LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

EQUITY RESEARCH CORTICEIRA AMORIM SGPS SA:

WILL THE INCREASE OF TEMPERATURES AFFECT HARVESTING CYCLES?

JOANA JETAL CHHOTOBHAI

OCTOBER 2019

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SUPERVISOR:
VICTOR MAURÍLIO SILVA BARROS

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Abstract

This project is an Equity Research of Corticeira Amorim S.G.P.S., SA with a specialization on the supply side. Specifically, we focus on the impact of the forecasted monthly average temperatures on the harvesting cycles. This equity research follows the CFA Institute format and only public information until December 31st, 2018, was considered.

The FCFF was applied to value COR with a TP of €10.9/sh, leading to a BUY recommendation. Two other discounted cash flow methods were used to complement the valuation, the FCFE and the DDM reaching a TP of €10.8/sh and €10.6/sh, respectively.

COR operates in a unique business, cork, being the market leader in the cork stoppers industry with 44% market share. Moreover, the company benefits from being a Portuguese-based company since the highest area (34%) of cork oak forestry is in Portugal. This family-owned company is divided into five business units: Raw Materials, Cork Stoppers (the main business), Floor and Wall Coverings, Insulation and Composites.

A complementary analysis of the future temperatures in Portugal was carried out. The mathematical formulation known as Fourier Series was used to model this variable. Subsequently, the forecasts were computed through punctual prediction. The results stand for the maintenance of ideal temperatures in Portugal for the growth of cork oaks. However, a small action – early harvesting, from (mid) April until July instead of May to August, in the next decades – will have to take place by the *Montado* owners.

JEL Classification: G10, G32, G34, C50

Key Words: Equity Research, Valuation, DCF, Econometric Modelling

Resumo

Este projeto consiste num relatório de avaliação da Corticeira Amorim S.G.P.G., S.A., com especialização no lado da oferta. Mais especificamente, no impacto da temperatura média mensal prevista nos ciclos de extração de cortiça. Este relatório segue o formato recomendado pelo CFA Institute e só foi considerada informação pública disponível até 31 de dezembro de 2018.

O FCFF foi aplicado para avaliar a COR com o preço-alvo de €10.9 por ação, traduzindo-se na recomendação de compra. Outros dois métodos de fluxos de caixa descontados foram usados para complementar a avaliação, o FCFE e o DDM chegando ao preço-alvo de €10.8 por ação e €10.6 por ação, respetivamente.

COR está presente num negócio único, cortiça, sendo o líder de mercado na indústria de rolhas de cortiça com 44% de quota de mercado. Adicionalmente, esta empresa beneficia do facto de ser portuguesa dado que a maior área (34%) de sobreiros está em Portugal. Esta empresa familiar está dividida em 5 unidades de negócio: Matérias-Primas, Rolhas de Cortiça (o principal negócio), Revestimentos, Isolamentos e Aglomerados Compósitos.

Foi feita uma análise adicional às temperaturas futuras em Portugal. A formulação matemática conhecida como Séries de Fourier foi usada para modelar esta variável. Subsequentemente, as previsões foram calculadas através da previsão pontual. Os resultados revelam que Portugal vai continuar a ser o país com as temperaturas ideais para o crescimento dos sobreiros. No entanto, uma pequena ação – antecipação do período da extração de cortiça (desde (meados) de abril até julho em vez de maio a agosto) nas próximas décadas – terá de ser levada a cabo pelos donos dos *Montado*s.

Classificação JEL: G10, G32, G34, C50

Palavras-Chave: Equity Research, Avaliação de Empresas, Fluxo de Caixa Descontados, Modelação Econométrica

Acknowledgements

To my mom, dad and sister, all I can say is THANK YOU for everything you have done for me!

To my CFA team, Ana Filipa, Carolina, Joana and Zarko, I am very proud of us! For me the secret for our success was our organization, our commitment and the fact that we complemented each other. We made a hell of a team! All the good and bad moments, the frustrations, the laughs, the new "theories" and, of course, all the chocolates (and coffee) defined the several months we spent on this challenge.

To all my family and friends, I am very lucky to have you. You supported me every day and you were very comprehensive while I was in the challenge.

To Filipa, it is hard to believe that our academic journey has ended. We started together and we finished in big sharing a worthily experience.

To Victor Barros, thank you for believing in us, for all the productive hours and the patience and for giving me the opportunity to participate in CFA Research Challenge. However, the most important thing to be thankful for is the food trade, i.e., swiss chocolate for Indian cookies.

To professor Clara Raposo, thank you for all your support, for giving me the chance to participate in this challenge and for providing all the resources we needed.

To cork producers, and forestry and cork associations, all of you were determinant to write this report and without you we would not be able to understand the supply side. Thank you all for being friendly, for sharing your wisdom and for always being ready to help.

Disclosures

A significant portion of this report was submitted by a group of students from ISEG, including the candidate, for the 2019 CFA Institute Research Challenge Portuguese Local Final. Upon winning the local final, the same report advanced as the representative report for CFA Society Portugal in the 2019 EMEA Regional Final in Zurich, Switzerland.

This report is published for educational purposes by Master students at ISEG and is not an investment recommendation. This report must be read with the Disclosures and Disclaimer at the end of this report. Appendices that support this report may be obtained from the author upon request.

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Forest & Wood Products - Cork
Portuguese Stock Exchange (PSI)

Corticeira Amorim S.G.P.S., SA

Date: 31/12/2018
Ticker: COR.LS (Bloomberg)

Current Price: 9.00
EUR 1.000: USD 1.145

Recommendation: BUY (21% Upside) Medium-Risk
Price Target: EUR 10.9 (USD 12.48) 2019YE

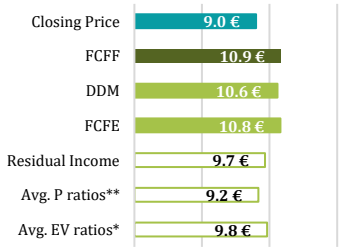
COR: The privilege of being a Portuguese-based company

Table 1: COR's market data

Market Profile	
Closing price (December 31st)	€ 9.0
52-week price range	€8.4-€12.0
Average daily volume	57,838
Shares outstanding	133M
Market Capitalization	1.2B
Free float	25.1%
Dividend yield(2018F)	2.4%

Source: Reuters

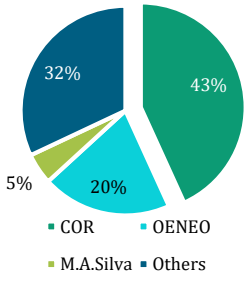
Figure 1: COR's Price Target



* EV/Sales; EV/EBITDA
** P/B; PE; P/Sales
Closing price: December 31st, 2018

Source: Team estimates

Figure 2: Market share in the cork stoppers industry 2017YE



Source: COR (2017) & OENEO (2017)

Table 2: Impact on COR's Price Target from change in worldwide wine consumption CAGR

		Price Target
		€ 10.9
Wine Consumption CAGR	-2.00%	€ 7.7
	-1.00%	€ 8.1
	0.00%	€ 8.5
	0.50%	€ 8.8
	1.00%	€ 9.1
	1.50%	€ 9.4
	2.00%	€ 9.8
	2.50%	€ 10.2
	3.00%	€ 10.6
	3.23%	**€ 10.9**
	3.50%	€ 11.1
	4.00%	€ 11.7

Source: Team estimates

1. Research Snapshot

We issue a BUY recommendation for Corticeira Amorim S.G.P.S., SA (COR) with a price target of €10.9/sh for 2019YE using a DCF model, implying a 21% upside potential from the December 31st, 2018 closing price of €9.00/sh, with medium-risk. COR is a mature company with a dominant market position of 44% in the cork stoppers business worldwide. The company has been recovering from tough years in the supply side, with raw material prices rising 24.4% in the last two years. The company adapted to these market changes by anticipating purchases of cork mostly for the stoppers' division. COR also engaged in M&A activity to increase capacity, to enhance market share and to consolidate new markets. The upsurge in wine consumption, especially from premium wines, should position COR in a track of steady growth in the coming years, allowing an attractive dividend.

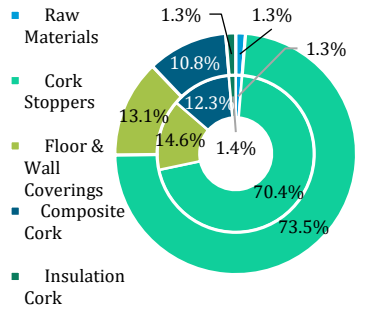
Hearth of COR's business. All COR's products have cork embedded since the production of cork stoppers until the floors and walls production. This privilege is only possible thanks to the 34% of cork oak forestry located in Portugal. The high dependence on this raw material puts COR in risk in the next decades particularly due to the increase of temperatures. This upward trend implies an early harvesting (a technique that requires a highly specialized human labor and it is a process that does not harm the tree) for Portuguese cork producers, starting from (mid) April until end of June instead of May to August. However, it is expected that the biggest area of cork oaks' forest will still be located in the West Mediterranean Basin, more specifically, in Portugal. This country will continue to present the ideal climate conditions to ensure the production of high-quality cork.

Leading the game, setting the rules. COR is the undisputed leading provider of cork stoppers worldwide with a 44% market share. The company is a price setter which is reflected in the stability of margins in the cork stoppers division. COR's size and longstanding relations with suppliers yield a competitive edge in the race for limited resources. Hence, high barriers to entry lead us to expect many additional years of COR dominance ahead.

