INSTITUTO
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DE LISBOA

Valuation of Galp Energia

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Master in Management

Supervisor:
PhD, José Carlos Dias, Full Professor,
Iscte – Instituto Universitário de Lisboa

April, 2026

BUSINESS
SCHOOL

Department of Marketing, Operations and General Management

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Agradecimentos

Para começar gostaria de agradecer à minha família por todo o apoio que me deram durante o meu percurso académico e pessoal, mostrando sempre orgulho em todas as etapas. Sem eles a realização deste projeto não teria sido possível.

Em segundo lugar gostaria de agradecer à minha namorada Carla Sofia Gomes Tomás e à sua família por todo o apoio que me deram, especialmente à minha namorada que esteve sempre ao meu lado durante os momentos mais stressantes deste projeto e que soube sempre ajudar-me.

Por último, gostaria de agradecer ao Professor José Carlos Dias pela sua disponibilidade e pelos seus conselhos que me ajudaram na realização deste projeto.

Resumo

Esta dissertação apresenta a avaliação financeira da Galp Energia e tem como objetivo determinar o valor das suas ações, comparar os resultados obtidos com o preço de mercado a 31 de dezembro de 2024 e, por fim, apresentar recomendações para os investidores.

A Galp é uma das principais empresas do setor energético em Portugal, com presença nacional e internacional, operando ao longo de toda a cadeia de valor do setor. A empresa encontra-se cotada na Euronext Lisboa.

Para a realização da avaliação financeira, foram utilizados três métodos de avaliação, nomeadamente as duas abordagens do método dos fluxos de caixa descontados (DCF) e o modelo do valor económico acrescentado (EVA).

A 31 de dezembro de 2024, a Galp apresentava um preço por ação de 15,82€. Os resultados obtidos indicam que a empresa se encontrava subavaliada pelo mercado. Assim, foi recomendado aos investidores a compra das ações da Galp ou a retenção das mesmas, uma vez que se espera uma valorização do preço das ações.

Palavras-chave: Avaliação financeira, Galp Energia, Método dos fluxos de caixa descontados, Modelo do valor económico acrescentado

Classificação JEL: G30, G32

Abstract

This dissertation presents the valuation of Galp Energia and aims to estimate the value of its shares, compare the results obtained with the market price as of December 31, 2024, and, finally, provide recommendations to investors.

Galp is one of the leading companies in the energy sector in Portugal, with both national and international operations, covering the entire energy value chain. The company is listed on Euronext Lisbon.

For the purpose of the valuation, three valuation methods were used, namely the two approaches of the discounted cash flow (DCF) method and the economic value added (EVA) model.

As of December 31, 2024, Galp had a share price of €15.82. The results obtained indicate that the company was undervalued by the market. Therefore, investors are recommended to buy Galp shares or to hold their current positions, as an increase in the share price is expected.

Keywords: Valuation, Galp Energia, Discounted cash flow method, Economic value added model
JEL Classification System: G30, G32

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Glossary

CAPEX – Capital expenditures

CAPM – Capital asset pricing model

CF – Cash flow

D&A – Depreciation and amortization

DCF – Discounted cash flow

EBIT – Earnings before interests and taxes

EBITDA – Earnings before interests, taxes, depreciation and amortization

EBT – Earnings before taxes

EVA – Economic value added

FCFE – Free cash flow to equity

FCFF – free cash flow to the firm

g – Constant growth rate

Int – Interest expenses

ND – New debt issues

NI – Net income

NOPAT – Net operating profit after taxes

OWC – Operating working capital

PD – Preferred dividends

PR – Principal repayments

PV – Present value

Rd – Cost of capital

Re – Cost of equity

Rf – Risk free rate

(Rm-Rf) – Market risk premium

ROIC – Return on invested capital

TV – Terminal value

WACC – Weight average cost of capital

ΔWC – Changes in working capital

1. Introduction

Knowing what the business is worth today and why, plays a key role in future planning and achieving the company's goals. To know the value of the company it is possible to do a business valuation.

The main goal of this master's thesis is to analyze and valuate Galp Energia, SGPS, S.A. using different valuation methods, comparing the different results with Galp´s market valuation, and finally make some recommendations for the company's investors.

Galp was chosen as the subject of this case because it is a company listed on the Euronext Lisbon stock exchange and, as such, its financial data is easily accessible.

Galp is one of the leading energy companies in Portugal, with a national and international presence. The company operates in various segments such as the exploration and production of oil and natural gas and the refining, distribution and marketing of fuel. In recent years the company has also invested in emerging areas such as renewable energy and sustainable mobility as part of the global strategy of energy transition.

The second chapter will be the literature review where we will analyze the main concepts of the valuation methods that will be used. The third chapter will cover the data and methodology, explaining how we will do the valuation of the company and where the data we will use were collected.

In the next four chapters we will analyze the macroeconomy, the energy industry where Galp is inserted and the company itself, which will include a financial analysis.

In chapter eight we will carry out the valuation of the company, starting with the keys assumptions and then applying the valuation methods presented in the literature review.

Finally, in the last chapter we will compare the results of the valuation method with Galp's market value and give our recommendations to the company's investors, fulfilling the goal presented at the beginning of this introduction.

2. Literature review

2.1. Valuation

Valuation can be considered the core of finance because it plays a fundamental role in portfolio management, acquisition analysis, and corporate finance. (Damodaran, 2012)

According to Koller et al. (2025), one of the most important decisions in managing a company is how to allocate the organization's resources, and that decisions should be supported by a clear and systematic approach to measuring value and understanding of how and why it is created.

Damodaran (2012) states that there are three approaches to valuation: discounted cash flow (DCF) valuation, relative valuation, and contingent claim valuation.

The discounted cash flow (DCF) valuation relates the value of an asset to the present value (PV) of expected future cash flows on that asset. The relative valuation estimates the value of an asset by looking at the pricing of comparable assets relative to a common variable such as earnings, cash flows, book value, or sales. The contingent claim valuation uses option pricing models to measure the value of assets that share option characteristics.

2.2. Valuation methods

2.2.1. Discounted cash flow (DCF)

The discounted cash flow is the first valuation method we will use. This is the most widely used valuation method because, according to Fernandez (2007), it is the only conceptually correct valuation method.

In these method the value of a firm is the present value of its forecast future cash flows, discounted back at a rate that reflects the risk involved. (Damodaran, 2014)

$$Value = \frac{CF_1}{1+r} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n + TV_n}{(1+r)^n}, \tag{2.1}$$

where:

CF_n – Cash flow generated in the period n;

n – Period;
TV – Terminal value of the company;
r – Discount rate that reflects the risk.

The first impression is that the above formula only considers a limited amount of cash flows, but this is not necessarily true because the terminal value of the company is included. (Fernandez, 2007)

Damodaran (2014) affirms that there are two paths to value a company using the discounted cash flow method. The first one is the enterprise valuation where the whole company is valued, and the second path is the equity valuation where just the equity portion of the company is valued. Both methods use different cash flows and discount rates that will be covered later.

2.2.2. Enterprise valuation

The first of two paths of the DCF method is the enterprise valuation where the entire company is valued. The enterprise valuation consists of obtaining the enterprise value, also called firm value.

The firm value is obtained by discounting the free cash flow to the firm (FCFF) at the weighted average cost of capital (WACC). (Damodaran, 2006a)

$$Firm\ value = \frac{FCFF_1}{1 + WACC} + \frac{FCFF_2}{(1 + WACC)^2} + \cdots + \frac{FCFF_n + TV_n}{(1 + WACC)^n}, \tag{2.2}$$

where:
$FCFF_n$ – Free cash flow to the firm on period n;
WACC – Weighted average cost of capital.

2.2.3. Free cash flow to the firm (FCFF)

The free cash flow to the firm (FCFF) represents the total cash flows available to all firm's claimholders, which include common stockholders, bondholders, and preferred stockholders.

According to Damodaran (2012), there are two ways of measuring the free cash flow to the firm.

The first way is to sum up the cash flows of all claimholders, which would include cash flows to equity, cash flows to lenders, and cash flows to preferred stockholders, that is:

$$Free\ cash\ flow\ to\ the\ firm = FCFE + Int(1-t) + PR - ND + PD\ , \qquad (2.3)$$

where:
FCFE – Free cash flow to equity;
Int – Interest expenses;
t – Tax rate;
PR – Principal repayments;
ND – New debt issues;
PD – Preferred dividends.

The second way is to estimate the cash flow prior to the claims by starting with the earnings before interest and taxes and then subtracting taxes and the reinvestment needs, that is:

$$Free\ cash\ flow\ to\ the\ firm = EBIT(1-t) + D\&A - CAPEX - \Delta WC\ , \qquad (2.4)$$

where:
EBIT – Earnings before interest and taxes;
D&A – Depreciations and amortizations;
CAPEX – Capital expenditures;
ΔWC – Changes in working capital.

2.2.4. Terminal value (Residual value)

The terminal value (TV), also called residual value (RV) or continuing value (CV), is the present value of all cash flows generated after the period covered by the analysis, normally three to five years. As it is very difficult to accurately estimate how the company will develop in the long term, the terminal value assumes a constant growth rate for the period after the one being analyzed. (Steiger, 2008)

The terminal value formula is as follows:

$$Terminal\ value = \frac{FCFF_{n+1}}{WACC - g}, \tag{2.5}$$

where:

$FCFF_{n+1}$ – Free cash flow to the firm at the end of the period analyzed;

g – Constant growth rate.

Calculating the terminal value is one of the most important steps in enterprise valuation, as it often represents more than half of the total enterprise value, and any error in its estimation can significantly affect the overall result.

2.2.5. Weighted average cost of capital (WACC)

The WACC is the discount rate in the enterprise valuation and represents the minimal rate of return necessary to justify the investment's risk and opportunity cost.

The theoretical foundations of the WACC can be tracked back when Modigliani and Miller (1958) introduced the idea that the firm's cost of capital is a weighted average of the required returns on debt and equity. This idea evolved into the concept of WACC, which Fernandez (2011) defines as not being a cost or an expected return but rather as the weighted average of the two.

The WACC is calculated as follows:

$$WACC = \frac{E}{D+E} * R_e + \frac{D}{D+E} * R_d * (1-t), \tag{2.6}$$

where:

R_e – Cost of equity;

R_d – Cost of debt;

E – Value of equity;

D – Value of debt.

2.2.6. Equity valuation

The second path of the DCF method is the equity valuation where only the equity stake in the business is valued. (Damodaran, 2006b)

The equity valuation consists of determining the equity value that, according to Brealey et al. (2020), is obtained by discounting the free cash flow to equity (FCFE) at the cost of equity.

$$Equity\ value = \frac{FCFE_1}{1+R_e} + \frac{FCFE_2}{(1+R_e)^2} + \cdots + \frac{FCFE_n + TV_n}{(1+R_e)^n}. \tag{2.7}$$

2.2.7. Free cash flow to equity (FCFE)

The free cash flow to equity (FCFE) is the cash flow remaining after all the financial obligations have been met. This financial obligations include debt payments, capital expenditures and working capital needs. (Janiszewski, 2011)

$$Free\ cash\ flow\ to\ equity = NI + D\&A - CAPEX - \Delta WC + ND - PR\ , \tag{2.8}$$

where:
NI – Net income.

The free cash flow to equity (FCFE) can also be obtained from the free cash flow to the firm (FCFF) using the following formula.

$$Free\ cash\ flow\ to\ equity = FCFF - Int(1-t) + ND - PR\ . \tag{2.9}$$

2.2.8. Capital asset pricing model (CAPM)

The capital asset pricing model (CAPM) is a widely used model that describes the pricing of financial assets, and it was first developed by Sharpe (1964) and Lintner (1965). This model is primarily used to calculate the firm's cost of capital and evaluate the performance of portfolios. According to Chen (2021), the CAPM explains the relationship between risk and return, assuming

that investors are risk-averse, that is, they expect higher returns as compensation for taking more risk, and vice versa.

The formula for the CAPM model stands as follows:

$$R_e = R_f + \beta * \left(R_M - R_f\right), \tag{2.10}$$

where:

R_f – Risk free rate;

β – Beta;

(R_M – R_f) – Market risk premium.

2.2.9. Risk free rate (R_f)

The risk-free rate is the first input in the CAPM and is also used to estimate the market risk premium. Normally the risk-free rate is obtained from short-term treasury bill or long-term treasury bonds. Although the risk-free rate can be obtained in these two ways, Damodaran (2022) argues that the short-term treasury bill should only be used when the valuation horizon is one year, and that if the horizon of the valuation is between five and ten years, the long-term treasury bond should be used as the risk-free rate.

Damodaran (2022) also states that the risk-free rate is affected by the level of inflation in the country and is inversely related to the market risk premium, that is, when the risk-free rate decreases, the market risk premium increases, and vice versa.

