



LISBON
SCHOOL OF
ECONOMICS &
MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTER OF SCIENCE IN FINANCE

MASTER´S FINAL WORK PROJECT

EQUITY RESEARCH – THE NAVIGATOR COMPANY, S.A.

VERÓNICA ISABEL PEREIRA MARCELINO

OCTOBER 2019



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SUPERVISOR:

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Abstract

The present master's project proposes to perform a valuation, in order to estimate the equity value of one of the most well-known Portuguese companies, currently trading at Euronext – Sociedade Gestora de Mercados Regulamentados, S.A. (“Euronext”), The Navigator Company, S.A., while adopting the research report format recommended by the CFA institute.

Navigator operates in the much stagnated industry of paper and pulp and, even though it started its history in the 50's, it is still fully committed to innovate and enter new areas of business.

This valuation will be developed through one Absolute and, one Relative model, being this choice diversity due to the vast variety of model outputs.

This report was written in accordance with the information available on August 3rd, 2019, and any event subsequent to this date shall not be considered on this valuation.

The target price on August 3rd, 2019 was €3.09, representing a 6.8% upside potential accordingly with the Discounted Cash Flow method.

It is then issued a **BUY** recommendation for Navigator's stock, also considering the medium risk presented, mainly due to the volatility of BHKP prices, paper loss of global power and, instability on the Asian market.

JEL Classification: G10, G32, G34, G39.

Keywords: Equity Research; The Navigator Company; Valuation; Paper Industry.

Resumo

O presente projeto propõe-se a realizar uma avaliação de uma das mais conhecidas empresas portuguesas, atualmente em bolsa na Euronext – Sociedade Gestora de Mercados Regulamentados, S.A. (“Euronext”), The Navigator Company S.A., adotando para isso o formato recomendado pelo CFA Institute.

Embora a Navigator opere na já muito estagnada indústria do papel e da pasta e, tenha iniciado a sua história ainda nos anos 50, continua inteiramente dedicada a inovar e a entrar em novas áreas de negócio.

Esta avaliação será desenvolvida através de um Método Absoluto e, um Relativo, sendo esta escolha diversificada justificada pela elevada variedade de outputs.

Este relatório foi escrito em concordância com a informação disponível a 3 de Agosto de 2019, não devendo qualquer evento subsequente a este ser considerado nesta avaliação.

O preço alvo a 3 de Agosto de 2019 era de €3.09, representando um potencial de 6.8%, de acordo com o modelo de Fluxos de Caixa Descontados.

É então emitida uma recomendação de **COMPRA** para as ações da Navigator, considerando o nível médio de risco apresentado, maioritariamente devido à volatilidade dos preços de BHKP, à perda global de poder do papel e, à instabilidade no mercado asiático.

Palavras-chave: Equity Research; The Navigator Company; Valuation; Indústria do papel.

Acknowledgements

The present work is the result of a long journey, as a Masters' student, in the university I called home for five years. It was a long-standing dream, only possible to achieve due to the ones closer to me. This is for all of you.

To Professor Clara Raposo, for giving me the opportunity of learning with one of the best. To the person who made me fall in love with Finance, I will always be deeply grateful for all the guidance. A pure heart should always be recognized.

To my parents, for showing me the strongest form of love and, for giving me wings to fly. I will always comeback.

To my grandparents, for teaching me that hard work should never be a reason to be ashamed of.

To my boyfriend, Miguel, for all the infinite patience and support, never letting me give up on my dreams.

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The Navigator Company SA: A Paper Leader

The Navigator Company, SA

BUY
Medium risk
August 3rd, 2019
Portugal

1. Research Snapshot

BUY is our recommendation for The Navigator Company (“Navigator”), with a price target, at the end of 2019, of €3.09, with 6.8% upside potential from the closing price of €2.90 at August 3rd, 2019, carefully analyzed through the Discounted Free Cash Flow to the Firm method. The statement that Navigator is currently undervalued, is also supported by the method of Relative Valuation.

A successful new (tissue) path

In a time when paper it is losing its king status, Navigator quickly turned to the Iberian tissue sector, where it already has the possibility of becoming the second largest tissue producer. Besides the acquisition of AMS BR Star Paper S.A., in 2015, with 60 thousand tons of tissue production capacity, the latest investment in Cacia, which totaled € 121 million, Navigator now has a total of 130 thousand tons of production capacity, between the two industrial units. With tissue market growing at 3%-4% annually, this might be the safest growth platform for Navigator to rely on.

Mozambican flop?

In 2009, Navigator created the company “Portucel Mozambique” that would be entirely dedicated to a new project in Mozambique. Responsible for 12% of the area given in by the Mozambican government to companies in the agriculture business, Navigator was quick to announce the creation of 7.000 workplaces and the developing of an area lacking opportunities. However, with few developments, in 2019, investment partners declared that they would be taking legal actions against Navigator, for delayed payments, non-compliance with established contracts and the creation of almost any workplaces. With an impairment already established, besides the € 10 millions of expected yearly investment, this project might carry negative returns with it.

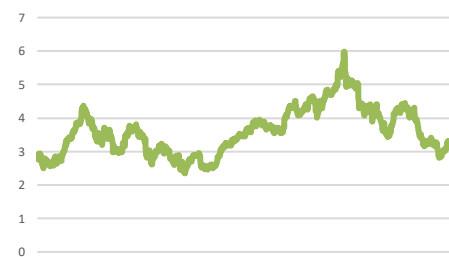
With one of the highest production capacities, engaging dividend yields and strong financial values, Navigator is set to be a more than fair investment.

Figure 1. Risk Assessment



Source: Author Estimates

Figure 2. Navigator’s Share Price Evolution



Source: Euronext Lisbon

Table 1. Navigator’s Key Values

Values in € Millions	2017	2018	2019F
Revenues	1636.8	1691.6	1724.8
EBITDA	403.8	455.2	446.0
EBITDA margin	0,25	0,27	0,26
Net Profit	207.8	225.1	224.4
EPS	0,29	0,31	0,31
Net Debt/EBITDA	1,72	1,50	1,43

Source: Company data and author estimates

2. Business Description

The Navigator Company S.A., former Portucel Soporcel S.A., is a Portuguese Company, from the Paper and Pulp Industry, considered a global leader in the segment of premium office paper, listed in the Euronext Lisbon Stock Exchange. With headquarters in Setúbal, the company has as ending products, paper, pulp, tissue and energy.

Navigator’s history goes back to 1953, when production of raw pine pulp started, in Cacia, led by the grandfather of the former Chairman of Directors, Pedro Queiroz Pereira.

Since its beginning, several companies were integrated, as Portucel, due to the nationalization of the cellulose industry, in 1976. In 1993, its privatization would begin, with Semapa acquiring the majority of the company by 2004. Since its total privatization, Navigator has registered an outstanding development, with the building of new paper and biomass thermoelectric facilities. Lastly, the period between 2014 and 2015 is a historical one for Navigator, with the construction of a pellet plant in the United States, the inauguration of a nursery of clonal plants, in Mozambique and, the acquisition of a tissue manufacturer, AMS-BR Star Paper, S.A., in order to better reach the European market.

Navigator now holds four national industrial units in Cacia, Figueira da Foz, Vila Velha de Rodão and Setúbal, in which are integrated energy generating units. Additionally, Navigator is also responsible for nurseries in Ferreira, Espirra and Caniceira, as represented in Figure 4. Additionally, the company also counts with several subsidiaries in four continents, including America, Asia, Africa and Europe and, an extra nursery in Mozambique.

The company exports its products to, approximately, 130 countries, with a higher emphasis on Europe and the United States of America (“USA”), ensuring more than 3.000 direct employees, representing 2.4% of Portuguese Exports.

When accounting for all the sales and services of Navigator, at 2018YE, 65% were rendered to Europe (when considering the National market), 8% to North America and 23% to Other markets (Figure 5).

Figure 3. Company Logo



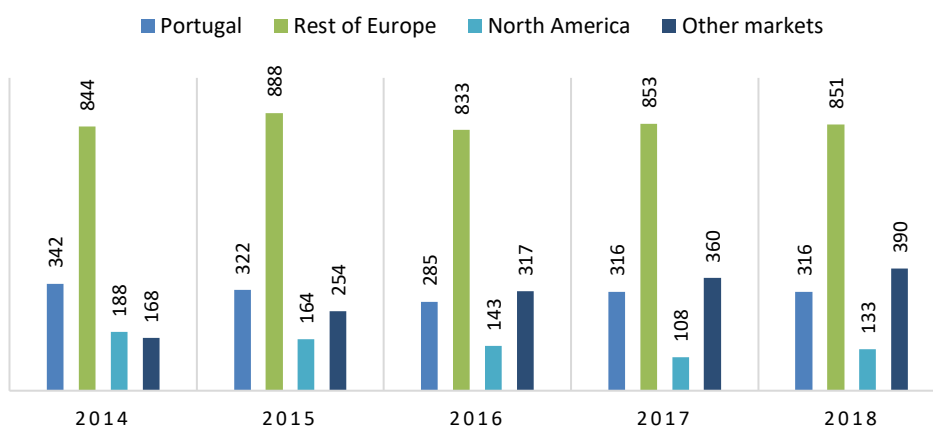
Source: Company website

Figure 4. National Distribution



Source: Company 2018 Report

Figure 5. Sales and Services Rendered by Region (€ million)



Source: Company Data

Operational Segments

Research and Development: With a sustainable business model, strongly focused on renewable and biodegradable raw materials, the significance of its Research and Development segments is highly understandable. R&D is assured by the recent private non-profit Forest and Paper Research Institute, RAIZ, that increases the competitive advantages of the company, while promoting a sustainable development. Recently, in 2017, this project was strengthened with a €15.3 million investment in Inpactus Program, involving 180 researchers, to better evolve the processes and products involved in the company’s production.

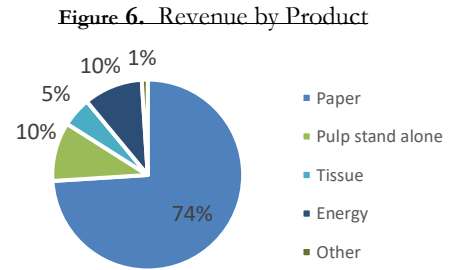
Forest: Seen by the company as one of its most precious assets, at 2017YE, Navigator was responsible for the management of 112,000 hectares of certified Forest in Portugal and Azores, being these mostly occupied by eucalyptus, protected by high investments in forest fire protection, since 2017. This segment includes the production and sale of ornamental and forestry plants, through its own nurseries Viveiros Aliança, S.A., with a total annual production capacity of 12 million plants and, through breeding grounds in Espirra, Caniceira and Ferreira.

Paper: Considered the largest manufacturer of Uncoated Woodfree (UWF) paper, in Europe, Navigator sees in its premium office paper brand “Navigator” a 50% market share. However, and as a sales strategy, it is offered by the company a wide range of own brands, representing different price levels and so, different customer segments, in order to better reach out to the market as a whole. Between Office and Offset paper, Navigator presents brands like Explorer, Discovery and Pioneer, with an annual production capacity of 1.6 million tons of paper.

Pulp: Produced from eucalyptus wood, in Setúbal and Figueira da Foz, Navigator’s paper pulp fits the BEKP (Bleached Eucalyptus Kraft Pulp) type, with only 20% being sold out to the market. With a then production capacity of 1.5 million tons of pulp, where 80% is integrated into paper production, following a vertical strategy, and, as a result of a significant growth in the pulp market, the Figueira da Foz complex was expanded, in 2017, in order to increase its annual production capacity in 70 thousand tons. With this, Navigator is able to sustain its place in the market, while the facility in Aveiro already integrates part of its pulp production into the tissue one.

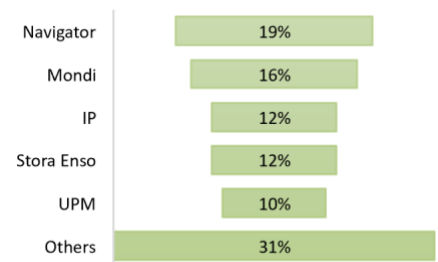
Energy: With an annual production capacity of 2.5 Twh of energy, Navigator is the lead producer, in Portugal, of energy from biomass, being responsible for more than 50% of all the power generated from Biomass, in Portugal. This now allows Navigator to be self-sufficient, with the remaining being sold in the market. The production of electrical power and heat through biomass is more accurately called as Co-generation, being most of the needed biomass derived from wastes from forestry operations or, black liquor resulting from the cooking of wood. If there is any necessity to complement the remaining needs of all of its industrial units, the company will purchase biomass from the market.

Also, in this segment was, in 2016YE, included the pellets production, based in Greenwood, USA, as a solid burnable made out of wood residuals. However, in early 2018 it was announced the business disposal to the American company Enviva, for €107.7 million.



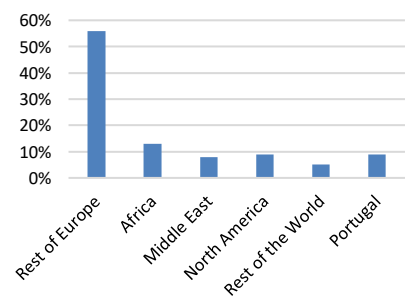
Source: Company Data

Figure 7. European UWF Main Players



Source: Company Data

Figure 8. Revenues by Geography



Source: Company Data

Tissue: As a company constantly looking for growth and development opportunities, in 2015, The Navigator Company officialized the acquisition of the Portuguese family company AMS-BR Star Paper S.A., in Vila Velha de Rodão, in order to enter a new business segment. With an annual production of 70 thousand tons of reels and 65 thousand tons of finished product, Navigator began the production of several tissue items, such as napkins or toilet paper, dividing its production into “at home” and “away from home”.

