**	**3,422**	**3,783**	**4,245**	**5,179**
Total assets	**5,681**	**6,500**	**7,036**	**8,322**	**9,173**	**9,950**	**10,676**	**13,943**
Equity and liabilities								
Equity								
Share capital	829	829	829	829	829	829	829	829
Share premium	82	82	82	82	82	82	82	82
Translation reserve	(23)	(27)	(17)	(17)	(17)	(17)	(17)	(17)
Other reserves	145	174	193	211	226	240	259	346
Hedging reserves	1	(2)	(8)	(8)	(8)	(8)	(8)	(8)
Retained earnings	593	1,023	940	1,086	1,228	1,337	1,562	2,427
Interin dividends	0	0	0	0	0	0	0	0
Profit attributable to equity holders of the parent	723	(8)	345	308	275	391	632	1,528
Equity attributable to equity holders of the parent	**2,350**	**2,071**	**2,366**	**2,491**	**2,616**	**2,854**	**3,340**	**5,188**
Minority interest	22	25	27	32	37	42	46	56
Total equity	**2,372**	**2,096**	**2,392**	**2,523**	**2,652**	**2,896**	**3,386**	**5,244**
Liabilities								
Non current liabilities								
Bank loans and overdrafts	280	1,304	1,179	1,761	2,054	2,226	2,141	2,492
Bonds	226	-	700	700	700	700	700	700
Other payables	62	56	70	79	86	94	104	114
Retirement and other benefit obligations	254	256	274	295	318	341	365	413
Deferred tax liabilities	132	18	34	44	53	66	86	170
Other financial instruments	0	3	10	10	10	10	10	10
Provisions	83	99	134	183	249	299	352	864
Total non current liabilities	**1,036**	**1,737**	**2,400**	**3,072**	**3,470**	**3,736**	**3,758**	**4,763**
Current liabilities								
Bank loans and overdrafts	336	685	520	777	906	982	945	1,100
Bonds	0	2	35	52	60	65	63	73
Trade payables	956	993	829	932	1,023	1,115	1,240	1,357
Other payables	981	982	859	965	1,059	1,154	1,283	1,405
Other financial instruments	0	2	1	1	1	1	1	1
Income tax	-	4	-	-	-	-	-	-
Total current liabilities	**2,272**	**2,667**	**2,244**	**2,727**	**3,050**	**3,318**	**3,532**	**3,936**
Total liabilities	**3,308**	**4,404**	**4,644**	**5,799**	**6,520**	**7,055**	**7,290**	**8,699**
Total equity and liabilities	**5,681**	**6,500**	**7,036**	**8,322**	**9,173**	**9,950**	**10,676**	**13,943**

Source: Galp Energia, Analyst estimates

[43] In 2008, Galp changed its stocks' valuation method from FIFO to CMP ("Custo Médio Ponderado"). As such, there is a difference between results reported on financial statement and results presented here. Since, the later does not reflect the accounting change. Moreover, net income from income statement is not equal to the one included in balance sheet, and because of that, dividends included here are different from dividends reported

Appendix 6: Direct Method Cash Flow Statement

Cash Flow Direct Method[44] (Million €)	2007	2008	2009E	2010E	2011E	2012E	2013E	2015E
Cash flow from operating activities								
Cash received from customers	12,533	15,107	11,981	12,472	13,632	14,962	16,371	18,512
Cash paid to suppliers	(11,023)	(14,269)	(10,925)	(10,905)	(11,869)	(12,885)	(13,906)	(14,337)
Cash paid to employees	(281)	(292)	(357)	(441)	(483)	(522)	(562)	(610)
Cash paid for other operating expenses	(31)	(41)	(132)	(372)	(487)	(548)	(563)	(377)
Cash paid for interest	(34)	(51)	(69)	(135)	(177)	(238)	(262)	(216)
Cash paid for income tax	(281)	(186)	(89)	(84)	(75)	(106)	(171)	(413)
Net cash flow provided by operating activities	**882**	**268**	**410**	**535**	**540**	**663**	**907**	**2,560**
Cash flow from investing activities								
Cash received from investments	68	34	65	55	55	56	60	69
Cash paid to investments	24	(143)	(71)	(8)	(12)	(7)	(13)	(7)
Cash paid for purchase of equipment	(443)	(1,188)	(709)	(1,252)	(857)	(809)	(677)	(2,324)
Net cash used for investing activities	**(352)**	**(1,298)**	**(716)**	**(1,205)**	**(815)**	**(760)**	**(630)**	**(2,262)**
Cash flow from financing activities								
Cash payment relating to the retirement plan	11	2	18	22	23	23	23	24
Cash received (paid) relating to debt	(258)	1,171	484	905	497	304	(73)	493
Cash paid to retire common stock	(8)	(5)	7	5	5	5	5	5
Cash paid for dividends	(379)	(263)	(56)	(182)	(150)	(152)	(146)	(494)
Net cash used for financing activities	**(634)**	**905**	**453**	**750**	**374**	**180**	**(191)**	**28**
Net increase (decrease) in cash	**(103)**	**(125)**	**147**	**80**	**99**	**83**	**86**	**326**

Source: Galp Energia, Analyst estimates

Appendix 7: Black & Scholes Model

Price of a European (or American on non-dividends paying underlying asset) call option:

$$C_0 = S_0 N(d_1) - Ke^{-rT} N(d_2) \quad \text{where,} \quad d_1 = \frac{\ln(S_0 / K) + (r + \sigma^2 / 2)T}{\sigma\sqrt{T}}, \qquad d_2 = d_1 - \sigma\sqrt{T} \quad \text{and:}$$

$N(d)$ = Probability that a standard normal distribution will be less than d

r = the relevant risk-free interest rate (annualized continuously compounded)

σ = standard deviation of the annualized continuously compounded rate of return of the stock

S_0 = current value of the underlying asset

K = strike price

T = time to expiration

Appendix 8: Binomial Model

$$Up\ movement\ (U) = \sqrt{\sigma_{quarterly}}\ ;\ Down\ movement(D) = \frac{1}{U}\ ;\ Risk\ neutral\ probability(\pi) = \frac{e^{(r_{f,quarterly})} - D}{U - D}$$

Call option value at each point in time (t): $C_t = \frac{\pi C_{u,t+1} + (1-\pi) C_{d,t+1}}{e^{rf}}$

Expected payoff at each point in time (t): $C_{expected\ payoff,t} = Max[0; (EV_t - Development\ Capex_t); C_t]$

$\sigma_{quarterly}$ = quarterly standard deviation

rf = risk free rate

EV_t = economic value of the oil field at time (t) if production was to start in time (t), as well

$Development\ Capex_t$ = development capital expenditures required to start production at time (t)

[44] The division of cash flows among classes within operating, investing and financing activities reflects' analysts perception rather than strict company guidelines. As such, activity specific cash flows can differ from the ones reported concerning historical data. However, for future data such situation is eliminated

Disclosures and Disclaimer

Research Recommendations

Buy	Expected total return (including dividends) of more than 15% over a 12-month period.
Hold	Expected total return (including dividends) between 0% and 15% over a 12-month period.
Sell	Expected negative total return (including dividends) over a 12-month period.

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