2.2.10. Beta (β)

The second input in the CAPM is the beta (β). According to Bodie et al. (2021), the beta coefficient represents the contribution of an asset to the variance of the market portfolio, measured as the ratio between the covariance of the asset's return with the market return and the variance of the market portfolio, that is:

$$\beta = \frac{Cov(R_i, R_M)}{\sigma_M^2}, \tag{2.11}$$

where:

R_i – Return of asset i;

R_M - Return of the market portfolio;

$Cov(R_i, R_M)$ – Covariance between the asset's return with the market return;

σ^2_M – Variance of the market return.

Blume (1975) conducted one of the earliest studies on the tendency of betas over time. His empirical work demonstrated that beta coefficients are not stationary over time, instead, they tend to regress toward the grand mean of all betas, that is, one.

More recently, Hollstein (2020) conducted a study where he analyzed various betas across developed and emerging markets. He concluded that betas in emerging markets are less stable due to higher volatility and lower liquidity, suggesting that the regression tendencies of betas depend on the markets in which they are involved and on macroeconomic events.

2.2.11. Market risk premium ($R_M - R_f$)

The third and last input in the CAPM is the market risk premium ($R_M - R_f$). According to Bodie et al. (2021), the market risk premium is defined as the expected value of the excess return, that is, the difference between the rate of return on a risky asset and on a risk-free asset. In other words, the value of the market risk premium represents the additional return that investors demand for taking the risk of investing in a risky asset instead of a risk-free one.

2.2.12. Economic value added (EVA)

The economic value added (EVA) is a financial metric used to assess a company's economic profitability. According to Grant (2003), the theory of EVA is based on two principles. The first is that a company can only be considered truly profitable when its return on invested capital is greater than the opportunity cost of capital. The second is that wealth is created when the investment decisions made on behalf of shareholders have a positive net present value (NPV).

Grant (2003) defines EVA as the difference between a company's net operating profit after taxes (NOPAT) and its weighted average dollar cost of capital (Invested capital*WACC), that is:

$$EVA = NOPAT - (Invested\ Capital * WACC)\,, \tag{2.12}$$

where:
NOPAT – Net operating profit after taxes;
(Invested capital*WACC) – Weighted average dollar cost of capital.

According to Chen et al. (2023), EVA can be used to estimate the equity value of a firm by summing the discounted expected EVA. However, this method is more suitable for asset-rich companies than for those dominated by intangible assets, due to EVA's heavy reliance on capital invested.

3. Data and methodology

To value Galp, we will begin with a macroeconomic, industry and company overview, allowing us to identify the external and internal factors that may affect the firm's value.

Afterwards we will conduct the valuation of the company using the models discussed in the literature review, namely the discounted cash flow (DCF) method and the economic value-added (EVA) model.

For this purpose, we will use Galp's financial reports from the past five years (2020 to 2024) and develop a forecast period for the following five years (2025 to 2029). Since Galp is a publicly traded company, its financial reports are publicly available, and all financial data will be collected from the company's website and Yahoo Finance.

4. Macroeconomic overview

4.1. Gross domestic product

The gross domestic product (GDP) is the most common indicator used for assessing the economic performance of a country or region. The GDP measures the total value of goods and services produced by a specific country or region.

The graph below (Figure 4.1) shows the real GDP growth in Portugal, in Europe and worldwide over the past six years (2020 to 2025), as well as a forecast for the following five years.

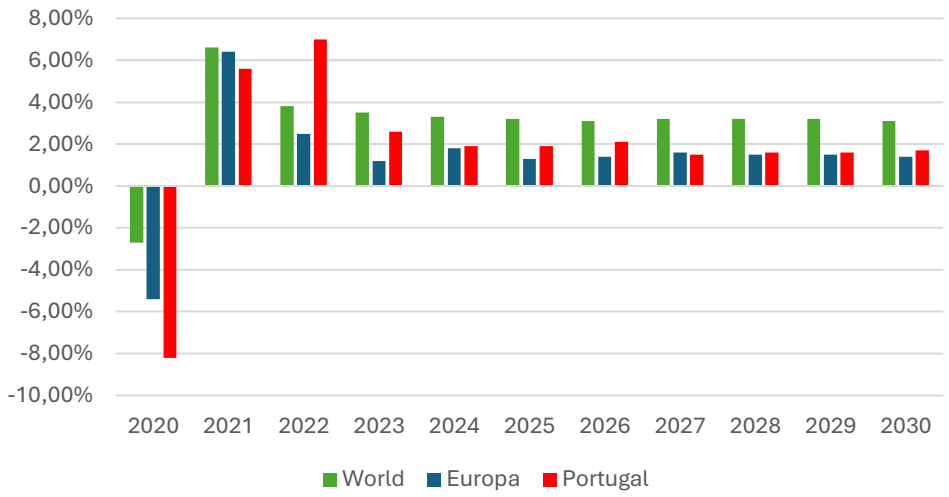


Figure 4.1 Real GDP Growth. Source: IMF World Economic Outlook, October 2025

Analyzing the graph, it is possible to observe the effects of the COVID-19 pandemic in 2020, the only year in which GDP declined. In Portugal GDP decreased by 8.2%, in Europe by 5.4% and worldwide by 2.7%.

However, the economy recovered after 2020, particularly in the following two years, with Portugal's GDP growing by 5.6% and 7% in 2021 and 2022, respectively. Europe and the world followed the same trend, growing by 6.40% and 6.60% in 2021 and by 2.5% and 3.8% in 2022, respectively.

In the following years, the three regions had a steady growth with only small year-to-year fluctuations. In Portugal, the real GDP growth rate ranged between 1.5% and 2.6%. In Europe, it varied between 1.2% to 1.8%, and worldwide it ranged between 3.1% and 3.5%.

At first glance, it appears that Europe and Portugal are growing at a slower rate than the world. However, this is not entirely true, as Europe is largely composed of developed economies, including Portugal, while the world includes a significant share of developing economies, such as countries in Africa, Asia and South America. As shown in Figure 4.2, developing economies have a higher real GDP growth rate than the developed economies, which explains the difference between the global GDP growth and the growth rates observed in Europe and Portugal.

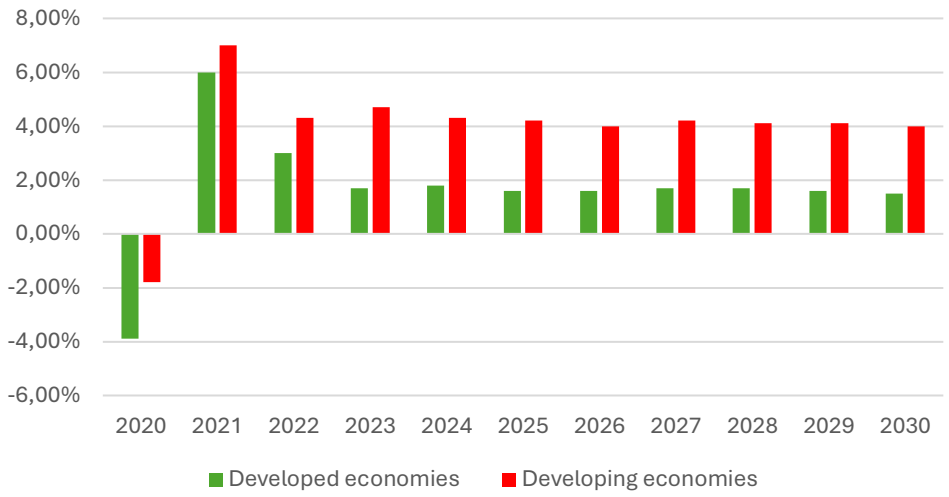


Figure 4.2 Real GDP Growth of Develop Economies and developing Economies. Source: IMF World Economic Outlook, October 2025

4.2. Inflation rate

Inflation represents the overall increase in the consumer price index (CPI). The CPI is the weighted average price of a basket of goods and services. This basket is constructed to represent typical consumption patterns and therefore differs across countries. The annual inflation rate corresponds to the percentage change in the CPI relative to the same month of the previous year.

Figure 4.3 shows the inflation rate in the past six years and the forecast for the next five years.

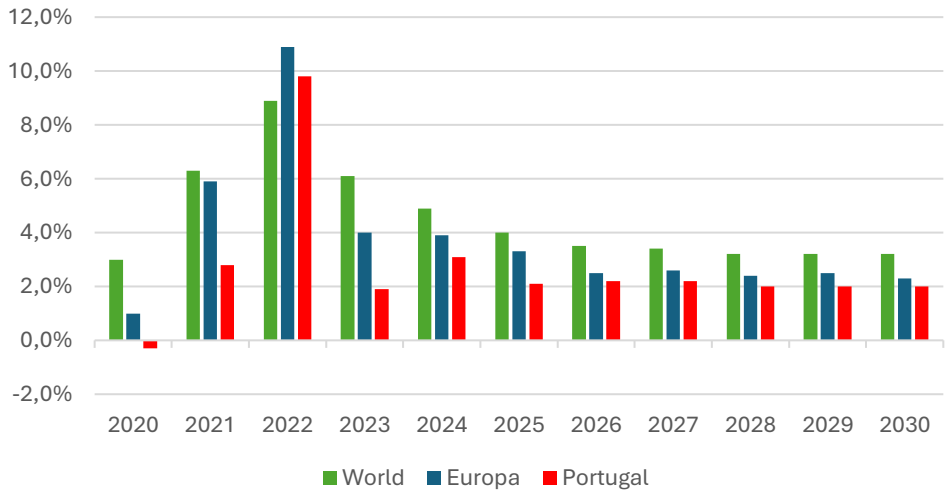


Figure 4.3 Inflation Rate. Source: IMF World Economic Outlook, October 2025

In the graph above, it is possible to observe the effects of the COVID-19 pandemic in 2020 and the impact of Russia's invasion of Ukraine in 2022. In 2020, the inflation rate was lower than usual, with Portugal recording a negative rate of -0.3%. Europe and the world registered positive but unusually low inflation rates, at 1% and 3%, respectively.

In 2022, while the world was still recovering from the COVID-19 pandemic, Russia's invasion of Ukraine led to a sharp spike in inflation, reaching the highest levels in the period analyzed. Portugal and Europe recorded inflation rates of 9.8% and 10.9%, respectively, while the world registered a rate of 8.9%.

According to Sasidharan (2024), this spike in inflation was driven by the energy and the food crises triggered by the war. Oil and gas prices increased 15% compared to one week before the invasion. Russia is the world's second largest oil exporter and holds one of the largest oil reserves, meaning that the conflict and the severe sanctions imposed by various countries significantly disrupted global energy markets. Russia also supplies about one third of Europe's natural gas, and the sanctions led to an energy crisis across the continent.

In addition, Russia and Ukraine together account for one third of global wheat and barley exports, as well as 70% of sunflower oil, and are major exporters of corn. However, Russia's blockade of the Black Sea coast prevented Ukrainian grain from leaving the country. At the same time, Russia claimed that it was unable to export food and fertilizers because many international shipping companies were unwilling to transport them due to the sanctions in place.

After 2022, the inflation began to stabilize, and the forecast for the years 2026 to 2030 projects inflation rates between 2% and 2.2% for Portugal, between 2.3% and 2.6% for Europe, and between 3.2% and 3.5% worldwide.

5. Industry overview

5.1. Global energy market

Galp operates in the energy industry, and therefore it is important to understand the global market of that industry. Over the years, energy demand has increased, which can be observed through the rise in global energy consumption.

Figure 5.1 illustrates the evolution of energy consumption from 2010 to the present, as well as the segmentation of the different energy sources used each year.

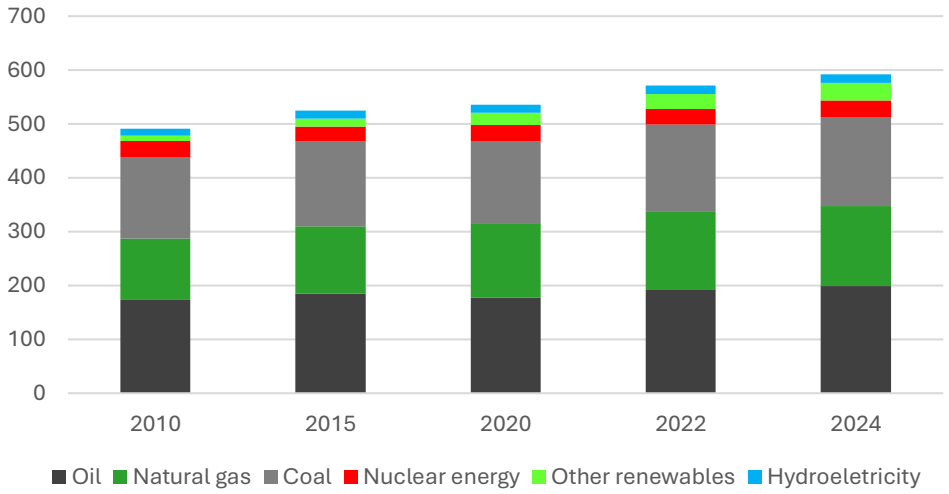


Figure 5.1 Global Energy Consumption. Source: Statistical Review of World Energy

In the graph above, the increase in global energy consumption is clearly visible. In 2010, approximately 490 EJ were consumed, whereas by 2024 consumption had risen to around 592 EJ.