More recently, in 2018, an investment of € 83.4 million on a new tissue mill in Cacia was conducted, leading Navigator to the 3rd place of the largest tissue producers in the Iberian Peninsula, just behind the well-known Renova. This new mill has a production capacity of 130.000 tons of reels and, 120.000 tons of converting, according to the company’s latest released information.

Other Segments: In 2009, Portucel Mozambique was founded, by The Navigator Company, as the main project for the production of paper pulp and energy in that region. Until this day, the company has already obtained licenses for 173 thousand hectares in Zambezia and 183 thousand in Manica, with only, approximately, 70% of this area being planted, in order to avoid the displacement of the local population and maintenance of environmental values. On July 2018, Navigator signed a memorandum in which the entire investment is reformulate, totaling an investment of 140 million dollars.

Capital Expenditures as a key driver of profitability

CAPEX appears as a responsible for Navigator’s profitability, as one of the main reasons for variations in produced quantities which will, comprehensively, directly affect revenue.

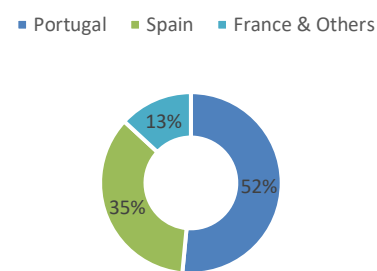
With a historical concern for development, the company registered, in 2018, a total CAPEX of €216.5 million, mainly driven by the new tissue mill in Cacia and, the expansion of pulp capacity in the Figueira da Foz’s industrial unit.

Still, higher depreciations have been registered during the last few years, as depicted in Figure 10, overcoming the registered values of capital expenditures. This leads us to conclude about a low rate of operating assets substitution, together with low reinvestment rates, which will oblige Navigator to take some action, as this situation will not be viable in the long term.

Company Strategies

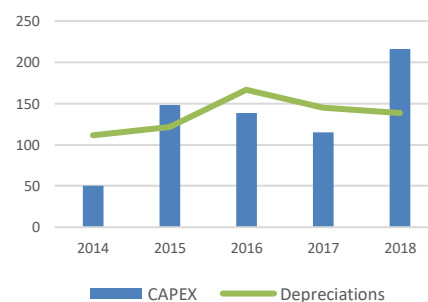
- **Product differentiation:** Navigator’s sale strategy is highly based on its own brand products, and how its different values can reach different consumers, increasing its range of business. Made from completely renewable resources, including the industry’s well-known Eucalyptus globulus, the company segments its paper into two categories: Office and Printing Industry, allowing the consumer to, also, choose between ranges of paper, varying between 70 and 80 g/m². In 2018YE, premium products registered an increase of 47 thousand tons, the same quantity as the mill ones.
- **Integrated Production:** Currently integrating almost 80% of its own BEKP pulp into production, Navigator sees here another competitive advantage mainly against European players, reducing its production costs for specific products like paper and tissue. This strategy is led in the industrial units of Figueira da Foz, Setúbal (where the 550 thousand

Figure 9. Tissue Revenue by Geography



Source: Company Data

Figure 10. Company’s CAPEX and Depreciations Evolution



Source: Company Data

tons of pulp produced per year is 100% integrated in the paper production of this unit) and, Vila Velha de Ródão (unit entirely dedicated to tissue production, where pulp is integrated through pipelines connected to its producer).

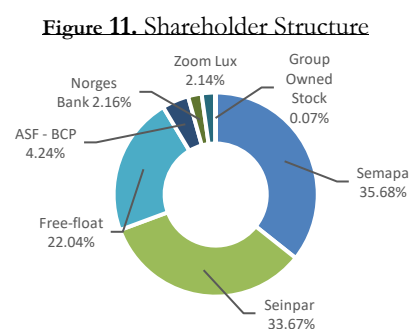
- **Tissue business:** Among the several types of paper, Tissue is the one presenting the most attractive growth expectations, in the long-term, registering an annual growth of 2% to 3%. In order to keep up with the market, Navigator quickly entered into a new business, through the acquisition of AMS, in 2015, which already had an installed capacity of 60 thousand tons, acquiring all of its needed pulp to Altri. Now as a part of The Navigator Company, tissue is produced through the strategy of integration, bringing a competitive advantage to the company, as few European competitors are able to have the same strategy of production. Besides not having new acquisitions planned for the foreseen future, the company's CEO stated that an eye is always kept opened when it comes to new business opportunities, revealing the company's efforts to keep its place in the industry.
- **Substituting plastic:** There is a prominent search, both environmental and social, for new substitutes for plastic items. In order to meet its clients' expectations, Navigator has already started studying several possibilities to be implemented during the year of 2019, such as: disposable paper cups, straws and cotton buds, as presented at its latest report.
- **Focus on Research:** Navigator's concern with Research and Development is another of its known strategies to maintain, and even increase, its market power. All the developments are ensured by Raiz, together with several national and international universities. In recent years, the mechanical strength of the pulp production was already sharpened, the fiber content of the tissue improved and, paper's features and coating suffered significant advances.

Shareholder Structure

According to Navigator's Corporate Governance Report and Euronext, from its 717 500 000 total of shares, approximately 69% belongs to Semapa (33.67% from Seinpar Investments), 22.04% are free float and, Banco Comercial Português (4.24%), Norges Bank (2.16%) and Zoom Lux (2.14%) register the remaining significant positions, as presented in Figure 11. The management team also holds shares, with António José Redondo holding 6.000 shares and, Adriano da Silva Silveira 2.000 shares. Navigator shares are mostly held by Portuguese investors, with a total of 30%, followed by USA and Spain, with 18% and 14% respectively.

The connection between Navigator and Semapa may not be as simple as it seems. As one of the largest Portuguese industrial groups, founded in 1991, Semapa is engaged in three business areas: Pulp and paper, through its holding of 69.40% in The Navigator Company, Cement and other materials, through Secil (99.99%) and, lastly, the Environmental area, through ETSA (99.99%). Semapa is, 72.01% owned by Sodim, directed by the Queiroz Pereira family which, consequently, owns the majority of Navigator's share capital.

By 2017YE, Navigator accounted for almost 76% of Semapa's total revenue, with a contribution of €1.637 million, which makes Navigator a key element for



Source: Euronext – Navigator Company Shareholder Structure

this company, at the same time as the cement area is registering losses and the environmental one only accounts for 1.34% of total revenue.

Dividend Payout Policy

Known for paying one of the highest dividends in the industry, Navigator commonly presents payout ratios close to 100%, with an outstanding 224% registered in 2015, due to an early distribution.

In 2018, the Navigator distributed a total of € 200 million in dividends, carefully divided in two parts: € 23.71 cents as regular dividends, with an additional € 4.184 cents as free reserves, according to information disclosed in the company's latest report.

With a distribution value accounting for a 96% payout ratio, 2018's dividends are still € 50 million below the ones registered in the previous year, which then accounted for a 115% payout ratio.

As an additional note, it is important to mention that 10.2% of Net Income was also distributed to employees, as a common policy of the company.

Navigator dividend yield in 2018 was 9.80%, more than double of the one verified by the average of the industry. It is safe to say that Navigator pays one of the highest dividends in the paper industry.

3. Management and Corporate Governance

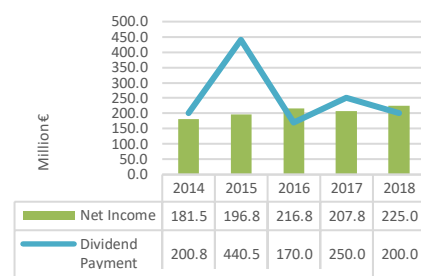
With € 500.000.000 in fully paid share capital, Navigator sees this capital being represented by a total of 717.500.000 ordinary shares, listed on Euronext, without any nominal value. As of today, Semapa owns 69.4% of Navigator's share capital, with the remaining 21.4% belonging to institutional investors, mainly from Europe (Figure 14).

As a family owned-business, by the Queiroz Pereira family, Navigator faces some inherent risks. The existing family bonds might restrain the needed separation between personal and business issues. This combination may reveal itself as one of the most severe ones for a company's health. Any possible breakdown, will make the finding of new common-goals hard, or nearly impossible, leading to an hostile work environment, an increasing employee turnover and, ultimately, to a company out of track.

According to the company's Articles of Association (Article 8), approved and published in 22nd September 2017, Navigator's Corporate Bodies, with a term of office every 4 years, with possibility of renewal, comprise the following:

- **General Meeting ("GM")** – Obligated to be held, at least, once a year, GM is responsible for evaluating every Board of Director's report, Audit Board's opinions, approving the required financial statements, deciding about the application of every fiscal year profits and, determining all the remunerations of every member in each corporate body, having the power to elaborate a Remuneration Committee.

Figure 12. Dividend Payments (in million €)



Source: Company Data

Figure 13. Industry dividend yields (2018)



Source: Companies Data

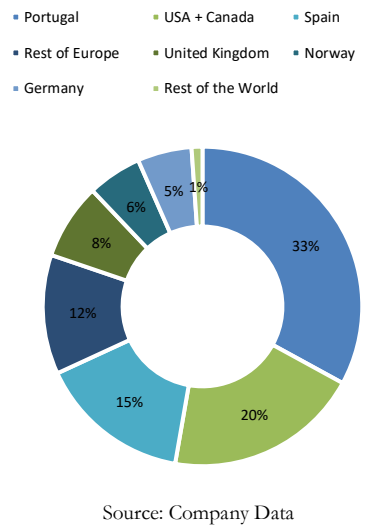
Table 2. Navigator Board of Directors in 2018

Name	Position
João Nuno Pinto de Castello Branco	Chairman
Diogo António da Silveira	Vice-President
Luis Alberto Deslandes	Vice-President
António José Redondo	Member
José Fernando Morais de Araújo	Member
Nuno de Araújo dos Santos	Member
António José Redondo	Member
José Fernando Morais de Araújo	Member
Nuno Miguel de Araújo dos Santos	Member
João Paulo Oliveira	Member
José de Oliveira Vitorino	Member
Adriano da Silva Silveira	Member
Manuel Soares Regalado	Member
José Miguel Gens Paredes	Member
Paulo Miguel Ventura	Member
Ricardo Pacheco Pires	Member
Vitor Gaivão Novais Gonçalves	Member

Source: Company Data

- **Board of Directors (“BOD”)** – With a composition varying between a total of 3 to 17 members, elected by the General Meeting, the BOD is legally able to insure the correct management of the company, in all the matters not specifically attributed to any other of the corporate bodies. The BOD is currently composed by 17 members, as depicted in Table 2, including a Chairman and 2 Vice-Presidents. With the death of Pedro Queiroz Pereira, former Chairman, in August 2018, Navigator organization suffered a significant change, with João Castello Branco now assuming the Chairman position.
- **Audit Board** – Responsible for the supervision of the company, analysing and validating proposals submitted by the external auditor, is comprised by 3 full members plus, 2 alternate members. José de Oliveira Vitorino, one of the full members is also the Chairman.
- **Statutory Auditor** – Besides having PricewaterhouseCoopers & Associates – SROC, Lda, being responsible for the company’s auditory for several years, in 2018 this changed to KPMG & Associates – SROC, S.A., also responsible for several other consultancy services.

Figure 14. Shareholders Geographical Distribution



Besides the stated corporate bodies, Navigator also has a total of 10 committees responsible for reporting to the BOD. Among these, the most relevant are now presented:

- **Executive Committee** – Fully composed by 5 executive members of the Board of Directors, the Executive Committee appears as one of the key elements for a well-functioning company, having Diogo da Silveira as Chairman. It is responsible for the presentation of several proposals to the BOD, regarding matters as company policies, strategies, budgets, investments, among several other, while managing holdings in other companies.
- **Environmental Board** – Now formed by 4 members, with high skills in environment protection, this committee was created in 2008, by the BOD, in order to assist the company in its increasingly concern with environmental issues.

Navigator’s governance structure adopts the Corporate Governance Code published by CMVM (Portuguese Securities Exchange Commission), adopting 28 of its recommendations, with another one only partially adopted, 8 not applicable and, 3 not adopted at all.

4. Industry Overview and Competitive Position

Portuguese Economic Outlook

Registering a growth of 2.1%, and according to the Portuguese Statistics Institute (“INE”), Portuguese GDP is still 0.7 percentage points (“p.p”) below the observed in the previous year. This decrease is, according to the Portuguese National Bank previsions, expected to be even more severe in the following years, with GDP stabilizing in a 1.7% growth, for the years of 2019 and 2020, and 1.6% for 2021.

Figure 15. Portuguese GDP Evolution



The Portuguese economy is then expected to grow at a lower rhythm, with exports growing at a yearly average of 3.4% until the year of 2021, when these will amount up to 47% of the national GDP.

Paper and Pulp Industry Outlook

In an industry where paper represents the biggest share of revenue but, where its demand has been decaying since 2015, nothing seems to stop companies like Navigator from growing. With the packaging and paper tissue segment growing, alongside with pulp, with a still small new application in textile production, the Pulp and Paper industry was responsible in 2017, for providing 177 thousand direct jobs in Europe, with a turnover of €82 billion, adding €19 billion to the European Union GDP, according to the latest information available.