Steady growth and stable margins. COR's sales growth at 4.4% CAGR during 2018-23 should be fueled by three main factors, namely: increasing consumer preferences towards cork-sealed wines; trends for premium wines that require higher quality stoppers; and the enlargement of the population base, boosted by a growing middle-class. Wine consumption worldwide is COR's main revenue driver with an expected growth of 3.2% CAGR 2017-23. The price of raw materials skyrocketed +24.4% in 2016 to 2018 due to gaps in the harvesting cycle. Our research point that local producers forecast a decrease of ~10% in price to further stabilize around €33 per *arroba* (~15kg cork bark). The stabilization should drive gross margins up, recovering at ~51.5% from 2020F onwards. EBITDA margin will restore to 18%-19%, enabling a steady cash flow generation. COR's strong cash from operations (€110M-€130M) will comfortably cover anticipated CAPEX and the growing dividend policy. We expect a DPS up to €0.5 in 2023F with an average payout ratio of 69.5% 2019-23.

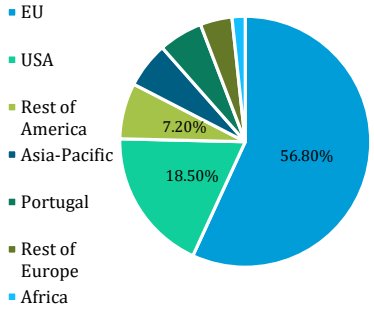
Mature, solid, and adaptable. During the late 1990s, COR's existence was put to the test due to the rising ''tainted wine'' issue. In those years, alternative closures emerged, pushing cork industry to its knees. The cork industry for closures tumbled from ~90% to ~60% market share, threatened to be overthrown by synthetic/plastic stoppers and screwcaps. However, the bad years in tainted wine by cork appear to be gone for good. COR's investments in innovation (~€7.5M/year) offered the solution that dispelled dark clouds away and molded the company that we know today – mature, solid, and adaptable.

Figure 3: Consolidated sales by BU 2018F (inside) vs 2023F (outside)



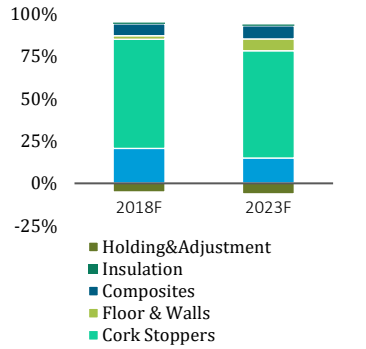
Source: Team estimates

Figure 4: Consolidated sales by region 2017YE



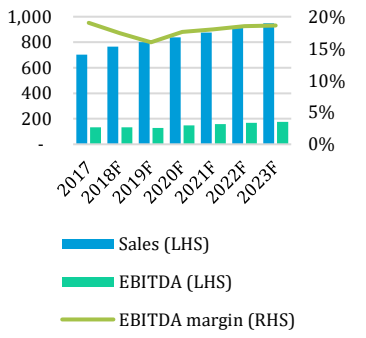
Source: COR (2017)

Figure 5: EBITDA contribution by BU



Source: Team estimates

Figure 6: Sales vs EBITDA (in millions)



Source: COR (2017) and team estimates

2. Business Description

Corticeira Amorim SGPS SA (COR) is a Portuguese cork manufacturer, primarily focused on the production of cork stoppers. Founded in 1870 as a family business, the group has maintained its core vision throughout the years of adding value to cork in a sustainable and innovative way. COR has been the global market leader in this industry during roughly the last 148 years, and by 2018F sold 5.7B units of cork stoppers, accounting for 44% of the worldwide market for cork stoppers.

The cork manufacturing business started in 1870 with the production of cork stoppers, which to this day still represents the main engine of profitability and growth for COR. By 1935, the company initiated its vertical integration strategy, eliminating upstream suppliers by purchasing the raw material itself and transforming it into usable cork. In the 1970s, COR opened its first factory dedicated to floor and wall coverings, thus entering the construction sector. The company first issued shares in 1988. Currently, COR is divided into 5 business units (BUs) – Raw Materials (1.6% 2017YE Sales), Cork Stoppers (67.3%), Floor and Wall Coverings (16.8%), Composite Cork (12.9%) and Insulation Cork (1.4%). COR sees its international expansion as a leading strategy, as exports represented 95% of 2017YE sales.

COR has performed several acquisitions throughout its history. In 1989, it acquired the Swedish *Wicanders*, a company in the coverings industry. This acquisition allowed the diversification of the coverings' portfolio, through a premium and innovative brand, and to expand the BUs distribution channels. *Wicanders* has a strong presence in over 70 countries, particularly in central and northern Europe, allowing a higher penetration of COR's products in these markets. More recently, in 2017, COR acquired 60% of French group *Bourrassé*, the third largest cork stopper manufacturer in the world (700M units in 2017) (Figure 8) and agreed to acquire the remaining 40% in 2022. *Bourrassé* operates mainly in France, the world's second largest wine consumer (16%) and producer (14.6%) and has high brand recognition in the country. Additionally, *Bourrassé* has subsidiaries in Portugal and in Chile, enabling COR to extend its facilities in Portugal and to strengthen its businesses in Latin America. In 2017 COR also acquired the French *Sodiliège* dedicated to stoppers for spirits, and in 2018 the portfolio was expanded with the acquisition of the former Swedish supplier *Elfverson*.

In 2017, COR had total sales of €701.6M. Excluding the effect of the recent acquisitions of *Sodiliège* and *Bourrassé*, the company experienced +5.3% YoY organic growth to €675M. COR's sales in 2017 were mainly concentrated in the EU region (62.5%), especially in the major wine consuming countries of France, Italy and Spain. The US market represented 18.5% of consolidated sales, followed by the other American countries (7.2%) and Asia-Pacific (5.9%) (Figure 4). The biggest markets for the Cork Stoppers BU were France (22%) and the USA (17%). COR is expected to generate €764.3M 2018F (+8.9% YoY) total sales but EBITDA will grow -0.3% with margin at 17.4%. This decrease in margins results from the incorporation of higher-priced raw materials purchased in 2017. However, trends per BU are not the same (Figure 5).

The Cork Stoppers BU sales are expected to represent 70.1% of consolidated sales 2018F, growing +12.3% YoY, which translates into 5.7B stoppers sold. Additionally, COR intends to invest between €30-35M in CAPEX to extend the current capacity of the Cork Stoppers BU, as it currently operates at full capacity. The 2017 and 2018 acquisitions already adjusted capacity up. The Raw Materials BU has the mission of guaranteeing the supply of cork to other BUs while assuring the preservation and sustainability of cork oak forests. About 95% of sales are to other BUs. Starting in 2017, as a way of diminishing the exposure to the secondary market, COR's managers decided to increase purchases of cork bark to internalize more production.

The Floor and Wall Coverings BU is expected to contribute to 14.8% of 2018F sales (-7.1% YoY). Among the main markets of this BU, Germany and Scandinavia are growing the most, while the US is experiencing a slowdown. EBITDA margin is expected to decrease to 2.9% due to the aforementioned underperformance of sales, although growing in the period 2019-2023 from 6.7% to 11.2%. Currently, the BU is operating at 80% of capacity.

The Composite Cork BU with 13.4% of 2018F sales, EBITDA margin of 10.0% and contribution to 7.7% of COR's consolidated EBITDA, focuses on reusing the waste produced by the Cork Stoppers BU, creating innovative products for 25 different industries. Our 2018F sales forecast reflects an increase in sales of 4.0% YoY. The Insulation Cork BU has the second smallest contribution to COR's sales, at 1.5% of 2018F sales, representing 0.8% of consolidated EBITDA. The segment produces both thermal and acoustic cork agglomerate insulation, known for its high quality and natural properties. Sales are expected to increase +9.1% YoY, following the recovery of the construction industry.

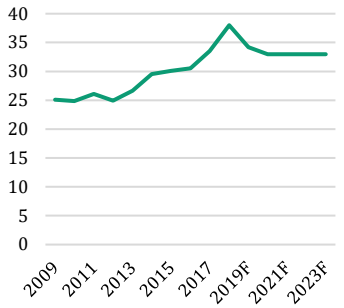
In October 2018, COR announced the acquisition of its first forest property (*Herdade da Baliza*), with 2,866 hectares, in Castelo Branco, in the east of Portugal. The acquisition totaled €5.5M and is part of the Forestry Intervention Project – a long-term program aiming to assure the valorization, maintenance and preservation of cork-oak forestry in Portugal. In this property, COR will plant cork oak trees using the micro-irrigation and fertilization system and will function as a showcase for landowners to convince them to plant cork oak trees. Future acquisitions of forest property are not expected, as it would lower COR's return on invested capital.

Key drivers of profitability

Consumption of bottled wine drives the bulk of demand for cork stoppers, as 65% of wine bottles worldwide are sealed with this type of closure. Wine consumption towards premium wines should increase the average selling price of cork stoppers and growth in population, especially in Asia, will demand higher volumes.

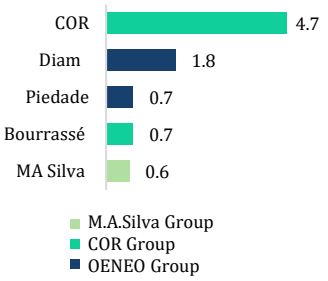
Cork bark is the main input of the business. The raw material is harvested from cork oak trees, located exclusively in the Mediterranean basin. Each tree needs to grow for 43 years until it produces the *amadia* cork, used for cork stoppers. Harvesting cycles of 9 years have driven prices of cork bark up over the last 2 years (+9.7% 2017, +13.4% 2018) due to scarceness of resources (Figure 7). This trend should not persist, as cork prices are expected to decrease 10% in 2019F and stabilize from 2021F onwards, as more cork oaks will be available for harvesting. Trends in construction drive the other BU of COR. The ongoing recovery from the financial crisis will ferment the growth in the other segments of the company, especially for the Floor & Wall Coverings BU and Insulation BU.