Figure 5.1 also shows the evolution of renewable energy over the years. In 2010, only 22 of the 490 EJ consumed came from renewable sources, representing roughly 4%. By 2024, the share of renewable energy had increased to 9%, corresponding to 49 of the 592 EJ consumed that year.

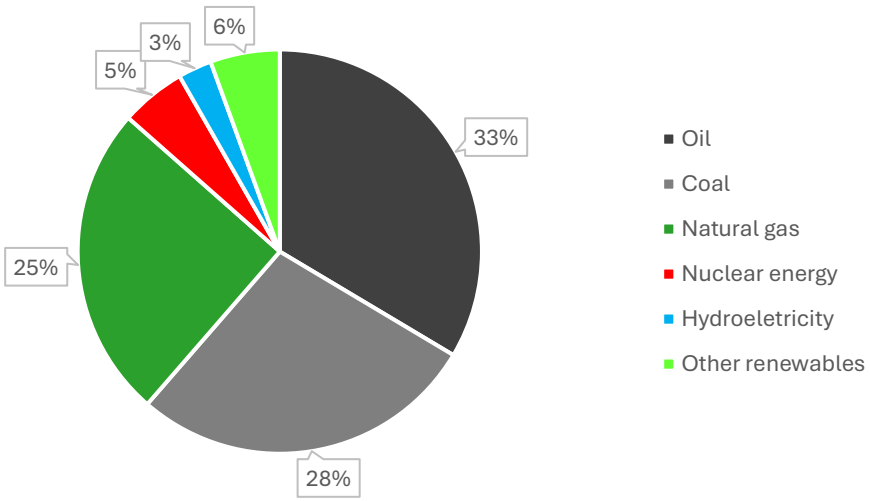


Figure 5.2 Global Energy Mix in 2024. Source: Statistical Review of World Energy

Figure 5.2 presents the global energy mix in 2024. It shows the clear dominance of fossil fuels in global energy consumption, accounting for 86% of the total, combining oil, coal and natural gas.

Despite the growth of renewable energy illustrate in Figure 5.1, this energy source remains one of the smallest contributors, representing only 9% of total consumption in 2024 (hydroelectricity plus other renewables).

5.2. Oil and natural gas market

5.2.1. Oil market

The global oil market is a globally integrated system in which crude oil is produced, transported, refined and traded across international markets. The global oil market is highly sensitive to shifts in supply and demand, and even small imbalances can generate significant price fluctuations due to the low short-term elasticity of both consumption and production.

On the supply side, global production is strongly influenced by the actions of OPEC+ members, which jointly accounts for around 48% of global oil supply and actively manage output through coordinated production targets. In contrast, US shale production is characterized by shorter investment cycles and greater responsiveness, accounting for roughly 20% of global oil supply. (International Energy Agency, 2025)

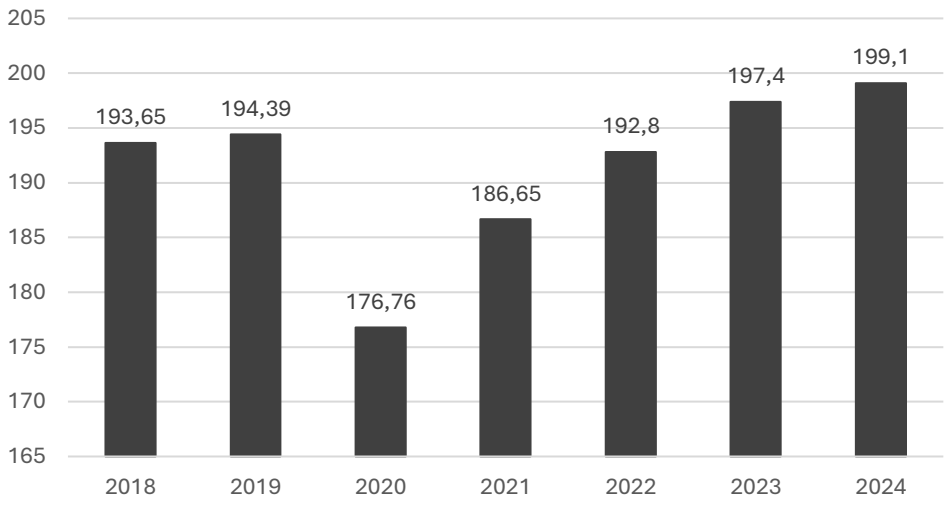


Figure 5.3 Global Oil Consumption. Source: Statistical Review of World Energy

On the demand side, Figure 5.3 shows that global oil consumption has increased each year compared with the previous one, except for 2020, when demand fell from 194.39 EJ to 176.76EJ due to the COVID-19 pandemic. However, in the following years, oil consumption gradually grew, reaching 199.1 EJ in 2024.

Oil prices are determined using global benchmarks, with Brent being the most widely used reference for international transactions. Figure 5.4 presents oil prices in US dollars per barrel according to the Brent benchmark.

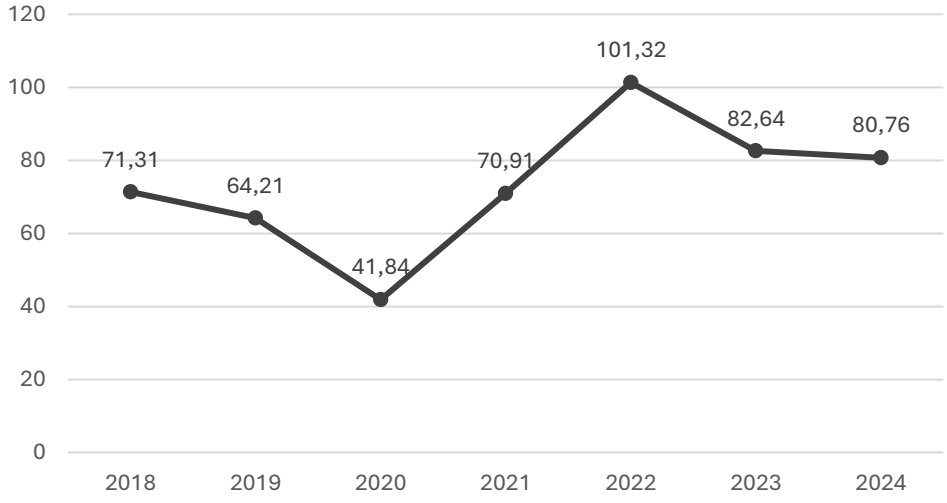


Figure 5.4 Oil Prices in Brent. Source: Statistical Review of World Energy

Figure 5.4 shows that the oil prices were already declining prior to the COVID-19 pandemic, however, in 2020 the drop was significantly sharper, with prices reaching 41.84 USD per barrel. In 2021, as the global economy began to recover from the pandemic, oil prices rose substantially to 70.91 USD per barrel. In 2022, due to the Russia-Ukraine war, prices had another sharp increase, reaching 101.32 USD per barrel. In the following years, prices gradually declined, reaching 80.76 USD per barrel in 2024.

5.2.2. Natural gas market

The global natural gas market operates as a set of interconnected regional systems rather than a fully integrated global market, due to the physical and economic constraints associated with its transportation. Natural gas is distributed in two main forms, pipeline gas, which is transported through extensive cross-border pipeline networks, and liquefied natural gas (LNG), which is shipped internationally after being liquified and later regasified in the importing country.

On the supply side, the United States is currently the world's largest producer, driven mainly by shale gas, while Russia remains a major supplier through its extensive pipeline network. Qatar, Australia and the United States are the leading exporters of LNG.

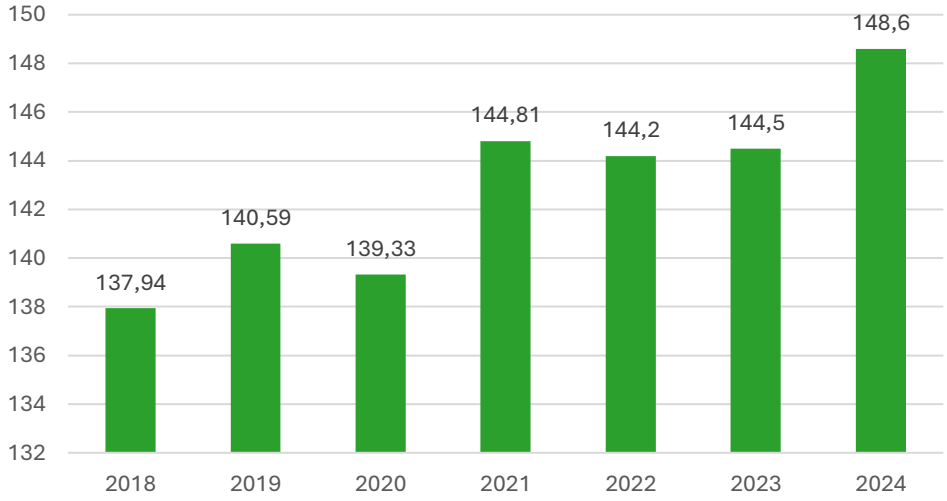


Figure 5.5 Global Natural Gas Consumption. Source: Statistical Review of World Energy

On the demand side, Figure 5.5 shows that global natural gas consumption has grown year by year, with the exceptions of 2020 and 2022. In 2020, consumption decreased from 140.59 EJ in the previous year to 139.33 EJ, due to the COVID-19 pandemic, which reduced global energy demand.

In 2022, consumption fell again from 144.81 EJ to 144.2 EJ, because of the Russia-Ukraine war, as many countries stopped importing Russian natural gas. Given that Russia is one of the world's largest suppliers, this disruption led to a reduction in global consumption. Despite the drop in 2022, natural gas consumption increased in the following years, reaching 148.6 EJ in 2024, even with the conflict ongoing.

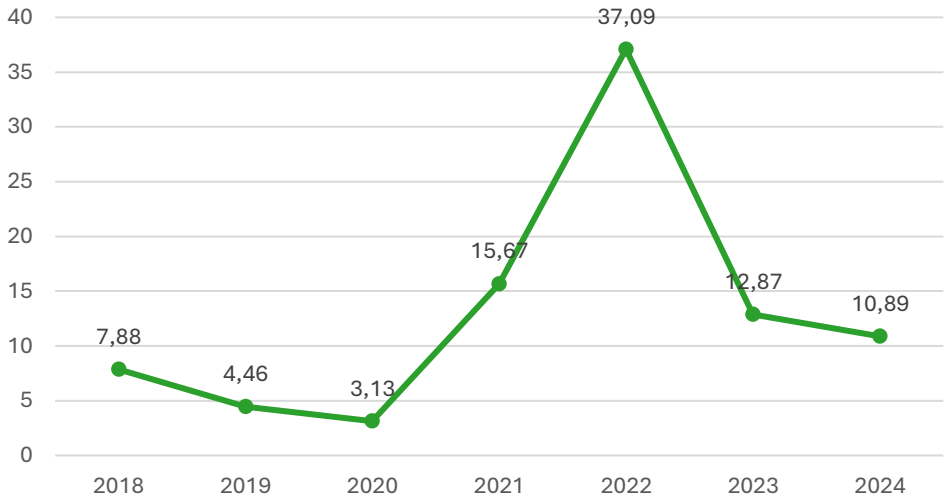


Figure 5.6 Natural Gas Prices in Netherlands TTF. Source: Statistical Review of World Energy

Natural gas prices are determined by using regional benchmarks rather than global ones. In Europe, the main reference used is the Netherlands title transfer facility (TTF), and the prices in Figure 5.6 correspond to this reference. The figure shows that natural gas prices decreased annually reached their lowest level in 2020, during the COVID-19 pandemic, at 3.13 USD per million Btu (British thermal unit). In 2021, prices rose sharply as the global economy recovered from the pandemic, and in 2022, they had another significant increase due to the war in Ukraine, reaching the value of 37.09 USD per million Btu. In the following years, prices decreased and in 2024, the value of natural gas was 10.89 USD per million Btu.

5.3. European energy market

From Galp's perspective, it is important to understand the European energy market, as the company is headquartered in Portugal and is therefore significantly influenced by developments and dynamics within the European market.

Figure 5.7 shows the European energy mix, where it is possible to observe the share of each energy source in the total energy consumed in Europe in 2024.

