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Avaliação de capital próprio: The Navigator Company, S.A.

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Master in Finance

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BUSINESS
SCHOOL

Department of Finance

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Resumo

Este relatório foi desenvolvido com o objetivo de estimar o justo valor das ações da Navigator a 31 de dezembro de 2022 e concluir se as ações se encontravam subvalorizadas ou sobrevalorizadas no mercado.

A Navigator é uma empresa portuguesa que está presente no mercado há mais de 70 anos, atuando em diversos setores, como o da Pasta de papel, o do Papel, do *Tissue paper*, e também da Energia.

A avaliação foi feita utilizado dois métodos de avaliação, o método dos Fluxos de caixa descontados, e uma avaliação relativa por múltiplos. Os pressupostos utilizados são fundamentados pela informação histórica da empresa, pelo contexto macroeconómico e do mercado onde a empresa atua.

Após a aplicação das duas metodologias foi possível verificar que a 31 de dezembro de 2022 as ações da Navigator estavam cotadas a um preço inferior (€3.45) em 20.8% face ao seu justo valor (€ 4.17).

Palavras-chave: Navigator, Avaliação de Empresas, Fluxos de Caixa, Múltiplos

Classificação JEL: G30; G32

Abstract

This report was developed with the aim of estimating the fair value of Navigator's shares as of December 31, 2022, and determining whether the shares were undervalued or overvalued in the market.

Navigator is a Portuguese company that has been in the market for over 70 years, operating in various sectors, such as Paper Pulp, Paper, Tissue Paper, and Energy.

The evaluation was conducted using two valuation methods, the Discounted cash flow method and a Relative valuation based on multiples. The assumptions used are grounded in the company's historical information, the macroeconomic context, and the market in which the company operates.

After applying both methodologies, it was possible to determine that as of December 31, 2022, Navigator's shares were trading at a price lower (€ 3.45) in around 20.8% than their fair value (€4.17).

Keywords: Navigator; Company Valuation; Discounted Cash Flows; Multiples

JEL Classification: G30; G32

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List of abbreviations

BEKP – Bleached eucalyptus kraft pulp

CAGR – Compounded annual growth rate

CAPM – Capital asset pricing model

CEPI – Confederation of European paper industries

COGS – Cost of goods sold

DCF – Discounted cash flow

ECB – European central bank

EQV – Equity value

ERP – Equity risk premium

EV – Enterprise value

EV/EBITDA – Enterprise value to EBITDA

EV/EG – Enterprise value to EBITDA growth

EV/FCF – Enterprise value to Free cash flow

EV/Sales – Enterprise value to Sales

FCFE – Free cash flow to equity

FCFF – Free cash flow to the firm

FSC – Forest stewardship council

GDP – Gross domestic product

M&A – Merger and acquisition

NOA – Non-operating assets

P/BV – Price to Book value

P/E – Price to Earnings

PEG – Price earnings growth

R&D – Research and development

RAIZ – Forest and paper research institute

ROA – Return on assets

ROE – Return on equity

UWF – Uncoated wood free

VTS – Value tax shield

WACC – Weighted average cost of capital

Introduction

The Navigator Company, S.A. is a Portuguese firm that has been present in Portugal since the 1950s. Since then, it has suffered several transformations which led to a big growth that would make it one of the most known and strong firms in Portugal and in the world. In addition, Navigator is one of the biggest firms present in the Portuguese Stock Index (PSI-20).

Navigator is an integrated forest producer, and its end products are Pulp, Paper, Tissue paper, and Energy. In its operations, the firm uses large-scale modern industrial units to create the best end products in the market.

The firm is Portugal's third largest exporter and the largest national added value generator, representing around 1.0% of the GDP and 3.0% of all national exports of goods. Its operations are spread across 130 countries on 5 continents, mainly Europe and the USA. This means that Navigator is the number one Portuguese firm regarding international presence.

Navigator is also a leading operator in the biomass energy sector. Over 50.0% of all power generated in Portugal from biomass, a renewable source of energy, is produced by the company. It is Europe's largest manufacturer of Uncoated woodfree (UWF) printing and writing paper, and the sixth largest in the world. The firm is Europe's top manufacturer, the fifth worldwide, of Bleached eucalyptus pulp (BEKP). In 2022, Navigator reached € 2,465M in revenues, an EBITDA of € 736.4M, and a Net income of € 392.5M, meaning that the year was very positive for the firm, despite the macroeconomic context of the world and the country.

The main objective of this project is to calculate the fair value of the firm at the end of December 2022, using two valuation methods: the Discounted cash flow method (DCF) and the Multiples method, considering the firm's financial performance, the risks, and the sources of value creation. To start the report, there is a literature review, in which the methods of valuation are described. In the second part, there is a macroeconomic and industry framework, where topics such as inflation and the war in Ukraine are discussed, as well as the details regarding the Pulp and Paper markets. The third section consists of a company overview, where the firm's history, its shareholder structure, and its financial history are analyzed. To finish, the main section contains the actual valuation of Navigator, which uses the aforementioned methods. This section includes the forecasts assumptions, a sensitivity analysis, and a summary of the obtained results. After the calculation of the firm's value, there is a conclusion regarding the share price, mentioning if the shares were undervalued, overvalued, or correctly priced.

1 Literature review

This first chapter will be the basis of the practical part of the thesis, meaning that the valuation of Navigator will follow the theoretical concepts that will be discussed in the items below. It is important to state that without an understanding of financial principles, the accuracy and reliability of the valuation process could be compromised, and eventually lead to misguided investment or strategic choices.

1.1 Valuation

Behind every decision regarding the allocation of resources it is necessary to know the value of that allocation and the impact it will have in the company, whether it is a partnership, the construction of a new facility, an investment in Research & development (R&D), or even a Merger & acquisition (M&A) project. That allocation of resources will impact the performance of the firm (Luehrman, 1997).

Being able to perform a financial valuation of a firm is an important skill to develop and it can have several purposes, whether a firm wants to know its value, how the business is performing, if it is growing accordingly to the previsions made by the board, or if a firm wants to sell a percentage of its stake or the company as a whole.

According to Damodaran (2002), a valuation can be approached in four different ways. The first method is the discounted cash flow valuation, which determines the worth of an asset based on the present value of anticipated future cash flows associated with it. The second approach is liquidation and accounting valuation, which focuses on assessing the value of the company's existing assets, often using accounting estimates or book value as a starting point. Relative valuation, the third method, involves estimating the value of an asset by examining the pricing of similar assets in relation to a common variable such as earnings, cash flows, book value, or sales. Lastly, contingent claim valuation employs option pricing models to evaluate the value of assets that possess option-like characteristics. These four approaches provide different perspectives for determining the value of assets and are widely used in the field of valuation.

In this thesis the methods that will be used to perform the valuation of Navigator will be the Discounted cash flow method and the Multiples method.

1.2 Discounted cash flow method (DCF)

The DCF method determines the value of a firm in a dynamic perspective. A firm’s value is related to its capability of generating wealth, that is, on its future cash flows (Mota et al., 2020). Being able to correctly predict the company’s future cash flows is vital in a valuation because it will strongly impact

the final value and, in case of a poor valuation result, it can also negatively affect the firm (Berk and DeMarzo, 2019).

According to Fernández (2013:9), "it can be said that, nowadays, the cash flow discounting method is generally used because it is the only conceptually correct valuation method.". The "cash flow discounting methods are based on the detailed and careful forecast, for each period, of each of the financial items related with the generation of the cash flows corresponding to the company's operations, such as, for example, collection of sales, personnel, raw materials, administrative, sales, expenses, loan repayments." (Fernández, 2013:10).

Damodaran, A. (2008a) states that the firm acts as a generator of risky cash flows that are spread in the future, and its value is dependent on the expected earnings growth rate less any possible reinvestment in the business.

When using the DCF method a general formula expression can be used:

$$Value = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} + \frac{TV_n}{(1+r)^n} \quad (1.1)$$

where:

- CF_t – Cash flow generated by the firm at period t
- r – Discount rate used for the cash flow risk
- TV – Terminal value, considering perpetual cash flows at a constant growth rate, *g*
- t – Period of the cash flow
- n – Period of the last cash flow of the explicit forecast period

There are two variants of the DCF approach that can be used in a valuation, depending on the nature of the cash flows. These two variants are the Free cash flow to the firm (FCFF) and the Free cash flow to equity (FCFE).

The first one consists of the valuation of the firm or business as a whole, with the assets (the ones in place and the growth ones), reaching the Enterprise value (EV) and then, with the adjustment of the net debt and non-operating assets, the Equity value (EQV). The FCFF requires a discount rate, the Weighted average cost of capital (WACC), which considers the proportion of financing by equity and debt.

Koller and Wessels (2020) state that firms with a very stable debt-to-value ratio can rely easily on the WACC-based models, but, if a firm does not have a stable debt-to-value ratio, the WACC-based models will not provide the best results, as it becomes more difficult to implement correctly.

The second method, the FCFE, only values the equity stake of the firm or business, with the cash flows considering the debt payments and the investments and reinvestments that the firm requires. In this case, the discount rate should only reflect the equity side of the firm, that is, the cost of equity.

1.2.1 Free cash flow to the firm (FCFF)

To calculate the value of the firm using the FCFF it is necessary to discount the cash flows at the WACC. According to Berk and DeMarzo (2019), the FCFF translates the difference between the cash inflow and the cash outflow of the firm that results from the operating cycle of the firm. The FCFF translates the amount of funds that are available for distribution to all the investors.

$$FCFF = EBIT * (1 - t) + D_{\&}A - CAPEX - \Delta WC \quad (1.2)$$

where:

- EBIT – Earnings before interest and taxes
- t – Corporate tax rate
- $D_{\&}A$ – Depreciations and amortizations
- CAPEX – Capital expenditures
- ΔWC – Changes in the working capital

An important note is that the FCFF method does not include the tax benefits that result from interest payments, given that the WACC already includes the tax shields in its computation (Damodaran, 2006).

1.2.2 Enterprise value

The Enterprise value is computed by discounting the free cash flows of the firm to the WACC, following the formula below:

$$EV = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{TV_n}{(1 + WACC)^n} \quad (1.3)$$

where:

- EV – Enterprise value
- $FCFF_t$ – Free cash flow to the firm at period t
- WACC – Weighted average cost of capital
- TV_n – Terminal value at the end of the time period

The Enterprise value is a way to calculate the current worth of a company by considering all the expected future cash flows it will generate. The formula used to calculate the Enterprise value divides the cash flows into two parts. The first part includes the cash flows that are predicted for a certain period using either yearly estimates or multiple growth rates for a medium-term period. The second part is the Terminal value, which is the value of the company after the forecasted period, assuming a constant annual growth rate that will continue in perpetuity. Along with the remaining FCFF, the Terminal value is discounted at the WACC to account for the time value of money.

Regarding the choice of a growth rate (g), there are several aspects that need to be considered. A stable perpetual growth rate requires a firm that is growing at a constant rate and expects to keep growing at a similar rate in perpetuity. As Damodaran (2002) states, the growth rate cannot be higher than the economy growth rate and the firm's characteristics should remain consistent with the stable growth assumptions.

The Terminal value is determined as follows:

$$TV_n = \frac{FCFF_{n+1}}{WACC - g} \quad (1.4)$$

where:

- TV_n – Terminal value at the end of the forecasting period
- $FCCF_{n+1}$ – Free cash flow at the end of the first year of perpetuity
- WACC – Weighted average cost of capital
- g – Constant growth rate in perpetuity

An important note is that the perpetuity growth rate will have a big impact on the Terminal value in the valuation of the firm.

1.2.3 Weighted average cost of capital (WACC)

The WACC represents the returns that all investors in a company – equity and debt – expect to earn from investing their funds in one particular business instead of others with similar risk (Koller and Wessels, 2020).

Luehrman (1997) states that the WACC is a tax adjusted discount rate with the purpose of capturing the value of interest tax shields that result from the operations debt capacity.

This rate can be calculated using the formula below:

$$WACC = r_E * \frac{E}{E+D} + r_D * \frac{D}{E+D} * (1-t) \quad (1.5)$$

where:

- WACC – Weighted average cost of capital
- r_E – Cost of equity
- E – Equity
- D – Debt
- r_D – Cost of debt
- t – Corporate tax rate

In Modigliani and Miller (1958) Proposition II, it is asserted that in the absence of taxes, the cost of equity rises when a company escalates its reliance on debt financing while keeping the WACC

constant. Essentially, increased leverage leads to an increase in the cost of equity. On the other hand, Modigliani and Miller (1958) Proposition I introduces the concept of tax shields. In the context of WACC, a tax shield refers to the savings generated from interest expenses, which ultimately enhance the firm's overall value.