Figure 7: Average selling price of the highest quality cork *amadia* (€/@)



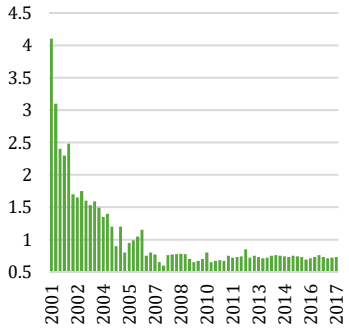
Source: UNAC (2018) and team estimates

Figure 8: No. of cork stoppers sold by top 3 companies (in billions) 2017YE



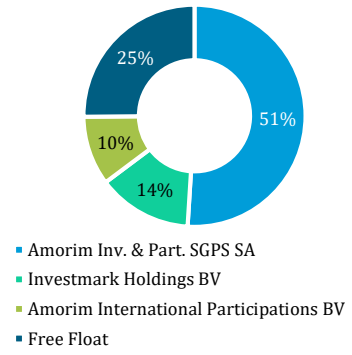
Note: Total market 12.5B 2017YE
Source: COR (2017) & OENEO (2017)

Figure 9: Avg. annual TCA detection (%)



Source: Cork Quality Council (2018)

Figure 10: Shareholder's Structure



Source: COR (2018)

Company strategies

R&D+I as a way of improving efficiency

By 2017YE, the average annual investment in R&D totaled ~€7.5M, and this level of investment is expected to continue. R&D+I has been a key differentiation point for COR in the diversification and improvement of its products, yielding a clear competitive advantage over its peers. COR's Rosa ® Mechanism is one example. Implemented at an industrial level in 2007, the mechanism was the main driver for the Cork Stoppers BU recovery following the entrance of screwcaps and synthetic stoppers during the 2000s. The mechanism detects the presence of Trichloroanisole (TCA – a naturally occurring fungus present in cork) on a batch of stoppers and allows the removal of the contaminated stoppers from the production. More recently, COR developed NDTech technology, a complement to Rosa ® Mechanism. NDTech enables individual quality control on cork stoppers, reducing the analysis time by 90%. It is fast, it is reliable, and results in material improvements to the final product. The first stage of TCA-free cork stoppers (below 0.5 nanograms/liter) was primarily directed at premium wines, yet plans are to expand to other wine segments. COR expected a high acceptance of the product yet estimated sales of 50M units for 2018YE are still not significant for the overall BU results (less than 1% contribution).

Vertical and Horizontal Integration

Over the last 17 years, COR has been active in M&A with 11 target companies from all over the world (Table 5). Almost all these companies' businesses belonged to the cork stoppers industry, although a few were related to coverings. Through these acquisitions, COR augmented its production capacity and reinforced its presence in several markets, by simultaneously decreasing direct competition. Currently, the company is running at full capacity on its closures segment. Around 70% of COR's sales can be attributed to its own distribution channels. Therefore, the company controls the entire value chain from the manufacturing of cork, to the transportation and delivery to final consumers. This allows continuous quality control and direct contact with the final consumer, improving the image of the company and excellence of its products. Nevertheless, COR is highly dependent on cork availability and its suppliers.

Shareholder Structure

COR is a family-owned company, with the Amorim family controlling indirectly almost 75% of voting rights, with free-float at 25.14% as of 2016. To remain in compliance with the maximum percentage of voting rights allowed by the Portuguese Competition Authority (Article 20 of the Portuguese Securities Code - 25%), the ~75% of shares belonging to the Amorim family are dispersed through three companies: (1) Amorim Investimentos & Participações SGPS SA (51%) through Amorim SGPS, SA, Amorim Holding Financeira I SGPS, SA, and Amorim Holding Financeira II; (2) Investmark Holdings B.V. (13.78%) and (3) Amorim International Participations B.V. (10.09%) (Appendix 26). Historically, the Amorim family has always been present in COR's governance committees, to ensure the protection of the family's best interests. Moreover, there is no activist shareholder.

Over the last 4 years, the shareholder structure has undergone some important changes. During September 2015, the company added shares to its free float by selling treasury stock, through a Seasoned Equity Offering. The aim was to increase liquidity and the proceeds were distributed as dividends. By 2016, Amorim International Participations B.V. and Investmark Holdings launched a private sale offer of 5% of their participation, adding 10% to the free float. This rise in free float increased the volume of transactions, which consequently impacted the share price (Table 3). On December 2017, Amorim Investimentos & Participações SGPS SA incorporated Amorim Capital SA, which is already fully controlled. According to 2018S1, the shareholder structure has since remained unchanged. We do not foresee motivations from the family to find a buyer for the company because they use COR as a source of funding for diversification at the family level.

3. Corporate Governance

The company is 75% owned by the family Amorim and their members have been running it. Mr. António Amorim joined COR in 1989, having occupied several upper management positions within the Amorim Group before being appointed as CEO and Chairman of the Board of Directors (BoD) in 2001. He holds a degree in International Commerce from the University of Birmingham. Mrs. Cristina Amorim Baptista, economist, serves as CFO and Vice Chairman of the Group, being also a non-executive member of the BoD.

Board Structure and Remuneration Policy

COR's BoD is composed of 6 members, of whom 3 are non-executive, although it does not attempt to follow the Corporate Governance Code recommended by the Portuguese Securities Market Commission (CMVM) of including independent members in its structure. The company opted for having no independence in the BoD. Similar to the BoD, the Remuneration Committee is also entirely composed of non-independent members. The remuneration policy consists of a fixed plus a variable component (only for executive BoD members) based on performance levels attained during the latest financial year. In further detail, such bonuses are determined according to the individual's role on the current result, as well as its contribution to the medium/long-term economic sustainability goals of the organization. 2017 figures point to a fixed remuneration of €0.78M of the BoD, of which €0.23M correspond to a performance-based premium. Yet, the dividends received from indirect participations on COR's shareholder structure have not been disclosed (Appendix 28).

Corporate Governance

COR follows the Reinforced Latin Governance model in which the controlling shareholder – family – elect the following corporate body members to 3-year office terms:

- **Board of Directors** – 6 members whose main responsibility is the approval and implementation of management decisions at a strategic level;
- **Executive Committee** – 3 members who implement decisions made by the BoD and manage the ordinary business activity of the company;
- **Supervisory Board** – 4 members (3 incumbents, 1 alternate) that supervise the overall management, may dismiss directors in specific situations and monitor the independence of the Statutory Auditor;
- **Statutory Auditor** - Ernst & Young ensures the truthful presentation of the financial reporting since 2017;

Table 3: COR's trading data

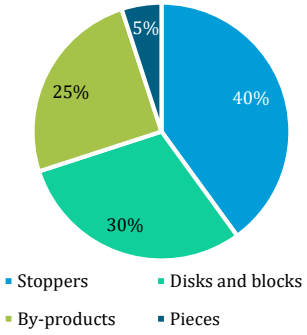
	Avg daily volume traded	Avg closing price
2013	9 630	2.04 €
2014	14 211	2.85 €
2015	50 122	4.36 €
2016	42 188	7.32 €
2017	75 319	11.07 €
2018	57 838	10.60 €

Source: COR (2018) and Thomson Reuters

Figure 11: Location of the cork oak forestry

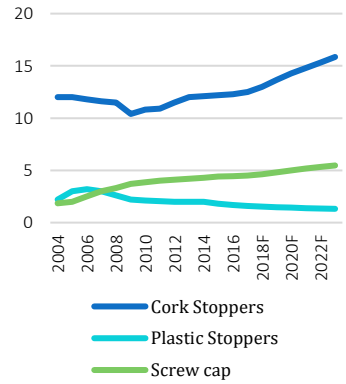
Source: APCOR (2018)

Figure 12: Uses of cork bark



Source: APCOR (2018)

Figure 13: Wine closures market (in billion units)



Source: APCOR (2018) and team estimates

- **Remuneration Committee** – 3 members who define the remuneration policy to be applied, none of which belonging to the Amorim family.

COR has been using CMVM Corporate Governance Recommendations as a benchmark to review its own model since 1999. Up to the moment, the company fully complies with 26 of the mentioned 43 recommendations. The lack of independence of the BoD and of the Remuneration Committee, along with the unclear remuneration policy, represents the main corporate governance risks that minority shareholders are exposed to. The one-share-one-vote policy does not jeopardize minority shareholders rights in the company by allowing them to participate in important decisions of the company. However, the family's super-majority control prevents them from exercising a meaningful influence.

Despite the concentration ownership and lack of independence of the executive team, we do not consider that COR is a poorly governed family firm. The company has been showing sustained growth, enhanced by the management team's expertise in the business. Additionally, COR is regularly distributing value to all investors through dividends. Our view is that family's best interest is to have an active dividend policy while not jeopardizing COR's potential to grow. The Amorim family owns a diversified portfolio of investments (e.g., 33.3% GALP with mkt value of €3.5B, 32.6% Estoril-Sol) (Appendix 20) that were accumulated in periods of strong cash flow distribution from the cork business. The apparent policy of distribution of dividends for diversification at the family level is inadvertently also protecting minority interests.