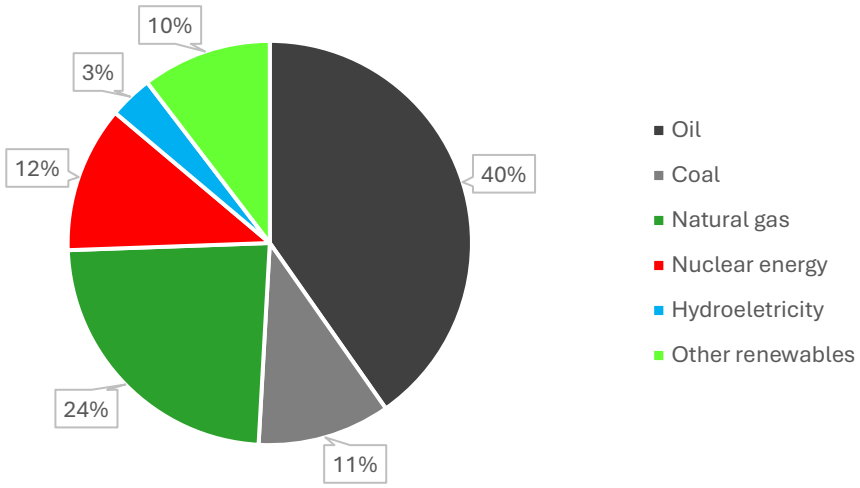


Figure 5.7 European Energy Mix in 2024. Source: Statistical Review of World Energy

The European energy mix shares some similarities with the global mix, with fossil fuels accounting for the largest portion of energy consumption (75%). However, a major difference is the use of coal, in Europe coal represents only 11% of the energy mix, a big contrast to the 28% observed globally.

Another significant difference is the use of nuclear energy that in Europe holds more than double the global share, 12% in Europe compared with 5% worldwide.

It is also important to note that renewable energy has a bigger share in Europe than at the global level, accounting for 13% and 9%, respectively.

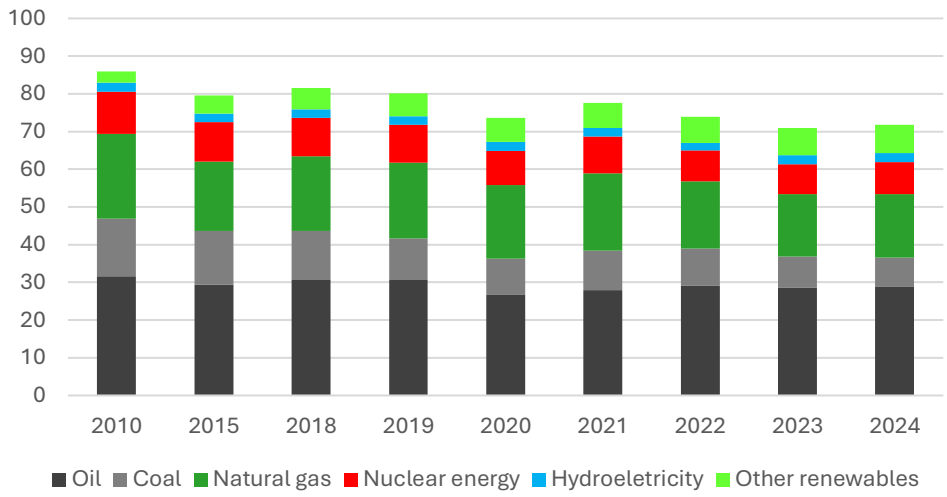


Figure 5.8 European Energy Consumption. Source: Statistical Review of World Energy

Figure 5.8 shows the evolution of energy consumption in Europe from 2010 to 2024, particularly during the years 2018 to 2024, highlighting the effects of the COVID-19 pandemic and the war in Ukraine.

Overall, energy consumption in Europe decreased from 86 EJ in 2010 to 72 EJ in 2024, in clear contrast to the global increase in energy consumption. Throughout this period, a consistent reduction in coal use and the increase of renewable energy as an energy source can be observed.

In 2020, energy consumption fell below both the previous and the subsequent year due to the COVID-19 pandemic, which led to a decline of the global demand.

In 2022, it is possible to observe the reduction in the share of natural gas consumption in Europe. This occurred because of Europe's decision to stop importing Russian natural gas, its main supplier, following the onset of the Russia-Ukraine war.

5.4. Iberian energy market

The Iberian energy market shares many similarities with the European market, which is expected given that its part of Europe. In general, energy demand has decreased over the years, with a sharp decline in 2020 due to the COVID-19 pandemic and since 2022, natural gas consumption has also decreased as result of the ongoing Russia-Ukraine war. However, the Iberian market has some unique characteristics that distinguish it from the European market. These differences can be observed in Figures 5.9 and 5.10.

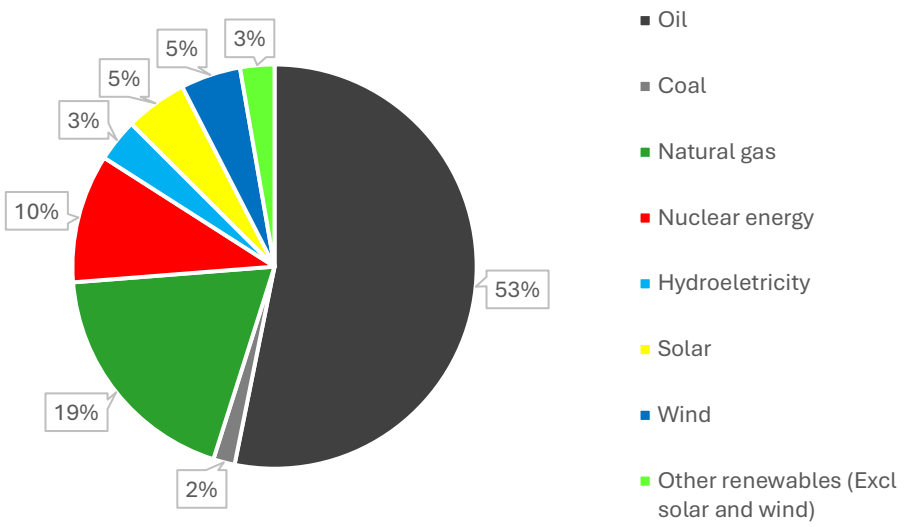


Figure 5.9 Iberian Energy Mix in 2024. Source: Statistical Review of World Energy

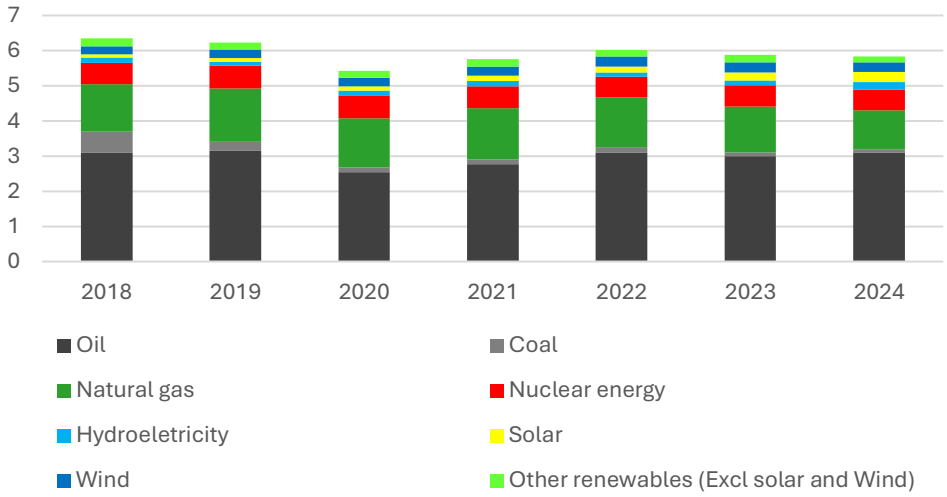


Figure 5.10 Iberian Energy Consumption. Source: Statistical Review of World Energy

In the graphs above, the very low share of coal use in the Iberian Peninsula is evident. Figure 5.10 shows the reduction in coal consumption throughout the years, reaching just 2% in 2024 as illustrated in Figure 5.9.

In the Iberian energy market, renewable energy represents a larger share than in the European market, 16% compared to 13%, respectively. This difference is largely due to the increase in solar energy consumption between 2018 and 2024, which grew by roughly 245%.

One particularity of the Iberian market is that all nuclear energy consumption occurs in Spain, as Portugal does not use, and never used, nuclear energy.

5.5. Future market trends

The issue of climate change is becoming increasingly present in society, and various regions, including the European Union (EU), have shown growing concern about this matter and have begun taking action to combat it. These efforts will drastically change the energy market and the way companies within it, including Galp, operate.

According to the European Parliament (2025), the EU has set a target of achieving climate neutrality by 2050, supported by two intermediate goals, reducing greenhouse gas emissions by 55% by 2030, compared to 1990 levels, and achieving a 90% reduction by 2040, also relative to the levels of 1990.

To achieve these goals, the EU launched the "Fit for 55" package, which includes a set of legislative proposals related to climate and energy policy. These proposals, particularly those affecting transport and energy consumption, are expected to have a significant impact on companies operations.

In the transport sector, the EU established that by 2050 at least 70% of aviation fuel must be sustainable, including used cooking oil, synthetic fuels and hydrogen. In the maritime sector, the EU has set greenhouse gas emission reduction targets of 2% by 2025, 14.5% by 2035, and 80% by 2050, relative to 2020 levels. Regarding passengers cars and light comercial vehicles, the EU mandates that all new vehicles entering the European market must produce zero CO_2 emissions.

On the energy consumption side, the EU has established that the Member States must achieve average annual energy savings of 1.5% by 2030, with collective savings reaching at least 11.7% by 2030 relative to the 2020 projections. In addition to reducing energy consumption, the EU aims to increase the share of renewable energy in total energy consumption to 42.5% by 2030.

The measures targeting the transport sector will primarily affect the oil market, as according to data from the World Energy Outlook 2025 database, oil is not only the main energy source for transportation but also accounts for approximately two thirds of total global oil consumption (International Energy Agency, n.d.). Meanwhile, measures related to energy consumption, particularly those promoting renewable energy, will have a significant impact on companies operations, as firms will gradually divest from fossil fuels while increasing investment in renewable energy and sustainable mobility.

5.6. Porter's five forces

Porter´s five forces model is used to analyze the competitiveness and attractiveness of an industry, as well as to identify the opportunities and threats within it. In this case, the energy industry will be analyzed using the five forces, the threat of new entrants, the bargaining power of suppliers, the bargaining power of customers, the threat of substitutes and competitive rivalry.

5.6.1. Threat of new entrants

The threat of new entrants in the energy industry is low due to the high barriers to entry, particularly in the oil and gas segment, which remains the core of the energy sector.

From a financial perspective, the industry requires substantial initial investment, while projects are characterized by long payback periods and high risk, including exposure to geopolitical tensions. In addition, new entrants face difficulties in achieving economies of scale, which limits their ability to compete on price with established firms and results in lower profit margins.

Entry into the oil and gas industry is further constrained by extensive regulatory and legal barriers. These include strict environmental licensing requirements, government approvals for exploration and production activities, high safety standards and compliance with European climate policies such as the EU emissions trading system and the fit for 55 package.

Moreover, the industry faces significant resource-based barriers, as exploration blocks are scarce, auctioned by the governments and typically allocated to major companies.

In contrast, in the renewable energy segment, the threat of new entrants is higher, as projects typically require lower initial capital investments, benefit from public incentives, and face fewer resource constraints.

5.6.2. Bargaining power of suppliers

In the oil and gas industry, the bargaining power of suppliers is high, as the market is characterized by strong demand and a limited numbers of major suppliers. In the oil segment, supply is heavily influenced by OPEC+ decisions, which play a key role in global production levels. In the natural gas market, similar dynamics prevail, as major suppliers such as the United States in the LNG

market and Russia in pipeline gas has significant influence through their production and export decisions. A clear example of this influence is the Russian invasion of Ukraine, which led to a reduction in natural gas consumption in Europe following the suspension of imports from Russia.

In contrast, in the renewable energy segment, the bargaining power of the suppliers is lower. This market is characterized by a larger number of equipment and technology providers, stronger competition and significant government support. As a result, companies operating in this segment generally face lower dependence on individuals suppliers.

5.6.3. Bargaining power of buyers

In the oil and gas segment, the bargaining power of buyers is low, as prices are largely determined by international benchmarks such as Brent and TTF, leaving limited room for bilateral price negotiations.

In contrast, in the renewable energy segment, buyers bargaining power is higher due to the greater number of competing suppliers and the absence of global price benchmarks. Prices are typically determined through competitive mechanisms such as energy auctions, wholesale electricity markets and long-term power purchase agreements (PPAs). This competitive environment allows buyers to switch suppliers more easily and negotiate contract terms, increasing their bargaining power.

5.6.4. Threat of substitutes

The threat of substitutes in the energy sector is high, particularly in Europe, where renewable energy sources are progressively replacing fossil fuels as part of the European Union's decarbonization strategy. Renewable electricity, biofuels, green hydrogen and the electrification of transport constitute direct substitutes for oil and natural gas in several end-use sectors.

This substitution process is strongly supported by regulatory measures such as the fit for 55 package, emission reduction targets in the transport sector, and the EU's objective of achieving climate neutrality by 2050. Although fossil fuels still account for a significant share of the current energy mix, the long-term policy direction clearly indicates a substantial medium to long-term threat to their dominant position.

5.6.5. Competitive Rivalry

Competitive rivalry in the energy industry is high due to the presence of several large, vertically integrated firms operating in a capital-intensive environment and, in the case of fossil fuels, within a mature market.

In the oil and gas segment, competitive rivalry is intensified by the expected gradual decline in demand in Europe, high fixed costs, limited product differentiation, and competition for access to exploration and production reserves.