All the following analysis will be mostly conducted through information provided by CEPI (Confederation of European Paper Industries), which is a non-profit making organization, responsible for the representation of the European pulp and paper industry, more specifically, of a total of 18 European countries.

Paper

Leading the run of European paper manufacturers, and being sixth in the worldwide rank, with a production capacity of 1.6 million tons, Navigator now owns, in Europe, 19% market share in UWF paper and, 58% in the premium segment. Registering a revenue of €1.248 million, accounting for 74% of total revenue, according to the information available at this date, revenues were 0.9% lower than the ones from 2016.

With several types of paper, comes different supply and demand dynamics. However, the main focus of this work will be the UWF paper, produced from bleached hardwood pulp.

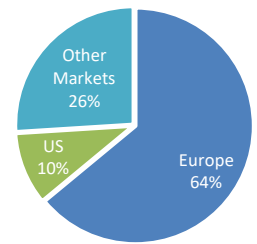
Own brands portfolio

With paper production set in two different mills, one in Setúbal, with production capacity of 775 thousand tons and, another in Figueira da Foz, with an annual production capacity of 790 thousand tons, recording sales of 1.578 thousand tons in 2017, as depicted in Figure 18, Navigator’s own brand portfolio, which is divided into brands for the printing industry and, for office paper, increased in 45 thousand tons. Among these brands, are included Explorer, Multioffice, Discovery, Inacopia, Target, Pioneer and Soporset.

Demand Vs Supply

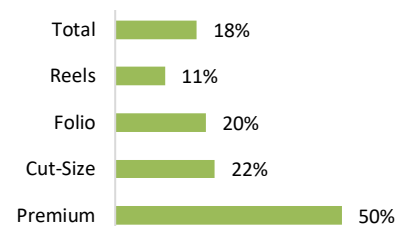
According to the most recent statistics, published by the European Association of Graphic Producers, presented in Table 3, the exports to other European countries, have been showing a significant decrease, in accordance with the limited European growth, registering a 15% decrease in the last seven years. This poses a risk for Navigator, as the majority of its paper exports (64%), is directed to other European countries. With this decrease, the exports for other market outside of the European are gaining strength, with an increase of almost 17%, in only seven years.

Figure 16. Paper per geography (FY17)



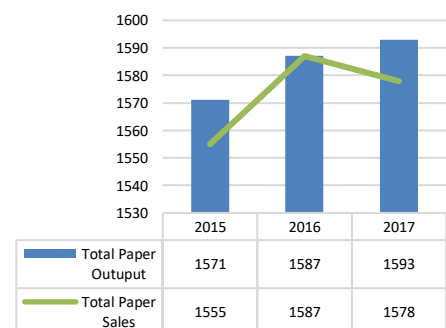
Source: Company Data

Figure 17. Navigator Market Share in W. Europe (H1 2018)



Source: Company Data

Figure 18. Paper Operational Indicators (thousand tons)



Source: Company Data

Table 3. Paper Imports and Exports

	Exports			Imports
	To Europe	To outside Europe	Total	
2010	6893	956	7849	7487
2011	6616	1044	7660	7115
2012	6364	1043	7407	6754
2013	6113	1091	7204	6512
2014	6265	1206	7471	6739
2015	6188	1268	7456	6795
2016	5833	1219	7052	6471
2017	5853	1123	6969	6491
2018	5564	1144	6708	6229
%Δ 10-18	-19,3%	19,7%	-14,5%	-16,8%

Source: CEPI

However, and according to the company’s latest report, 2017 consumption in the Asian market, particularly in China, increased by more than 2%, while the American market fell about 6.2%. In Europe, the UWF consumption was kept stable (+0.1%), with a particular increase in the Cutsize and Folio segments, at the same time of a decrease in reels,

Even though the FOEX A4 B-Copy index performed well during 2017, the average price of €815/ton was still below the one verified in 2016, of €823/ton. This situation led the company to take four price increases during the entire year, which were contra balanced by the depreciation of the dollar and the pound, relatively to the euro, leaving the level price almost equal. Then, it was registered a YoY 2018 average price increase of 7.1% on the European reference index, to €873/ton, as portrayed in Figure 19, overcome by Navigator’s price increase of 8.4%.

Although with a much lower volatility, paper prices tend to follow the pulp ones. Several other international markets, as the American, also implemented several increases. Even though the paper price index registered an increase, the pulp price has surpassed paper’s. By this analysis, one can conclude that paper sales are generating a much lower margin, which will affect several industry players.

A troubled 2018?

In 3Q18, paper sales were already 2% lower, when compared to the same period of the previous year, finishing the year with a total decrease of 4%, with only 1.513 thousand units sold, mainly due to all the unplanned stoppages. However, this decrease was contra-balanced by the 8.4% price increase, with sales growing 4% in value, to a total of €1.248 million.

Figure 19. FOEX Europe – A4 B-Copy



Source: Navigator Q4/FY2018 Results Presentation

Pulp Outlook

As an European lead producer and seller of paper pulp, which is integrated in 80% on its own paper production, Navigator sees this segment only accounting for 10% of its revenues, due to the low percentage of which is sold out to other paper producers.

For its production, the company accounts with one mill in Setúbal, with a production capacity of 580 thousand tons per year, other in Figueira da Foz, with 550 thousand tons and, lastly, one in Cacia, Aveiro, with a total production capacity of 340 thousand tons.

Production

With the European Pulp Production reaching the value of 37.8 million tons in the 2016, being these the last currently available statistics, representing a decrease when compared with the same value, ten years prior, of 43.9 million tons. Nevertheless, these production values have always been connected to a range of 80% to 90% operation rates.

According to data from 2017, in the entire world, the South American and Asian market are the ones with the highest pulp production, with 34.9% and 22%, respectively. However, when considering only the CEPI market, Sweden (32.2%) and Finland (28.5%) appear as the biggest producers of pulp, in the entire Europe, followed by Portugal (7.3%).

Supply & Demand

Pulp prices registered its initial rising in 2016YE and, since then, have been increasing almost monthly. In the end of 2017, the benchmark index – PIX BHKP – registered a YoY average increase of 16%, in Euros, as seen in Figure 21, registering a final price of €825. In 2018YE, this index had increased 21%, to €880/ton.

Navigator conveyed a reduction in supply, in 2018, due to several maintenance procedures, unexpected stoppages, as planned and unplanned shutdowns, reducing the pulp volume on the market by 18.5%, when compared to 2017YE, to 253 thousand tons, with sales still increasing by 1%, due the compensation via price increases. Furthermore, there is no expected increase in capacity for the years of 2019 and 2020, according to the company's 2018 results presentation. Globally, supply is registering a gaining strength in the South Hemisphere, where there is low-cost hardwood fiber.

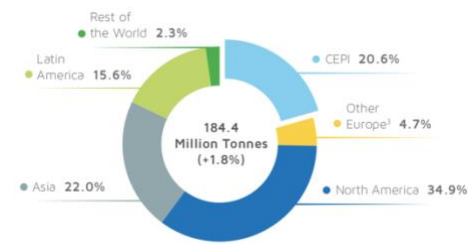
As to the demand, it was considered to be vigorous, leading to price increases in China and Europe, being globally pulled up by increasing living standards and paper production in emerging regions. The company's pulp price raised 12% over the year of 2017, with sales increasing by €164 million, corresponding to 19% in value.

As to international trade, the Northern and South America come as the lead exporters, with, approximately, 16.658 thousand tons and 20.703 thousand tons, respectively, as conveyed in Figure 22. As to 2018, there was a slowdown in this demand increase, driven by a significant slowdown in China, registering lower prices. However, these are expected to stabilize, due to recent action taken by pulp production leaders worldwide.

South Hemisphere – a growing leader

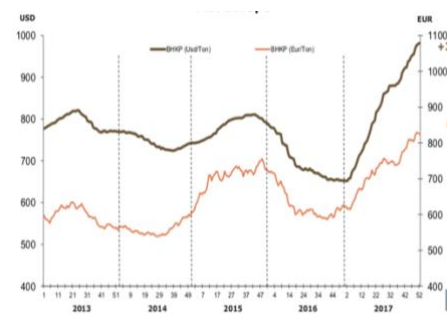
With eucalyptus representing 72% of planted area and, pulp and paper industrial GDP growing above the country's, Brazil is establishing a changing role in the

Figure 20. World Pulp Production by Region in 2017



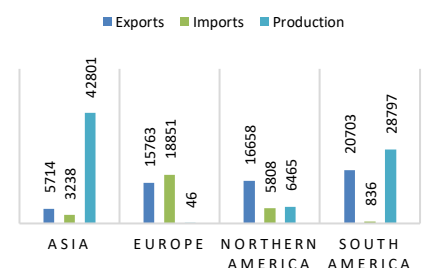
Source: CEPI – Key Statistics Report 2018

Figure 21. PIX Europe, in USD/ton BHKP and EUR/ton BHKP



Source: Navigator Q4/FY2017 Results Presentation

Figure 22. Pulp Production, Imports and Exports in 2017 (thousand tons)



Source: FAO United Nations (Accessed in 5th February 2019)

Pulp market, increasing its output at an annual rate of 5.5%, in the decade ending in 2016, with companies like Fibria and Suzano registering the highest production capacities (Figure 23). When compared to the other players in the industry, Brazil registers lower production costs, higher investment in Research and Development and, very favorable climate conditions, being all these factors common to most of the countries in Latin America. As a relevant detail, it's important to state that, 40% of all Brazilian pulp exports, are designated to China, with the Asian price already reaching \$750 per ton, in mid 2018, registering a \$140 increase from 2017YE. These export and price values are all expected to register a continuous increase, due to the sharp development that China is facing.

The Navigator Company already considers this to be a situation of high competition, specially from countries like Brazil, Chile, Uruguay and Indonesia, which already present lower production costs, deteriorating the competitive position of European pulp producers, as stated on its 2017 Report.

Tissue

With graphic paper losing its place in the market, tissue it is building its way to a new era in the pulp and paper industry. In 2017, Navigator registered a recovery in demand, with the sales volume up by 9% y-o-y, mainly due to growth in the tourism sector. Managing an improvement in the mix of sold products and higher prices, due to the pulp price increases, the company registered an increase in the sales value to €74.4 million. With the publication of 2018 final results, it's observed the expected positive evolution of prices, with a 7.5% increase, not enough to stop the 30% increase in production costs, related to the evolution of hardwood pulp prices, which mainly affected the industrial unit of Vila Velha de Ródão.

Starting its operation in the last quarter of 2018 and, described as “one of the main challenges for 2018”, the new Cacia production mill highly contributed to the 23% increase in tissue sales which, nonetheless, was not sufficient to control the 30% increase in production costs.

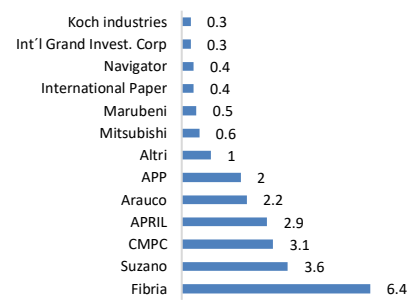
Growing demand

The continuous growth of tissue paper market strongly derives from the increase of middle class in emerging markets, which accounts for an increasing concern regarding hygiene matters. With emerging markets accounting for 80% of global growth, China is the first economy to stand out. Accounting for almost half of the tissue market growth in the last ten years, China's consumption has been growing at an average 8.3% per year, 4% higher than South America, which follows in second place, consuming 6 kg of tissue per capita. In this South region, Brazil and Mexico account for more than 50% of the referred demand.

New global suppliers

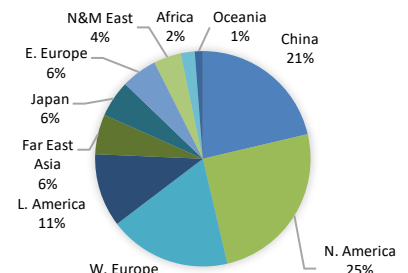
Already developing alternatives to pulp, as bamboo, China is already responsible for more than 40% of the tissue market growth, over the last ten years. The CEPI and South American countries only account for a total of, approximately, 29%, as depicted in Figure 25. However, these percentages may already be experiencing a potential decrease or slowing, with the significant trend of pulp integration, already experienced by Navigator.

Figure 23. Hardwood-Pulp Production Capacity (in million metric tons)



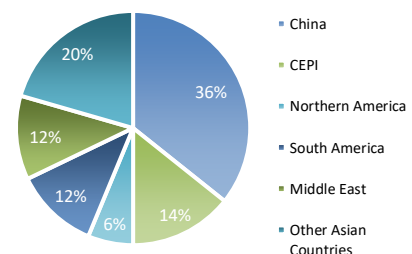
Source: Bloomberg

Figure 24. World Tissue Consumption Per Region (2016)



Source: CEPI
(Accessed in 5th February 2019)

Figure 25. Regional Growth of Tissue market (2016)



Source: CEPI
(Accessed in 5th February 2019)

Global Capacity

Navigator faces powerful Global competitors, as shown in Figure 26. With a total annual production capacity of 135 thousand (70 thousand reels and, 65 thousands of finished product), the company appears as a player with small significance, compared with major players like the Finnish Metsä Tissue (with a capacity of 602 thousand tons) or, the Swedish ESSITY, which has almost 34 times more production capacity than Navigator.