Social Responsibility

Regarding Bloomberg's ESG rating, COR's score of 56.2 outperforms its peers' average of 33.94. COR's sustainability strategy meets 11 of the 17 Sustainable Development Goals (SDGs) proposed by the United Nations, reflecting the company's continuous effort in combatting social, economic and environmental issues. Socially, the company is involved with a number of institutions dedicated to supporting local communities and those in need. Environmentally, COR has been actively committed to develop and promote the adoption of sustainability principles as well as forest management practices aimed at preserving the cork ecosystem and overall environment. The primary areas of concern are the reduction of CO_2 emissions and cork oak reforestation through the 2013 Forest Intervention Program. COR holds the Forest Stewardship Council Chain-of-Custody certification as well as several ISO certifications.

4. Industry Overview and Competitive Positioning

Cork industry and the Portuguese dominance

Cork oak trees provide bark for the cork industry in a sustainable process that does not require cutting the tree. The oak forestry is spread throughout the Mediterranean Basin (Figure 11), totaling an area of 2.2M hectares. About 34% of Mediterranean oaks are in Portugal, providing a competitive advantage for Portuguese players. Annual cork production worldwide is around 201.4 thousand tonnes, 50% of which originates in Portugal. From the total cork bark harvested, 40% is immediately used for natural cork stoppers, 30% is destined for disks and blocks used in technical stoppers, while the rest are by-products (25%) and pieces (5%) (Figure 12).

Natural cork stoppers are the priciest, ranging from €1 to €2/unit, as they are made from a single piece of cork. These serve as a sealing option mainly for still wines, being the preferred closure for premium wines. Technical stoppers are made from agglomerated (grinded) cork, being less expensive (starting at €0.02/unit) and directed for lower-priced wines. Around 70% of the production of cork is destined for the wine industry while the rest is divided between the construction sector (26%) and other cork products (4%) (APCOR, 2018). By 2017YE, the size of the world's cork exports was close to €1.6B, with Portugal as the top exporter (62.4%), followed by Spain (18.6%) and France (5.1%).

The cork industry is very fragmented on a company level yet geographically concentrated, with 80% of the companies located in Portugal. However, the whole industry is dominated by the Portuguese company COR, with ~44% of global market share for cork stoppers, followed by the French OENEO, with around 20% of market share. Additionally, COR recently acquired the third player, *Bourrassé,* with a market share of 6%.

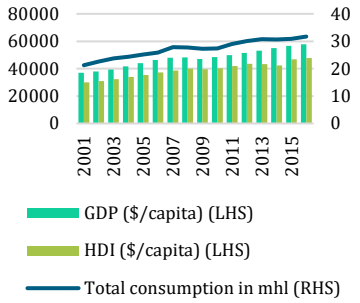
The wine closures market

Wines bottles can be sealed with three types of closures: cork stoppers (natural and technical – 67.2% of wines), plastic stoppers (8.6%) and screwcaps (24.2%). In 2017, the global wine market output added up to 18.6B bottles of wine, of which 12.5B were sealed with cork, 4.5B with screwcaps and 1.6B with plastic stoppers. (Figure 13)

Within the mentioned closures, cork stoppers are perceived as the highest quality option in countries with the highest wine consumption, being often associated with premium wines. Studies conducted by CTR Market Research (2017), have found that about 97% of consumers in China associate wines sealed with cork stoppers as having higher-quality, and the same conclusion was found in several other key markets (US – 97%, Spain – 95%, Italy – 86%, France – 83%). Consumers are willing to pay an average premium of 36% for cork-sealed wines over those with alternative closures. Screwcaps and plastic stoppers, on the other hand, consist of a more affordable and practical option, commonly used in cheaper wines and other alcoholic beverages.

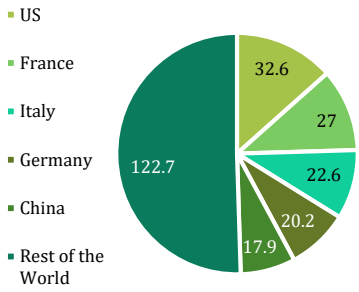
During the 1990s, cork stoppers were the dominant choice for wine closures, with over 90% of market share. However, concerns regarding TCA presence in cork stoppers and its negative impact on wines' flavor and aroma started building up as 5% of all bottled wines sealed with cork were tainted (Figure 9). This led cork stoppers to lose market share during the first decade of the millennium in favor of alternative closures. Synthetic stoppers and screwcaps took advantage and gained market share in the wine stoppers business, taking over 40-50% of market share. The highest level of acceptance of screwcaps was found in Australia and New Zealand. Among the countries with the highest consumption of wine, the screwcaps acceptance was the highest in the UK (52% in 2013), Germany (47% in 2013) and USA (43% in 2013). Developments in TCA screening technology allowed the natural cork to regain winemakers' trust, as nowadays only 0.5% of wines acquire the 'corky' flavor associated with TCA. Currently, cork stoppers account for close to 65% of the closures market for wine bottles, with high acceptance levels from both wine producers and the final consumer. There is no evidence regarding a new alternative closure to enter the market.

Figure 14: GDP vs Household Disposable Income (HDI) vs Wine Consumption in the US



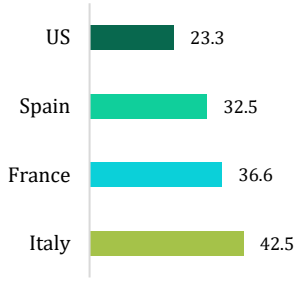
Source: OIV (2017) & OECD (2019)

Figure 15: Wine consumption in 2017 (in mhl)



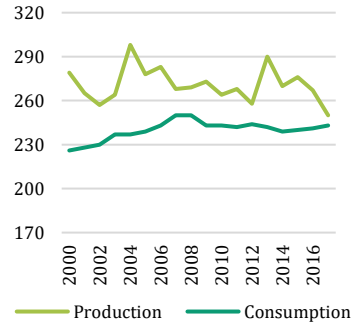
Source: OIV (2017)

Figure 16: Top 4 wine producing countries in 2017 (in mhl)



Source: OIV (2017)

Figure 17: Wine consumption vs wine production (in mhl)



Source: OIV (2017)

Table 4: Wine consumption by type of packaging

Type	Volume
Bottled + sparkling	65%
Bulk and >2L	35%

Source: OIV (2017)

Demand Drivers

Economic Outlook

GDP per capita and Household Disposable Income (HDI) per capita are linked since consumption is a key factor for the growth of GDP. Historically, HDI and GDP had a positive correlation (Figure 14). Expansionary public policies can influence the aggregated demand mainly through two mechanisms: (1) the cut of taxes; and (2) the increase of government spending and a decrease of interest rates. The implementation of any of these policies generates a positive impact in HDI. Global GDP is expected to grow +5.1% CAGR from 2018-23. China is expected to grow the most with a 7.8% CAGR from 2018-23, while the US and Europe will follow behind at 3.8% and 3.9%, respectively (IMF , 2018). With the increased availability of income, the consumption of luxury goods rises. In the US, sales of luxury goods are expected to grow at 2% YoY, which includes fine and premium wines (SVB, 2018).

In vino veritas

Wine consumption is the main demand driver for the cork industry, with cork stoppers representing 70% of the industry. The value of the global wine market was USD 302.02B 2017YE, with an expected CAGR of +3.2% from 2017-23 to about USD 423.59B by 2023YE (Shah, 2017). In 2017, the world's wine consumption totaled 243 mhl, 65% of which was bottled wine (OIV , 2018). Almost 50% of the consumption can be linked to five countries – the USA, France, Italy, Germany and China (Figure 15). The consumption of wine decreased after the subprime crisis but has stabilized since at around 241mhl. We expect an increase in consumption over the forecasted period as a result of the growing middle-class population. The middle-class has an increased availability of disposable income (Kochhar, 2017), which is positively correlated to wine consumption. According to Kharas (2017), the global middle-class will grow at +4.6% CAGR from 2016-22, especially in China (+10.4% CAGR from 2016-22). Additionally, consumers are shifting their preferences from lower-priced towards premium wines (see Appendix 21 for more detailed information by region). For the cork stoppers industry this translates into a preference for natural cork stoppers.

Unlike wine consumption, the production of wine is very unstable as it is very sensitive to weather conditions. In 2017YE, global wine production decreased by 8.6% YoY mainly due to adverse temperatures in the EU, reaching historical lows. From the total wine production of 250mhl 2017YE, over 50% originated in four countries, which also correspond to some of the leading countries in wine consumption – Italy (17.20%), France (16.45%), Spain (14.50%) and the USA (8.48%) (Figure 16). Wine is an example of a product with constant demand but the production that is variable and tied to the harvest of grapes. The harvest is expected to recover during 2018, boosting wine production at +12% YoY 2018F. (OIV , 2018)

Though production is heavily dependent on the harvest, historically, the production of wine always surpasses its consumption (Figure 17). For this reason, vineyards and winemakers estimate their sales of bottled wine based on forecasted consumption. The excess production is used for industrial purposes, such as wine vinegar and distillations of wines. Therefore, we forecast orders for cork stoppers to follow a similar trend to that of wine consumption.

Construction Industry

The global construction industry amounted to USD 10.6T total sales at 2017YE and is expected to continue a recovery path during the 2018-2022 period. Increasing urbanization, improved economic conditions and growing population will act as key drivers of growth, with a CAGR of +3.6% for the forecasted period and a total market value of USD 12.7 trillion by 2022YE (Global Data, 2018). Asia-Pacific should preserve its leading position, yet at a slower pace of growth due to the expected slowdown of the Chinese construction industry (see Appendix 22 for more detailed information per region).