The Value of the tax shield (VTS) can be computed using the formula:

$$Value\ Tax\ Shield = r_D * t * Debt \quad (1.6)$$

The VTS can be defined as the extra value of a firm due to the tax savings that are obtained through the payment of interest, as Fernández (2013) states.

1.2.3.1 Cost of equity

Asquith and Weiss (2016) state that the best way to compute the cost of equity is by estimating the expected return of the market portfolio using the Capital asset pricing model (CAPM), which is able to quantify the relation between the Beta factor and a specific asset and its expected return. Fama and French (2004) consider this model for risk and return as one of the most used due to its intuitive characteristics and capability to measure risk.

The CAPM was introduced by Sharpe (1964) and was later developed by Lintner (1965) and Mossin (1966) as a standard for pricing risky assets, with a single explanatory variable. Later, other multivariable models of risk and return were added, such as the Fama and French (1992) model.

Using the formula of the CAPM, presented below, it is possible to determine the cost of capital.

$$r_E = r_f + \beta_L * [E(R_M) - r_f] \quad (1.7)$$

where:

- r_E – Cost of equity
- r_f – Risk free rate
- β_L – Beta levered
- $E(R_M)$ – Market expected return
- $E(R_M) - r_f$ – Market risk premium

1.2.3.2 Risk-free rate

According to Koller and Wessels (2010) the risk-free rate is the return on a portfolio or security that has no covariance with the market, which means that it has a CAPM Beta equal to zero. When we consider a risk-free investment, it is believed that there will be a certain expected result, as a result of a non-existing default risk and a no reinvestment risk (Damodaran, 2008b).

In practice, when the company value of a European based firm is being calculated, the most common risk-free rate is the 10–year German government bonds, a country which has an investment grade classification of AAA (Koller and Wessels, 2010).

1.2.3.3 Beta levered

The beta parameter – β – measures the way a company reacts to the movements of the market. If a stock has a beta greater than one, it will have expected returns that exceed the market, and if the beta is smaller than minus one, it will also react negatively to the market. If the beta is set between one or minus one, the stock will be less volatile than the market.

According to Damodaran (1999), the beta for an asset can be estimated by regressing the returns of that asset against returns on an index representing the market portfolio, over a reasonable time period. This is, however, an imprecise process that has some limitations. There is not a clear way of doing the Beta regression. Details such as the index choice, the time period or the return interval may lead to different results. One other problem that emerges is that the regression will reflect the characteristics of the firm over a period of time and not how it may look today or possibly in the future.

Given these limitations, Koller and Wessels (2020) and Damodaran (2002) suggest that Bottom-up Betas should be used. In this method, the Beta of the firm will reflect the market or industry in which the firm is present, and the operating and financial leverage degree of the firm. In this case, in order to reduce the imprecise Beta estimations, the Beta estimation will consider firms within the same sector or market of the company.

The Bottom-up approach is the following:

Firstly, a Beta levered – β_L – should be identified, using the sector average or even a group of peer companies with similar characteristics as the valuation target firm.

Secondly, the Beta unlevered – β_U – needs to be computed using the following formula:

$$\beta_U = \frac{\beta_L + \beta_D * \frac{D}{E} * (1 - t)}{1 + \frac{D}{E} * (1 - t)} \quad (1.8)$$

$$\beta_D = \frac{r_D - (r_f + CRP)}{MRP} \quad (1.9)$$

where:

- β_U – Unlevered beta
- β_L – Levered beta
- β_D – Debt beta
- $\frac{D}{E}$ – Debt to equity ratio

- t – Corporate tax rate
- CRP – Country risk premium
- MRP – Market risk premium
- r_f – Risk-free rate
- r_D – Cost of debt

The third step is the calculation of the weighted average of the unlevered betas. This average will then be considered as the Beta unlevered of the firm.

Finally, the final step will be the computation of the Levered beta using the formula below:

$$\beta_L = \beta_U + (\beta_U - \beta_D) * \frac{D}{E} * (1 - t) \quad (1.10)$$

An important note is that the Debt-to-equity ratio considered in this computation is the current ratio of the firm, instead of an historical average.

1.2.3.4 Market risk premium

According to Berk and DeMarzo (2019), the market risk premium acts as a benchmark that reflects the willingness of the investor to hold market risk and it corresponds to the difference between the expected market return and the risk-free rate ($r_M - r_f$).

Callahan and Maubossin (2023) state that estimating a market risk premium is not consensual, given that over three decades, several finance valuation textbooks have estimated different Equity risk premium (ERP) rates, ranging from 3.0% to 10.0%. “There are three common approaches to estimating the ERP. The first is to look at historical results and assume the future will be similar to the past. The second is to survey investors and their expectations. The third is to estimate a rate the market implies by reverse-engineering assumptions to solve the market prices” (Callahan and Maubossin, 2023:15).

1.2.3.5 Cost of debt

The cost of debt represents the cost of a company to borrow, at that time, funds that will be used in its operations. The cost of debt is computed using the risk-free rate and the default risk of the firm. Since the WACC takes into consideration the value of tax shields, the after-tax cost of debt will also benefit from an increase in the corporate tax rate, as Koller and Wessels (2020) mention.

Damodaran (2002) states that the default risk varies from company to company, where the ones that are considered investment-grade firms and have liquidity, their default risk can become immaterial and in that case the firm’s long-term bonds can be used as a proxy for the cost of debt.

Regarding firms with little liquidity, the cost of debt should include a default spread to the risk-free rate, and its value should depend on the credit risk of the company (Damodaran, 2008c).

If the firm is rated, the estimation of the cost of debt could consist in the addition of a default spread to its rating.

$$r_D = r_f + Default\ spread \tag{1.11}$$

1.2.4 Equity value (EQV)

After the computation of the EV, adjustments to the firm's value should be made in order to fully achieve the value of the firm that is owned by the shareholders.

$$EQV = EV + NOA - Debt \tag{1.12}$$

where:

- EQV – Equity value of the firm
- EV – Enterprise value
- NOA – Non-operating assets

Regarding the NOA, these can include excess cash, marketable securities, idle equipment, amongst other components. Given that these assets do not contribute to a cash flow generating process, they need to be added in this stage of the valuation of the company. The debt refers to the financial debt of the firm, that is, contingent liabilities, preferred stocks, operating leases, and others.

1.3 Relative valuation

In the DCF method the valuation is performed by determining the value of the firm's assets based on their cash flows. In the relative valuation the objective is to determine the value of a firm's assets based on the value of the peers' assets (Damodaran, 2002).

According to Fernández (2001), the relative valuation method seeks to determine the value of a certain firm through its earnings, sales, or other indicators. Multiples almost always have a wide dispersion, which is why valuations made using multiples can be highly debated. However, multiples are good as a second stage step of a valuation because they allow for a comparison with other firms of the same sector/industry.

To use this method, prices need to be standardized, so that the assets can be valued, and a peer group of comparable firms needs to be selected. These peers need to be in the same sector of activity as the one of the target company.

According to Koller and Wessels (2020), the usual number of comparable firms is around eight to fifteen.

In the peer's analysis, the main framework of the strategy consists of choosing a moderate number of comparable firms and remove the outliers based on characteristics such as the services or products

the firms provide, the current financial performance of the firm, advantages the firms may have, amongst other. In addition, firms with multiples that diverge from the group mean should be excluded.

Koller and Wessels (2020:367) state that the "basic idea behind using multiples for valuation is that similar assets should sell for similar prices, whether they are houses or shares of stock".

Data from Morgan Stanley Dean Witter Research, present in Fernández (2001), shows that the most widely used valuation methods are the Price to Earnings Ratio (PER), the EV/EBITDA, the DCF, and the Price to Book Value (P/BV).

Multiples valuation can be divided into three groups: the ones based on the company's capitalization, the ones based on its value, and the growth-referenced multiples:

- Capitalization multiples:
    - Price to earnings ratio (P/E)
    - Price to sales (P/S)
    - Price to book value (P/BV)
- Value multiples:
    - Enterprise value to EBITDA (EV/EBITDA)
    - Enterprise value to sales (EV/Sales)
    - Enterprise value to free cash flow (EV/FCF)
- Growth-referenced multiples:
    - Price/earnings to growth (PEG)
    - Enterprise value to EBITDA growth (EV/EG)

2 Market overview

The following chapter consists of a general overview of the macroeconomic state of the world, followed by an analysis of the market in which Navigator operates. In the first part, themes such as the pandemic and the war in Ukraine will be discussed, given their impact in the world economy, and in the second part, a greater focus will be taken in the markets of Pulp and Paper, the most relevant ones in the firm. With this, it will be possible to be more critical in the assumptions made in the valuation, increasing the accuracy of the project.

2.1 Macroeconomic overlook

In 2022, the world was marked by the Russian invasion in Ukraine, which had significant macroeconomic repercussions not only for the countries involved in the conflict, but also for the whole world. The conflict has led to big geopolitical tensions and economic uncertainty, negatively impacting the macroeconomic outlook of the countries and the world. In Ukraine, the invasion has disrupted trade, investment, and productivity, as well as causing infrastructure damage. The country's currency has suffered significant depreciation, an increase in prices due to high inflation, and foreign direct investment has declined.

Additionally, economic sanctions imposed on Russia by Western countries have damaged the Russian economy, leading to capital outflows, reduced access to international markets, and a clear reduction in investor confidence. The overall macroeconomic outlook for both countries remains uncertain as the conflict continues to unfold, with obvious long-term implications for economic growth, stability, and regional cooperation.

The data presented in Figure 2.1 shows how much of an impact the war had, and still has, in our daily lives, a consequence of high inflation.

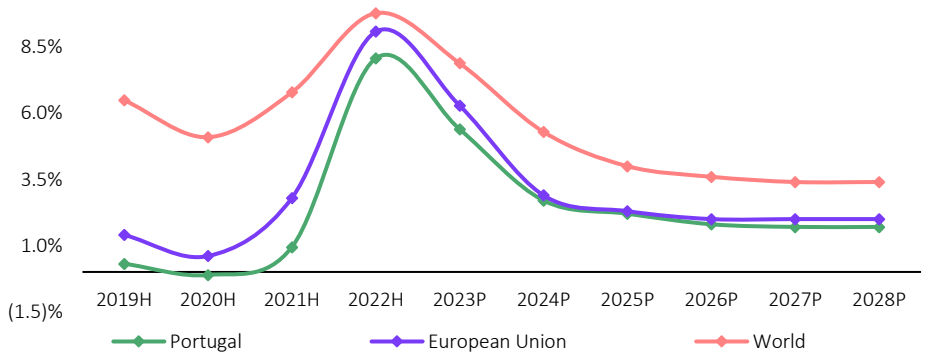


Figure 2.1 – Consumer price index (annual average, %), source: The Economist EIU (August 2023)[1]

[1] The historical years are followed by an "H", and the forecasted by a "P".

Despite suffering a lot with the effects of the pandemic, Portugal was able to control the inflation more than most European countries, and other countries of the World. The maximum level of inflation (yearly average) registered was 8.1%, in comparison to the 9.1% and 9.8% of the EU and the World.

To reduce the level of inflation, European governments have been implementing various measures and providing support to families and businesses. Additionally, the European central bank (ECB) has taken steps to raise interest rates in order to control the rise in prices. However, this move has placed increased pressure on companies and individuals who have variable interest rates linked to their debts.

An evidence of how big the impact of the pandemic and the war was and still is, is what Figure 2.2 describes. There was a big drop in the GDP due to the pandemic and its inherent restrictions, followed by a recovery in 2021. With the start of the war in 2022 the GDP decreased again, and currently the world is still trying to recover from both impacts. In Portugal it is to expect a recovery of the GDP to pre-pandemic levels by 2025.

It is clear that between Portugal, the European Union, and the World (average), Portugal suffered the most with the pandemic, where its GDP dropped more than 8.0%, in comparison to the 5.8% and 3.4% of the EU and the World.

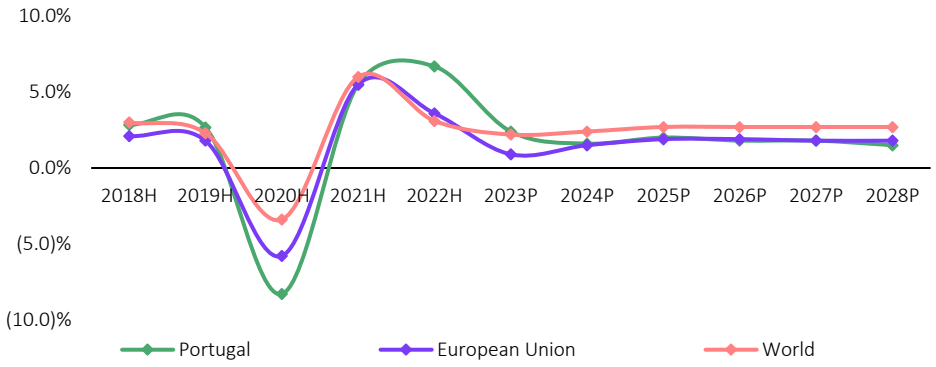


Figure 2.2 - Real GDP growth (annual change, %), source: The Economist EIU (August 2023)[2]

2.2 Pulp and Paper market

In this part, the analysis of the Pulp and Paper markets will be made, with a special focus for the production and consumption of each of these materials in the considered regions, with values and market share. In the topics of the production of Pulp and Paper there will be a part in which the latest values from 2022, from CEPI (Confederation of European paper industries), will be mentioned in more detail, establishing a comparison between 2014 and 2021.