When considering only the Portuguese market, Navigator still falls behind Renova, with a total annual production capacity of 187 thousand. However, with the new tissue expansion in Cacia, it's expected that the company overcomes Renova, becoming the second largest player in the Iberian market.

Energy

Navigator now has the volume of energy production that allows it to be self-sufficient in its production activities, through units in Setúbal, Figueira da Foz and Cacia, with 69% of renewable energy used in the production of paper and pulp. The surplus is sold out to the national electricity grid, with the energy segment already representing 10% of its volume of sales, corresponding to €127 million. During the year of 2017, these grew by 13% in value, after being adversely affected in 2016 by breakdowns in several of its turbogenerators. More recently, the company already registered a volume of sales of €173 million, with a development in Espirra, of more than 300 photovoltaic solar panels for its own consumption. However, and since 2011, this revenue is exposed to changes regarding regulations and subsidies to renewable energies. Also, the decrease in subsidized prices for plants with a certain time of production, has already affected the plants located in Figueira da Foz and Cacia and, is expected to affect Setúbal's, in 2020.

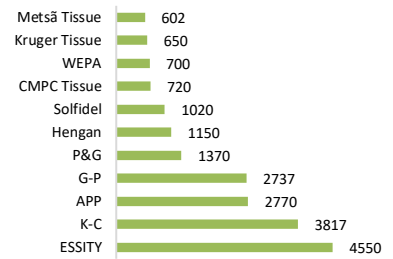
Raw material (Wood)

As the main raw material for the production of pulp, wood is one of the main worries for Navigator, who already manages over 110,000 hectares of Eucalyptus in Portuguese territory, 55% under ownership and the remaining under leasing contracts.

However, the forest managed by the company, currently represents less than 20% of Navigator's needs of eucalyptus wood for BEKP production, which obliges the company to import wood from both the Portuguese and the Spanish market, with more than 50% coming from national territory. Lastly, Navigator also relies on the Latin American market, as seen in Figure 28.

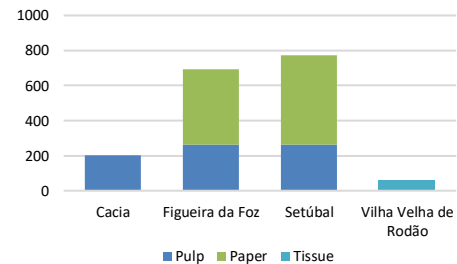
In this struggle to meet its needs, Navigator has to place a higher reliance on imports, dealing with several risks and constraints, as the volatility to which the wood transportation is subject, that will vary depending both on oil prices and sea freight costs. Also, the increasing competitors' production capacity is leading to higher demand, which is making the raw materials' prices to go up. Currently, wood is being increasingly affected by the housing sector, the so common natural disasters, as fires and, by all the new regulations regarding forest protection. In 2017, the Portuguese RJAAR suffered a change in its legal rules, leading to a decrease in the permitted eucalyptus area in Portugal which will, as a consequence, lead to a higher need of reliance in wood imports, aggravating the costs needed to maintain Navigator product's quality.

Figure 26. Production capacity of the major global tissue companies in 2016 (thousand tons)



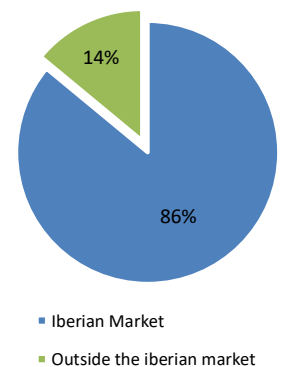
Source: European Tissue (Accessed in 11th February 2019)

Figure 27. Energy consumption, per product, per industrial unit (GWh)



Source: Company Data

Figure 28. Wood Imports



Source: Company Data

Competitive Positioning

In order to evaluate Navigator's competitive positioning, it's now performed a Porter's Five Forces Analysis, together with a SWOT analysis.

Porter's Five Forces Analysis

Threat of new entrants | LOW

In the paper and pulp industry, the level of capital expenditures highly influences how difficult it truly is to penetrate into the industry.

Besides the high initial investment required, one should be aware of the constant need of development, through both maintenance and acquisition of highly expensive machinery, such as pulp mills. In addition to this, it is essential to have the ability to produce, at least the majority of its needed inputs, in order to avoid its natural fluctuation in prices. The entrance of new competitors is considered to be a LOW risk.

Bargaining power of suppliers | HIGH

Any effect from suppliers' bargaining power will be derived from the possible dependence from Navigator's main raw material: wood.

Even though the company owns several hectares of its own eucalyptus plantations, combined with other several of rented ones, it is still dependent of the natural needed period for the "rebirth" of new wood, obliging the company to still depend on several suppliers.

As an acquirer of Certified Wood, the supplier range is significantly reduced, leading us to assess the bargaining power of suppliers as HIGH.

Bargaining power of buyers | MEDIUM

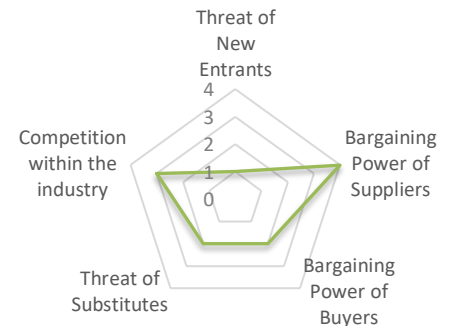
Although in an industry with low switching costs, where any customer can find an easy substitute, Navigator is known for its premium quality products, which has allowed it to establish a situation of brand loyalty over the years. We believe that, in a case with few price discrepancies between competitors, any customer will always be tempted to choose Navigator's products. The bargaining power of buyers is considered to be MEDIUM.

Threat of substitutes | MEDIUM

In a society where the emergence of new technology is constant, with newspapers and books settling on the internet, paper now faces one of its biggest challenges. However, competing with e-mails, e-books and smartphones is not as relevant to the paper industry when it comes to one of its biggest consumers: education. According to a 2018 study from the Academic Reading Format International Study, regarding students' attitude towards the importance of paper over technology, 69% of all the students from 21 countries (with Portugal included), still prefer paper as their main source for education.

That said, the threat of substitutes is still considered to be MEDIUM, with a clear tendency to rise.

Figure 29. Porter's Five Forces



Source: Author Estimates

Competition within the industry | MEDIUM/HIGH

Belonging to an industry where prices are often settled through market indexes, Navigator faces intensive and constant competition from its peers. Although, Navigator is able to stand out through its Premium products, already owning 50% market share on its main market of Premium products. This is still well above the approximate 15% of industry's average, making competition oscillate between MEDIUM and HIGH.

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none">-Highly diversified geographic distribution, to 130 countries;-Pulp integration in production, through a vertical model, leading to advantages and protection over the volatility of market pulp prices;- Own Research and Development institute;- Strong tissue player.	<ul style="list-style-type: none">-Owned forest representing less than 20% of the company's raw material needs, leading to a higher reliance on imports, with higher costs and volatility;-High exposure to the fall in the demand of UWF paper in the European market, which accounts for more than 60% of its paper revenues.
Opportunities	Threats
<ul style="list-style-type: none">-Increasing number of emergent markets, with whom hygiene concerns increase, leading to a growing demand for tissue paper;-New legislation regarding the abusive use of plastic will probably turn consumers' attention to paper, as paper bags, as an alternative;-Increasing popularity of renewable energy;-Mozambican economy growth.	<ul style="list-style-type: none">-Increasing concern about environmental issues;-New technologies development, leading to a decrease in the use, and consequent demand, for paper;-Change in trading, forest and energy regulations.

5. Investment Summary

With a € 3.09 target price, representing a 6.8% upside potential to the stock's market value of € 2.90 at August 3rd, 2019, our recommendation for Navigator stands at **BUY**.

As an integrated producer, Navigator is responsible for four different business segments: UWF paper, BEKP pulp, tissue paper, forestry and, energy. The paper segment accounts for 74% of total revenue, which is highly leveraged by the ownership of both the largest certified nursery in Europe and, the largest paper mills, divided through four different industrial units: Setúbal, Figueira da Foz, Cacia and Vila Velha de Ródão.

Table 4. Tissue consumption per person in 2017 (kg/year)

Eastern Europe	7.4
Western Europe	16.6
Latin America	7.3
North America	24.7
Asia	0.9
Middle East	4.3
Africa	0.6

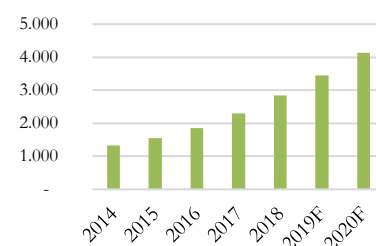
Source: RISI

With almost 70% of its sales rendered to Europe, in 2018YE, including the National market, Navigator is Portugal's largest exporter, representing a total of 2.40% of all the goods exported and, accounting for 1% of Portugal's GDP.

As main future prospects, the following are considered:

- i. Increasing demand of tissue in emerging countries: The decline in demand for traditional graphic paper, is expected to be more than offset by a highly significant growth of tissue paper in markets now emerging (Table 4).
- ii. E-commerce as a new reality: With all the mainstream brands and stores moving to e-commerce, creating a dependence on online purchases, a new demand for cardboard packages starts to emerge. The now \$ 2.84 billion worth e-commerce (Figure 30), according to Statista latest information available, can be seen as one of the main growth-drivers for the paper industry.

Figure 30. E-commerce global sales (\$ Billions)



Source: Statista

A highly dependent pulp industry

With a total of 38.3 million tons of pulp produced in Europe, 7.2% of which in Portugal, and prices highly impacted by Chinese demand, it is mandatory to understand the present and future of this market. Asia is currently leading the global pulp consumption, totaling 69% of European exports, making it the most significant and fast-growing consumer, establishing a high dependence of Europe from this region.

Valuation methods

In order to compute Navigator's target price, the discounted cash flow model, complemented with a relative valuation, was used. Through Free Cash Flow to the Firm, a price of € 3.09 was reached, which represents an upside potential of 6.8%.

Risks to price target

It is important to be aware of the several risks to which Navigator is exposed, without the ability to be controlled by the company's management like market, operational and regulatory risks. In order to build a more trustworthy analysis, a sensitivity analysis was performed, in order to assess the impact of changes in the WACC rate and in the Terminal Growth Rate. Target price will then only suffer a possible increase in the case of a combination between lower WACC with a higher terminal growth rate.

6. Valuation

DCF Approach: Free Cash Flow to the Firm

Navigator is first valued through the Discounted Cash Flow Approach ("DCF") (Appendix 11), allowing the determination of the total value of the firm to all investors. Enterprise value was then determined and adjusted for Net debt, leading us to a final equity value.

Through our analysis, we arrived to a price target of € 3.09, thus representing an upside potential of 6.8%, when compared to the market price of 2.90 € on August 3rd, 2019.

This method is then influenced by several critical factors:

1. CAPEX and D&A

As a company known for consecutive expansions in the last few years, Navigator now intends to only spend a maximum of € 200 million in capital expenditures, until the year 2022. For a matter of simplicity, an equal yearly value of € 50 million was considered, assuming that a total of € 10 million will always be related to the Mozambique project (according to Navigator’s available information).

As to depreciation and amortization, are settled as a stable percentage of operating expenses, due to steady past values. A percentage of 9.8% is then considered.

2. WACC assumptions

With FCFF being discounted at the weighted cost of capital (“WACC”), several assumptions must be settled, as carefully detailed on Appendix 11.

- Cost of Equity (r_E)

Computed through the Capital Asset Pricing Model (CAPM), a final 10.4% cost of equity was considered. Regarding the Risk-free rate (“RFR”), a 0.086% rate was considered, as the 10Y German government bond on 18th March of 2019, the date of this analysis. As for the Market Risk Premium (“MRP”), Damodaran’s calculations were considered suitable, being a rate of 9.02% settled for this parameter. Based on this, a Country Risk Premium (“CRP”) of 3.06%, centered on Damodaran’s calculations for Portuguese Default Swaps, which take into account the risk of bankruptcy, totaling an Equity Risk Premium (“ERP”) of 12.08%.

Lastly, to obtain Beta (β), representative of the company’s systematic risk, a linear regression was performed, using Microsoft Excel, between Eurostoxx 600 and Navigator’s daily stock prices, arriving to a value of 1.14.

- Cost of Debt (r_D)

As another key element of the WACC rate, an after-tax cost of debt of 1.8% was settled, based on several other assumptions (Table 5). Cost of debt was based on an average of past years’ relation between interest paid on borrowings and, interest bearing liabilities, leading us to a 2.49% rate. A Marginal Tax Rate was computed, through the sum of the Portuguese General Tax Rate with an additional Municipal Surcharge for Setúbal’s district was considered, as the location of Navigator’s headquarters. Finally, an Effective Tax Rate of 28.87% was extracted for Damodaran’s January 2019 calculations, for the paper and forest industry products.

3. Terminal Value

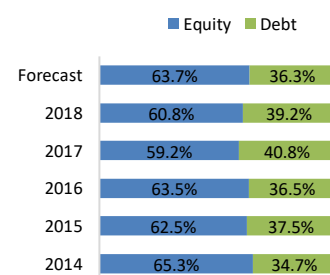
Operating under full capacity, Navigator is considered to follow the Portuguese Inflation rate, with a terminal growth rate (“g”) of 1,30% being assumed. Terminal value was then computed, arriving to a final value close to €2 billion after discount.