Supply Outlook

Raw material Outlook

The operations of the cork industry rely on the availability of this natural resource. To understand the level of uncertainty, we carried out a survey on the supply side (Appendix 25). The quantity of cork extracted is unstable since it depends on several factors, like extraction cycles and changes in weather conditions. Besides these concerning situations, cork oak trees are not considered to be endangered as the harvesting is controlled by the cork industry and the Portuguese government to ensure its maintenance and continuity. For the past two years, the total amount of cork bark available for harvesting decreased, mainly due to unsmoothing of the 9-year harvesting cycles. Nevertheless, the harvest of cork bark is expected to ease during 2019, returning to previous levels. Moreover, according to COR, there is enough cork to satisfy all demand for the following 100 years, if the total area of *Montados* does not decrease (APCOR, 2018).

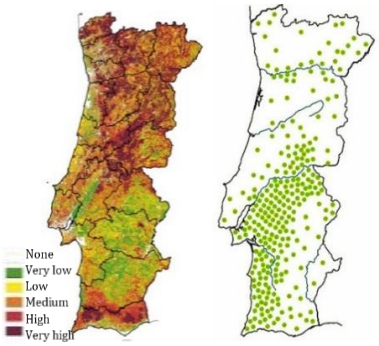
Wildfires pose a problem for this industry as they delay the harvest of the burned trees. Even though these trees are highly resistant to elevated temperatures, due to their humidity content, the Portuguese government imposes some rules to assure their perseverance. According to *Decreto Lei nº 155/2004*, after being affected by fires cork oaks must recover for a minimum of one year before the harvest of the bark is allowed. However, the risk of fires is not significant in the main area of *Montados* (Figure 18). Another issue to be considered is climate change (Figure 31), especially the increase in droughts. The scarcity of water has a negative impact on the quality of cork barks, making the trees less resistant to diseases and consequently more prone to die. However, this effect might be mitigated with the implementation of a micro-irrigation and fertilization system.

Cork price

The price of cork bark is influenced by several factors. The type of cork will dictate its quality. Cork oak trees need to grow for 25 years before they start producing cork. The first harvest will yield virgin cork which is very hard to handle due to its irregularities. This cork is destined for applications other than stoppers and is the cheapest type of cork. After 9 years, the tree is ready for its second harvest. Secondary cork is softer and less irregular than virgin cork, but still not suitable for cork stoppers. After the 3rd harvest, Mediterranean oaks produce the highest quality cork, known as *amadia* or reproduction cork. The average price for *amadia* cork 2017YE was €33.51 per *arroba* (~15kg) (Figure 7).

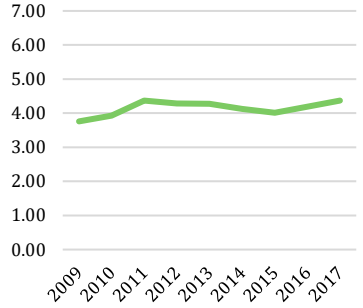
The price of cork is also influenced by extraction costs. Extracting the bark of an oak tree is a highly specialized job and labor intensive. The process is completely dependent on human labor and is unlikely to be automatized. Extraction costs at 2017YE totaled €4.37 per *arroba* (+4.3% YoY) (Figure 19). For COR, a rise in extraction costs

Figure 18: Risk of fires in Portugal vs Location of *Montados*



Source: ICNF (2017) & Árvores de Portugal (2017)

Figure 19: Average extraction costs per year (€/@)



Source: UNAC - União da Floresta Mediterrânica (2018)

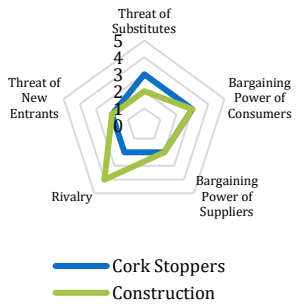
Table 5: COR's recent M&A activity

Year	€M	%	Company
2008	3.3	100	*Cortex*
2008	7.1	25	*US Floors*
2011	2.3	50	*Corchos de Argentina*
2012	15.1	91	*Trefinos*
2017	3.0	100	*Sodiliège*
2017	29.0	60	*Bourrassé*
2018	5.5	70	*Elverson*
2022	19.0	40	*Bourrassé**

* Financial obligation. See Appendix 10

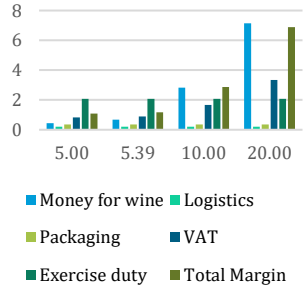
Source: COR (2017)

Figure 20: Porter's Five Forces



Source: Team analysis

Figure 21: Bottled wine price breakdown by type of wine, in the UK



Source: Statista (2018)

would not hurt the company's performance, because these can be passed to consumers through an improved product mix.

Finally, cork price is influenced by the big players in the industry, COR and OENEO. These companies are price setters, and smaller companies can only negotiate around the pre-defined value.

Production Process and dependence on human labor

The process of transforming cork bark into cylinder stoppers relies heavily on human labor. Cork oak trees are harvested between May and August. To remove the bark from the tree, harvesters carefully perforate the oak with the assistance of axes and remove the cork by hand. This is a highly specialized craft and takes years of experience to harvest the cork without damaging the tree. Cork bark is then transported to storage facilities where it is boiled, to increase softness and flexibility, and washed. Afterward, the cork is left outside to rest for 6 months to absorb humidity. After the 6-month rest, the cork is ready for processing. In factories, cork bark is cut into thick strips from which natural cork stoppers are produced. With the aid of a cutting machine, workers chose where to punch the cork, based on its pores, and manually identify and dispose of stoppers that fail to meet the quality requirements. Technical stoppers and other cork products are produced from the grinded cork that comes from the thin cork bark and from the natural cork stoppers' production waste.

The heavy duty of punching the stoppers has already been automated, however this automation technique is still not fully utilized. Whereas one worker can produce, on average, 14,000 stoppers per day, the machine can more than double this amount to 30,000 stoppers by working around the clock. Companies may feel compelled to invest in this machinery as these can run for 24 hours nonstop, which greatly increases output. Shortage of qualified labor force may also be a decisive factor, as the craft is becoming every year more obsolete.

Acquisition Activities

Over the years, COR has made some important acquisitions which allowed them to reinforce their position in the market (Table 5). More recently, the company acquired *Bourrassé* (2017), *Sodiliège* (2017) and *Elfverson* (2018). *Bourrassé* was considered the 3rd largest producer of cork stoppers in the world, with a well-known brand and high-quality products. The company had operations in France, Spain, Italy and Chile. Additionally, *Bourrassé* had the loyalty of several important clients in the French market, constraining COR's performance in this key market. With this acquisition, COR was able to reinforce its presence in France, which is now the most significant market for cork stoppers. *Sodiliège*, also a French-based company, was acquired by COR during 2017, with the goal of expanding the company's portfolio to include high-quality personalized stoppers with bartops made from varied materials, like metal, glass and wood. In 2018, COR acquired 70% of the Swedish *Elfverson* to improve its spirits' segment. *Elfverson* was a former supplier of COR, providing wood tops for the Cork Stoppers BU.

COR does not expect to engage in M&A activities in the near future. However, future tactical acquisitions are not excluded by the company. If any smaller company with strong brand awareness and customer loyalty appears, it may come through as an option for COR. Still, we do not expect any future M&A activity from the company. Yet, a possible acquisition between the 2nd and 3rd largest players could pose as a potential threat to COR's leadership, since the combined company would have ~25% market share (see Appendix 23 for more detailed information).

Competitive Positioning

Although cork is a very versatile product, it is mainly used to seal wines (70%). The market for cork stoppers is best described as a monopolistic competition with some oligopolistic features. The presence of many sellers does not restrain the pricing power of the two main players – COR and OENEO. Collectively, these two own over 60% of the market, primarily as a result of product differentiation strategies.

Rivalry Among Existing Competitors

Within the cork industry, the rivalry between competitors varies significantly. Among smaller companies, the product offered is quite homogeneous because of low R&D investments. The small size prevents them from benefiting from economies of scale and having an advantage over pricing, which makes rivalry quite high. Contrarily, COR and OENEO offer highly differentiated products. Their dimension allows them to be more competitive and offer better, more specialized solutions for their clients. Both companies benefit from high brand recognition, competing mainly amongst themselves, yet COR has a clear advantage of having more than double OENEO's market share (Figure 8). Overall, and considering the two main players own over 60% of the market, the existing rivalry is low although it is more intense between smaller players.

Threat of substitute products

Following the developments of the TCA screening technology, cork stoppers have been the unquestionable leaders in the wine closures market, with over 65% market share, followed by screwcaps and plastic stoppers. Still, screwcaps acceptance has been growing in some markets, especially in the UK and Australia. Nevertheless, around 90% of consumers prefer cork-sealed wines (APCOR, 2018). Furthermore, there is no evidence regarding the appearance of new substitutes capable of cannibalizing the market share of cork stoppers.