[2] The historical years are followed by an "H", and the forecasted by a "P".

2.2.1 Pulp market

The data provided represents the world total pulp production by CEPI from 2014 to 2021. A list of the countries that integrate CEPI can be consulted in Annex A.

When comparing 2014 data to data from 2021, present in Figure 2.3, it is possible to see that the total amount of tonnes of Pulp produced has increased from 178.5 million tonnes to 182.7 million tonnes (around 2.4% of growth), with North America being, throughout the period, the biggest producer of Pulp, accounting for an average of 34.0% of the production market. However, this region has decreased its amount of Pulp produced from 2014 to 2021 by around 8.1 million tonnes. In an opposite trend was Latin America and Asia, who increased their market share by around 3.0% and 2.0%, respectively. The remaining regions have had their amounts of Pulp produced relatively constant.

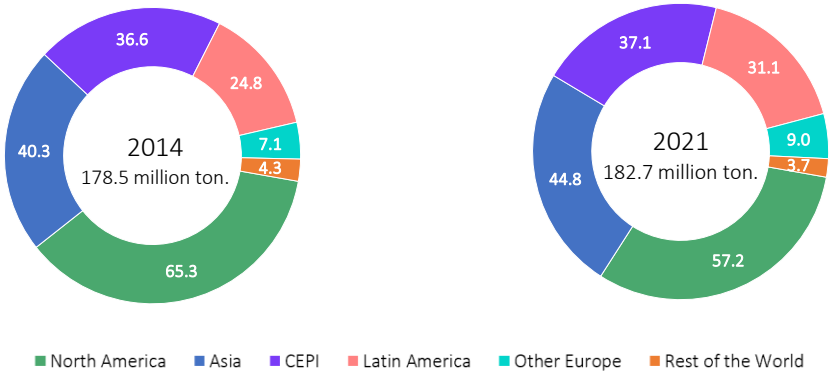


Figure 2.3 - World Pulp production (2014 vs. 2021), source: CEPI

Figure 2.4 shows a comparation between the world Pulp production by region in 2014 and in 2021 and the market share of each region, in the same period.

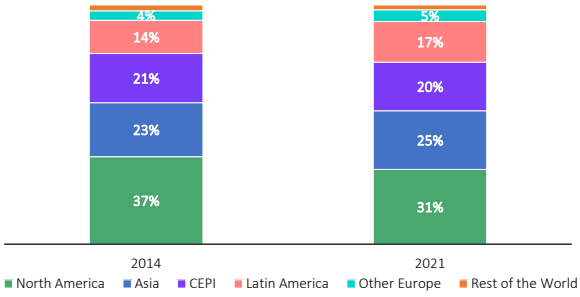


Figure 2.4 – Percentage of World Pulp production (2014 vs. 2022), source: CEPI

When analyzing only CEPI countries, data from 2022 in comparison to 2014, it is possible to see that Sweden and Finland take the lead in what concerns the production of Pulp, with around 60.0% of the market share. Portugal takes the third place in the production of Pulp in 2022, with 2.8 million tonnes, as Figure 2.5 shows. In this year, the total production of Pulp from CEPI countries reached 35.3

million tonnes, which corresponds to a reduction of 1.8 million tonnes in comparison to 2021 data. In this period the biggest change in the production of Pulp was registered in Finland, which decreased its amount of Pulp produced in around 2.2 million tonnes.

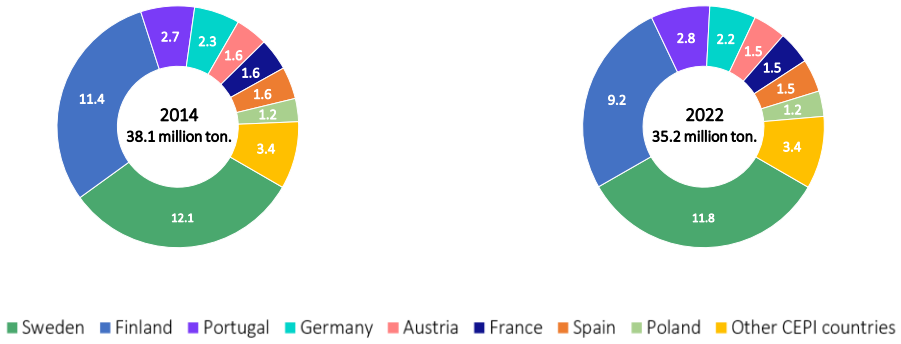


Figure 2.5 - CEPI Pulp production (2014 vs. 2022), source: CEPI

Regarding the total consumption of Pulp, it is possible to see in Figure 2.6 that the overall amount of Pulp consumed has not changed significantly, having only increased by 3.2 million tonnes (around 1.8% increase) from 2014 to 2021. However, Asia increased its consumption of Pulp by around 12.2 million tonnes, which corresponds to an increase of around 20.1%, between 2014 and 2021. Because the total amount of Pulp consumed did not change significantly, some regions ended up reducing their consumption of Pulp, with North America being the most affected region, with a reduction of 8.0 million tonnes (approximately 14.1%). CEPI has remained stable throughout the period, consolidating the number three place in the worldwide consumption of Pulp ladder.

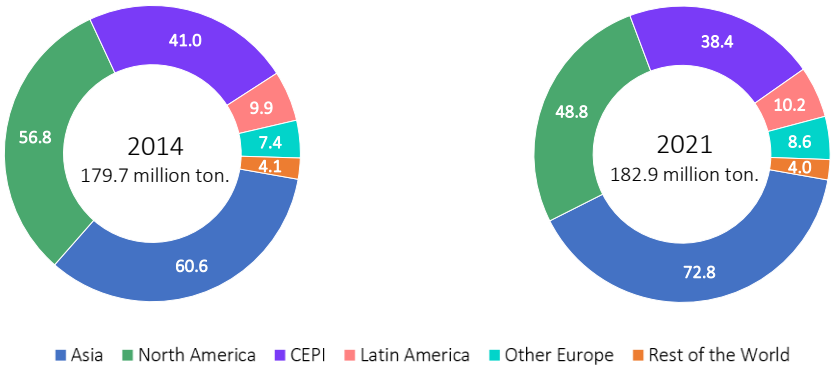


Figure 2.6 -World Pulp consumption (2014 vs. 2022), source: CEPI

Despite the small increase on the consumption of Pulp, the market share of the regions changed, with Asia increasing its share from 34.0%, in 2014, to 40.0% in 2021. North America lost 5.0% of its share during this period, with the remaining geographies maintaining a relatively stable share throughout the period, as Figure 2.7 shows.

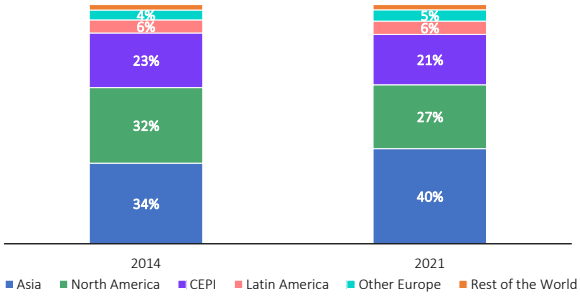


Figure 2.7 - Percentage of World Pulp consumption (2014 vs. 2021), source: CEPI

2.2.2 Paper market

The information from Figure 2.8 shows how the world total Paper production has changed in 2021 in comparison to 2014 and is clear that in this period the production of Paper has increased from 406.5 million tonnes to 423.4 million tonnes (corresponds to an increase of around 4.2%). During this period Asia has increased its production from 186.6 million tonnes to 204.1 million tonnes. As the other regions remained relatively stable, North America reduced its amount of Paper production in around 7.4%. Despite this reduction, North America remained in the number three place of worldwide Paper productors.

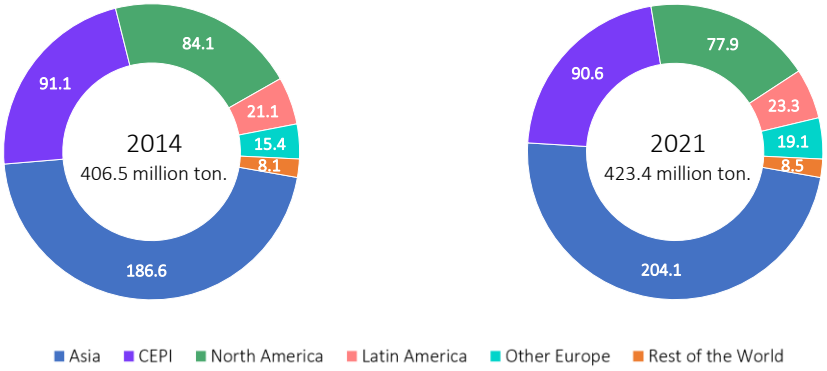


Figure 2.8 - World Paper production (2014 vs. 2022), source: CEPI

During this period is clear that the Paper industry has not seen many changes in the overall market share of each region, as Figure 2.9 shows.

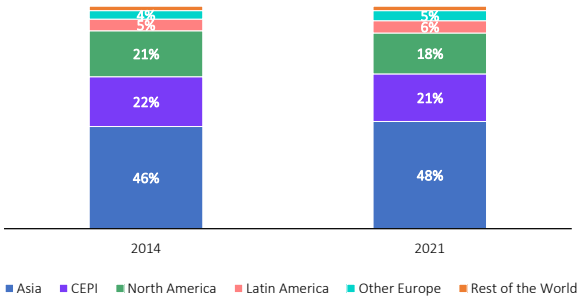


Figure 2.9 - Percentage of World Paper production (2014 vs. 2021), source: CEPI

In what concerns CEPI countries, in 2022, it is clear to say that, according to Figure 2.10, Germany is the biggest producer of Paper, with around 25.4% of CEPI's production. The remaining share of the production is widely spread between the remaining countries, such as Finland, Sweden, Italy, France, and other.

Comparing the values from 2022 with the values from 2021 the Paper production industry in CEPI countries has decreased by around 5.6 million tonnes (around 6.2%). When comparing the countries that integrate CEPI it is possible to see that during the time period of 2014 to 2022 the only countries that contributed to the decrease of the production of Paper were Germany (a decrease 0.5 million tonnes), Finland (a decrease of 1.0 million tonnes), Sweden (a decrease of 1.1 million tonnes), and Italy (a decrease of 1.7 million tonnes).

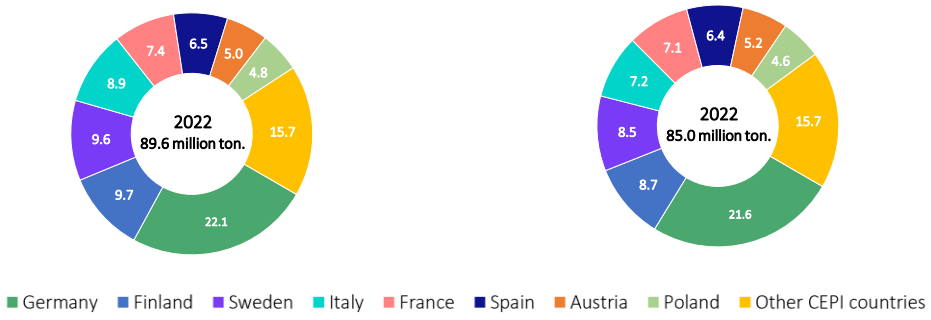


Figure 2.10 - CEPI Paper production 2022, source: CEPI

Regarding the consumption of Paper worldwide it is possible to see in Figure 2.11, that there was an increase between 2014 and 2021 of around 75.0 million tonnes (corresponds to an increase of 18.4%). During this period, Asia has significantly increased its consumption of Paper in around 53.5% (293.3 million tonnes in 2021 vs 191.1 million tonnes in 2014). CEPI followed this trend with an increase of 7.4 million tonnes, Other Europe with 6.6 million tonnes, North America with 6.0 million tonnes, and Latin America with 4.8 million tonnes.