In the renewable energy segment, despite strong demand growth, competitive rivalry also remains high due to the increasing number of new entrants and intense competition in energy auctions, wholesale electricity markets, PPAs.

6. Company overview

6.1. Company profile and business model

Galp Energia, SGPS, S.A. is a Portuguese energy company with operations across the energy value chain and a strong international presence. The company is headquartered in Lisbon and is listed on Euronext Lisbon.

Galp operates across several segments, such as the exploration and production of oil and natural gas, refining, distribution and marketing of petroleum products, as well as renewable energy and low-carbon solutions.

Galp's business model is characterized by its vertical integration, which allows the company to operate in upstream activities, industrial and midstream operations, and downstream activities. This structure enables Galp to capture value across the energy value chain, while mitigating the effects of price volatility, increasing the operational flexibility and enhancing resilience to variations in market conditions.

Geographically, Galp's operations are present in nine different countries, spread across three different continents. In Europe, Galp operates in the Iberian Peninsula, which represents the core of its downstream activities. In South America, Galp operates in Brazil, where the activities are primarily upstream. In Africa, the company operates in several countries with focus on both upstream and downstream activities.

In recent years, Galp has increasingly invested in renewable energy and low-carbon solutions, including solar and wind generation, biofuels and sustainable mobility initiatives. Although these activities currently represent a small share of Galp's operations compared to fossil fuel-based activities, they are expected to play a growing role in Galp's strategy in response to the new environmental regulations and changes in the consumer preferences.

6.2. Operating segments

6.2.1. Upstream

Upstream activities in the energy sector are characterized by a project life cycle in which the risk involved, and the cash flow generated vary significantly depending on the stage of each asset. Early-stage projects in the exploration and appraisal phases are associated with high risk, as they require upfront investment without any guarantee of future return. In the development phase, economic viability is largely confirmed, however, this stage implicates substantial capital expenditures for infrastructure development. As the project reaches the production phase, it begins to generate positive cash flows, with the risk shifting towards market-related factors.

From Galp's perspective, its upstream portfolio includes projects at different stages of the life cycle. This diversification allows Galp to maintain a balanced risk profile, combining higher risk projects with lower risk ones. Geographically, Galp´s upstream activities are primarily concentrated in Brazil, which represents the company's main upstream market. In addition, Galp also has projects in Namibia and São Tomé and Príncipe, which are currently in the exploration phase.

6.2.2. Industrial and midstream

The industrial and midstream segment comprises refining and logistics activities, which are primarily concentrated at Galp's refinery in Sines and play a central role in Galp´s vertically integrated business model, connecting the upstream production with downstream commercial activities.

Within refining operations, crude oil is processed into refined petroleum products for domestic supply and export. In recent years, Galp has also invested in the production of biofuels and green hydrogen. Logistics activities support the secure import of crude oil and natural gas and ensure the efficient distribution of refined products.

Compared to upstream activities, this segment tends to have lower earnings volatility, however, it requires continuous investment to maintain operational efficiency and regulatory compliance.

6.2.3. Commercial (Downstream)

The commercial segment is responsible for the distribution and marketing of energy products such as fuels, natural gas and electricity, serving both B2C and B2B costumers. These activities are mainly concentrated on the Iberian Peninsula, where Galp operates an extensive retail and wholesale network.

Compared to upstream, industrial and midstream activities, the commercial segment tends to exhibit lower volatility, benefiting from relatively predictable demand patterns and regulated market.

6.2.4. Renewables and new businesses

The renewables and new businesses segment comprises Galp's operations in renewable energy generation, namely solar and wind power, as well as a set of emerging and exploratory business initiatives, including venture building, portfolio growth, corporate venture capital and other new businesses related to the energy transition and low-carbon solutions. Renewable energy activities represent the operational component of this segment, while new businesses are primarily strategic and exploratory, with the goal of developing future growth opportunities.

Although this segment currently represents a small share of Galp's operations, it reflects the company's strategic commitment to the energy transition and the diversification of its portfolio.

6.3. PESTEL analysis

The PESTEL analysis is used to assess external factors that may influence a company's operations and performance. It considers political, economic, social, technological, environmental and legal factors.

Given that the regulatory and macroeconomic context has been discussed in previous chapters, this section focuses on the implications of external factors for Galp's operations.

6.3.1. Political

Galp's operations are strongly shaped by political factors, particularly stringent regulation in the energy sector, fiscal regimes and government policies related to the energy transition, such as fit for 55 package, that significantly influence strategic and investment decisions in all company's segments.

In addition, political stability in countries where Galp operates upstream, such as Brazil and African nations, influence projects risk and investment attractiveness, increasing exposure to geopolitical risk in exploration and production activities.

6.3.2. Economic

Galp's financial performance is closely linked to economic factors that affect energy demand, operational costs and financing conditions. Variations in economic growth affect consumption patterns, while inflation and interest rates influence the cost structure and capital allocation decisions, particularly in capital-intensive segments such as refining and upstream operations. In addition, exposure to energy price volatility, especially in the oil and natural gas markets, constitutes a crucial economic factor which directly impacts the company's revenues, cash flow generation and the risk profile of each business segment.

6.3.3. Social

Changes in social attitudes and consumer preferences have a direct impact on Galp's strategic positioning and operational activities. The growing social concern regarding climate change and greenhouse gases emissions has increased demand for sustainable and environmentally friendly energy solutions.

These changes in consumer preferences expose Galp and others traditional energy companies to a reputational risk and led Galp to adapt its commercial offerings and invest in low-carbon solutions, such as renewable energy, biofuels and sustainable mobility, to remain aligned with societal expectations.

6.3.4. Technological

Technological factors affect Galp's operations by allowing continuous innovation in energy production and improvements in operational efficiency. Advances in renewable energy technologies, energy storage, biofuels and low-carbon solutions create business opportunities for offering diversification, enhance operational efficiency and cost control in refining and exploration activities and support the company's energy transition strategy. However, these technological developments require continuous investment and adaptability for Galp to remain competitive in an energy market in transition.

6.3.5. Environmental

Environmental factors play a crucial role in Galp's operations due to the environmental impact in energy production and the increasing pressure to reduce greenhouse gas emissions. Stricter environmental regulation and the European Union's decarbonization objectives have increased regulatory scrutiny over emissions, waste management and environmental risk mitigation. Compliance with these requirements led Galp to adjust its operational practices, raising operational cost, and simultaneously accelerating investment in low-carbon solutions, reshaping Galp's asset portfolio and influencing the long-term sustainability of its business model.

6.3.6. Legal

Legal factors influence Galp's operations through the need to comply with regulatory frameworks, governing environmental protection, safety standards and licensing across the different jurisdictions in which the company operates.

Compliance with legal obligations, particularly across markets with different legal regimes, such as European markets, where Galp operates in downstream and midstream activities, and African and South American markets, where Galp's operations are primarily upstream, increases operational complexity and raises costs, particularly in a capital-intensive and highly regulated sector such as the energy industry.

6.4. SWOT analysis

The SWOT analysis is used to assess a company's internal strengths and weaknesses, as well as external opportunities and threats. This analysis provides a structured overview of internal and external factors that may affect Galp's performance and strategic positioning.

6.4.1. Strengths

One of Galp's main strengths is its vertically integrated business model, which allows the company to capture value across upstream, industrial and midstream, and downstream activities, while partially mitigating exposure to commodity price volatility. Galp's extensive upstream asset portfolio, particularly in Brazil and several African countries, represents the primary source of earnings and cash flow generation.

Diversification across business segments and geographies reduces dependence on a single activity or market. In addition, the company's well-established commercial operations in the Iberian Peninsula contributes to a relatively stable demand.

Finally, Galp's significant investment in renewable energies and low-carbon solutions positions the company favorably to adapt to changing consumer preferences and increasingly stringent environmental regulation within the European Union.

6.4.2. Weaknesses

Despite its vertically integrated business model, Galp's earnings and cash flow generation remain largely driven by upstream activities, meaning that the company continues to be exposed to oil and natural gas price volatility.

The capital-intensive nature of the energy sector requires continuous and substantial investment, which limits financial flexibility and increases sensitivity to changes in financing conditions.

In addition, the company's asset base remains predominantly related to fossil fuel-based activities, creating a structural challenge in the context of the energy transition, as these assets are expected to face declining long-term demand and increasing regulatory pressure.

6.4.3. Opportunities

The ongoing energy transition within the energy sector creates significant opportunities for Galp to expand its presence in the renewable energy segment and low-carbon solutions, supported by favorable regulatory framework and growing demand for sustainable energy. Investments in solar and wind power generation, biofuels and green hydrogen contribute to the diversification of revenue sources and reduce long-term exposure to fossil fuel-based activities.

In addition, Galp's established reputation in the energy sector, and its financial capacity provides the company with opportunities to develop new business models and strategic partnerships, facilitating the energy transition while supporting long-term growth and value creation.

6.4.4. Threats

Galp faces significant threats from the high volatility of oil and natural gas prices, which may negatively affect revenues, profitability and cash flow generation. Increasing regulatory pressure related to climate policies and decarbonization goals, particularly within European Union, represents an additional challenge that may increase compliance costs and impose stricter operational constraints.

Furthermore, the energy transition increases the risk with assets related to fossil fuel-based activities, while rapid technological change and intensifying competition in renewable energy markets may adversely affect the company's competitive position.

Finaly, geopolitical instability in key energy producing regions represents a relevant threat, with potential implications for operational continuity and investment risk.

6.5. Strategic implications for valuation

Galp's strategic positioning has direct implications for its valuation. The company's vertically integrated business model and strong upstream asset base support its ability to generate cash flows, while diversification across business segments and geographies contributes to revenue stability and

partial mitigation of price volatility. These characteristics are relevant for assessing the sustainability of future cash flows.

At the same time, Galp's valuation is influenced by its exposure to structurally higher risk. Dependence on upstream activities, the capital-intensive nature of the energy sector and continued exposure to fossil fuel-related assets increases sensitivity to price volatility, regulatory tightening and financing conditions. These factors are reflected in the company's risk profile and are relevant for determining appropriate discount rates and long-term assumptions.

Finally, the energy transition creates opportunities for long-term value creation through the expansion of renewable energies and low-carbon solutions. Although these activities currently represent a small share of Galp's operations, their expected growth supports assumptions of gradual business diversification and influences long-term growth and risk considerations within the valuation.

7. Financial Analysis

7.1. Financial performance overview

Galp's performance over the analyzed period reflects the cyclical nature of the energy sector and the company's exposure to commodity price dynamics. Revenue and net income, presented in Figure 7.1, exhibit significant variation throughout the period, largely driven by fluctuations in oil and natural gas prices as well as changes in global energy demand.

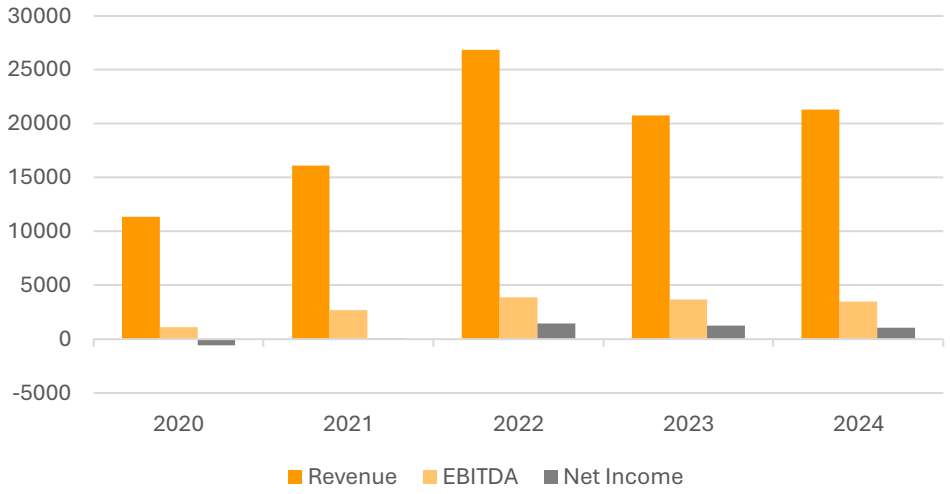


Figure 7.1 Evolution of revenue, EBITDA and net income (2020-2024, € million). Source: Galp annual reports

EBITDA and EBIT follow a similar pattern, highlighting Galp´s operational leverage and its sensitivity to markets conditions. The evolution of margins, illustrated in Figure 7.2, shows periods of strong profitability during favorable price environments, as well as margin compression during less supportive market conditions. This reinforces the relevance of margin sustainability for assessing future performance.