Table 5. WACC Assumptions

Cost of Equity	
Risk-free rate (“RFR”)	0.086%
Country risk premium (“CRP”)	3.06%
Market risk premium (“MRP”)	9.02%
Beta	1.14
Cost of Equity (r_E)	10.4%
Cost of Debt	
Cost of debt (r_D)	2.49%
Effective tax rate	28.87%
Marginal tax rate	21.5%
After tax cost of debt	1.8%
Capital Structure	
Debt to value	36.26%
Equity to value	63.74%
Terminal Value	
Terminal growth rate (g)	1.30%

Source: Author’s Estimates

Figure 31. Capital Structure



Source: Company Data and Author’s Estimates

Relative Valuation Approach (Multiple Valuation)

In order to better understand Navigator's performance within the industry, and how it can be compared with competitors, a comparable analysis was performed.

Table 6. Peers' Selection

For the selection of Navigator's peer companies, a 3-stage process was conducted in which, for one company to be considered a suitable peer, it must fulfill three requirements. (Appendix 10)

1. Be a paper producer – With paper being the most significant segment for Navigator, a suitable peer, must not have its production activity highly limited to pulp or any other product.
2. Pulp share < 25% – To mainly consider integrated pulp producers, that only sell a small remaining quantity of pulp to the market.
3. Paper market > 30% – With paper representing over 70% of Navigator's business, a suitable peer must have a significant share of its own business dedicated to paper.

	Paper producer?	Pulp share < 25%	Paper Share > 30%
International Paper	✓	✓	✗
Stora Enso	✓	✓	✓
UPM	✓	✓	✗
CMPC	✓	✗	✗
Mondi	✓	✓	✓
Altri	✗	✗	✗
Ence	✗	✗	✗
Fibria	✗	✗	✗
Svenska Cellulosa	✓	✓	✓
Metsa Board Oyj	✓	✓	✓

Source: Author Estimates

When analyzing 10 paper industry company's, and considering the referred requirements, 4 peers were selected: Stora Enso (Finland), Mondi (Austria), Svenska Cellulosa (Sweden) and Metsa Board Oyj (Finland). From the selected peers, it is important to mention the higher multiple valuation that tissue producers are subject to, mainly due to a fast market expansion, as in the case of Svenska and Metsa (Appendix 10).

On a general note, Navigator's multiples are relatively close the ones from its peers, which lead us to conclude that Navigator is similarly valued relatively to its peers.

Table 7. Navigator and Peers comparison

	EV/SALES	EV/EBITDA	Net debt/EBITDA	P/E
Peers Mean	1,92	10,43	1,31	11,91
Navigator	1,66	6,41	1,43	10,69

Source: Author Estimates

To complement the DCF analysis, several ratios were then considered: EV/Sales, EV/EBITDA, Net debt/EBITDA and P/E.

It is, although, important to consider the diminished accuracy provided by EV/EBITDA, due to its interval amplitude.

Table 8. Navigator Relative Valuation (2019F)

Multiple Valuation (Million €)				
Enterprise Value Multiples	EV/SALES	EV/EBITDA	Net debt/EBITDA	P/E
Multiple	1,92	10,43	1,31	11,91
Enterprise Value	5 475 651 913,11	4 650 933 044,89	3 738 585 149,74	2 669 980 195,28
Net Debt	639 603 229,59	639 603 229,59	583 176 629,46	639 603 229,59
Equity	4 836 048 683,52	4 011 329 815,30	3 155 408 520,28	2 030 376 965,69
EBITDA	446 025 705,58	446 025 705,58	446 025 705,58	446 025 705,58
Target Price	6,74	5,59	4,40	2,83
Average Target Price	4,89			

Source: Author Estimates

The average target price, derived from the four ratios average, stands at a value of €4.89, above the € 3.09 from our previous estimation and, above the market value of € 2.90, registered on August 3rd, 2019. This then reinforces our conclusion that Navigator is undervalued.

7. Financial Analysis

In the end of 2018, Navigator announced a never before registered EBITDA of € 455.2 million, that comprised a 12.8% increase relatively to the previous year. Although, if non-recurrent impacts were to be excluded, EBITDA would have stand at a value of € 461 million. This includes, all in 2018, the sale of the pellets business, in the USA and, the settling of new anti-dumping taxes for paper sales in America, comprised in the period between August 2015 and February 2017 (initially settled at 37.74% and, then reduced to 1.75%).

An EBITDA Margin of 26.9% was then reached (Figure 32), mainly due to the recently established cost reduction program (M2), which positively contributed to EBITDA, in the amount of € 21 million.

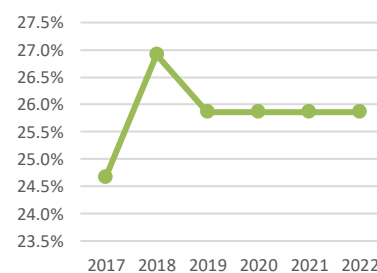
As to the company's variable costs, a negative evolution of the price of chemical products highly affected the production costs of pulp and, consequently, paper and tissue. In addition to this, an increase in the costs of fiber was also registered, adding a total of € 14 million to this segment.

In recent years, when looking to the fixed costs, an increase of €9.2 million in payroll costs can be immediately identified. This is mainly related to the increased number of needed employees for the new tissue facilities and the hiring of youthful employees, according to new goals established.

Responsible for generating a free cash flow of € 211.1 million in 2018YE, mainly supported by the company's good operational performance, Navigator still saw its cash flows limited by the high level of CAPEX (€ 216.5 million) registered, connected with the construction of the new tissue factory in Cacia and, the expansion of the Figueira da Foz industrial complex.

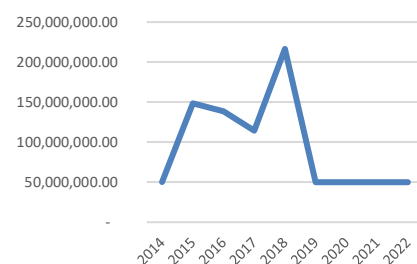
With Net Debt registering a € 381 million increase from 2014 to 2015, the first two years of our analysis, this immediately becomes a relevant parameter for a deeper scrutiny. First, it is important to assign this massive increase to the issuance of new commercial paper, in order to finance both investments and dividend payments. As in 2018YE, Net Debt to Equity stood at 58%, relatively centered when comparing to industry's average of 190% (Figure 34). Even belonging to a highly capital-intensive industry, the decreasing investment needs, are now expected to, according to author estimates, decrease to 48% in 2019 and, 45% in 2020.

Figure 32. EBITDA Margin



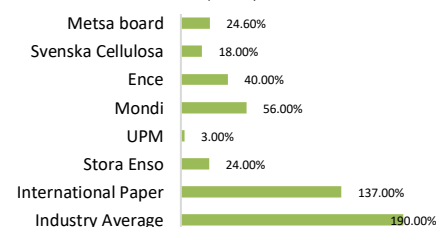
Source: Company data and Author estimates

Figure 33. Company's CAPEX Evolution



Source: Company data and Author estimates

Figure 34. Industry's Net Debt to Equity (2018)



Source: Companies data

8. Investment Risks

Exchange Rate Risk (ER)

Even though Europe represents more than half of Navigator's source of revenues, most of its prices, in Euros ("EUR"), are settled through international indexes, in United States Dollars ("USD"). Exchange rate volatility between USD and EUR will then affect the company.

In addition to this, any foreign investor is under the risk of an increase in the respective exchange rate, leading to decrease in the value of his owned shares.

BHKP Pulp price (BP)

Navigator depends highly on national forests, as a way to obtain its main input, wood. Any possible natural disaster or, man-made fire will most likely influence the level of revenues and costs of the company. This lower availability of wood could oblige Navigator to depend mostly on raw material imports, with new possible risks of transportation costs and exchanges rates.

Wood price (WP)

Besides having its own Eucalyptus plantations (both owned and leased), these still represent less than 20% of Navigator's needs when it comes to wood for the production of paper pulp. Any unexpected change on wood's transaction price will immediately affect Navigator's production costs.

Wood demand (WD)

As pointed out by the Company on its 2018 Report, the global expansion of several competitor's capacity, with a consequent increase in demand, will trigger an increase in wood prices.

This price increase will lead companies like Navigator, who highly depend on raw material imports, to an increase in production costs that can highly affect its revenues.

Paper substitution (PS)

In a world where new technology seems to emerge every day, traditional forms of communication tend to be left behind. E-mail and e-books are just two of the main substitutes for Navigator's main product: paper. Accounting for 74% of revenue, any substitution for technologies will account as a reduction in the company's sales.

Forest destruction (FD)

With more than half of the raw materials required coming from national forests, any damage resulting from either natural or man-made causes, might elevate the incurred costs, with a consequent decrease in revenues.

Specifically, Navigator faced in 2018, the devastating effects of Hurricane Leslie on its Figueira da Foz complex, which led to long stoppages in production, with fewer quantities being produced, directly affecting that year's revenues.

Energy Sector Regulation (ESR)

In an economy increasingly controlled by regulations, the unpredictability of new regulation might reveal itself as a reasonable explanation for a decrease in energy sector's competitive terms. This may create a loss in one of the company's sectors of revenue.

Mozambique country risk (MZ)

Due to the company's involvement in an extensive forest investment in Mozambique, through Portucel Moçambique, Navigator is highly dependent on possible changes in regulations and taxes in the country. In a slow recovery from 2016 debt crisis, Mozambique's GDP is expected to grow 4% in 2019, with debt levels remaining significantly high.

Sensitivity Analysis

In order to better assess additional risks to which Navigator is subject to, a sensitivity analysis was performed.

First, and due to the heavy weight of Terminal Value in Enterprise Value (81.63%), it was considered to be highly relevant an analysis of possible impacts that changes in the WACC rate, together with changes in the terminal growth rate, might bring to share price. Additionally, the WACC rate is dependent on several variables, such as cost of equity, that can be really volatile over time.

Table 9. WACC and Terminal Growth Rate Analysis

		WACC rate						
		5,57%	6,07%	6,57%	7,07%	7,57%	8,07%	8,57%
Terminal Growth Rate	1,45%	4,44	3,85	3,38	3,00	2,68	2,41	2,17
	1,40%	4,38	3,80	3,34	2,97	2,65	2,38	2,16
	1,35%	4,32	3,76	3,31	2,94	2,63	2,36	2,14
	1,30%	4,26	3,72	3,27	2,91	2,60	2,34	2,12
	1,25%	4,21	3,67	3,24	2,88	2,58	2,32	2,10
	1,20%	4,16	3,63	3,20	2,85	2,55	2,30	2,09
	1,15%	4,11	3,59	3,17	2,82	2,53	2,28	2,07

Source: Author Estimates

Source: Author estimates

From the analysis conducted, we can conclude that, a variation of 0.05% in the WACC rate will have an impact of 9.7% on Navigator's target price. Only the combination of a lower WACC with a higher terminal growth rate, will lead to a share price increase.