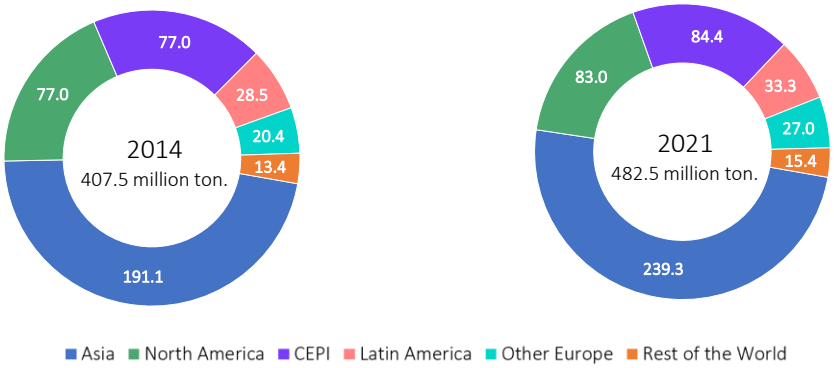


Figure 2.11 - World Paper consumption (2014 vs. 2022), source: CEPI

Despite the increase in the consumption of Paper to 48.2 million tonnes, Asia remained with a stable market share (50.0% in 2021 vs. 47.0% in 2014). The remaining regions followed the same path of stable market shares in the consumption of Paper, as Figure 2.12 shows.

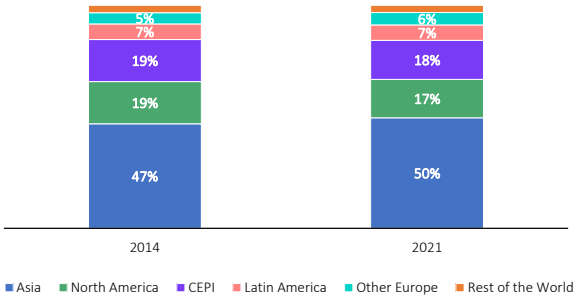


Figure 2.12 - Percentage of World Paper consumption (2014 vs. 2021), source: CEPI

3 Company overview

In this chapter, an overview of the firm will be performed, detailing the firm's profile, what its activity consists of, what are its segments, its history, shareholder structure, and at the end, how the firm has been performing, in financial terms. All the following information about the firm can be accessed on its web page or in the annual reports. In this last part, financial ratios will be presented, which will be useful in the valuation model.

3.1 Profile

Navigator is a Portuguese integrated forest producer, with several end products, such as Pulp, Paper, Paper Tissue, and Energy. Its operations are based at large-scale, modern, industrial facilities that use recent technology to produce the best end-products possible, always with a focus on sustainability and quality.

The company is Europe's top manufacturer of Bleached eucalyptus kraft pulp (BEKP), the fifth worldwide, and the largest manufacturer of Uncoated woodfree paper (UWF) in Europe, the sixth largest in the world.

Navigator has a yearly production capacity of 1.6 million tonnes of Paper, 1.6 million tonnes of Pulp, 130.0 thousand tonnes of Tissue paper, and 375.5 MW of installed capacity for energy consumption. An important factor that shows the commitment of the firm to the environment is that, in 2022, 66.0% of the firm's energy consumption was obtained from renewable sources, including biomass, which makes Navigator the leading operator in this sector.

In addition, Navigator is the third largest exporter in the country and the largest generator of national added value, representing 1.0% of Portugal's GDP, and around 3.0% of national exported goods. More than 80.0% of the group's products are sold in around 130 countries.

3.2 History

Navigator's history dates back to 1959, when it was founded as Portucel Soporcel. The company's focus at the time was on producing Pulp, using eucalyptus trees as their main raw material. A few years later the company built its first Pulp mill, and later became the largest Pulp producer in the country.

In the late 1960s and early 1970s, the firm expanded its operations to include Paper production. It opened its first Paper mill in 1969, and by the mid-1970s, it became one of the largest Paper producers in the country. During this period, the company also began exporting its products to other countries, such as Spain, France, and the United States of America.

In 1991, the company acquired Celbi, a Pulp and Paper company based in Portugal, which increased its operations.

By 2004, Portucel Soporcel had become the first Paper company in the world to receive certification from the Forest stewardship council (FSC), an independent, non-profit organization that promotes responsible management of forests. The company's commitment to sustainability and environmental responsibility kept growing, leading to its rebranding as The Navigator Company, in 2009. The new name represented the company's focus on Paper production, and marked a significant shift for the company, which had long been associated with Pulp production.

Ever since, the firm has suffered significant transformations to become one of the largest Paper producers in Europe and the world. By 2012, the company became the largest producer of UWF Paper in Europe. The company's success can be attributed to its focus on sustainability, innovation, and growth.

Navigator has invested in new technologies and expanded its product lines, launching a new line of Tissue paper products made from recycled fibers in 2020. The firm has also been at the face of the digital transformation of the Paper industry, using digital technologies to optimize its production processes and improve its efficiency.

Today, Navigator is a global leader in the Pulp and Paper industry and remains committed to its founding principles of sustainability and environmental responsibility, and it continues to innovate and evolve to meet the changing needs of its customers and the world.

3.3 Shareholder structure

Data from the firm's annual report from 2022 show that the share capital of Navigator is distributed amongst four types of investors: Semapa, with a majority stake of 70.0%, Institutional investors, with 15.0%, Private investors, with 11.0%, and Other investors, with 4.0% (see Figure 3.1).

The majority of the firm's stakeholders are from Europe, with Portuguese investors holding 33.0%, the ones based in the UK and in Germany both having 7.0%, and the Spanish with 5.0%. Regarding the ones from outside Europe, it is important to state that investors from the United States have increased their stakes. In 2022, that proportion has grown from 22.0% to 38.0%.

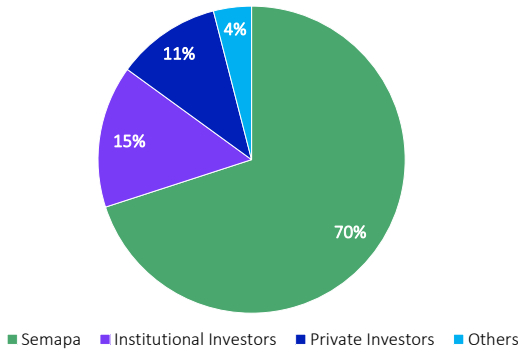


Figure 3.1 – Navigator's shareholder structure, source: Navigator (2022)

3.4 Business areas

Navigator is an integrated company that is present in all activities in the value chain, such as Research and development, and all the remaining areas which were stated in the Company's profile section.

3.4.1 Research and development

As the firm states, R&D is of the upmost importance for the firm, allowing it to get ahead and stay ahead, in its sector.

The Forest and paper research institute (RAIZ) is a private non-profit organization that specializes in forest, Pulp and Paper, and forest-based bio refineries. Recognized as a Research and technology organization, it was founded in 1996 and currently has four associates: The Navigator Company, the University of Coimbra, the University of Aveiro, and the University of Lisbon. RAIZ's primary focus is on producing and transforming knowledge into products, technology, and services, aimed at optimizing the competitive advantages of the forestry and industrial ranks of the Pulp and Paper industry.

3.4.2 Agro-forestry sector

Regarding the agro-forestry sector of the firm, in which the production of Pulp and Paper are inserted, it is worth mentioning that the company manages one hundred and twenty thousand acres of woodlands, 73.0% of which have *Eucalyptus globulus* plantations, and the remaining 27.0% have a diversified type of plantations, from pines, oaks – used to create corks –, among others.

3.4.3 Energy sector

One other important sector in which the firm is present in is the Energy sector. As mentioned before, and as the firm itself states, Navigator is a leading operator in the renewable energy sector, being Portugal's main producer of green energy, originated from biomass.

The Navigator Company is self-sufficient in energy and generates surplus power for the national grid. Energy is produced at its sites through co-generation plants that produce electricity and heat from biomass and natural gas, and biomass power stations that produce electricity only. The thermal energy generated is used entirely in manufacturing pulp and paper. The company invests in energy rationalization to improve efficiency. All power generated at The Navigator Company's industrial units is produced on a co-generation basis, increasing overall energy production efficiency. Co-generation involves producing electrical power and heat at the same time, with the thermal energy used in the Pulp and Paper manufacturing process. The company's investment in energy rationalization has led to an overall reduction in energy consumption, with a focus on improving energy efficiency in the production process.

3.5 Financial analysis

Navigator's total revenues presented a $CAGR_{19-22}$ of 13.5%. During this period, it is clear that during 2020 and 2021 the effects of the pandemic negatively impacted the firm. Only in 2022 was the firm able to recover and surpass the pre-pandemic levels of revenues, achieving a total amount of € 2,465M, as Figure 3.2 shows. Going into more detail in the historical revenues by segment it is possible to state that the Paper segment is the most relevant one, with an average of 73.0% of the total revenues, followed by the Pulp and the Energy segment, with a yearly average of 10.1% and 9.8% of the total revenues, respectively. In Figure 3.3 it is possible to see the comparison of the scheme of the percentage of revenues in 2019 and 2022. The historical Income statement and the Balance sheet can be seen in Annex B and C, respectively.

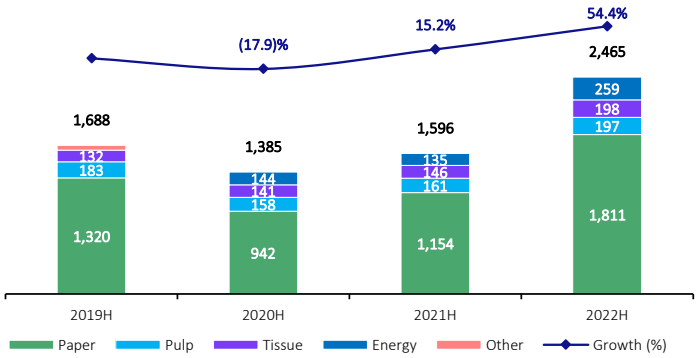


Figure 3.2 – Total revenues (€'M) (2019 – 2022), source: adapted from the annual reports

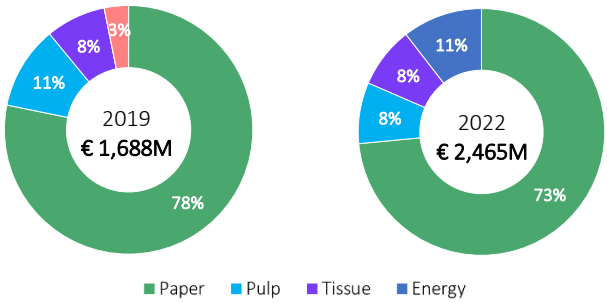


Figure 3.3 – Percentage of revenues per segment (2019-2022), source: adapted from the annual reports

During the period of analysis, the EBITDA margin (%) has averaged 23.7%. In 2020, due to the pandemic, the revenues decreased 17.9%, which reduced the EBITDA margin (%) to 20.6%. In 2021, the activity of the firm recovered, which boosted the revenues to € 1,385M, an increase of 15.2% in comparison to the previous year. In this year, the EBITDA margin (%) increased to 22.2%. In 2022 the revenues of Navigator increased 54.4% to € 2,465M and the EBITDA was € 736.0M, with a margin of 29.9%.

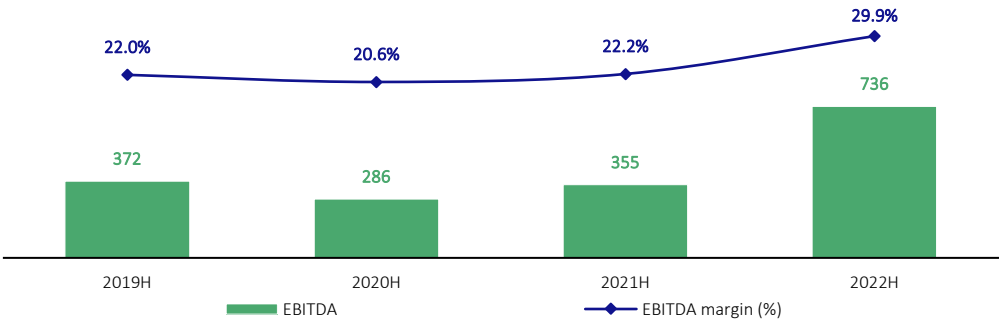


Figure 3.4 – EBITDA (€'M) and EBITDA margin (%) (2019 – 2022), source: adapted from the annual reports

During this period the Gross margin has always remained above the 55.0% mark, with 2019 being the year when it was lowest, with 57.6%. This means that the revenues that Navigator generates can cover the Costs of goods sold (COGS) and generate a surplus that corresponds, in this case, to more than 50.0% of the revenues generated.

The Return on assets (ROA), which is computed by dividing the Net income of the period by the value of the assets, has suffered changes in 2020, due to the pandemic, and in 2022, because of the massive increase in revenues that was registered. Both these years were the ones in which Navigator has had the lowest and the highest Net income, with € 109.2M and € 392.5M, in 2020 and 2022, respectively. In Table 3.1 it is possible to analyze the evolution of the ROA throughout the period. The increase in the ROA in 2022 means that the firm, in comparison to the previous years, was able to use its assets more efficiently to generate profit.