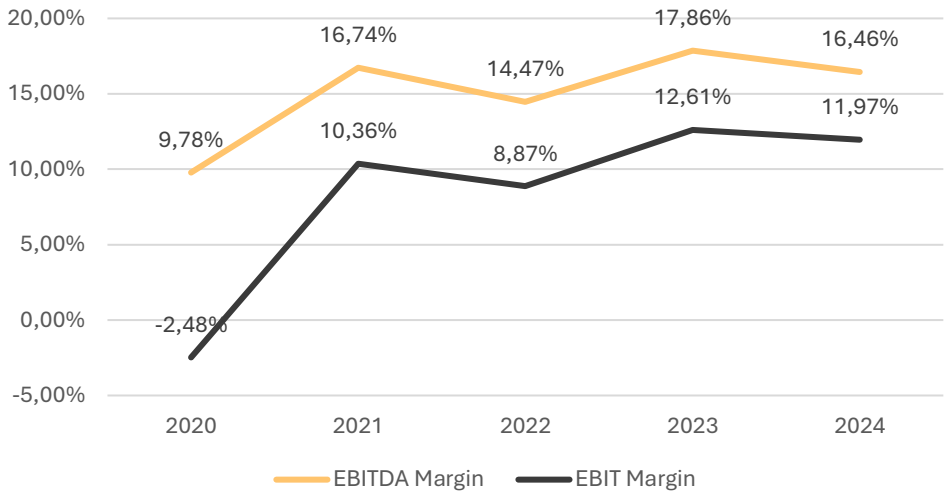


Figure 7.2 Evolution of EBITDA and EBIT margins (2020-2024). Source: Author's calculations based on Galp annual reports

The analysis also reveals the presence of atypical years, particularly 2020 and 2022. In 2020, the sharp decline in energy demand negatively affected revenues and margins, while in 2022 Galp benefited from exceptional market conditions following supply disruptions and elevated commodity prices. These years should be interpreted with caution, as they may not be fully representative of normalized operating performance.

From an intercompany perspective, Figure 7.3 presents the average EBITDA and EBIT margins of four vertically integrated European energy companies.

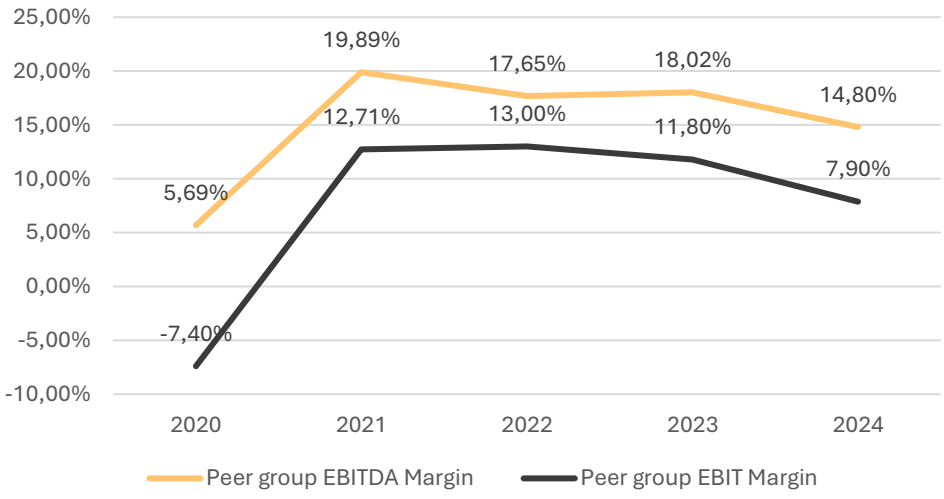


Figure 7.3 Average EBITDA and EBIT margins of the European integrated energy peer group (2020-2024). Source: Author's calculations based on the annual reports of BP, ENI, Repsol and TotalEnergies

Comparing Figures 7.2 and 7.3, it can be observed that Galp's margins are generally aligned with the peer group average. However, in 2022 the peer group achieved a stronger performance, capturing mor effectively the exceptional commodity price peak. In contrast, in the most recent year Galp outperformed the group, which may indicate an improvement in its operational efficiency and cost discipline.

7.2. Segment performance and profitability

Galp operates across several energy segments with distinct risk profiles, capital intensity and profitability characteristics. Segment performance reflects both the company's vertically integrated structure and the heterogeneous exposure of each segment to commodity prices, demand conditions and regulatory frameworks.

The analysis of segment EBITDA, presented in Figure 7.4, highlights the dominant role of upstream activities in Galp's profitability. This segment represents the largest share of EBITDA generation, reflecting its direct exposure to oil and natural gas prices and the high-margin nature of production activities. Industrial and midstream operations provide a more stable contribution, supported by refining and logistics activities, while commercial operations benefit from relatively predictable demand in downstream markets. Renewable energies and new businesses currently account for a limited share of EBITDA, although their strategic relevance is increasing.

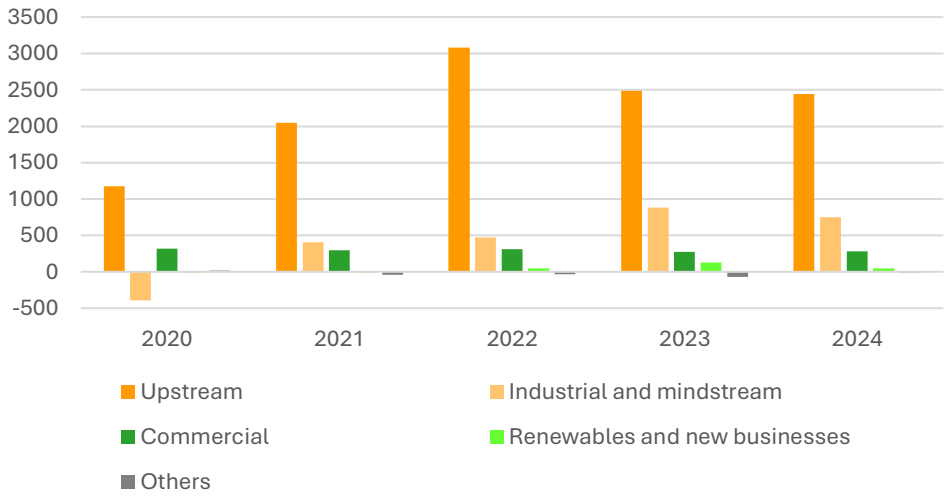


Figure 7.4 Evolution of EBITDA by segment (2020-2024, € million). Source: Galp annual reports

Profitability and volatility differ significantly across segments. Upstream activities exhibit higher margins but are subject to substantial earnings volatility driven by commodity price fluctuations. In contrast, industrial and midstream operations show lower volatility due to integrated operations and more stable earnings profile. Renewables energies and new businesses remain at an early stage of development, with limited current profitability but lower long-term exposure to fossil fuel price risk.

These differences in profitability and risk have direct implications for capital allocation decisions. While upstream activities remain central to value generation, their higher risk profile supports a gradual rebalancing of investment towards segments with more stable cash flows and lower long-term transition risk, particularly in renewable energy and lower-carbon solutions.

7.3. Investment policy and CAPEX

Galp's investment policy reflects the capital-intensive nature of the energy sector and plays a central role in long-term value creation. Capital expenditures are directed towards sustaining and developing upstream assets, ensuring the efficiency of industrial and midstream operations, and gradually expanding the company's presence in renewable energy and low-carbon solutions.

The evolution and allocation of capital expenditures, presented in Figure 7.5, show variability over the analyzed period, reflecting changing market conditions, investment cycles and strategic priorities. Higher CAPEX levels are generally associated with the development of upstream projects and expansion of renewable energy capacity, while lower investment levels indicate capital discipline and portfolio optimization. This variability highlights the discretionary nature of investment decisions in the energy sector.

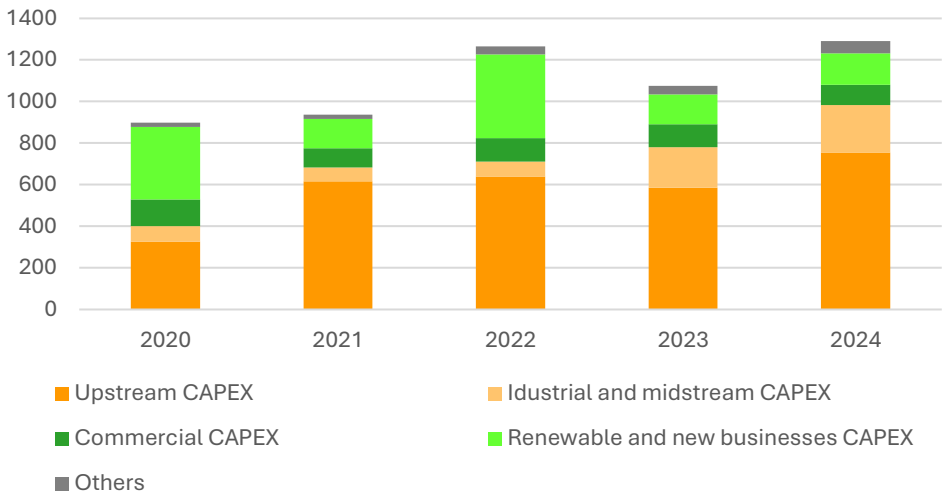


Figure 7.5 Evolution of CAPEX by segment (2020-2024, € million). Source: Galp annual reports

The allocation of CAPEX across segments illustrates Galp's strategic focus. While upstream investments remain essential to sustain production and cash flow generation, renewable energy and low-carbon initiatives consistently represent a relevant share of total capital expenditures. This pattern highlights the strategic importance attributed to energy transition projects, supporting business diversification and aiming to reduce long-term exposure to fossil fuel-related risks, while preserving short to medium term value creation.

Galp's investment policy has direct implications for its valuation. Sustained CAPEX levels are required to maintain production capacity and operational efficiency, while increased investment in renewable energy affects the timing and risk profile of future cash flows. These dynamics are particularly relevant for defining long-term CAPEX assumptions and growth expectations within the valuation framework.

7.4. Working capital dynamics

Working capital dynamics play an important role in Galp's cash flow generation, reflecting the cyclical nature of the energy sector and the company exposure to commodity price movements. In this context, it is important to distinguish between total working capital and operating working capital. While total working capital corresponds to current assets minus current liabilities reported in the statement of financial position, operating working capital excludes non-operating items such

as cash and cash equivalents and short-term financial investments, focusing exclusively on operational segments.

Variations in operating working capital, namely inventories, trade receivables and trade payables, are closely linked to changes in oil and gas prices, demand conditions and refining activity, leading to short-term volatility in liquidity requirements. As illustrated in Figure 7.6, operating working capital exhibits noticeable fluctuations over the period analyzed. The bar chart highlights changes in absolute levels, while the ratio of operating working capital to revenue provides a normalized perspective of these dynamics.

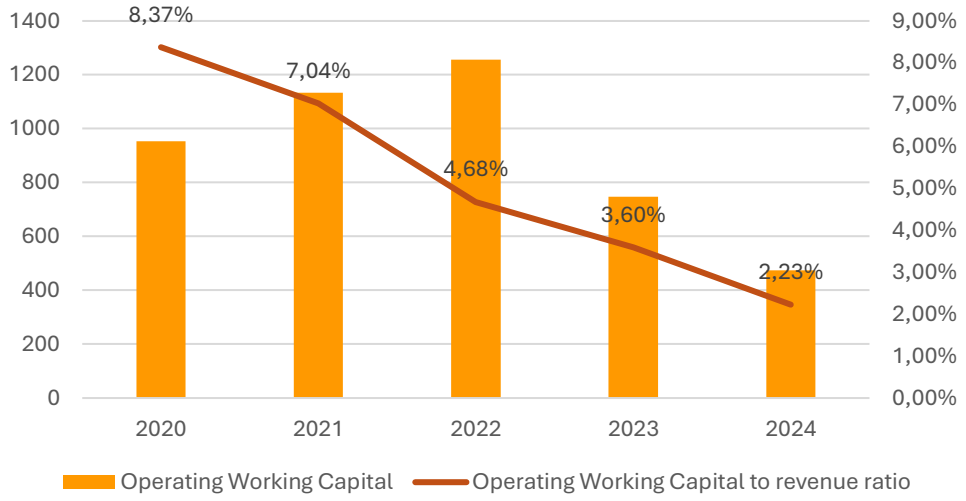


Figure 7.6 Evolution of operating working capital and operating working capital to revenue ratio (2020-2024, € million). Source: Author's calculations based on Galp annual reports

Periods of higher commodity prices and increased activity tend to require greater investment in inventories and receivables, whereas market downturns or phases of capital discipline are typically associated with operating working capital releases. In addition, the operating working capital to revenue ratio shows a gradual decline over the period, suggesting an improvement in capital efficiency, although this trend should be interpreted with caution given the limited time horizon and the influence of market conditions.

From a valuation perspective, operating working capital is the relevant measure for free cash flow to the firm. Accordingly, the valuation model is based on normalized operating assumptions relative to revenue, rather than extrapolating short-term fluctuations in absolute levels. This approach supports more stable long-term cash flow projections and avoids distortions driven by cyclical movements.

7.5. Capital structure and liquidity

Galp's capital structure reflects a conservative financial policy, consistent with the cyclical and capital-intense nature of energy sector. The company maintains a balanced mix of debt and equity, aiming to preserve financial flexibility while supporting the investment requirements across business segments.