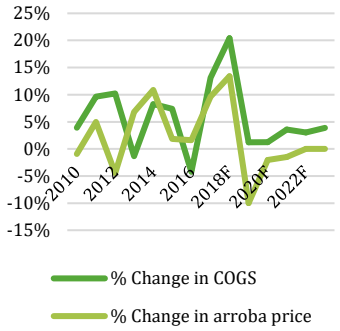
Bargaining power of suppliers

Cork suppliers are mostly small family-owned companies that possess cork oak forest and/or are in the business of the cork oak extraction. Although cork oak forests are present only in the limited area of the Mediterranean basin, the power of the two dominant cork buyers (COR and OENEO) is so high that it often overwhelms the scarcity effect. Our analysis suggests that long-term contracts exist between main players and owners of *Montados* cork oak forests.

Bargaining power of customers

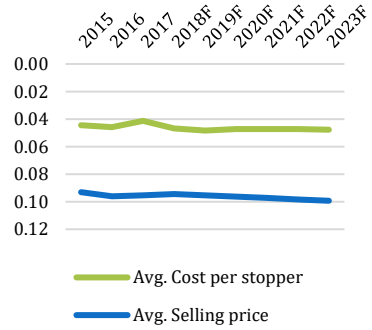
Packaging represents a small portion of the cost of a wine bottle (on average £0.36 in the UK in 2016) (Figure 21). When deciding on the type of sealing option, wineries will consider both the price and the customers' preferences. Therefore, switching costs are quite significant as, on average, 90% of consumers associate cork-sealed wines with quality. Yet, cork stoppers producers face an elastic demand which narrows down their ability to increase prices. Wineries may opt for cheaper alternative closures if the price of cork is too high.

Figure 22: Evolution of COGS and price of cork bark



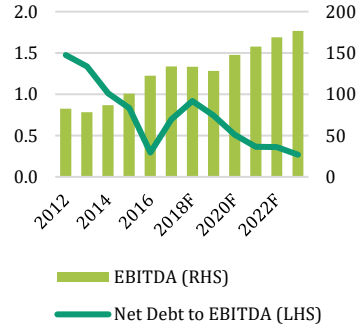
Source: COR (2017), APCOR (2018) and team estimates

Figure 23: COR's avg. selling price per stopper vs avg. cost per stopper



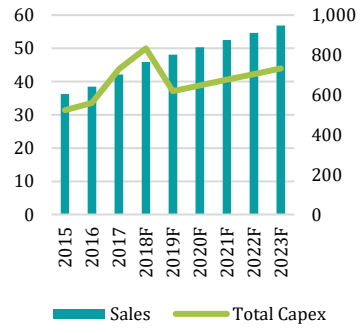
Source: Team estimates

Figure 24: Net Debt vs EBITDA (in millions)



Source: Team estimates

Figure 25: Total CAPEX vs Sales



Source: COR and team estimates

Threat of new entrants

Even though there is a vast number of small companies, barriers for new entries are high. Cork producers keep longstanding business relations with suppliers, as the amount of cork bark harvested changes every year. It would be difficult for a new player entering the market to establish these sorts of relations with suppliers, especially when two companies dominate the market. Furthermore, as the cork industry is constrained geographically, any company would have to assure its dominance in Portugal to overpower COR and change the current market structure. Additionally, the existing companies would most likely retaliate by reducing prices, making it harder for a new player to keep up.

5. Investment Summary

Our recommendation for Corticeira Amorim stands for BUY**,** with a price target of €10.9/sh for 2019YE, which implies an upside potential of +21% from December 31st, 2018 closing price of €9.00/sh. COR is trading at discount mostly due to the growing pressure of rising prices of raw materials (cork bark) of 24.4% in the period of 2016-2018. On the supply side, COR should experience relief of pressure from prices of raw materials. Additionally, devotion to R&D secures safe prospects, diminishing threats from tainted wine. COR's dominant market position (44% market share), the positive outlook for wine consumption pushed by preferences for cork-sealed wines, especially high-end wines (3.2% CAGR from 2017-23), and the ability to sustain a growing dividend policy through strong cash-flow generation from operations should drive COR's price up during 2019.

Key Value Drivers

COR is the market leader in the cork industry, with a 44% market share, followed with the French OENEO's 20% and the Portuguese family company *M.A.Silva* with 4.8% (Figure 8). The market share was improved in 2017 by 5.6% with the €48M (premium of ~45%) acquisition of *Bourrassé*. This acquisition fortifies COR's position in France, the second largest wine producer worldwide. COR has its presence in all world's wine-production relevant markets – France, Italy and Spain. Also, the company benefits from the loyal and long-standing relationships with suppliers, and the ability to influence prices. The recent shortage of cork during 2016 and 2018 and rising prices in the period of +24.4% to ~38€ per *arroba* is an example. COR accumulated inventories a year ahead, buying at a cheaper price, and gross margins in 2018-19 adjusted to 49.3% (only -390 bps decrease YoY). The stabilization of the price of high-quality cork (*amadia*) at ~€33 will allow COR to return to margins around 51%-52% 2021-23.

Wine consumption will drive COR's value up. The trend of premiumization in wine consumption will **increase COR's average selling price** by +1.0% CAGR from 2019-23. Historically, the growth was higher by +140 bps as the cork stoppers industry recovered from the development of synthetic/plastic stoppers and screwcaps as alternative closures. Nowadays, increasing preferences towards cork closures will also benefit COR's sales in this mature industry. Additionally, the rise in the global middle-class population by +4.6% CAGR from 2018-22, especially in China (+10.4% CAGR from 2018-22), will boost the total wine consumption to +17.9% from 2017 to 2023F and so volume for cork stoppers. Preferences towards high-end wines together with the rising population will justify COR's growth of 4.4% CAGR during 2018-23. Yet, the recent trade war is not expected to jeopardize COR's prospects in the medium-term.

Cork Stoppers BU (EBITDA margin 18.2% in 2023F) is the leading contributor to COR's sales with 73.5% in 2023F, followed by F&W coverings (13.3%), Composites (11.9%) and Insulation (1.5%). The Floor & Wall Coverings BU and the Insulation BU are merely niche players in the construction industry (CAGR of 3.6% in 2018-2022). By 2023F we anticipate EBITDA margin improvements for Coverings (11.2%) and preservation in the case of Composites (13.9%) through its diversified nature - exposed to roughly 25 industries.

The **relief of pressure from raw materials price** will support the generation of a steady operating cash flow around €110M-€130M during 2019F-23F. The price of cork bark is expected to stabilize at ~€33 in 2021F, after a period of higher volatility. The increased availability of cork oaks ready for harvesting will drive prices back to more normal levels, although above the ones experienced in 2016 (~€30.6). The normalization in the *arroba's* price, together with the increase in the average selling price of cork stoppers and increased volume, will drive COR's gross margins back up to 52% in 2023F. Furthermore, operating profit will grow by +6.3% CAGR from 2018-23, above sales figures.

Strong financial position for attractive expansions ahead. The suboptimal capital structure that puts COR's debt levels at 10% (D/EV) is the result of a powerful company in a growing and fairly stable industry. That leaves a noteworthy room for financing future business opportunities. Robust cash generation from operations provides a cushion for market shocks and puts COR in a comfortable position.

Success demands planning. COR is strongly committed to innovation (~€7.5M/year) giving it a strong foundation for the future. Its longstanding history of successful combat against tainted wine (TCA), industry's number 1 enemy, confirmed COR's resilience and adaptability in a period of bad winds. Everything started with the Rosa ® Mechanism (2007) and continued very recently with NDTech (2016). Despite the tiny portion of overall sales (50M stoppers) in 2018F from NDTech, we see it as an important factor for COR's preservation of market dominance, especially in the market for fine wines.

Reaping the synergies from M&As. Recent acquisitions of *Bourrassé (2017) and Sodiliège* (2017) allowed COR to put a bigger foot in the French wine market. The 2017 acquisitions have room for target's EBITDA margins improvement (*Bourrassé – 13.1% and Sodiliège – 4.22%),* which unleashes our estimated potential synergy (~€50M) from margins convergence throughout the years in both acquisitions. The consolidation of synergies would drive COR's value up to ~€0.3/sh, on top of the TP. We explore potential M&A involving COR, OENEO and *M.A. Silva* but, despite potential relevant operational and financial synergies with the latter as a target, the probability for a successful takeover is limited.

Table 6: COR's Enterprise Value

FCFF	2019F	2023F
EBIT(1-tc)	67,659	96,546
Non Cash Charges	31,695	38,113
CAPEX&OtherInv.	-37,809	-44,629
Δ NWC	8,041	-8,757
FCFF	69,586	81,272
EV	1,581,058	

Source: Team estimates

Table 7: EV contribution per BU

Enterprise Value breakdown	
Raw Materials + Cork Stoppers	87%
Floor & Wall Coverings	6%
Composites	11%
Insulation	1%
Holding & Others	-5%

Source: Team estimates

Table 8: COR's Price Target

Price Target	
Enterprise Value	**1,581,058**
- Net Debt	-95,474
- Other borr. & creditors	-15,717
- Non-controlling interests	-37,575
+ Investments in associates	11,394
Equity Value	**1,443,686**
No. shares outstanding	133,000
Price Target	**10.9**
Share Price - 31 Dec, 2018	9.00
Upside Potential	+21%

Source: Team estimates

Table 9: COR's WACC

DCF Analysis	2019F	Terminal
Cost of Equity		
Risk Free Rate	0.9%	2.9%
Beta (β)	0.72	0.72
Market Premium	7.4%	7.4%
Cost of Equity	**6.2%**	**8.3%**
Cost of Debt		
Pre-tax Cost of Debt	1.7%	3.3%
Tax Rate	29.8%	30.3%
After-tax Cost of Debt	**1.2%**	**2.3%**
Weight of Equity	89.2%	90.0%
Weight of Debt	10.8%	10.0%
WACC	**5.7%**	**7.7%**

Source: Team estimates

Valuation methods

We computed COR's Enterprise Value using a FCFF model, achieving a target price of €10.9/sh. To complement our analysis, we used FCFE, reaching €10.8/sh, the DDM, yielding €10.6/sh, and the Residual Income, through which we obtained a target price of €9.7/sh. Multiples are fairly difficult to rely for COR because of its leading position and that only OENEO is here the only peer. Forward price multiples (P/B, P/E and P/S) set COR's price at €9.2/sh and enterprise multiples (EV/S and EV/EBITDA) yield €9.8/sh, all above current COR's stock price.