Regarding the Return on equity (ROE), it is possible to see that, just like in the ROA, the years in which the ratio was the lowest and the highest were 2020 and 2022, with 10.6% and 31.2%, respectively. This increase in the ROE means that the firm is improving its capability of converting its equity financing into profits.

The Return on invested capital (ROIC) has suffered some changes due to the pandemic, with 2020 being the worse year (8.1%), and 2022 being the best year (31.5%), as the firm was able to allocate its capital to profitable projects or investments. The ROIC was computed by dividing the Net operating profit after tax (NOPAT) to the Invested capital (IC), which corresponds to the Fixed assets plus the WC, less Cash.

Table 3.1 - Historical ratios (2019-2022), source: own computation

Ratios				
%	**2019H**	**2020H**	**2021H**	**2022H**
Gross profit	*57.6%*	*58.9%*	*60.5%*	*60.7%*
ROA	*6.6%*	*4.3%*	*6.8%*	*13.5%*
ROE	*16.4%*	*10.6%*	*16.4%*	*31.2%*
ROIC	*13.5%*	*8.1%*	*13.4%*	*31.5%*
NOPAT (€'M)	178	107	174	436
IC (€'M)	1,315	1,314	1,299	1,382

One other aspect to take into consideration is the ability of the firm to pay its short-term liabilities without having to rely on raising capital externally. This is a way for investors to know how the revenues of the firm can fulfill the firm's obligations. There are several ratios that can be used in order to measure the liquidity of a firm, which are presented in the figure below.

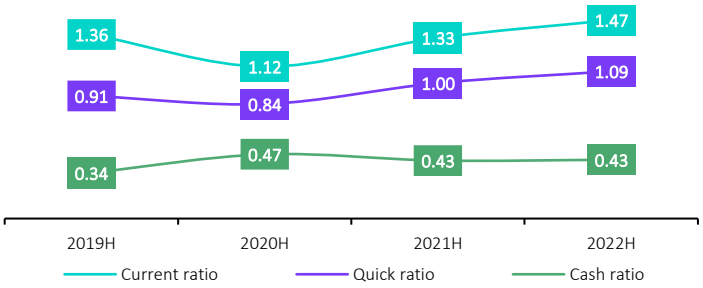


Figure 3.5 - Liquidity ratios (2019-2022), source: own computations

Starting with the current ratio (see Annex D), which measures de capability of the firm to pay its outstanding debt and settle its payables in a year, it is possible to see that the ratio is, throughout the period, greater than 1.00, which means that the firm is capable of meeting its current obligations. One aspect to take into consideration is that the current assets are composed mostly of inventories, current receivables and cash and cash equivalents, with the current receivables being the ones with the biggest weight. Because of that, it is always necessary to analyze the age of the accounts receivable, given that the oldest ones may need to be written off, which ends up decreasing the total amount of the receivables.

The second ratio is the quick ratio (see Annex D), which is similar to the current ratio, but goes into more detail in which current assets are considered in the computation. In this case, only the ones that can be easily converted into cash are considered, such as current receivables and cash and cash equivalents. With this funneling of the current assets, the ratio stays, in 2019 and 2020, just below the 1.00 mark. In 2021 and 2022 the ratio reaches 1.00 and 1.09, respectively. With this, the current assets considered are only able to pay all the current liabilities in 2021 and 2022.

The final ratio is the cash ratio (see Annex D), which measures Navigator's ability to pay its current liabilities only using cash and cash equivalents. As it is possible to see, the ratio is extremely low throughout the whole period, with an average of 0.42. Despite being really low, the ratio is very limited, since it only considers cash and cash equivalents, and most firms do not have large amounts of cash in their reserves. Due to this, the cash ratio is more of an indicator that money is being distributed between the investors or invested somewhere else in order to generate more revenues and returns in the future.

One other financial aspect to consider is the amount of debt and equity of a firm. In the figure below it is possible to see that the debt-to-equity ratio (D/E) of the firm has averaged 0.80 between 2019 and 2022.

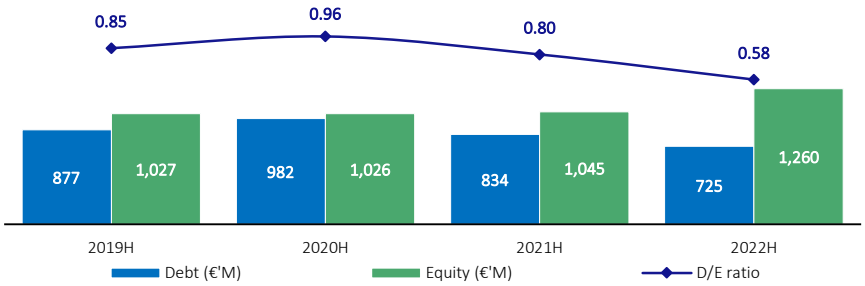


Figure 3.6 - Debt-to-equity ratio (2019-2022), source: own computations

From 2019 to 2021 the amounts of equity and debt have remained relatively constant. However, in 2022, there was a reduction of the D/E ratio, which was mostly due to the reduction of the non-current and current interest-bearing liabilities in around € 71.6M and € 37.0M, respectively. Regarding the equity, the increase between 2021 and 2022 is mostly due to the net income of the period, which was € 391.5M.

The cash flow from operating activities has suffered some changes during the period, specially in 2020, due to the pandemic, which reduced the cash flow from € 380.0M to € 357.0M, and in 2022, a year when the cash flow increased considerately to € 626.0M. Regarding the cash flow from investing activities, it reduced in € 82.0M in 2020, due to a reduction in the outflows of property, plant, and equipment. In 2022, these cash flows increased due to an increment in the outflows of property, plant, and equipment. During the period, the cash flows from investment activities were paid by the cash flows from the operations. The cash flows from financing activities increased around € 199.0M in 2021, and € 80.0M in 2022, as a result of greater outflows in interest-bearing liabilities. Overall, the net cash flow of the firm have been positive, with the exception of 2021, as Table 3.2 shows.

Table 3.2 - Cash flows (2019-2022), source: company's annual reports

Cash flow				
€'M	**2019H**	**2020H**	**2021H**	**2022H**
Cash flow from operating activities	380	357	354	626
Cash flow from investing activities	(174)	(92)	(96)	(122)
Cash flow from financing activities	(124)	(123)	(321)	(401)
Net cash flow	81	142	(63)	102

In respect to the firm's Working capital, it is possible to see, in Annex E, that the Operating current assets have been increasing (€ 649.4M in 2019 vs. € 1,156.5M in 2022, which corresponds to an increase of 78.1%), and so have the Operating current liabilities (€ 426.2M in 2019 vs. € 575.5M in 2022, which corresponds to an increase of 35.0%). With this information, it is clear that the Operating current assets have increased more than the Operating current liabilities, meaning that during this

period, the Working capital has increased (€ 223.2M in 2019 vs. € 581.0M in 2022, which corresponds to an increase of 160.3%).

Regarding the share price of The Navigator Company, S.A., from 2014 to December 31st, 2022, it is clear that it has oscillated a lot. In comparison to the evolution of the PSI-20 during the same period, the firm has somewhat followed the PSI-20 in its highs and lows, with the exception of the end of 2018 and 2020, when the firm outperformed the market. The share price of Navigator has fluctuated between a minimum of € 1.891, in the end of 2020, and a maximum of € 5.340, in 2018.

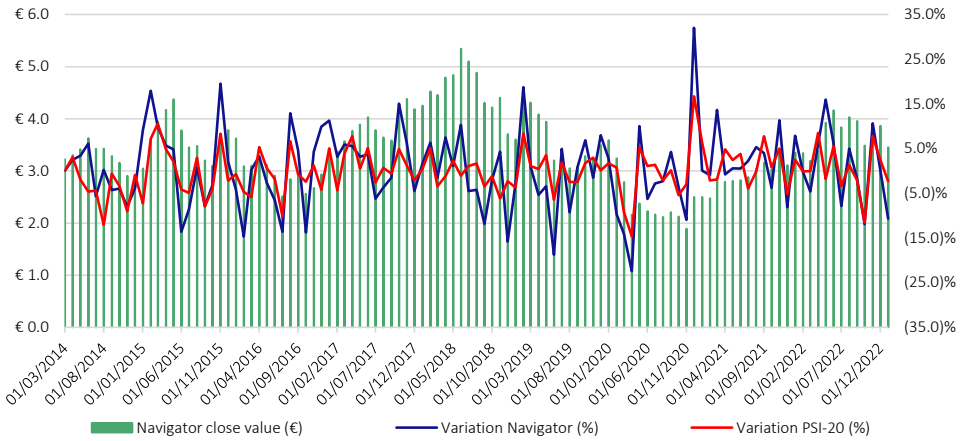


Figure 3.7 - Share performance of Navigator vs. PSI-20 performance (2014 vs 2022), source: Yahoo Finance

4 Business valuation

The valuation is based on the DCF method, meaning that there is the necessity to forecast the Future cash flows. In addition, and with the intent to compare the results obtained in the DCF method, a Relative valuation was also conducted, using multiples, such as the P/E and the EV/EBITDA.

4.1 Assumptions in the forecast period

In this model, historical data from 2019 to 2022 was used as a starting point for the valuation forecasts. These forecasts rely on market information and the firm's expectations for its different segments, such as the Pulp, the UWF Paper, the Tissue Paper, and the Energy segment. The cash flows from 2023 to 2027 were projected, assuming in 2027, perpetual cash flows, making that year, the Terminal value year.

4.1.1 Revenues

UWF Paper

The UWF Paper segment is the largest segment of the company, making up more than 70.0% of the total revenues. Its forecasts were based on the firm's input about the volume of sales and the unitary price of sale.

Regarding sales volume and the unitary price, the firm anticipates a yearly reduction of -0.1% and -1.8% from 2023 to 2027, respectively. These projections indicate that the UWF Paper segment is expected to decline over time. Nevertheless, due to a reduced integration of Pulp into Paper, this decline in UWF Paper sales is primed to strengthen the Pulp segment.

Table 4.1 - UWF Paper revenues forecast, source: company reports and own estimates

UWF Paper revenues									
€'M	2019H	2020H	2021H	2022H	2023P	2024P	2025P	2026P	2027P
UWF Paper	1,320	942	1,154	1,811	1,777	1,743	1,710	1,677	1,645
Revenues (%)	*78.2%*	*68.0%*	*72.3%*	*73.5%*	*73.4%*	*73.9%*	*74.1%*	*74.3%*	*73.9%*
Volume of sales (k ton)				1,500	1,499	1,497	1,496	1,494	1,493
Growth (%)				*n.a.*	*(0.1)%*	*(0.1)%*	*(0.1)%*	*(0.1)%*	*(0.1)%*
Price/ ton. (€)				1,207	1,186	1,164	1,143	1,123	1,102
Growth (%)				*n.a.*	*(1.8)%*	*(1.8)%*	*(1.8)%*	*(1.8)%*	*(1.8)%*
Total Revenues	**1,688**	**1,385**	**1,596**	**2,465**	**2,419**	**2,359**	**2,308**	**2,258**	**2,226**

Pulp

The Pulp segment is the second largest segment of Navigator, and its revenues were based on the volumes of Pulp sold, and in the unitary price. The forecasts can be seen in detail in Table 4.1.

Regarding the amount of tonnes sold, the forecasts assume that, in each year, they will consist in the average of the amounts sold in the previous four years. Despite suffering a decrease in 2021 and in 2022, it is to expect an increase in the sales of Pulp, as a result of a smaller integration into Paper.

The price per tonne of BHKP Pulp sold will follow the growth path of the market, meaning that the average price provided in the firm's annual report (2022) will grow in accordance with the growth of market prices provided by NOREXECO.

Table 4.2 - Pulp revenues forecast, source: company reports and own estimates

Pulp revenues									
€'M	2019H	2020H	2021H	2022H	2023P	2024P	2025P	2026P	2027P
Pulp	**183**	**158**	**161**	**197**	**311**	**280**	**278**	**284**	**299**
Revenues (%)	*10.8%*	*11.4%*	*10.1%*	*8.0%*	*12.9%*	*11.9%*	*12.0%*	*12.6%*	*13.4%*
Volume of sales (k ton)	314	394	292	255	314	314	294	294	304
Growth (%)	*n.a.*	*25.6%*	*(25.9)%*	*(12.6)%*	*22.9%*	*0.0%*	*(6.4)%*	*0.1%*	*3.3%*
Price/ ton. (€)				1,232	992	891	946	965	985
Growth (%)				*n.a.*	*(19.5)%*	*(10.2)%*	*6.2%*	*2.0%*	*2.1%*
Total Revenues	**1,688**	**1,385**	**1,596**	**2,465**	**2,419**	**2,359**	**2,308**	**2,258**	**2,226**

Tissue Paper

Regarding the Tissue Paper segment, and like the previous segments, the revenues are forecasted considering the volume of sales and the unitary price of sale. In this segment, both the volume of sales and the unitary price of sale growth rate are inputs of the firm.