Over the period analyzed, Galp's net debt shows some variability, mainly driven by fluctuations in EBITDA and capital expenditures. As CAPEX follows the life cycle of projects, particularly in upstream, years with weaker prior results require higher debt funding, while stronger operating performance allows excess cash flow to be used for deleveraging. As illustrated in Figure 7.7, the net debt to EBITDA ratio remains within manageable levels, despite earnings volatility, particularly during the COVID-19 shock in 2020. This evolution indicates a disciplined approach to leverage management and a strong capacity to absorb adverse market conditions.

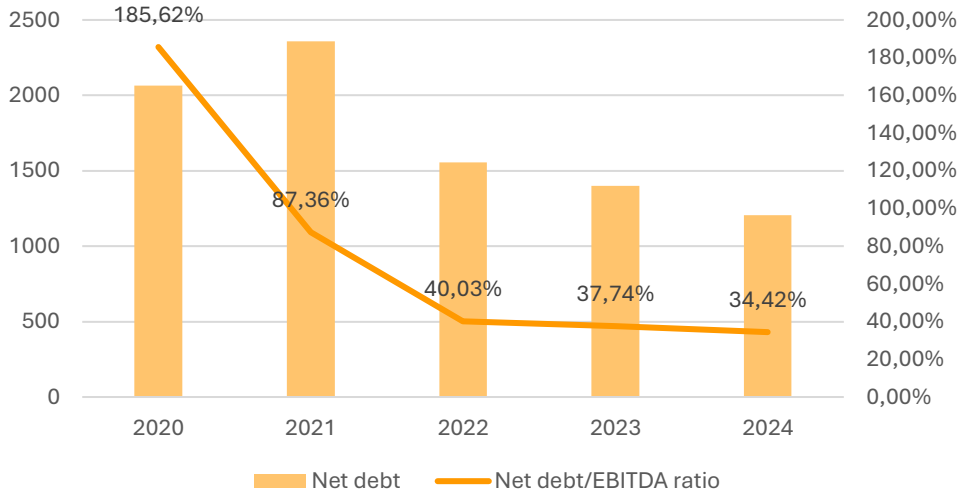


Figure 7.7 Evolution of net debt and net debt/EBITDA ratio (2020-2024, € million). Source: Author's calculations based on Galp annual reports

Galp's liquidity position further reinforces the company's solid financial standing. The company benefits from diversified funding sources and liquidity reserves, enabling it to meet short-term obligations and finance ongoing operations without excessive reliance on external financing. This liquidity profile is particularly relevant given the volatility of commodity prices and the capital intensity of upstream and industrial activities.

From a valuation perspective, Galp's capital structure has direct implications for the cost of capital. A moderate leverage profile supports a stable cost of debt and reduces financial risk, contributing to a lower WACC. These characteristics are incorporated into the valuations assumptions, ensuring consistency between the company's historical financial policy and the projected capital structure.

7.6. Value creation analysis

Comparing return on invested capital (ROIC) with the WACC is a standard approach to assess value creation at Galp. The company creates economic value when ROIC exceeds WACC and destroys value when returns fall below the required return demand by capital providers. The WACC applied in this analysis corresponds to the same cost of capital used in the valuation chapter. At this stage, it serves as a consistent benchmark for comparison and will be formally derived and discussed in the valuation chapter.

Over the analyzed period, illustrated in Figure 7.8, Galp generated economic value in all years except 2020, when the COVID-19 pandemic led to atypical market conditions and a sharp contraction in energy demand. From 2021 onwards, ROIC consistently exceeded WACC, reflecting a strong recovery in profitability, particularly during periods of favorable commodity price environments. This pattern highlights the resilience provided by the company's vertically integrated business model, which partially mitigates exposure to commodity price volatility and the cyclical nature of the energy sector.

From a relative perspective, Galp's ROIC underperformed the peer group average in 2020 and 2021, indicating greater difficulty in creating value during the COVID-19 pandemic and the initial recovery phase. However, from 2022 onwards, Galp's ROIC outperformed the peer average, suggesting that its value creation is not only cyclical but also structurally comparable to that of other European integrated energy companies.

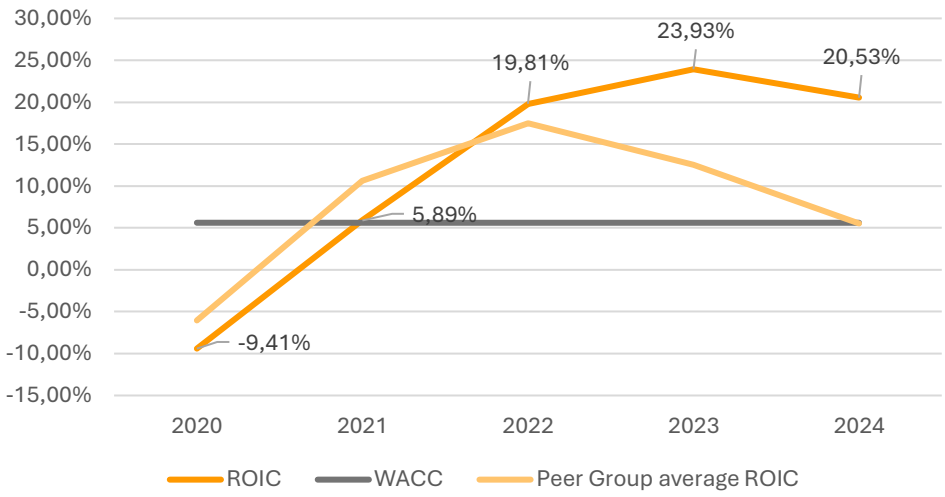


Figure 7. 8 Comparation between ROIC and WACC (2020-2024). Source: Author's calculations based on BP, ENI, Galp, Repsol and TotalEnergies annual reports

From a valuation perspective, the historical relationship between ROIC and WACC provides important insights for long-term assumptions. While short-term fluctuations in ROIC are largely driven by commodity prices cycles, sustainable value creation depends on Galp's ability to maintain returns above its cost of capital through disciplined investment decisions, operational efficiency and strategic capital allocation. These observations supports the assumption that, under normalized market conditions, Galp can generate economic value over the long-term, although ROIC is expected to converge toward more sustainable levels below recent cyclical peaks but above WACC.

7.7. Implications for valuation

The analysis of Galp's financial performance provides fundamental inputs for the valuation. Trends in the revenue and profitability highlight the strong sensitivity of cash flows to commodity prices. These short-term fluctuations should not be extrapolated into the projection period, therefore, growth and margin assumptions in the valuation are based on sustainable levels estimated from historical averages rather than cyclical peaks.

Capital allocation patterns and investment policy are key determinants of future free cash flows. Sustained levels of CAPEX are required to maintain upstream production and operational efficiency, while the gradual reallocation of investment toward renewable energy and low-carbon

projects supports long-term business diversification and risk mitigation. Similarly, the historical volatility of operating working capital justifies modelling working capital requirements using long-term average relationships with activities levels, avoiding distortions arising from cyclical movements in inventories and receivables.

Finally, the comparison between ROIC and WACC highlights Galp's ability to create economic value under normal market conditions, despites periods of exceptional volatility. These episodes support the assumption that returns will converge toward sustainable levels over the long term, consistent with a disciplined capital allocation strategy and the competitive dynamics of the energy sector. Overall, the valuation framework reflects a balance between Galp's value creation potential and the structural risks inherent to a capital-intensive and cyclical industry.

8. Valuation

8.1. Key assumptions

The assumptions applied in the valuation are derived from historical financial analysis presented in chapter 7 and aim to reflect normalized operating conditions. Therefore, the year 2020 is excluded from the projection basis, as the COVID-19 pandemic generated abnormal market conditions that would unrealistically distort forward looking estimates. Consequently, all historical averages used in the projections are calculated based on the period from 2021 to 2024.

8.1.1. Income statement

The projected income statement was constructed based on the assumptions described above.

Revenues were projected using the compound annual growth rate (CAGR), resulting in an annual growth rate of 9.76%. The use of CAGR instead of a simple average allows to smooth the exceptional revenue peak observed in 2022.

EBITDA and depreciation and amortization (D&A) were projected based on their historical average margins relative to revenues, amounting to 16.38% and 5.43%, respectively. These margins were applied to the projected revenues to estimate EBITDA and D&A.

Interest expense was estimated by applying the cost of debt to the average historical debt. The resulting value was assumed to remain constant over the forecast period.

The tax rate applied in the projections corresponds to the average effective tax rate observed between 2022 and 2024, amounting to 42.63%. The year 2021 was excluded from the calculation, as the effective tax rate in that year was 77.7%, which represents an abnormal value and would distort the average.

The projected income statement for the period 2025-2029 is presented in Table 8.1.

Table 8.1 Projected Income Statement (2025-2029). Source Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
Revenue	23391	25673	28179	30929	33947
EBITDA	3832	4205	4616	5066	5561
D&A	1270	1394	1530	1679	1843
EBIT	2562	2811	3086	3387	3717
Interest expense	157	157	157	157	157
EBT	2405	2654	2929	3230	3560
Tax rate (%)	42.63%	42.63%	42.63%	42.63%	42.63%
Income tax	1025	1132	1248	1377	1518
Net Income	1380	1523	1680	1853	2042

8.1.2. CAPEX

CAPEX was projected using the historical average CAPEX to revenue margin, which resulted in a ratio of 5.44%. This margin was then applied to the projected revenues to estimate future capital expenditures. The projected CAPEX values are presented in Table 8.2.

Table 8.2 Projected CAPEX (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
CAPEX	1272	1397	1533	1683	1847
CAPEX margin (%)	5.44%	5.44%	5.44%	5.44%	5.44%

8.1.3. Working capital requirements

The operating working capital was projected based on the average historical ratios of its components relative to revenues. Firstly, current assets were estimated as the sum of inventories, trade receivables and other receivables. Subsequently, current liabilities were projected as the sum of trade payables and other payables. Operating working capital was then calculated as the difference between projected current assets and projected current liabilities.

As the valuation requires the variation in operating working capital rather than its absolute value, the change in OWC was calculated as the difference between the current year and the previous year. The projections are presented in Table 8.3.

Table 8.3 Projected Operating working capital (2025-2029). Source: Author's calculations

In millions (€)	2024	2025F	2026F	2027F	2028F	2029F
Current assets	3175	3891	4270	4686	5143	5645
Current liabilities	2700	2866	3145	3452	3789	4159
Operating Working Capital	475	1025	1125	1234	1354	1486
ΔWC	-	550	100	109	120	132

8.1.4. Capital structure and cost of capital

The WACC was calculated in four steps. First, the capital structure was estimated, followed by the cost of debt, the cost of equity, and finally the WACC calculation.

The capital structure was estimated using the historical averages of gross debt (D) and equity (E), resulting in approximately 56.6% equity and 43.4% debt. The historical averages of gross debt and equity, as well as the resulting capital structure, are presented in Table 8.4.

Table 8.4 Galp's capital structure. Source: Author's calculations

Capital structure (in millions €)	
Average gross debt (D)	3845
Average equity (E)	5014
% of debt	43.40%
% of equity	56.60%

The cost of debt was calculated by dividing the historical average interest expense by the historical average gross debt, resulting in a value of 4.08%. The values used in this calculation are presented in Table 8.5.

Table 8.5 Cost of debt calculation. Source: Author's calculations

Cost of debt (in millions €)	
Average gross debt (D)	3845
Average interest expense	157
Rd	4.08%

The cost of equity was estimated using the CAPM. The risk-free rate was proxied by the yield of Portuguese 10-year government bonds, which according to data from Trading Economics was approximately 2.91% at the end of 2024. The leveraged beta used in the calculation was obtained

from the dataset published by Professor Damodaran, which compiles sector betas for companies in Western Europe. The selected beta corresponds to the Oil/Gas Production and Exploration sector and has a value of 0.95. Although Galp operates as an integrated energy company, most of its value is derived from upstream activities. Therefore, this beta was considered more appropriate to reflect the company's risk profile. The equity risk premium for Portugal was also obtained from Professor Damodaran's website and has a value of 5.78%. The calculation of the cost of equity is presented in Table 8.6.

Table 8.6 Cost of equity calculation. Source: Author's calculations

Cost of equity	
Rf	2.906%
Beta	0.95
(RM-Rf)	5.78%
Re	8.397%

Finally, using the inputs obtained in the previous steps, the WACC was calculated, resulting in a value of 5.77%, as presented in Table 8.7.

Table 8.7 WACC calculation. Source: Author's calculations

WACC	
% of debt	43.40%
% of equity	56.60%
Rd	4.08%
Re	8.397%
Tax rate	42.63%
WACC	5.77%

8.1.5. Terminal growth rate

The terminal growth rate was assumed to be 1.5%. This value reflects a conservative assumption that Galp will grow at a rate slightly below the Portuguese economy in the long term. This is justified by the mature nature of the energy sector, as well as the expected impact of the energy transition, which is likely to negatively affect upstream activities, where a significant portion of the company's value is generated.

8.2. Discount cash flow model

8.2.1. Enterprise value

Based on the assumptions established previously, the FCFF was calculated using Equation 2.4. The results are presented in Table 8.8.