Risks to achieve the price target

COR's margins are highly sensitive to increases in the **price of raw materials**. Investors should take into account the impact of changes in **wine consumption** on the sales of the BU for cork stoppers, which represent roughly 70% of total sales. Exchange rates are still a major concern for COR, especially the **EUR/USD**, affecting close to one-fifth of sales. China is a player in the wine consumption growth and the current trade war puts the cork business outlook unpredictable. Other BU yield risks but of smaller magnitude. The performance of the **Floor & Wall Coverings BU** is still uncertain, as the BU recovers from restructuring and change of management.

6. Valuation

DCF Approach: Different Methods, Similar Upside

To value COR, we used Free Cash Flow to the Firm (FCFF) as our main cash-flow proxy to estimate the target price of €10.9/sh. Additionally, as we do not expect changes in COR's capital structure and the company has a growing absolute payout, the analysis is complemented with the Free Cash Flow to Equity (FCFE) and the Dividend Discount Model (DDM). All methods point COR's value per share in 2019YE in the range €10.6-€10.9, all providing room for upside and leading us to the same **BUY** decision as an investment recommendation. The key factors influencing our valuation are the following:

Wine consumption leads the way in the cork game

The forecasted rise in wine consumption together with the increasing preferences for cork-sealed wines will boost COR's sales, as the Cork Stoppers BU is the main engine of profitability (~70% total sales). The cork stoppers industry will grow at 4.0% CAGR from 2018-23, +80 bps above the forecasted growth for the entire wine closures industry. The leading market position along with recent and expected investments to increase capacity will enable COR's closure segment to outperform the industry at +5.5% CAGR from 2018-23. The trending preferences towards consumption of fine wines are expected to contribute to COR's average selling price by +1.0% YoY, from €0.094 in 2018F to €0.099 in 2023F (Figure 23).

Other BU adding value. The Floor & Wall Coverings BU has been through a gloomy period. The underperformance of sales impacted EBITDA margins, reaching 2.9% in 2018F, -793 bps compared to 2016 figures. Yet, COR's management has taken a course of action, appointing a new management team for the BU and making the necessary restructurings. The positive outlook for the construction sector worldwide (3.6% CAGR from 2018-23) will help on the recovery of the BU, expected to grow at +2.3% CAGR 2018-23. The Insulation BU should follow the growth of the construction sector, while the Composites BU growth is more uncertain due to the exposure to 25 different industries. As the segment is intended to create brand awareness, historical growth of +1.9% YoY should persist in the period 2018-23.

Relief in the *arroba's* price

COR's COGS are affected by the price of raw materials with a one-year lag (Figure 22). 2018 and 2019 figures are affected by the sharp increase in the price of cork bark during 2017 (+9.7%) and 2018 (+13.4%), reaching €38/*arroba* by 2018. Gross margin will take in these effects in 2019F, settling in at 49.3% -105 bps YoY. During the forecasted period, the price of cork is expected to decrease and stabilize at €33, as the quantity of cork oaks available for harvest increases. COR's dominance over the cork industry will support this stabilization of costs for the company. The reduced *arroba* price starting in 2020 will positively affect COR's gross margin, increasing up to 52.0% in 2023F.

COR anticipated the rise in prices and took countermeasure actions by accumulating inventory a year ahead. In 2017, inventories increased +33.7% YoY before accounting for the effect from the acquisition of *Bourrassé* and *Sodiliège*. These acquisitions climbed inventory levels, while the inventory turnover was less affected. Moreover, the internalization of the previously outsourced production of disks and blocks also contributed to this growth. The ease in prices together with the new production policy will return inventories to normal levels during 2019 (-2.9% YoY). Afterward, inventories are expected to grow steadily at +3.3% CAGR 2019-23.

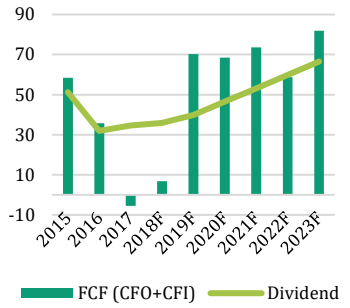
Investing to grow

The Cork Stoppers BU is currently operating at close to full capacity. Investment in CAPEX for 2018F is expected to jump to €50M, above the maintenance level of €20-25M. From the total investment, around €35M will be used to expand the current production line of wine stoppers. To support the expected growth of the company, we believe COR will invest, on average, ~€41M per year as total CAPEX. Depreciation & Amortization (D&A) are expected a threshold lower, accounting for a small room to grow organically.

WACC Assumptions

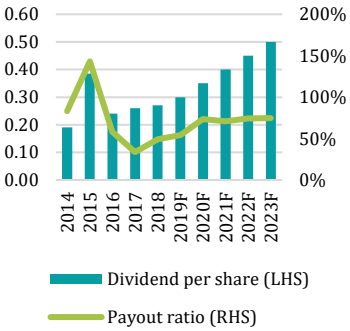
Cost of equity ranges from 6.2% to 8.3% in our valuation, applying the CAPM model. The market forecasts for the German 10-year bond yield is our benchmark for the RFR, ranging from 0.89% to 1.2% 2018-2023, yet in the terminal period, this rate was adjusted upward (2.9%) to account for the expected movement in the market for the yield curve in the long-run. The Beta of 0.72 is calculated through a regression of the company's price with the PSI20, but the average of other two approaches point to similar figures. Even though only a small fraction of sales originate from Portugal (5.7% 2017YE), the majority of cork purchases (over 75%) and production facilities are located there. Due to this exposure, MRP is based on the relation between COR and the PSI20 and is equal to 7.4% (Appendix 13).

Figure 26: Dividend vs FCF (in millions)



Source: COR (2017) and team estimates

Figure 27: DPS vs Payout ratio



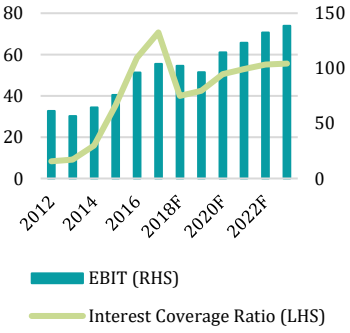
Source: COR (2017) and team estimates

Table 10: COR's liquidity ratios

	2018F	2023F
Cash Ratio	0.04	0.18
Quick Ratio	0.74	0.92
Current Ratio	2.01	2.15
Cash Cycle Days	283	269

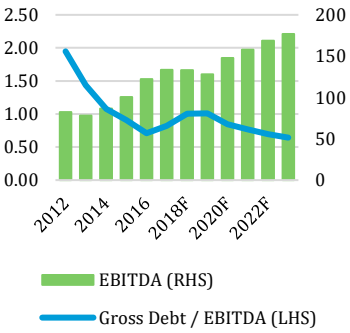
Source: Team estimates

Figure 28: Interest Coverage Ratio vs EBIT (in millions)



Source: COR (2017) and team estimates

Figure 29: Gross Debt vs EBITDA (in millions)



Source: COR (2017) and team estimates

Cost of debt is coupled to the forecasted 6-month Euribor rate, which adjusts the spread paid by the company. The value ranges from 1.7% to 3.3% in the forecasted period (Appendix 12). COR has a target accounting Equity/Assets ratio of 40-50%, but, historical P/B yields market values of around 90/10%. Considering the forecasted P/B in the medium-term, the forecast that COR's market capital structure will remain around 10% D/EV, leaving WACC to range from 5.7% to 7.7% (Appendix 13).

Terminal Value Assumptions

COR is a mature company, currently growing faster than the market. The strong market power, recent M&A activity, and increased consumer preferences toward cork stoppers are drivers, to name a few. We believe the company will preserve its unquestionable leadership, benefiting from its experience in an over a century old business and an everlasting wine market, growing unlevered cash flows at a +2.5% growth rate, which is consistent, yet conservative, with the expected growth rate of 4.4% CAGR 2019F-23F for the business. COR's reinvestment rate along with its competitive position in the cork industry support these figures (Appendix 14).

Every BU brings something to the table

In a SoP approach, apart from splitting sales per segment, we estimated each BU's EBITDA margin and contribution to the total (Appendix 8). This approach has caveats since needs for NWC are not disclosed nor discussed by the company, while peer analysis adds few to this.

Dividend Policy

COR does not establish a specific target payout. However, in previous years the company has paid both a regular and an extraordinary dividend, which we expect to be continued. The company will generate a significant amount of cash YoY on the period 2019F-2023F (18.2% CAGR) (Figure 26). In forecasted years, the payout ratio will converge to the historical average (~75%) and dividend yield will reach 3%-4%. 2019F will be an exception to the case, due to the peak in the *arroba's* price, impacting earnings for that year (-1.8% YoY). After the troubled period, total dividend will gradually increase to €0.50/sh by 2023F (Figure 27). On top of that, the cash generated from operations will allow the company to pay down about €20.3 million interest-bearing debt.