Appendix

Appendix 1: Statement of Financial Position

Consolidated Statement of Financial Position (in EUR)					
	2018	2019F	2020F	2021F	2022F
Non-Current Assets					
Goodwill	377 339 466,00	404 768 856,20	412 612 732,70	404 844 764,38	400 439 577,92
Other Intangible Assets	2 886 251,00	4 161 691,63	4 242 339,62	4 162 472,09	4 117 179,51
Property, Plant and Equipment	1 239 008 734,00	1 345 511 772,49	1 371 585 982,55	1 345 764 102,57	1 331 120 608,74
Investment Properties	97 527,00	221 539,39	225 832,53	221 580,94	219 169,88
Biological Assets	119 614 567,00	130 033 539,11	132 553 414,36	130 057 924,90	128 642 741,94
Other Financial Assets	63 168 912,00	13 289 831,29	13 547 370,37	13 292 323,60	13 147 687,51
Available-for-sale Financial Assets	-	115 406,27	117 642,69	115 427,91	114 171,92
Deferred Tax Assets	71 006 775,00	49 945 238,11	50 913 109,71	49 954 604,58	49 411 039,81
Total Non-Current Assets	1 873 122 232,00	1 948 047 874,49	1 985 798 424,52	1 948 413 200,96	1 927 212 177,22
Current-Assets					
Inventories	222 376 872,00	226 014 964,38	230 394 830,67	226 057 350,02	223 597 580,58
Receivable and Other Current Assets	307 750 689,00	257 687 449,74	262 681 086,23	257 735 775,06	254 931 307,16
State and other public entities	79 751 430,00	75 965 971,06	77 438 089,50	75 980 217,31	75 153 463,32
Cash and Cash Equivalents	80 859 784,00	157 673 144,54	160 728 638,20	157 702 713,71	155 986 722,99
Total Current-Assets	690 738 775,00	717 341 529,71	731 242 644,60	717 476 056,11	709 669 074,05
Non-Current Assets Held for Sale	-	18 981 499,35	19 349 335,30	18 985 059,04	18 778 479,30
Total Assets	2 563 861 007,00	2 684 370 903,55	2 736 390 404,42	2 684 874 316,10	2 655 659 730,57
EQUITY AND LIABILITIES					
Common stock at par value	500 000 000,00	696 399 683,69	709 894 973,74	696 530 282,76	688 951 215,31
Own Stocks	(2 317 915,00)	(40 521 800,72)	(41 307 058,77)	(40 529 399,96)	(40 088 392,50)
Fair Value Reserves	(5 633 483,00)	(4 462 227,54)	(4 548 699,52)	(4 463 064,37)	(4 414 500,98)
Legal Reserves	100 000 000,00	105 264 144,11	107 304 021,77	105 283 884,78	104 138 272,48
Free Reserves	197 292 250,00	94 047 434,87	95 869 947,77	94 065 072,02	93 041 533,57
Currency translation reserves	(20 575 294,00)	(6 598 431,90)	(6 726 300,64)	(6 599 669,33)	(6 527 857,18)
Retained Earnings	192 512 197,00	283 414 904,16	288 907 104,15	283 468 054,27	280 383 588,95
Net Profit for the Period	225 135 403,00	222 975 232,82	227 296 193,20	223 017 048,40	220 590 361,01
Anticipated dividends	-	(6 681 290,22)	(6 810 764,65)	(6 682 543,20)	(6 609 829,28)
Total Group Equity	1 186 413 158,00	1 343 837 649,25	1 369 879 417,05	1 344 089 665,37	1 329 464 391,39
Minority Interest	204 263,00	-	-	-	-
Total Equity	1 186 617 421,00	1 343 837 649,25	1 369 879 417,05	1 344 089 665,37	1 329 464 391,39
Non-Current Liabilities					
Deferred taxes liabilities	66 123 135,00	85 792 890,40	87 455 441,33	85 808 979,54	84 875 277,07
Pensions	7 324 279,00	3 934 923,26	4 011 176,78	3 935 661,19	3 892 836,58
Provisions	43 065 470,00	41 629 129,72	42 435 846,32	41 636 936,63	41 183 877,86
Interest-bearing liabilities	652 025 122,00	664 495 817,47	677 372 853,47	664 620 433,46	657 388 582,65
Other non-current liabilities	82 324 405,00	46 473 291,39	47 373 881,33	46 482 006,74	45 976 227,92
Total Non-Current Liabilities	850 862 411,00	842 326 052,24	858 649 199,22	842 484 017,57	833 316 802,09
Current Liabilities					
Interest-bearing liabilities	111 805 556,00	132 780 556,65	101 789 587,20	99 873 266,57	98 786 528,15
Accounts Payable	323 800 570,00	280 998 192,63	191 866 508,14	188 254 372,98	186 205 944,33
State and Other Public Entities	90 775 049,00	84 428 452,77	58 140 630,28	57 046 057,72	56 425 329,62
Total Current Liabilities	526 381 175,00	498 207 202,05	507 861 788,14	498 300 633,17	492 878 537,10
Total Liabilities	1 377 243 586,00	1 340 533 254,30	1 366 510 987,37	1 340 784 650,73	1 326 195 339,19
Total Equity and Liabilities	2 563 861 007,00	2 684 370 903,55	2 736 390 404,42	2 684 874 316,11	2 655 659 730,58

Source: Company data & Author Estimates

Appendix 2: Income Statement

Consolidated Income Statement (in EUR)					
	2018	2019F	2020F	2021F	2022F
Revenues	1 691 627 494,00	1 724 804 625,91	1 758 229 021,78	1 725 128 086,54	1 706 356 667,06
Sales	1 687 173 462,00	1 720 199 181,49	1 753 534 330,04	1 720 521 778,44	1 701 800 481,00
Services Rendered	4 454 032,00	4 605 444,42	4 694 691,74	4 606 308,10	4 556 186,06
COGS	(700 242 350,00)	(722 053 955,40)	(736 046 390,77)	(722 189 365,54)	(714 331 097,14)
Gross Profit	991 385 144,00	1 002 750 670,50	1 022 182 631,01	1 002 938 721,00	992 025 569,92
Other Operating Income	37 127 458,00	39 390 789,78	40 154 130,35	39 398 176,92	38 969 478,49
Gains on the sale of non-current assets	18 397 088,00	4 611 779,61	4 701 149,70	4 612 644,48	4 562 453,49
Other operating income	28 512 739,00	32 862 359,40	33 499 187,76	32 868 522,23	32 510 874,11
Change in fair value of biological assets	(9 782 369,00)	1 916 650,78	1 953 792,89	1 917 010,22	1 896 150,89
SG&A	(573 295 069,00)	(596 115 754,71)	(607 667 676,98)	(596 227 547,07)	(589 739 891,18)
Payroll costs	(161 630 782,00)	(157 420 854,11)	(160 471 458,72)	(157 450 375,97)	(155 737 130,98)
Other Operational Costs and Losses	(41 426 865,00)	(330 468,21)	(336 872,23)	(330 530,18)	(326 933,62)
Variation in production	44 687 130,00	4 568 072,87	4 656 595,99	4 568 929,54	4 519 214,22
Consumed materials and services	(414 924 552,00)	(442 932 505,27)	(451 515 942,01)	(443 015 570,46)	(438 195 040,80)
EBITDA	455 217 533,00	446 025 705,58	454 669 084,38	446 109 350,85	441 255 157,23
Provisions	(13 546 948,00)	(330 468,21)	(336 872,23)	(330 530,18)	(326 933,62)
Depreciation & Amortizations	(138 510 648,00)	(145 776 965,29)	(148 601 926,98)	(145 804 303,52)	(144 217 781,47)
EBIT (Operating Results)	303 159 937,00	299 918 272,08	305 730 285,17	299 974 517,15	296 710 442,13
Financial Income	(22 487 626,00)	(15 911 432,35)	(15 384 799,76)	(15 095 161,01)	(14 930 907,93)
Profit Before Taxes (EBT)	280 672 311,00	284 006 839,73	290 345 485,41	284 879 356,14	281 779 534,20
EBT Margin (%)	16,6%	16,5%	16,5%	16,5%	16,5%
(-) Income tax	(55 534 991,00)	(59 641 436,34)	(60 972 551,94)	(59 824 664,79)	(59 173 702,18)
Net Income	225 137 320,00	224 365 403,39	229 372 933,47	225 054 691,35	222 605 832,02
Minority Interests	(1 915,00)	(232 753,21)	(237 947,94)	(233 468,26)	(230 927,85)
Group Net Income	225 135 405,00	224 132 650,18	229 134 985,53	224 821 223,09	222 374 904,17

Source: Company data & Author Estimates

Appendix 3: Cash Flow Statement

Cash Flow Statement (in EUR)					
	2018	2019F	2020F	2021F	2022F
Operating Activities					
Payments from customers	1 729 662 775,00	1 804 270 497,44	1 839 234 835,11	1 804 608 860,67	1 784 972 597,03
Payments to suppliers	1 261 605 850,00	1 368 992 371,80	1 395 521 604,32	1 369 249 105,31	1 354 350 067,07
Payments to employees	124 990 220,00	125 707 879,68	128 143 929,47	125 731 454,27	124 363 348,39
Cash Flow from operations	343 066 705,00	309 570 245,95	315 569 301,32	309 628 301,10	306 259 181,57
Income tax received/ (paid)	(27 807 156,00)	(41 472 006,64)	(42 275 678,40)	(41 479 784,08)	(41 028 435,32)
Other receipts/ (payments)	44 895 841,00	60 455 421,80	61 626 966,64	60 466 759,29	59 808 809,94
Cash flow from operating activities	360 155 390,00	328 553 661,12	334 920 589,56	328 615 276,31	325 039 556,20
Investment activities					
Inflows					
Financial investments	-	970 667,13	989 477,35	970 849,16	960 285,18
Investment grants	74 410 845,00	18 164 469,07	18 516 472,07	18 167 875,53	17 970 187,71
Interest and similar income	-	2 557 593,73	2 607 156,46	2 558 073,36	2 530 238,52
Inflows from investment activities	74 410 845,00	21 692 729,92	22 113 105,87	21 696 798,06	21 460 711,42
Outflows					
Financial investments	-	8 676 829,44	8 844 974,73	8 678 456,65	8 584 024,85
Tangible assets	209 311 719,00	118 857 323,53	121 160 618,74	118 879 613,40	117 586 063,60
Outflows from investment activities	209 311 719,00	127 534 152,97	130 005 593,47	127 558 070,04	126 170 088,44
Cash flows from investment activities	(134 900 874,00)	(105 841 423,05)	(107 892 487,60)	(105 861 271,98)	(104 709 377,03)
Financing activities					
Inflows					
Borrowings	100 000 000,00	180 151 774,40	183 642 873,70	180 185 559,10	178 224 928,61
Inflows from financing activities	100 000 000,00	180 151 774,40	183 642 873,70	180 185 559,10	178 224 928,61
Outflows					
Borrowings	150 205 591,00	201 723 979,67	205 633 119,32	201 761 809,90	199 566 404,47
Interest and similar costs	18 123 511,00	27 428 995,24	27 960 532,31	27 434 139,13	27 135 623,47
Acquisition of treasury shares	1 315 831,00	865 366,65	882 136,29	865 528,93	856 110,96
Dividends paid and distributed reserves	200 002 711,00	268 890 167,53	274 100 897,65	268 940 593,76	266 014 204,27
Outflows from financing activities	369 647 644,00	498 908 509,08	508 576 685,56	499 002 071,72	493 572 343,18
Cash flows from financing activities	(269 647 644,00)	(318 756 734,69)	(324 933 811,86)	(318 816 512,62)	(315 347 414,56)

Source: Company data & Author Estimates

Appendix 4: Key Financial Ratios

Key Financial Ratios	Unit	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F
Profitability Ratios										
Gross Profit Margin	%	56,2%	57,7%	58,1%	60,2%	58,6%	58,1%	58,1%	58,1%	58,1%
EBITDA Margin	%	21,3%	24,0%	25,2%	24,7%	26,9%	25,9%	25,9%	25,9%	25,9%
EBIT margin	%	14,2%	17,4%	14,6%	15,6%	17,9%	17,4%	17,4%	17,4%	17,4%
Net profit margin	%	11,8%	12,1%	12,8%	12,7%	13,3%	13,0%	13,0%	13,0%	13,0%
ROA	%	6,7%	8,1%	8,4%	8,5%	8,8%	8,4%	8,4%	8,4%	8,4%
ROE	%	12,5%	16,2%	16,4%	17,5%	19,0%	16,7%	16,7%	16,7%	16,7%
ROCE	%	10,4%	13,6%	11,5%	12,8%	14,9%	13,7%	13,7%	13,7%	13,7%
EPS	times	0,25	0,27	0,28	0,29	0,31	0,31	0,32	0,31	0,31
Efficiency ratios										
Receivables turnover	times	8,17	7,56	7,31	6,89	5,50	6,69	6,69	6,69	6,69
Day sales outstanding	days	44,68	48,29	49,95	53,01	66,40	54,53	54,53	54,53	54,53
Inventory turnover	times	3,57	3,24	3,17	3,47	3,15	3,19	3,19	3,19	3,19
Days inventory outstanding	days	102,11	112,65	115,23	105,10	115,91	114,25	114,25	114,25	114,25
Payables turnover	times	3,19	3,06	2,59	2,51	2,16	2,57	3,84	3,84	3,84
Days payable outstanding	days	114,58	119,29	141,12	145,24	168,78	142,05	95,15	95,15	95,15
Operating cycle	days	110,28	120,21	122,53	111,99	121,41	120,94	120,94	120,94	120,94
Cash conversion cycle	days	32,21	41,65	24,06	12,87	13,54	26,74	73,64	73,64	73,64
Total assets turnover	times	0,57	0,67	0,65	0,67	0,66	0,64	0,64	0,64	0,64
Liquidity Ratios										
Current ratio	times	1,54	1,63	1,38	1,38	1,31	1,44	1,44	1,44	1,44
Quick ratio	times	1,13	0,84	0,70	0,80	0,74	0,83	0,83	0,83	0,83
Cash ratio	times	0,82	0,21	0,17	0,28	0,15	0,32	0,32	0,32	0,32
Solvency Ratios										
Long- and short-term Debt Ratio	%	53,2%	59,9%	57,4%	69,0%	64,4%	59,3%	56,9%	56,9%	56,9%
Long-term Debt Ratio	%	32,2%	56,5%	51,8%	56,4%	54,9%	49,4%	49,4%	49,4%	49,4%
Debt to Equity Ratio	%	18,8%	53,9%	52,0%	58,5%	57,6%	47,6%	45,1%	45,1%	45,1%
Equity Multiplier	times	1,86	2,00	1,95	2,06	2,16	2,00	2,00	2,00	2,00
Debt to EBITDA	times	2,35	1,86	1,78	2,03	1,68	1,79	1,71	1,71	1,71
Interest Coverage Ratio	times	7,04	6,75	9,40	20,95	16,73	10,93	10,93	10,93	10,93