The firm expects a yearly growth rate of the volume of sales of 0.3%, from 2023 to 2027. Regarding the unitary price, it is expected to decrease -2.1% on a yearly basis.

Despite this decline in the price of sale, as evident in Table 4.3, the sales of Tissue paper are expected to persist at levels closely resembling the ones reached in 2022, which was a standout year for the segment and for the company.

Table 4.3 - Tissue Paper revenues forecast, source: company reports and own estimates

Tissue Paper revenues									
€'M	2019H	2020H	2021H	2022H	2023P	2024P	2025P	2026P	2027P
Tissue Paper	**132**	**141**	**146**	**198**	**194**	**191**	**187**	**184**	**181**
Revenues (%)	*7.8%*	*10.2%*	*9.1%*	*8.0%*	*8.0%*	*8.1%*	*8.1%*	*8.1%*	*8.1%*
Volume of sales (k ton)	96	106	105	102	101.80	102	102	103	103
Growth (%)	*n.a.*	*10.8%*	*(0.6)%*	*(3.7)%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*	*0.3%*
Price/ ton. (€)	1.38	1.33	1.38	1.95	1.91	1.87	1.83	1.79	1.75
Growth (%)	*n.a.*	*(3.2)%*	*3.7%*	*40.8%*	*(2.1)%*	*(2.1)%*	*(2.1)%*	*(2.1)%*	*(2.1)%*
Total Revenues	**1,688**	**1,385**	**1,596**	**2,465**	**2,419**	**2,359**	**2,308**	**2,258**	**2,226**

Energy

The final segment of the total revenues is the Energy segment. The revenues were based on the volume of sales and the unitary price.

Regarding the volume of sales, the firm mentions on its annual report of 2022 that the increase in installed capacity, in its solar photovoltaic facilities in Figueira da Foz and Setúbal, will allow for a greater self-consumption of energy, which will eventually reduce the amount of energy sold. Given this information, the volume of energy sold will follow a $CAGR_{19\text{-}22}$ of -1.9%.

In respect to the unitary prices, Reuters Eikon Refinitiv provided the monthly forecasts of the energy prices in Iberia for the period of 2023 to 2027. With this, for each year of the forecast, the

average year's price was used. It is to expect a reduction in the prices of energy, which will lead to a reduction in the revenues of this segment, as Table 4.4 shows.

Table 4.4 - Energy revenues forecast, source: company reports and own estimates

Energy revenues									
€'M	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Energy		**144**	**135**	**259**	**137**	**146**	**133**	**113**	**101**
Revenues (%)		*10.4%*	*8.5%*	*10.5%*	*5.7%*	*6.2%*	*5.8%*	*5.0%*	*4.5%*
Volume of sales (MWh' k)	1.6	1.6	1.4	1.5	1.5	1.5	1.5	1.4	1.4
Growth (%)	*n.a.*	*0.8%*	*(12.5)%*	*7.0%*	*(1.9)%*	*(1.9)%*	*(1.9)%*	*(1.9)%*	*(1.9)%*
Price/ ton. (€)		87.41	93.94	167.90	91.00	98.53	91.49	79.56	72.25
Growth (%)	*n.a.*	*n.a.*	*7.5%*	*78.7%*	*(45.8)%*	*8.3%*	*(7.1)%*	*(13.0)%*	*(9.2)%*
Total Revenues	**1,688**	**1,385**	**1,596**	**2,465**	**2,419**	**2,359**	**2,308**	**2,258**	**2,226**

Total revenues

In general, it is to expect a reduction in Navigator's revenues, given that the unitary prices, the main reason for the 2022 record increase in revenues, are expected to decrease overtime, while the volumes are expected to remain relatively constant in comparison to previous years. In the forecasted period, the $CAGR_{23-27}$ of the revenues is -2.1%.

Regarding each segment, it is to expect an increase in the percentage of total revenues of Pulp and a reduction of Energy. The other segments, like the UWF Paper and the Tissue paper, are expected to maintain their percentage of revenues. The Other segment ceased to exist after 2019 and due to that, it is expected to remain that way, with only the Pulp, UWF Paper, Tissue paper, and Energy, being the firm's segments, as Table 4.5 shows (see Annex F for more details).

Table 4.5 - Total revenues forecast, source: company reports and own estimates

Total Revenues									
€'M	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Pulp	183	158	161	197	311	280	278	284	299
Revenues (%)	*10.8%*	*11.4%*	*10.1%*	*8.0%*	*12.9%*	*11.9%*	*12.0%*	*12.6%*	*13.4%*
UWF Paper	1,320	942	1,154	1,811	1,777	1,743	1,710	1,677	1,645
Revenues (%)	*78.2%*	*68.0%*	*72.3%*	*73.5%*	*73.4%*	*73.9%*	*74.1%*	*74.3%*	*73.9%*
Tissue Paper	132	141	146	198	194	191	187	184	181
Revenues (%)	*7.8%*	*10.2%*	*9.1%*	*8.0%*	*8.0%*	*8.1%*	*8.1%*	*8.1%*	*8.1%*
Energy	n.a.	143.7	135.2	258.5	137.5	146.0	133.0	113.4	101.1
Revenues (%)	*n.a.*	*10.4%*	*8.5%*	*10.5%*	*5.7%*	*6.2%*	*5.8%*	*5.0%*	*4.5%*
Other	53.3								
Revenues (%)	*3.2%*								
Total Revenues	**1,688**	**1,385**	**1,596**	**2,465**	**2,419**	**2,359**	**2,308**	**2,258**	**2,226**
Growth (%)	*n.a.*	*(17.9)%*	*15.2%*	*54.4%*	*(1.8)%*	*(2.5)%*	*(2.2)%*	*(2.1)%*	*(1.4)%*

4.1.2 EBITDA

4.1.2.1 Other operating income

The Other operating income is expected to grow according to the average of the revenue's percentage of the previous four years, which is, in 2023, 2.5%. In the following forecast periods, the percentage is assumed to remain the same.

4.1.2.2 Costs

Payroll costs

Regarding the payroll costs, it is expected that, in 2023, the Other remunerations, Other payroll costs and the Variable remuneration of the corporate bodies, correspond to the average of the percentage of revenues of the previous four years. After 2023, the percentage of revenues will remain the same. In the case of the Fixed remuneration of corporate bodies, the value is expected to grow according to the expected inflation in Portugal for each year of the forecast period.

Other operating expenses, External services and supplies, and Cost of goods sold

All of these costs are expected to grow, in 2023, at the average percentage of revenues of the past four years. After this year, the revenues percentage is expected to remain the same.

Changes in the fair value of biological assets and Variation in production

Both these costs are expected to be, in each year of the forecast period, the average of the previous four years.

EBITDA

In 2023, the EBITDA and EBITDA Margin are expected to severely decrease in comparison to 2022, due to smaller unitary prices, which led to a major and extraordinary increase in 2022. After 2023 it is expected a slight reduction of these prices, which will stabilize the EBITDA and the EBITDA Margin, in values close to € 550.0M, and 24.0%, respectively, as Table 4.6 shows.

Table 4.6 - EBITDA and EBITDA Margin, source: company reports and own estimates

EBITDA and EBITDA Margin									
€'M	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Revenues	1,688	1,385	1,596	2,465	2,419	2,359	2,308	2,258	2,226
Costs of goods sold and materials consumed	(716)	(570)	(630)	(969)	(982)	(957)	(937)	(917)	(904)
Gross profit	**972**	**816**	**966**	**1,496**	**1,438**	**1,402**	**1,371**	**1,342**	**1,323**
Gross margin (%)	*57.6%*	*58.9%*	*60.5%*	*60.7%*	*59.4%*	*59.4%*	*59.4%*	*59.4%*	*59.4%*
Other operating income	39	39	31	71	60	59	58	56	56
Changes in the fair value of biological assets	12	17	(1)	(25)	1	(2)	(7)	(8)	(4)
Variation in production	2	(33)	2	80	13	16	28	34	23
External services and supplies	(467)	(392)	(449)	(626)	(663)	(646)	(632)	(618)	(610)
Payroll costs	(146)	(132)	(155)	(186)	(215)	(210)	(205)	(201)	(198)
Other operating expenses	(40)	(29)	(39)	(74)	(60)	(58)	(57)	(56)	(55)
EBITDA	**372**	**286**	**355**	**736**	**574**	**560**	**555**	**549**	**534**
EBITDA Margin (%)	*22.0%*	*20.6%*	*22.2%*	*29.9%*	*23.7%*	*23.7%*	*24.1%*	*24.3%*	*24.0%*

4.1.3 CAPEX and Depreciations

In the forecast period it is to expect a high investment in CAPEX, which will correspond, in 2023, to the average percentage of revenues of 2018 and 2019, years in which the firm had a stable investment strategy, not influenced by a pandemic or by the war in Ukraine. The years 2020, 2021, and 2022 were considered outliers in the investment plan, which would negatively affect the accuracy of the

valuation. The average percentage of revenues of 2018 and 2019 was 11.1%. After 2023, the same percentage was assumed.

Regarding the depreciations, the assumptions were based on the firm's input regarding this theme. Navigator uses external and independent experts to assess the value of its assets, and their information about the depreciation forecasts was used (see Annex G).

4.1.4 Working capital

The Working capital was computed based on the historical information of the firm. To compute the historical WC, the Operating current liabilities need to be subtracted to the Operating current assets. In 2023, both the Operating current liabilities and the Operating current assets are computed based on the average percentage of revenues of the previous four years. After this year, both percentages will be the same as the ones used in 2023 (see Annex E).

4.2 Weighted average cost of capital

4.2.1 Capital structure

Regarding the estimation of Navigator's capital structure, the debt-to-equity ratio has suffered some changes over time, and for that reason, the optimal D/E ratio used in the computation of the WACC consisted in the average D/E ratio of the peers, which was 0.41.

4.2.2 Cost of equity

The Cost of equity was computed using the CAPM risk-return model (Equation 1.7) and was fixed at 8.39%. The steps to compute the Cost of equity were the following:

Risk-free rate

The risk-free rate consisted in the average of the 2022 10Y Government Bonds from Germany and was 1.19%[3].

Country risk premium

The country risk premium was computed by subtracting the average 2022 rate of the 10Y Government Bonds from Portugal, which was 2.17%[4], to the Risk-free rate. The CRP was 0.98%.

[3] Source: Reuters Refinitiv Eikon.
[4] Source: Reuters Refinitiv Eikon.

Beta levered of Navigator

To compute the Beta levered of Navigator, all its components need to be estimated, such as the β_U and the β_D.

The β_U consisted of the Beta provided by Damodaran[5] on the sector of Navigator, the Paper/ Forest products, and was 0.74.

To compute the β_D, using Equation 1.9, the Market risk premium needed to be calculated by subtracting the risk-free rate from the total Equity risk premium of Portugal, which was 7.89%. Finally, the β_D was 0.157.

With this, the β_L was computed using Equation 1.10, and totaled 0.928.

4.2.3 Cost of debt

The Cost of debt was computed using Equation 1.11, which requires the Default spread and the Risk-free rate. The Default spread consists in the Default spread of Portugal, which has a rating of Baa2 (Moody's rating), which is 2.04%.

With this, the Cost of debt was computed by adding the Risk-free rate to the Default spread of Portugal and was fixed at 3.23%.

4.2.4 Summary

Having all the necessary components to compute the WACC, it is possible to use Equation 1.5, arriving at a 7.04% discount rate, as the tables below summarize.

Table 4.7 - WACC, source: own estimates

WACC	
Cost of equity	8.39%
Equity (€'M)	2,456,426
Debt (€'M)	725,302
Cost of debt	3.23%
Tax rate	24.0%
WACC	**7.04%**

[5] Source: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwim04GkmsmBAxUWU6QEHeAcDDQQFnoECBIQAQ&url=https%3A%2F%2Fpages.stern.nyu.edu%2F~adamodar%2Fpc%2Fdatasets%2FbetaEurope.xls&usg=AOvVaw26cfgXWNhv_2nWyo77_mN0&opi=89978449.