Table 8.8 Projected FCFF (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
EBIT	2562	2811	3086	3387	3717
Tax rate (%)	42.63%	42.63%	42.63%	42.63%	42.63%
NOPAT	1470	1613	1770	1943	2133
D&A	1270	1394	1530	1679	1843
CAPEX	1272	1397	1533	1683	1847
ΔWC	550	100	109	120	132
FCFF	918	1510	1658	1820	1997

The terminal value was estimated using the Equation 2.5, based on the FCFF of 2029 adjusted by the perpetual growth rate (1+g), as well the WACC and terminal growth rate defined earlier. The results are presented in Table 8.9.

Table 8.9 Terminal value calculation by the FCFF approach. Source: Author's calculations

Terminal value (in millions €)	
FCFFn+1	2027
WACC	5.77%
g	1.5%
Terminal value	47474

Finally, the enterprise value was calculated using Equation 2.2 by discounting the projected FCFF and terminal value. Equity value was then obtained by subtracting net debt, allowing the estimation of the implied share price. The results are presented in Table 8.10.

Table 8.10 Share price calculation by the FCFF approach. Source: Author's calculations

In millions (€)	2024	2025F	2026F	2027F	2028F	2029F
FCFF	-	918	1510	1658	1820	1997
Terminal value	-	-	-	-	-	47474
Discounted FCFF	-	868	1350	1402	1454	37371
Enterprise value	42444	-	-	-	-	-
Net debt	1207	-	-	-	-	-
Equity value	41237	-	-	-	-	-
Number of shares	753	-	-	-	-	-
Share price (€)	54.76	-	-	-	-	-

8.2.2. Equity value

The FCFE was calculated using Equation 2.9. However, it was assumed that Galp does not issue new net debt over the forecast period, implying that ND-PR is equal to zero. Under this assumption, FCFE simplifies to the difference between FCFF and after-tax interest expenses. The resulting values are presented in Table 8.11.

Table 8.11 Projected FCFE (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
FCFF	918	1510	1658	1820	1997
After-tax interest expenses	90	90	90	90	90
New net debt issue	0	0	0	0	0
FCFE	828	1420	1568	1730	1907

The terminal value was calculated following the same approach as in the previous subsection but using FCFE instead of FCFF and the cost of equity as the discount rate. The results are presented in Table 8.12.

Table 8.12 Terminal value calculation by the FCFE approach. Source: Author's calculations

Terminal value (in millions €)	
FCFEn+1	1936
Re	8.397%
g	1.5%
Terminal value	28066

Finally, the equity value was estimated using Equation 2.7 and afterwards divided by the number of shares outstanding to obtain the implied share price. The values obtained are presented in Table 8.13.

Table 8.13 Share price calculation by the FCFE approach. Source: Author's calculations

In millions (€)	2024	2025F	2026F	2027F	2028F	2029F
FCFE	-	828	1420	1568	1730	1907
Terminal value	-	-	-	-	-	28066
Discounted FCFE	-	764	1209	1231	1253	20028
Equity value	24485	-	-	-	-	-
Number of shares	753	-	-	-	-	-
Share price (€)	32.52	-	-	-	-	-

8.3. EVA valuation

The valuation was also performed using the EVA approach, which estimates firm value based on the value created above the required return on invested capital.

The first step in the EVA valuation is to calculate the EVA for the forecast period using Equation 2.12. The results are presented in Table 8.14.

Table 8.14 Projected EVA (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
NOPAT	1470	1613	1770	1943	2133
Invested capital	7397	7500	7611	7734	7870
WACC	5.77%	5.77%	5.77%	5.77%	5.77%
EVA	1043	1180	1331	1497	1678

The second step is to estimate the terminal value, which was calculated using the same approach applied in the previous valuation methods. The resulting terminal value is presented in Table 8.15.

Table 8.15 Terminal value calculation by the EVA approach. Source: Author's calculations

Terminal value (in millions €)	
EVAn+1	1704
WACC	5.77%
g	1.5%
Terminal value	39898

After obtaining the projected EVA and the terminal value, these amounts are discounted to present value and then added to the invested capital to obtain the enterprise value. Finally, net debt is subtracted from the enterprise value to obtain the equity value, which is divided by the number of shares outstanding to estimate the implied share price. The results are presented in Table 8.16.

Table 8.16 Share price calculation by the EVA approach. Source: Author's calculations

In millions (€)	2024	2025F	2026F	2027F	2028F	2029F
EVA	-	1043	1180	1331	1497	1678
Terminal value	-	-	-	-	-	39898
Discounted EVA	-	986	1055	1125	1196	31408
PV of EVA	35769	-	-	-	-	-
Invested capital	6845	-	-	-	-	-
Enterprise value	42614	-	-	-	-	-
Net debt	1207	-	-	-	-	-
Equity value	41407	-	-	-	-	-
Number of shares	753	-	-	-	-	-
Share price (€)	54.99	-	-	-	-	-

8.4. Discussion of results and sensitivity analysis

This section discusses the valuation results. Table 8.17 presents a comparison between the valuation results obtained using the different methods and the market price of Galp at the end of 2024. The results indicate that all valuation approaches produce share prices significantly higher than the observed market price. The enterprise valuation using the FCFF approach results in an implied share price of 54.76€, while the equity valuation using FCFE produces a lower estimate of 32.52€. The EVA valuation provides a similar result to the FCFF approach, with an implied share price of 54.99€. Overall, the results suggest that the company may be undervalued by the market, considering the assumptions applied in this valuation.

Table 8.17 Comparison of valuation results and market price. Source: Author's calculations and data from Yahoo Finance

Valuation Method	Share price (€)	Market Price (€)	% Difference	Comment
Enterprise valuation	54.76	15.82	246%	Undervalued
Equity valuation	32.52	15.82	106%	Undervalued
EVA valuation	54.99	15.82	248%	Undervalued

The differences between the valuation results are mainly explained by the discount rates applied in each model. In the FCFF model the discount rate used is the WACC, while the equity valuation uses the cost of equity, which is higher and therefore results in a lower valuation. Additionally, a significant portion of the estimated firm value is derived from the terminal value, making the results particularly sensitive to changes in key assumptions such as the discount rate and the terminal growth rate.

Given the strong impact that these assumptions may have on valuation results, a sensitivity analysis was performed to assess how variations in the discount rate and the terminal growth rate affect the estimated share price. This analysis was conducted using the enterprise valuation approach, however, the sensitivity patterns for the equity valuation and the EVA valuation would be similar, as they rely on the same underlying assumptions. The results of this analysis are presented in Table 8.18.

Table 8.18 Sensitivity analysis of the share price. Source: Author's calculations

€		WACC				
Share price	**54.76**	3.5%	4.5%	**5.77%**	6.5%	7.5%
Growth rate	2%	158.88	93.89	61.08	50.61	40.79
	1.5%	121.11	79.49	**54.76**	46.25	37.95
	1%	98.44	69.21	49.77	42.67	35.55

The results show that the estimated share price is highly sensitive to changes in the WACC and the terminal growth rate. As expected, higher discount rates lead to lower valuations, while higher growth assumptions increase the estimated share price.

Additionally, a sensitivity analysis was performed on the WACC by varying key inputs of the CAPM, namely the beta and the market risk premium. These variables represent market-based assumptions that reflect changes in the perceived risk of the company and overall market conditions.

The results, presented in Table 8.19, show that the WACC is positively related to both beta and the market risk premium. Increases in either variable lead to a higher cost of equity and consequently to a higher WACC, reinforcing the sensitivity of the valuation to changes in market conditions.

Table 8.19 Sensitivity of the WACC to changes in beta and market risk premium. Source: Author's calculations

%		Beta				
WACC	**5.77%**	0.65	0.80	**0.95**	1.10	1.25
(RM-Rf)	4%	4.13%	4.47%	4.81%	5.15%	5.49%
	5%	4.50%	4.93%	5.35%	5.77%	6.20%
	5.78%	4.79%	5.28%	**5.77%**	6.26%	6.75%
	6%	4.87%	5.38%	5.89%	6.40%	6.91%
	7%	5.24%	5.83%	6.43%	7.02%	7.61%

Conclusion

The main objective of this master's thesis was to estimate the value of Galp by applying different valuation approaches and comparing the obtained results with the company's market price. To achieve this objective, the study began with a macroeconomic, industry and company analysis, followed by a financial analysis that supported the development of the valuation models.

The valuation was conducted using the DCF method, through both the FCFF and FCFE approaches, as well as the EVA model. Based on the assumption established for the period 2025-2029, the results obtained from the different valuation methods indicate share prices above the market price observed at the end of 2024. The FCFF valuation resulted in an estimated share price of 54.76€, the FCFE approach produced a lower estimate of 32.52€, and the EVA model generated a valuation similar to the FCFF method with a value of 54.99€ per share.

Overall, the results suggest that the company may be undervalued by the market, and therefore the recommendation for investors would be to buy the stock or to hold their current stock if they do not have the capacity to increase their investment, as the share price is expected to increase in value. However, it is important to highlight that valuation results are highly dependent on the assumption used, particularly the discount rate and the terminal growth rate. For this reason, a sensitivity analysis was conducted to evaluate the robustness of the estimated values.

Despite the contributions of this study, some limitations should be acknowledged. The valuation relies on financial projections and assumptions that may change due to macroeconomic conditions, energy price volatility or regulatory developments affecting the energy sector. Future research could extend this analysis by incorporating alternative valuations methods or by updating the projections as new financial information becomes available.

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Appendixes

Appendix A Revenue CAGR calculation (2021-2024). Source: Author's calculations

In millions (€)	2021	2022	2023	2024
Revenue	16117	26840	20769	21311
CAGR (%)				9.76%

Appendix B Average EBITDA margin calculation (2021-2024). Source: Author's calculations

In millions (€)	2021	2022	2023	2024
EBITDA	2698	3885	3710	3507
EBITDA margin (%)	16.74%	14.47%	17.86%	16.46%
Average margin (%)				16.38%

Appendix C Average D&A margin calculation (2021-2024). Source: Author's calculations

In millions (€)	2021	2022	2023	2024
D&A	1028	1504	1092	956
D&A margin (%)	6.38%	5.60%	5.26%	4.49%
Average margin (%)				5.43%

Appendix D Projected interest expense calculation. Source: Author's calculations

In millions (€)	2021	2022	2023	2024
Gross debt	4300	3987	3600	3492
Average gross debt				3845
Rd (%)				4.08%
Projected interest expense				157

Appendix E Average tax rate calculation (2021-2024). Source: Author's calculations

In millions (€)	2022	2023	2024
Tax rate (%)	44.50%	38.50%	44.90%
Average tax rate (%)			42.63%

Appendix F Projected income statement (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
Revenue	23391	25673	28179	30929	33947
Annual growth (%)	9.76%	9.76%	9.76%	9.76%	9.76%
EBITDA	3832	4205	4616	5066	5561
EBITDA margin (%)	16.38%	16.38%	16.38%	16.38%	16.38%
D&A	1270	1394	1530	1679	1843
D&A margin (%)	5.43%	5.43%	5.43%	5.43%	5.43%
EBIT	2562	2811	3086	3387	3717
Interest expense	157	157	157	157	157
EBT	2405	2654	2929	3230	3560
Tax rate (%)	42.63%	42.63%	42.63%	42.63%	42.63%
Income tax	1025	1132	1248	1377	1518
Net Income	1380	1523	1680	1853	2042

Appendix G Average CAPEX margin (2021-2024). Source: Author's calculations

In millions (€)	2021	2022	2023	2024
CAPEX	936	1265	1076	1291
CAPEX margin (%)	5.81%	4.71%	5.18%	6.06%
Average margin (%)				5.44%

Appendix H Projected operating current assets calculation (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
Inventory	1371	1504	1651	1812	1989
Inventory margin (%)	5.86%	5.86%	5.86%	5.86%	5.86%
Trade receivables	1502	1648	1809	1986	2179
Trade receivables margin (%)	6.42%	6.42%	6.42%	6.42%	6.42%
Other receivables	1017	1117	1226	1345	1477
Other receivables margin (%)	4.35%	4.35%	4.35%	4.35%	4.35%
Current assets	3891	4270	4686	5143	5645

Appendix I Projected operating current liabilities (2025-2029). Source: Author's calculations

In millions (€)	2025F	2026F	2027F	2028F	2029F
Trade payables	1130	1240	1361	1494	1640
Trade payables margin (%)	4.83%	4.83%	4.83%	4.83%	4.83%
Other payables	1736	1905	2091	2295	2519
Other payables margin (%)	7.42%	7.42%	7.42%	7.42%	7.42%
Current liabilities	2866	3145	3452	3789	4159

Appendix J Projected invested capital calculation (2025-2029). Source: Author's calculations

In millions (€)	2024	2025F	2026F	2027F	2028F	2029F
CAPEX	-	1272	1397	1533	1683	1847
D&A	-	1270	1394	1530	1679	1843
ΔWC	-	550	100	109	120	132
Invested capital	6845	7397	7500	7611	7734	7870