Source: Company data & Author Estimates

Appendix 5: Common-Size Statement of Financial Position

	2018	2019F	2020F	2021F	2022F
Non-Current Assets					
Goodwill	14,7%	15,1%	15,1%	15,1%	15,1%
Other Intangible Assets	0,1%	0,2%	0,2%	0,2%	0,2%
Property, Plant and Equipment	48,3%	50,1%	50,1%	50,1%	50,1%
Investment Properties	0,0%	0,0%	0,0%	0,0%	0,0%
Biological Assets	4,7%	4,8%	4,8%	4,8%	4,8%
Other Financial Assets	2,5%	0,5%	0,5%	0,5%	0,5%
Available-for-sale Financial Assets	0,0%	0,0%	0,0%	0,0%	0,0%
Deferred Tax Assets	3,8%	2,6%	2,6%	2,6%	2,6%
Total Non-Current Assets	73,1%	72,6%	72,6%	72,6%	72,6%
Current-Assets					
Inventories	8,7%	8,4%	8,4%	8,4%	8,4%
Receivable and Other Current Assets	12,0%	9,6%	9,6%	9,6%	9,6%
State and other public entities	3,1%	2,8%	2,8%	2,8%	2,8%
Cash and Cash Equivalents	3,2%	5,9%	5,9%	5,9%	5,9%
Total Current-Assets	26,9%	26,7%	26,7%	26,7%	26,7%
Non-Current Assets Held for Sale	0,0%	0,7%	0,7%	0,7%	0,7%
Total Assets	100,0%	100,0%	100,0%	100,0%	100,0%
EQUITY AND LIABILITIES					
Common stock at par value	19,5%	25,9%	25,9%	25,9%	25,9%
Own Stocks	-0,1%	-1,5%	-1,5%	-1,5%	-1,5%
Fair Value Reserves	-0,2%	-0,2%	-0,2%	-0,2%	-0,2%
Legal Reserves	3,9%	3,9%	3,9%	3,9%	3,9%
Free Reserves	7,7%	3,5%	3,5%	3,5%	3,5%
Currency translation reserves	-0,8%	-0,2%	-0,2%	-0,2%	-0,2%
Retained Earnings	7,5%	10,6%	10,6%	10,6%	10,6%
Net Profit for the Period	8,8%	8,3%	8,3%	8,3%	8,3%
Anticipated dividends	0,0%	-0,2%	-0,2%	-0,2%	-0,2%
Total Group Equity	46,3%	50,1%	50,1%	50,1%	50,1%
Minority Interest	0,0%	0,0%	0,0%	0,0%	0,0%
Total Equity	46,3%	50,1%	50,1%	50,1%	50,1%
Non-Current Liabilities					
Deferred taxes liabilities	2,6%	3,2%	3,2%	3,2%	3,2%
Pensions	0,3%	0,1%	0,1%	0,1%	0,1%
Provisions	1,7%	1,6%	1,6%	1,6%	1,6%
Interest-bearing liabilities	25,4%	24,8%	24,8%	24,8%	24,8%
Other non-current liabilities	3,2%	1,7%	1,7%	1,7%	1,7%
Total Non-Current Liabilities	33,2%	31,4%	31,4%	31,4%	31,4%
Current Liabilities					
Interest-bearing liabilities	4,4%	4,9%	3,7%	3,7%	3,7%
Accounts Payable	12,6%	10,5%	7,0%	7,0%	7,0%
State and Other Public Entities	3,5%	3,1%	2,1%	2,1%	2,1%
Total Current Liabilities	20,5%	18,6%	18,6%	18,6%	18,6%
Total Liabilities	53,7%	49,9%	49,9%	49,9%	49,9%
Total Equity and Liabilities	100,0%	100,0%	100,0%	100,0%	100,0%

Source: Company data & Author Estimates

Appendix 6: Common-Size Income Statement

Common-Size Income Statement (in EUR)					
	2018	2019F	2020F	2021F	2022F
Revenues	100,0%	100,0%	100,0%	100,0%	100,0%
Sales	99,7%	99,7%	99,7%	99,7%	99,7%
Services Rendered	0,3%	0,3%	0,3%	0,3%	0,3%
COGS	-41,4%	-41,9%	-41,9%	-41,9%	-41,9%
Gross Profit	58,6%	58,1%	58,1%	58,1%	58,1%
Other Operating Income	2,2%	2,3%	2,3%	2,3%	2,3%
Gains on the sale of non-current assets	1,1%	0,3%	0,3%	0,3%	0,3%
Other operating income	1,7%	1,9%	1,9%	1,9%	1,9%
Change in fair value of biological assets	-0,6%	0,1%	0,1%	0,1%	0,1%
SG&A	-33,9%	-34,6%	-34,6%	-34,6%	-34,6%
Payroll costs	-9,6%	-9,1%	-9,1%	-9,1%	-9,1%
Other Operational Costs and Losses	-2,4%	0,0%	0,0%	0,0%	0,0%
Variation in production	2,6%	0,3%	0,3%	0,3%	0,3%
Consumed materials and services	-24,5%	-25,7%	-25,7%	-25,7%	-25,7%
EBITDA	26,9%	25,9%	25,9%	25,9%	25,9%
Provisions	-0,8%	0,0%	0,0%	0,0%	0,0%
Depreciation & Amortizations	-8,2%	-8,5%	-8,5%	-8,5%	-8,5%
EBIT (Operating Results)	17,9%	17,4%	17,4%	17,4%	17,4%
Financial Income	-1,3%	-0,9%	-0,9%	-0,9%	-0,9%
Profit Before Taxes (EBT)	18,2%	18,4%	18,8%	18,5%	18,3%
(-) Income tax	-3,3%	-3,5%	-3,5%	-3,5%	-3,5%
Net Income	13,3%	13,0%	13,0%	13,0%	13,0%
Minority Interests	0,0%	0,0%	0,0%	0,0%	0,0%
Group Net Income	13,3%	13,0%	13,0%	13,0%	13,0%

Source: Company data & Author Estimates

Appendix 7: Sales breakdown analysis

Sales breakdown analysis					
	2018	2019F	2020F	2021F	2022F
Revenue (€)	1 687 173 462,00	1 720 925 196,62	1 754 933 448,59	1 722 505 063,07	1 703 963 934,42
△%	3,3%	2,0%	1,9%	-1,9%	-1,1%
Paper (€)	1 248 000 000,00	1 272 960 000,00	1 298 419 200,00	1 259 466 624,00	1 234 277 291,52
△%	-6,5%	2,0%	2,0%	-3,0%	-2,0%
Pulp (€)	167 000 000,00	170 340 000,00	173 746 800,00	175 484 268,00	177 239 110,68
△%	1,8%	2,0%	2,0%	1,0%	1,0%
Tissue (€)	91 000 000,00	94 640 000,00	97 952 400,00	100 890 972,00	103 917 701,16
△%	18,3%	4,0%	3,5%	3,0%	3,0%
Energy and Others (€)	181 173 462,00	182 985 196,62	184 815 048,59	186 663 199,07	188 529 831,06
△%	64,0%	1,0%	1,0%	1,0%	1,0%

Appendix 8: Forecasting Assumptions

Income Statement Assumptions

	Income Statement - ASSUMPTIONS					Description
	UNIT	2019F	2020F	2021F	2022F	
GENERAL						
Portuguese Inflation Rate	%	1,60%	1,60%	1,60%	1,60%	According to European Comission's forecasts.
REVENUE		2,0%	1,9%	-1,9%	-1,1%	
Paper	%	2,0%	2,0%	-3,0%	-2,0%	Declining market for Graphic Paper, with an increasing focus on Tissue.
Pulp	%	2,0%	2,0%	1,0%	1,0%	With no supply increases expected until the mid of 2021, this negative tendency will not affect Pulp revenues, as high market prices are expected to ramp up revenues. In 2021, index prices are expected to go back to previous values. Although, pulp is expected to grow 1% per year, until 2030, driven by growth in tissue consumption.
Tissue	%	3%	3%	3%	3%	Expected to grow at an yearly rate of 3%-4%, between 2019 and 2023, according to several industry references. For a matter of simplification, a constant rate of 3% was considered.
Energy and Others	%	1,0%	1,0%	1,0%	1,0%	Modest increase expected, due to the popularity of renewable energy mixed with the increase in regulation.
Sales	%	99,7%	99,7%	99,7%	99,7%	Percentage of Revenues.
Services rendered	%	0,3%	0,3%	0,3%	0,3%	Percentage of Revenues.
COGS	%	48,5%	48,5%	48,5%	48,5%	Percentage of Operating Expenses.
Gains on the sale of non-current a	%	0,3%	0,3%	0,3%	0,3%	Percentage of Revenues.
Other operating income	%	1,9%	1,9%	1,9%	1,9%	Percentage of Revenues.
Change in fair value of biological a	%	0,1%	0,1%	0,1%	0,1%	Percentage of Revenues.
Payroll costs	%	10,57%	10,57%	10,57%	10,57%	Percentage of Operating Expenses.
Other Operational Costs and Loss	%	0,0%	0,0%	0,0%	0,0%	Percentage of Operating Expenses.
Provisions	%	0,0%	0,0%	0,0%	0,0%	Percentage of Operating Expenses.
Variation in production	%	-0,3%	-0,3%	-0,3%	-0,3%	Percentage of Operating Expenses.
Consumed materials and services	%	29,7%	29,7%	29,7%	29,7%	Percentage of Operating Expenses.
Depreciation & Amortizations	%	9,8%	9,8%	9,8%	9,8%	Percentage of Operating Expenses.
Financial Income	%	2,5%	2,5%	2,5%	2,5%	Forecasted cost of debt applied to forecasted net debt.
Income Tax	%	21,0%	21,0%	21,0%	21,0%	According to CIRC, will correspond to the total of General Tax Rate and Municipal Surcharge.
Minority Interests	%	-0,10%	-0,10%	-0,10%	-0,10%	Percentage of Net Income.

Statement of Financial Position Assumptions

	Statement of Financial Position - ASSUMPTIONS					Description
	UNIT	2019F	2020F	2021F	2022F	
TOTAL ASSETS		155,6%	155,6%	155,6%	155,6%	Last 4 years average as percentage of revenues.
NON-CURRENT ASSETS		72,6%	72,6%	72,6%	72,6%	Last 4 years average as percentage of Total Assets.
Goodwill	%	20,78%	20,78%	20,78%	20,78%	Last 4 years average, as percentage of Non-Current Assets.
Other Intangible Assets	%	0,2%	0,2%	0,2%	0,2%	Last 4 years average, as percentage of Non-Current Assets.
Property, Plant and Equipment	%	69,1%	69,1%	69,1%	69,1%	Last 4 years average, as percentage of Non-Current Assets.
Investment Properties	%	0,0%	0,0%	0,0%	0,0%	Last 4 years average, as percentage of Non-Current Assets.
Biological Assets	%	6,7%	6,7%	6,7%	6,7%	Last 4 years average, as percentage of Non-Current Assets.
Other Financial Assets	%	0,7%	0,7%	0,7%	0,7%	Last 4 years average, as percentage of Non-Current Assets.
Available-for-sale Financial Assets	%	0,0%	0,0%	0,0%	0,0%	Will remain the same, as they did not suffer any change in recent years.
Deferred Tax Assets	%	2,6%	2,6%	2,6%	2,6%	Last 4 years average, as percentage of Non-Current Assets.
CURRENT ASSETS		26,7%	26,7%	26,7%	26,7%	Last 4 years average as percentage of Total Assets.
Inventories	%	31,5%	31,5%	31,5%	31,5%	Last 4 years average as percentage of Current Assets.
Receivable and Other Current Assets	%	35,9%	35,9%	35,9%	35,9%	Last 4 years average as percentage of Current Assets.
State and other public entities	%	10,6%	10,6%	10,6%	10,6%	Last 4 years average as percentage of Current Assets.
Cash and Cash Equivalents	%	22,0%	22,0%	22,0%	22,0%	Last 4 years average as percentage of Current Assets.
TOTAL EQUITY		77,9%	77,9%	77,9%	77,9%	Last 4 years average as percentage of revenues.
Common stock at par value	%	51,82%	51,82%	51,82%	51,82%	Last 4 years average as percentage of Total Equity.
Own Stocks	%	-3,02%	-3,02%	-3,02%	-3,02%	Last 4 years average as percentage of Total Equity.
Fair Value Reserves	%	-0,33%	-0,33%	-0,33%	-0,33%	Last 4 years average as percentage of Total Equity.
Legal Reserves	%	7,83%	7,83%	7,83%	7,83%	Last 4 years average as percentage of Total Equity.
Free Reserves	%	7,00%	7,00%	7,00%	7,00%	Last 4 years average as percentage of Total Equity.
Currency translation reserves	%	-0,49%	-0,49%	-0,49%	-0,49%	Last 4 years average as percentage of Total Equity.
Retained Earnings	%	21,09%	21,09%	21,09%	21,09%	Last 4 years average as percentage of Total Equity.
Net Profit for the Period	%	16,59%	16,59%	16,59%	16,59%	Last 4 years average as percentage of Total Equity.
Anticipated dividends	%	-0,50%	-0,50%	-0,50%	-0,50%	Last 4 years average as percentage of Total Equity.
Minority Interests	%	0,00%	0,00%	0,00%	0,00%	With no significance to total equity, it's considered to suffer no change.
TOTAL LIABILITIES		77,7%	77,7%	77,7%	77,7%	Last 4 years average as percentage of revenues.
NON-CURRENT LIABILITIES		62,8%	62,8%	62,8%	62,8%	Last 4 years average as percentage of Total Liabilities.
Deferred taxes liabilities	%	10,2%	10,2%	10,2%	10,2%	Last 4 years average as percentage of Non-Current Liabilities.
Pensions	%	0,5%	0,5%	0,5%	0,5%	Last 4 years average as percentage of Non-Current Liabilities.
Provisions	%	4,9%	4,9%	4,9%	4,9%	Last 4 years average as percentage of Non-Current Liabilities.
Interest-bearing liabilities	%	78,9%	78,9%	78,9%	78,9%	Last 4 years average as percentage of Non-Current Liabilities.
Other non-current liabilities	%	5,5%	5,5%	5,5%	5,5%	Last 4 years average as percentage of Non-Current Liabilities.
CURRENT LIABILITIES		37,2%	37,2%	37,2%	37,2%	Last 4 years average as percentage of Total Liabilities.
Interest-bearing liabilities	%	26,7%	20,0%	20,0%	20,0%	Last 4 years average as percentage of Current Liabilities.
Accounts Payable	%	56,4%	37,8%	37,8%	37,8%	Last 4 years average as percentage of Current Liabilities.
State and Other Public Entities	%	16,9%	11,4%	11,4%	11,4%	Last 4 years average as percentage of Current Liabilities.