Table 4.8 - WACC auxiliary information, source: own estimates

WACC auxiliary information	
Risk-free rate	1.19%
CRP	0.98%
MRP	6.70%
Default spread	2.04%
Tax rate	24.0%
βL	0.928
βD	0.157
βU	0.74

4.3 Discounted cash flow valuation

The valuation using the DCF method is based on the forecasts mentioned in the sections above. After computing the forecasts for the Revenues, Operational expenses, CAPEX, Depreciations and Working capital, it is possible to compute the FCFF, which will be discounted at the WACC in order to reach an Enterprise value. The FCFF are presented in the Table 4.9:

Table 4.9 - FCFF forecasts, source: own estimates

FCFF										
€'000		**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
EBITDA		**372,091**	**285,508**	**354,716**	**736,359**	**574,285**	**559,988**	**555,271**	**548,779**	**533,806**
Depreciations and amortizations		(138,536)	(142,773)	(121,999)	(161,278)	(154,967)	(150,926)	(148,472)	(150,384)	(198,092)
EBIT		**233,555**	**142,735**	**232,717**	**575,081**	**419,318**	**409,062**	**406,798**	**398,395**	**335,714**
Taxes	*24.0%*	(56,053)	(34,256)	(55,852)	(138,019)	(100,636)	(98,175)	(97,632)	(95,615)	(80,571)
NOPLAT		**177,502**	**108,479**	**176,865**	**437,062**	**318,682**	**310,887**	**309,167**	**302,780**	**255,142**
Depreciations and amortizations		138,536	142,773	121,999	161,278	154,967	150,926	148,472	150,384	198,092
Operating cash flow		**316,038**	**251,251**	**298,864**	**598,339**	**473,648**	**461,813**	**457,639**	**453,164**	**453,234**
Capex		(158,000)	(81,000)	(80,000)	(112,500)	(268,029)	(261,342)	(255,671)	(250,194)	(246,650)
Δ Working capital		(101,894)	197,576	(52,994)	213,242	(51,476)	(13,213)	(11,204)	(10,821)	(7,004)
FCFF		**56,144**	**367,827**	**165,870**	**699,082**	**154,143**	**187,258**	**190,764**	**192,149**	**199,581**

4.3.1 Terminal value and growth rate in perpetuity

The Terminal value was estimated using Equation 1.4, which requires three inputs: the cash flow at the end of the first year of the perpetuity cash flows, the growth rate in perpetuity (*g*), and the WACC.

Regarding the perpetuity rate, it was assumed that it would correspond to the growth rate of the GDP in Europe, in 2027, which is 1.8%, given that Europe is the main region in which Navigator operates. As the firm itself forecasts, the UWF Paper segment is expected to decrease progressively, with both the volumes and unitary prices decreasing. Although some losses will be covered by an increase in the Pulp sector, the total revenues are likely to be reduced. However, it is clear that Navigator is making efforts to diversify its portfolio, strengthening the Tissue sector, and entering the packaging industry, with the g-Kraft brand, but some time will be needed in order to observe some meaningful results that can outbalance the negative impact that is forecasted in the UWF Paper sector.

4.3.2 Navigator's fair value

An Enterprise value of € 3,513M was reached by adding the discounted free cash flows and the discounted terminal value (see Annex H for the list of the FCFF for each year). In 2027, the FCFF was € 199.581M, with a TV of € 3,812.245M.

To reach the firm's Equity value, it was necessary to make some adjustments, such as adding the value of the Non-operating assets and subtracting the value of the Net debt. The Non-operating assets include Investment properties, Cash & cash equivalents, and Deferred tax assets. The Net debt includes Interest-bearing liabilities, Provisions, Pensions and post-employment benefits, Deferred tax liabilities and leases.

Taking this into account, it became possible to compute the Equity value of Navigator, which was € 2,968M. By dividing it by the total number of outstanding shares, a target share price of € 4.17 was reached, as of the 31st of December 2022 (upside of 12.5% versus the average of the same month).

4.3.3 Sensitivity analysis

Given the inevitable uncertainty contained in the estimated share value, a sensitivity analysis was conducted. Its main purpose is to reflect possible changes in some key factors of the valuation, such as the WACC and the perpetual growth rate, and its impacts on the share price of the firm.

Both the incremental and decremental changes were made by adjusting the base values to ±0.25%, as Table 4.10 and Table 4.11 show.

Table 4.10 - Sensitivity analysis (€), source: own estimates

Sensitivity analysis						
		WACC				
		6.54%	6.79%	7.04%	7.29%	7.54%
g	1.3%	4.26	4.03	3.82	3.62	3.44
	1.6%	4.47	4.22	3.99	3.78	3.59
	1.8%	4.70	4.42	4.17	3.95	3.74
	2.1%	4.96	4.65	4.38	4.13	3.90
	2.3%	5.24	4.91	4.60	4.33	4.09

Table 4.11 - Sensitivity analysis (%), source: own estimates

Sensitivity analysis (%)						
		WACC				
		6.54%	6.79%	7.04%	7.29%	7.54%
g	1.30%	2.1%	(3.5)%	(8.5)%	(13.2)%	(17.5)%
	1.55%	7.1%	1.0%	(4.5)%	(9.5)%	(14.1)%
	1.80%	12.6%	6.0%	0.0%	(5.4)%	(10.4)%
	2.05%	18.8%	11.5%	4.9%	(1.0)%	(6.4)%
	2.30%	25.6%	17.6%	10.3%	3.8%	(2.0)%

When analyzing the scenarios presented, it is possible to see that the share price of Navigator oscillates from a minimum of € 3.44 (-17.5%) to a maximum of € 5.24 (+25.6%). It is possible to

conclude that, when analyzing these scenarios, the WACC variation has a bigger impact than the variation of the *g* in the share price of Navigator. In three scenarios it is possible to see that the share prices stays below the final registered price of 2022, as the scenarios below show.

Table 4.12 - Scenarios of a lower share price than 31st Dec.22, source: own estimates

WACC	g	Share price
7.29%	1.30%	3.62
7.54%	1.30%	3.44
7.54%	1.55%	3.59

4.4 Relative valuation

In order to assess and compare the share price of Navigator with similar firms, a Relative valuation was made. In Table 4.13 it is possible to see which firms were considered peers, with all of them having activity in the same sectors of Navigator.

Table 4.13 – Navigator's peers, source: Reuters Eikon Refinitiv and own estimates

Peer group				
Company	**Industry name**	**Country**	**P/E**	**EV/EBITDA**
Stora Enso Oyj	Paper Mills	Finland	6.7	5.6
Holmen AB	Paper Mills	Sweden	11.4	7.8
Svenska Cellulosa SCA AB	Pulp Mills	Sweden	13.7	12.4
Sylvamo Corp	Paper Mills	United States of America	6.4	3.9
Altri SGPS SA	Pulp Mills	Portugal	5.7	4.3
Ence Energia y Celulosa SA	Pulp Mills	Spain	3.0	2.6
Empresas CMPC SA	Pulp Mills	Chile	3.9	4.2
Average			**7.3**	**5.8**
Std. Deviation			3.9	3.3
Average + Std deviation			11.2	9.2
Average - Std deviation			3.4	2.5
Average w/o outliers			**5.7**	**4.7**

In this Relative valuation seven peers were chosen, most of them from Europe, with one firm being from the USA and other from Chile. The multiples chosen to evaluate were the P/E and the EV/EBITDA, as shown in Table 4.14.

Table 4.14 – Relative valuation, source: own estimates

Relative valuation		
€'000	**P/E Valuation**	**EV/EBITDA Valuation**
Peer group multiple	5.7	4.7
NVG. Net income	392,539	n.a.
NVG. EBITDA	n.a.	736,359
EV	n.a.	3,473,942
EQV	2,233,492	2,927,796
Shares outstanding (#'000)	711,183	711,183
Share price (€)	**3.14**	**4.12**

To reach the implied share price of each multiple, the process was the following:

P/E

The P/E ratio for each comparable firm was displayed and then the average was computed. Afterwards, the Standard deviation was calculated in order to sum and subtract this value to the average of the P/E ratios. This computation allowed the elimination of the outliers, such as Holmen AB, Svenska Cellulosa SCA AB, and Ence Energia y Celulosa SA, so as to reach the average P/E of 5.7.

After this, the share price was computed by multiplying the P/E multiple to the Navigator Net income of 2022, which then was divided by the number of shares outstanding, reaching the share price of € 3.14, which corresponds to a smaller share price than the last price registered in 2022 (-9.1%) and smaller share price than the one computed using the DCF method (-24.7%).

EV/EBITDA

Regarding the EV/EBITDA multiple, the same first process was taken, and in this case, there was only one outlier, Svenska Cellulosa SCA AB. The EV/EBITDA multiple computed was 4.7.

In order to compute the share price, the EV/EBITDA multiple was multiplied by the EBITDA of Navigator, in 2022, reaching an EV. After this, the EQV was computed by adding the NOA and the Net Debt to the EV. Finally, to compute the Share price, the EQV was divided by the number of shares outstanding, reaching € 4.12, which corresponds to a higher share price than the last price registered in 2022 (+19.2%), and a really approximate share price to the one computed using the DCF method (-1.3%).

4.5 Valuation results

Comparing the two methods used, the DCF method and the Relative valuation method, it is possible to see that small differences to the actual closing price were registered, mainly using the P/E multiple.

The DCF method and the EV/EBITDA multiple valuation were really close, reaching a share price of € 4.17 and € 4.12, respectively. Both these share prices are above the average for December 2022, which was € 3.71. On the other hand, the P/E multiple valuation revealed a lower price than the last registered in December 2022, reaching € 3.14.

Regarding the DCF method, it is obvious that the Terminal value has a significant impact on the share price and is influenced by the WACC and the growth rate in perpetuity, meaning that if the shareholders believe that both the WACC and *g* are correctly computed, the share price of the market is lower than the actual value of each share. However, and as the sensitivity analysis shows, there are possibilities in which the share price of the market is actually greater than the actual real share price.

Taking a look at the Figure 4.1, it is possible to see the different share prices in comparison to the last share price of 2022.

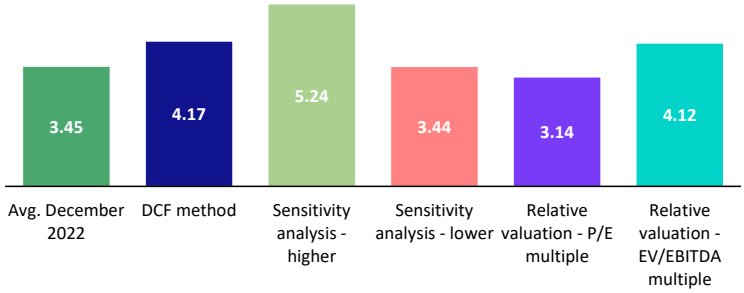


Figure 4.1 - Different share prices (€), source: own estimates

Conclusion

The purpose of this project was to determine the fair value of Navigator and compare it to the share price registered at the end of 2022. To perform this, two methods were used: the DCF method, and the Relative valuation method, with a sensitivity analysis to account for eventual changes in some factors of the computation of the share price.

In the beginning of the thesis, there was an explanation of the methods that would be used in the more practical part, in which the financial model is present. This part allowed for a greater understanding of what the valuation methods consist of, and how they can be used in order to correctly determine the share price of a certain firm that, in this case, was Navigator. Following this theoretical part, a context about the macroeconomic situation of the world was made, in which highly relevant topics such as the pandemic or the war in Ukraine were mentioned. Afterwards, a context of the market of Pulp and UWF Paper was made, in which historical data related to the production and consumption of each of these products was presented and discussed.

After this presentation of macroeconomic and market data, a description about Navigator was made, where its history, segments of activity, and financial historical data were discussed and analyzed. In what concerns the financial analysis of the firm, this data allowed a better understanding of how the firm has performed in the past and what is its financial condition.

The next part, which is the more empirical one, consisted of the valuation of the firm using the DCF method and the Relative valuation methods. In the first case, a forecast of the firm's future cash flows was made, as well as the computation of a discount rate, the WACC, at which these cash flows were discounted. The other method of valuation was the Relative valuation method, where a selection of comparable firms was chosen. All of these peers belong to the sector of activity of Navigator, and can, for that reason, be compared to it. Two multiples were selected: the P/E multiple and the EV/EBITDA multiple.

The DCF method allowed to reach a share price of € 4.17, at the end of December 2022, and revealed that the market share price at the end of that year was actually under the fair value (-20.8%). However, in the sensitivity analysis it became clear that if some changes in the WACC or in the growth rate in perpetuity were to happen, the share price could go from a minimum of € 3.44 to a maximum of € 5.24. If all the assumptions made in this method fully represent the state of the firm and its actual forecasts for the future, it is possible to say that, at the end of December 2022, the shares of Navigator were being traded at a lower value than they should have, representing an undervaluation of around 20.8%. However, if some of the assumptions end up not being accurate with what the future will hold, the share price will eventually change, for a higher or a lower value than the one obtained. One

important note is that the available information about the firm is limited, and for that reason, it can affect the quality of the assumptions, as well as the end result of this financial valuation.

Finally, the other method of valuation showed that, when using the EV/EBITDA multiple, the actual share price of Navigator was really close to the one computed in the DCF, reaching € 4.12. However, when using the P/E multiple, the share price would then drop to € 3.14, a price that is lower than the last price registered in the end of 2022.