Appendix 9: Comparable companies

Possible peer's data

Company	Country	Paper Share	Pulp Share	Market Capitalization (million €)
International Paper	USA	19%	12%	18,895
Stora Enso	Finland	29%	16%	10,256
UPM	Finland	14%	22%	16,069
CMPC	Chile	53%	36%	8,385
Mondi	Austria	79%	0%	10,672
Navigator	Portugal	73%	10%	3,079
Altri	Portugal	0%	85%	1,243
Ence	Spain	0%	84%	1,664
Fibria	Brazil	0%	100%	38,193
Svenska Cellulosa	Sweden	39%	12%	60,106
Metsa Board Oyj	Finland	83%	17%	2,205

Peer selection:

	Paper producer?	Pulp share < 25%	Paper Share > 30%
International Paper	✓	✓	✗
Stora Enso	✓	✓	✓
UPM	✓	✓	✗
CMPC	✓	✗	✗
Mondi	✓	✓	✓
Altri	✗	✗	✗
Ence	✗	✗	✗
Fibria	✗	✗	✗
Svenska Cellulosa	✓	✓	✓
Metsa Board Oyj	✓	✓	✓

Selection criteria:

1. Be a paper producer – With paper being the most significant segment for Navigator, a suitable peer, must not have its production activity highly limited to pulp.
2. Pulp share < 25% – To mainly consider integrated pulp producers, that only sell a small remaining quantity of pulp to the market.
3. Paper market > 30% – With paper representing over 70% of Navigator’s business, a suitable peer must have a significant share of its own business connected to paper.

Appendix 10: Multiples Valuation

Navigator and Peers Multiples (2018YE)

Peers Multiples 2018				
Peer company	EV/SALES	EV/EBITDA	Net debt/EBITDA	P/E
Stora Enso	1,13	6,75	1,27	9,22
Mondi	1,6	5,89	1,32	11,9
Svenska Cellulosa	3,6	15,6	1,49	16
Metsa Board Oyj	1,33	13,47	1,15	10,53
Source: Market Watch (Accessed in 9th March)				
1st Quartile	1,28	6,54	1,24	10,20
Median	1,47	10,11	1,29	11,22
Mean	1,92	10,43	1,31	11,91
3rd Quartile	2,10	14,00	1,36	12,93
Navigator Multiples (2019F)	1,66	6,41	1,43	10,69
% Dif. using median	11,9%	-57,7%	9,7%	-4,9%
% Dif. using mean	-15,2%	-62,7%	8,8%	-11,4%
Average mean %Dif.	-20,1%			

Navigator Relative Valuation (2019F)

Multiple Valuation				
Enterprise Value Multiples	EV/SALES	EV/EBITDA	Net debt/EBITDA	P/E
Multiple	1,92	10,43	1,31	11,91
Enterprise Value (Million €)	5 475 651 913,11	4 650 933 044,89	3 738 585 149,74	2 669 980 195,28
Net Debt (Million €)	639 603 229,59	639 603 229,59	583 176 629,46	639 603 229,59
Equity (Million €)	4 836 048 683,52	4 011 329 815,30	3 155 408 520,28	2 030 376 965,69
EBITDA (Million €)	446 025 705,58	446 025 705,58	446 025 705,58	446 025 705,58
Target Price	6,74	5,59	4,40	2,83
Average Target Price	4,89			

Appendix 11: Discounted Cash Flow Valuation

The DCF methodology was used to calculate Navigator's target price. Even though APV valuation is proposed for companies that are deleveraging, the WACC is considered to stay the same in perpetuity, as the company is preparing to reach its target. DCF is then considered to be a better methodology.

DCF Analysis						
	2019F	2020F	2021F	2022F	Perpetuity	Description
COST OF EQUITY						
RFR (risk free rate)	0,086%	0,086%	0,086%	0,086%	0,086%	10-year German government bund as in March 18th, 2019 (Source: Bloomberg)
CRP (country risk premium)	3,06%	3,06%	3,06%	3,06%	3,06%	Based on Aswath Damodaran's calculations, as in February 2019, for the Portuguese Default Swaps, which take into account the portuguese risk of bankruptcy.
MRP (market risk premium)	9,02%	9,02%	9,02%	9,02%	9,02%	Aswath Damodaran's calculations, as in February 2019.
Beta	1,14	1,14	1,14	1,14	1,14	Linear regression between Eurostoxx 600 and Navigator's daily stock prices, performed through Microsoft Excel.
Cost of equity	10,4%	10,4%	10,4%	10,4%	10,4%	$r_e = r_f + \beta(r_m - r_f)$
COST OF DEBT						
Cost of debt	2,49%	2,49%	2,49%	2,49%	2,49%	Average of past years' Interest paid on borrowings over Interest bearing liabilities.
Effective Tax Rate	28,87%	28,87%	28,87%	28,87%	28,87%	Based on Aswath Damodaran's calculations, as in January 2019, for the Effective Tax Rate for the Paper/forest products' sector.
Marginal tax rate	21,5%	21,5%	21,5%	21,5%	21,5%	Portuguese General Tax Rate, with an additional Municipal Surcharge. Municipal surcharge for Setúbal, where Navigator's headquarters are located.
After-tax cost of debt	1,8%	1,8%	1,8%	1,8%	1,8%	After tax cost of debt = Cost of debt x (1-T)
WACC						
Equity (m€)	1 343 837 649,25	1 369 879 417,05	1 344 089 665,37	1 329 464 391,39	1 329 464 391,39	
Debt (m€)	797 276 374,12	779 162 440,67	764 493 700,04	756 175 110,80	756 175 110,80	
Weight of Equity (E/V)	62,76%	63,74%	63,74%	63,74%	63,74%	
Weight of Debt (D/V)	37,24%	36,26%	36,26%	36,26%	36,26%	
WACC	7,0%	7,1%	7,1%	7,1%	7,1%	$WACC = \frac{E}{D+E} r_e + \frac{D}{D+E} r_d \times (1-t)$

	2019F	2020F	2021F	2022F	Perpetuity
EBIT (1-marginal tax rate)	364 400 700,58	371 462 296,48	364 469 038,34	360 503 187,19	360 503 187,19
D&A	(145 776 965,29)	(148 601 926,98)	(145 804 303,52)	(144 217 781,47)	(144 217 781,47)
Net increase in NWC	36 334 789,44	98 935 712,94	(5 926 669,23)	(3 360 992,48)	(3 360 992,48)
CAPEX	50 000 000,00	50 000 000,00	50 000 000,00	50 000 000,00	50 000 000,00
FCFF	132 288 945,85	73 924 656,56	174 591 404,05	169 646 398,19	169 646 398,19
Discounted FCFF	123 661 692,47	64 489 319,54	142 255 994,44	129 104 565,76	

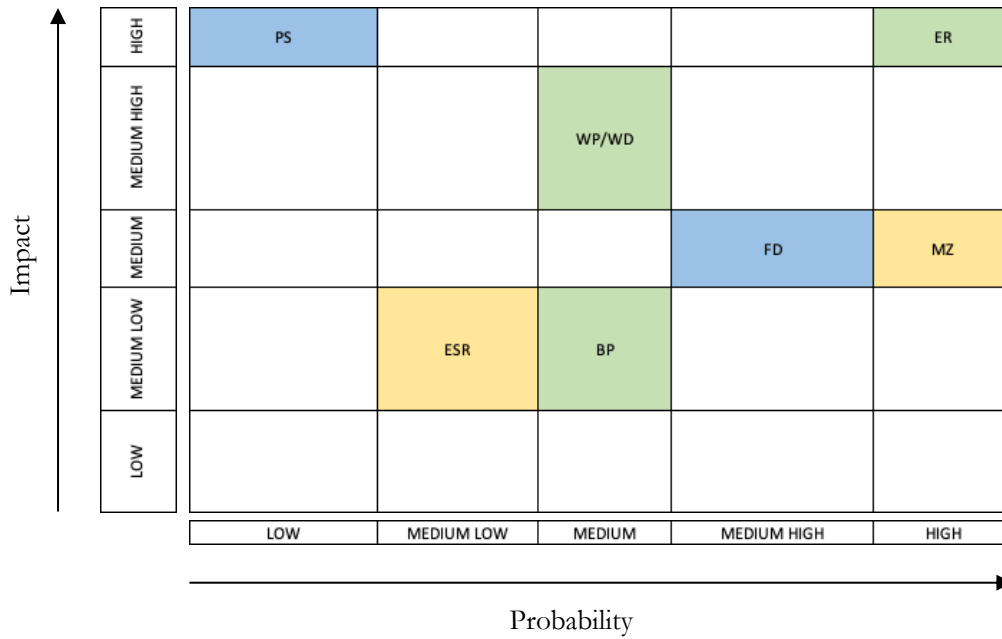
Enterprise value	2019YE	
Terminal growth rate	1,60%	With Navigator operating under full capacity, terminal growth rate is considered to equal the Portuguese Inflation Rate.
Perpetuity WACC	7,1%	$WACC = \frac{E}{D+E}r_e + \frac{D}{D+E}r_d \times (1-t)$
Terminal value (TV)	3 153 441 146,79	$TV = \frac{[FCFF * (1+g)]}{[(WACC - g)]}$
PV of terminal value	2 399 836 685,29	$PV_{\text{Terminal Value}} = \frac{\text{Terminal Value}}{(1+WACC)^n}$
NPV of FCFF	459 511 572,21	Residual FCFF discounted at the WACC rate.
Enterprise value	2 859 348 257,50	PV of terminal value + NPV of FCFF

Price Target	2019YE
Enterprise Value	2 859 348 257,50
Net debt	639 603 229,59
Value of Equity	2 219 745 027,91
#shares outstanding	717 500 000,00
Equity value per share	3,09
Price at the end of 2019	3,09
Price at 3th August 2019	2,90
Downside/Upside Potential	-6,8%

Appendix 12: Sensitivity Analysis

		WACC rate						
		5,57%	6,07%	6,57%	7,07%	7,57%	8,07%	8,57%
Terminal Growth Rate	1,45%	4,44	3,85	3,38	3,00	2,68	2,41	2,17
	1,40%	4,38	3,80	3,34	2,97	2,65	2,38	2,16
	1,35%	4,32	3,76	3,31	2,94	2,63	2,36	2,14
	1,30%	4,26	3,72	3,27	2,91	2,60	2,34	2,12
	1,25%	4,21	3,67	3,24	2,88	2,58	2,32	2,10
	1,20%	4,16	3,63	3,20	2,85	2,55	2,30	2,09
	1,15%	4,11	3,59	3,17	2,82	2,53	2,28	2,07
Source: Author Estimates								

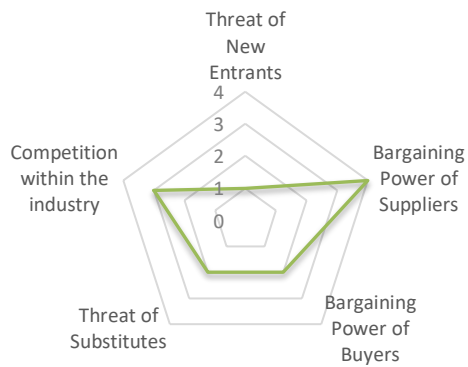
Appendix 13: Risk Matrix



Legend:

	Operational risk
	Market risk
	Regulatory risk

Appendix 14: Porter's Five Forces



Legend

Level of threat to the business:

- 1- Low
- 2- Medium
- 3- Medium/High
- 4- High

Appendix 15: Abbreviations

BEKP	– Bleached Eucalyptus Kraft Pulp
BOD	– Board of Directors
CAPM	– Capital Asset Pricing Model
CAPEX	– Capital Expenditures
CEO	– Chief Executive Officer
CEPI	– Confederation of European Paper Industries
CMVM	– Portuguese Securities Exchange Commission
CRP	– Country Risk Premium
DCF	– Discounted Cash Flow
EUR	– Euros
Euronext	– Euronext Lisbon, Sociedade Gestora de Mercados Regulamentos, S.A.
G	– Terminal growth rate
GDP	– Gross Domestic Product
GM	– General Meeting
INE	– Portuguese Statistics Institute
MRP	– Market Risk Premium
p.p	– Percentage points
R&D	– Research and Development
RJAAR	– Regime Jurídico das Ações de Arborização e Rearborização
Navigator	– The Navigator Company
USA	– United States of America
USD	– United States Dollars
UWF	– Uncoated Woodfree
WACC	– Weighted Average Cost of Capital
YE	– Year End
Y-o-Y	– Year over year

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Recommendation System

Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%	>45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%	>30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%	>20%