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Annexes

Annex A - List of CEPI countries

CEPI countries
Austria
Belgium
Czech Republic
Finland
France
Germany
Hungary
Italy
The Netherlands
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
United Kingdom

Annex B - Historical Income Satement

Income statement				
€'000	**2019**	**2020**	**2021**	**2022**
Revenue	1,687,860	1,385,361	1,595,870	2,464,625
Costs of goods sold and materials consumed	(716,135)	(569,724)	(629,795)	(968,849)
Gross profit	**971,725**	**815,636**	**966,076**	**1,495,775**
Other operating income	39,086	38,960	31,380	71,159
Changes in the fair value of biological assets	12,155	16,815	(1,260)	(24,824)
Variation in production	1,931	(32,545)	1,613	80,484
External services and supplies	(466,858)	(392,255)	(449,402)	(626,159)
Payroll costs	(145,658)	(132,130)	(155,016)	(186,239)
Other operating expenses	(40,291)	(28,974)	(38,674)	(73,837)
EBITDA	**372,091**	**285,508**	**354,716**	**736,359**
EBITDA Margin (%)	*22.0%*	*20.6%*	*22.2%*	*29.9%*
Net provisions	37	(2,310)	(3,143)	(1,621)
Depreciation, amortization and impairment losses in non-financial assets	(138,536)	(142,773)	(121,999)	(161,278)
EBIT	**233,592**	**140,425**	**229,574**	**573,460**
Financial income and gains	2,989	7,972	3,431	1,689
Other financial expenses and losses	(21,896)	(22,657)	(21,208)	(58,672)
EBT	**214,685**	**125,739**	**211,797**	**516,477**
Income tax	(46,396)	(16,523)	(40,378)	(123,938)
Net profit for the period	**168,289**	**109,216**	**171,419**	**392,539**

Annex C - Historical Balance sheet

Balance sheet				
€'000	**2019**	**2020**	**2021**	**2022**
ASSETS				
Long term assets				
Goodwill	377,339	377,339	377,339	377,339
Intangible assets	4,507	11,913	24,753	44,813
Tangible assets	1,249,652	1,183,950	1,145,245	1,099,689
Right-of-use assets	45,518	51,827	51,193	57,935
Biological assets	131,770	148,584	147,324	122,500
Investment properties	96	94	93	91
Non current receivables	58,778	34,696	8,605	25,283
Deferred tax assets	31,639	30,629	28,037	27,205
Total non-current assets	**1,899,298**	**1,839,033**	**1,782,588**	**1,754,855**
Current assets				
Inventories	217,880	176,735	186,551	298,729
Current receivables	247,409	231,772	317,883	499,143
Income tax	25,145	3,483	1,119	16,217
Cash and cash equivalents	161,880	302,400	239,171	343,084
Total current assets	**652,314**	**714,390**	**744,723**	**1,157,173**
Total assets	**2,551,612**	**2,553,423**	**2,527,312**	**2,912,028**
EQUITY AND LIABILITIES				
Capital & reserves				
Share capital	500,000	500,000	500,000	500,000
Treasury shares	(20,189)	(20,189)	-	-
Currency exchange reserve	(18,729)	(20,882)	(24,346)	5,344
Fair value reserves	(6,384)	(6,641)	(5,604)	33,998
Legal reserve	100,000	100,000	100,000	100,000
Other reserves	98,153	266,444	121,836	3,481
Retained earnings	206,004	97,981	231,526	224,050
Net income for the period	168,290	109,214	171,411	392,537
Prepaid dividends	-	-	(49,996)	-
Equity attributable to Navigator's equity holders	**1,027,145**	**1,025,927**	**1,044,827**	**1,259,410**
Non-controlling interests	274	275	287	298
Total equity	**1,027,419**	**1,026,202**	**1,045,114**	**1,259,708**
Non-current liabilities				
Interest bearing liabilities non-current	863,937	690,878	714,626	643,007
Lease liabilities non-current	42,451	47,473	47,417	55,089
Provisions and other post-employment benefits	6,588	12,562	5,675	2,836
Deferred tax liabilities	80,414	85,962	92,529	98,314
Provisions	19,948	23,409	26,752	28,433
Non current payables	30,838	30,234	37,014	34,852
Total non-current liabilities	**1,044,176**	**890,520**	**924,013**	**862,531**
Current liabilities				
Interest bearing liabilities current	13,194	291,532	119,318	82,295
Lease liabilities current	4,397	5,608	5,824	6,552
Current payables	426,197	303,650	393,162	575,468
Income tax	36,229	35,912	39,880	125,475
Total current liabilities	**480,018**	**636,701**	**558,184**	**789,789**
Total liabilities	**1,524,193**	**1,527,221**	**1,482,197**	**1,652,321**
Total equity and liabilities	**2,551,612**	**2,553,423**	**2,527,312**	**2,912,028**

Annex D - Ratios formulas

$$Current\ ratio = \frac{Current\ assets}{Current\ liabilities}$$

$$Quick\ ratio = \frac{Current\ assets - Inventories}{Current\ liabilities}$$

$$Cash\ ratio = \frac{Cash\ and\ cash\ equivalents}{Current\ liabilities}$$

Annex E - Working capital

Working capital - support										
€'000	**2018H**	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Operational cash	80,900	161,880	302,400	239,171	343,084					
Accounts receivable	373,251	247,409	231,772	317,883	499,143					
Inventory	222,377	217,880	176,735	186,551	298,729					
Accounts payable	(370,359)	(426,197)	(303,650)	(393,162)	(575,468)					
VAT	18,943	22,247	13,536	17,357	15,553					
Working Capital	**325,112**	**223,218**	**420,794**	**367,800**	**581,042**	**529,566**	**516,353**	**505,149**	**494,329**	**487,325**
Δ Working Capital	**n.a.**	**(101,894)**	**197,576**	**(52,994)**	**213,242**	**(51,476)**	**(13,213)**	**(11,204)**	**(10,821)**	**(7,004)**

Working capital										
€'000	**2018H**	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Revenues	1,691,600	1,687,860	1,385,361	1,595,870	2,464,625	2,419,421	2,359,054	2,307,868	2,258,432	2,226,434
Operating current assets	695,471	649,416	724,443	760,962	1,156,510	1,095,945	1,068,601	1,045,414	1,023,021	1,008,526
Revenues (%)	*41%*	*38%*	*52%*	*48%*	*47%*	*45%*	*45%*	*45%*	*45%*	*45%*
Operating current liabilities	370,359	426,197	303,650	393,162	575,468	566,379	552,248	540,265	528,692	521,202
Revenues (%)	*22%*	*25%*	*22%*	*25%*	*23%*	*23%*	*23%*	*23%*	*23%*	*23%*
Working capital	**325,112**	**223,218**	**420,794**	**367,800**	**581,042**	**529,566**	**516,353**	**505,149**	**494,329**	**487,325**
Δ Working Capital	**n.a.**	**(101,894)**	**197,576**	**(52,994)**	**213,242**	**(51,476)**	**(13,213)**	**(11,204)**	**(10,821)**	**(7,004)**

Annex F - Revenues forecasts

Revenues									
€'M	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Pulp	183	158	161	197	311	280	278	284	299
Revenues (%)	*10.8%*	*11.4%*	*10.1%*	*8.0%*	*12.9%*	*11.9%*	*12.0%*	*12.6%*	*13.4%*
Growth (%)	*n.a.*	*(13.7)%*	*2.2%*	*22.4%*	*57.7%*	*(10.2)%*	*(0.6)%*	*2.1%*	*5.5%*
Volume of sales (k ton)	314	394	292	255	314	314	294	294	304
Growth (%)	*n.a.*	*25.6%*	*(25.9)%*	*(12.6)%*	*22.9%*	*0.0%*	*(6.4)%*	*0.1%*	*3.3%*
Price/ ton. (€)				1,232	992	891	946	965	985
UWF Paper	1,320	942	1,154	1,811	1,777	1,743	1,710	1,677	1,645
Revenues (%)	*78.2%*	*68.0%*	*72.3%*	*73.5%*	*73.4%*	*73.9%*	*74.1%*	*74.3%*	*73.9%*
Growth (%)	*n.a.*	*(28.6)%*	*22.4%*	*57.0%*	*(1.9)%*	*(1.9)%*	*(1.9)%*	*(1.9)%*	*(1.9)%*
Volume of sales (million ton)				1.50	1.50	1.50	1.50	1.49	1.49
€/ton				1,207	1,186	1,164	1,143	1,123	1,102
Tissue Paper	132	141	146	198	194	191	187	184	181
Revenues (%)	*7.8%*	*10.2%*	*9.1%*	*8.0%*	*8.0%*	*8.1%*	*8.1%*	*8.1%*	*8.1%*
Growth (%)	*n.a.*	*7.2%*	*3.1%*	*35.6%*	*(1.8)%*	*(1.8)%*	*(1.8)%*	*(1.8)%*	*(1.8)%*
Volume of sales	95.7	106.0	105.4	101.5	101.8	102.1	102.4	102.7	103.0
Price/ kton. (€'M)	1.38	1.33	1.38	1.95	1.91	1.87	1.83	1.79	1.75
Energy		144	135	259	137	146	133	113	101
Revenues (%)		*10.4%*	*8.5%*	*10.5%*	*5.7%*	*6.2%*	*5.8%*	*5.0%*	*4.5%*
Growth (%)	*n.a.*	*n.a.*	*(5.9)%*	*91.3%*	*(46.8)%*	*6.2%*	*(8.9)%*	*(14.7)%*	*(10.9)%*
Volume of sales (MWh' k)	1.63	1.64	1.44	1.54	1.51	1.48	1.45	1.43	1.40
Price/ MWh (€)		87.4	93.9	167.9	91.0	98.5	91.5	79.6	72.2
Other	53	-	-	-					
Revenues (%)	*3.2%*	*0.0%*	*0.0%*	*0.0%*					
Total Revenues	**1,688**	**1,385**	**1,596**	**2,465**	**2,419**	**2,359**	**2,308**	**2,258**	**2,226**
Growth (%)	*n.a.*	*(17.9)%*	*15.2%*	*54.4%*	*(1.8)%*	*(2.5)%*	*(2.2)%*	*(2.1)%*	*(1.4)%*

Annex G - Capex and D&A

Capex and D&A										
€'000	**2018H**	**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
Capex	216,500	158,000	81,000	80,000	112,500	268,029	261,342	255,671	250,194	246,650
Revenues (%)	*12.8%*	*9.4%*	*5.8%*	*5.0%*	*4.6%*	*11.1%*	*11.1%*	*11.1%*	*11.1%*	*11.1%*
Depreciations and amortizations		(138,536)	(142,773)	(121,999)	(161,278)	(154,967)	(150,926)	(148,472)	(150,384)	(198,092)
Revenues (%)		*8.2%*	*10.3%*	*7.6%*	*6.5%*	*6.4%*	*6.4%*	*6.4%*	*6.7%*	*8.9%*
Variation		n.a.	(4,237)	20,774	(39,278)	6,311	4,041	2,453	(1,912)	(47,708)

Annex H - FCFF forecasts

FCFF										
€'000		**2019H**	**2020H**	**2021H**	**2022H**	**2023P**	**2024P**	**2025P**	**2026P**	**2027P**
EBITDA		**372,091**	**285,508**	**354,716**	**736,359**	**574,285**	**559,988**	**555,271**	**548,779**	**533,806**
Depreciations and amortizations		(138,536)	(142,773)	(121,999)	(161,278)	(154,967)	(150,926)	(148,472)	(150,384)	(198,092)
EBIT		**233,555**	**142,735**	**232,717**	**575,081**	**419,318**	**409,062**	**406,798**	**398,395**	**335,714**
Taxes	*24.0%*	(56,053)	(34,256)	(55,852)	(138,019)	(100,636)	(98,175)	(97,632)	(95,615)	(80,571)
NOPLAT		**177,502**	**108,479**	**176,865**	**437,062**	**318,682**	**310,887**	**309,167**	**302,780**	**255,142**
Depreciations and amortizations		138,536	142,773	121,999	161,278	154,967	150,926	148,472	150,384	198,092
Operating cash flow		**316,038**	**251,251**	**298,864**	**598,339**	**473,648**	**461,813**	**457,639**	**453,164**	**453,234**
Capex		(158,000)	(81,000)	(80,000)	(112,500)	(268,029)	(261,342)	(255,671)	(250,194)	(246,650)
Δ Working capital		(101,894)	197,576	(52,994)	213,242	(51,476)	(13,213)	(11,204)	(10,821)	(7,004)
FCFF		**56,144**	**367,827**	**165,870**	**699,082**	**154,143**	**187,258**	**190,764**	**192,149**	**199,581**