The one and only peer for valuation

The Cork Stoppers BU is COR's main engine of profitability, representing over 70% of consolidated sales 2018F. When selecting peers, the search for listed producers of cork stoppers is limited. OENEO is the only peer company listed in the same line of business. Likewise, the stoppers business represents the majority of OENEO's sales, a company which is responsible for 20% of the global cork stoppers output in 2017YE (Appendix 19).

7. Financial Analysis

Cash Generation

COR is a mature company that is now putting behind some rough years during which a lot of cash was tied in the working capital caused by raw material price increases. Just in 2017 and 2018, almost €41M was used for NWC in each year, after adjusting for the 3 M&As. In the period 2019-23, the relief from raw material pressure will translate into increases in the cash ratio from 0.04 in 2018F to 0.18 in 2023F. This is still below OENEO's 0.51 2017YE, which can be explained with COR's higher dividend payout ratio (33.7% 2017YE compared to OENEO's 24.4% 2017YE). Other two liquidity indicators tell us similar story. Despite waning growth in inventories and receivables, the current ratio is dragged upward with increasing cash. Current ratio climbs from 2.01 in 2018F to 2.15 in 2023F and quick ratio follows a similar pace, growing from 0.74 to 0.92 in the same period (Table 10).

Mature company means stability

The use of pricier raw materials purchased during 2017 and 2018 will inevitably affect COR's performance in 2018 and 2019 (49.3% gross margin 2019F, -390 bps from the 2017 figures). Anticipating further rises, COR registered a net increase in raw materials, which will slightly deteriorate inventory turnover in the short-term (1.02 in 2019-23 compared with 1.04 in 2018F). Overall, in 2019-23, cash conversion cycle is fairly stable at 270-290 days, higher than OENEO's number of 241 in 2017YE. Likewise, in the same period, working capital turnover remains stable at ~2.1, at a similar level to previous years. Total asset turnover is one more piece that tells the same story. As we would expect to see in a mature company, it barely moves, nesting at 0.85-0.90, but at a considerable higher level compared to OENEO (0.6 in 2017YE).

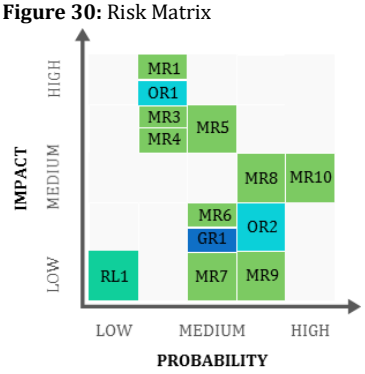
Profitability

COR has been showing an upward trend for profitability since 2015. EBITDA's CAGR of 10.1% in 2012-17 outpaced sales figures of 5.6% in the period, reflecting a +361 bps increase in EBITDA margin to 19.0% 2017YE. Shining enhanced operating performance is offset in 2018-19 by the cork price increase of 9.7% and 13.4% in the period 2017-18. Pressure on the EBITDA margin will be relieved from 2020 onwards, reflecting stability in the *arroba*'s price and higher average selling price in the Cork Stoppers BU. This BU will contribute to most of COR's EBITDA with 72.4% by 2023F. The company's stability in generating profits will allow a positive outlook for dividends distribution, while ROE will stabilize at 13%-14.5% in the next 4-5 years.

Parts make up a whole

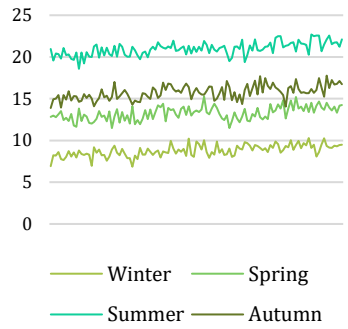
The Cork Stoppers BU will set the pace for COR, yet the other BUs will closely follow behind. The Raw Materials BU will continue absorbing part of the cork bark price, preserving its EBITDA margins at ~13%. The Floor & Wall Coverings BU will soon recover from its slump, which resulted in a tiny EBITDA margin of 2.94% in 2018F. COR's continuous efforts to revive this segment will yield positive results from 2020 onwards, reaching an EBITDA margin of 11.2% in 2023F. Even though COR is just a niche player in this segment, historically the company succeeded to keep margins up (~10%), aligned with Tarkett, its biggest European rival (€2.8B Sales 2017YE). The Composite BU produces goods to 25 different industries. By virtue of this diversification, we expect that the company will preserve margins during the forecasted period, similar to historical ones (13%-14%). Finally, the Insulation BU will continue to contribute ~1% to total sales, with EBITDA margin of 9.7% in 2023F (Appendix 8).

Figure 30: Risk Matrix



Source: Team estimates

Figure 31: Average annual temperature in Portugal by season



Source: The World Bank Group

Table 11: Sensitivity analysis for the *arroba* price

			Price Target
			€ 10.9
Arroba Price	-40%	€ 20.0	€ 11.3
	-25%	€ 25.0	€ 11.2
	-10%	€ 30.0	€ 11.0
		€ 33.5	**€ 10.9**
	4%	€ 35.0	€ 10.8
	19%	€ 40.0	€ 10.6
	34%	€ 45.0	€ 10.5
	49%	€ 50.0	€ 10.3

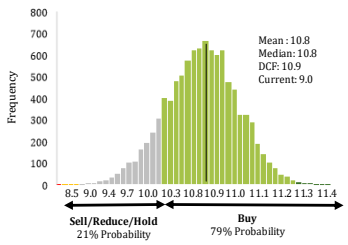
Source: Team estimates

Table 12: Sensitivity analysis for the Terminal Growth Rate

		Price Target
		€ 10.9
Terminal Growth Rate	2.0%	€ 10.0
	2.1%	€ 10.1
	2.2%	€ 10.3
	2.3%	€ 10.5
	2.4%	€ 10.7
	2.5%	**€ 10.9**
	2.6%	€ 11.1
	2.7%	€ 11.3
	2.8%	€ 11.5
	2.9%	€ 11.7
	3.0%	€ 11.9

Source: Team estimates

Table 13: Monte Carlo Simulation



Source: Team estimates

Financial Strength
Gross debt should not evolve in the forecasted period. The industry is mature and growing, while the company is leading and is robust at generating value. The company has been deleveraging by 7.3% CAGR from 2012-17 to reach €109.8M gross debt. Activities have been financed through government grants (€22.6M) and earnings retention. Interest-bearing debt is expected to account for only 10.0% of total assets in 2023F. The growth in EBITDA (+5.8% CAGR from 2018-23), combined with COR's ability to generate cash will drive Gross Debt/EBITDA down from 1.01 in 2018F to 0.64 in 2023F (Figure 29). The interest coverage ratio shows how financially strong COR is (40 to 56 during 2018-23) (Figure 28). We compute a Piotroski Score for COR of 5 in 2018F and 9 in 2023F, averaging 8.4 in the period (Appendix 33). The figures are the result of the recovery of the company through tougher years with improvement in margins and profitability.

8. Investment Risks

Market Risk | Wine Consumption (MR1)
Global wine consumption is quite stable, slightly increasing every year. More recently, the industry has been experiencing a change in preferences from cheaper wines towards premium wines, due to shifting behavior of consumers. This change will benefit COR, boosting demand for natural cork stoppers. Moreover, COR registered an increase in sales of the still and sparkling wine segments 2017YE. The segments grew +7.3% and +5.1% YoY, respectively, against the slight increase of 0.4% on worldwide consumption. Furthermore, the premiumization of wine consumption is increasing the average selling price of COR (1% CAGR from 2018-23) as premium wines require high-end natural cork stoppers. A shift in behavior in the opposite direction could affect COR's target price by €0.89/sh considering a -90% change in the forecasted wine consumption.

Operational Risk | Availability of Resources (OR1)
The industry is completely dependent on the availability of a natural resource. Cork-oaks are not considered to be endangered, as the cork industry controls the harvest to ensure the continuity and maintenance of the trees. Additionally, there is enough cork to satisfy the demand for the following 100 years. Furthermore, harvesting cycles affect the quantity of bark extracted every year. As the amount supplied decreases, prices of cork will increase to reach the economic equilibrium. Cork is the main input for COR, meaning increasing costs of raw materials affect the profitability of the company. Therefore, the impact is high.

Market Risk | Substitutes (MR5)
The threat of the substitute products (screwcaps and synthetic stoppers) is decreasing in recent years by virtue of increasing consumer preferences toward cork stoppers (Figure 13). According to APCOR (2018), 90% of clients prefer cork-sealed wines. In many important wine markets, consumers are ready to pay a premium for wines sealed with cork ($3.87 in the US and $5.15 in China, according to Nielsen, 2017). Still, screwcaps have been growing in popularity in the wine closures market, experiencing +2.01% CAGR from 2011-2017. The market is expected to grow +3.2% CAGR from 2017-2023, in line with the expected growth in wine consumption. Its main producer, Guala, accounts for over 30% of the screwcaps market for wines and close to 7% of the total closures market (1.35B units). The company is the leader in Australia and New Zealand, where 70% and 93% of wines, respectively, are sealed with this aluminum alternative. Synthetic stoppers, however, have been losing their share during recent years (-4.03% CAGR from 2011-2017). Increasing environmental concerns and the bio trend impacted synthetic closures, with clients opting for eco-friendlier options. Its only representative, Nomacorc, sold 1.6B units in 2017, which is expected to decrease to 1.3B units in 2023 (-3.17% CAGR from 2017-2023). Besides screwcaps and synthetic stoppers, there is no evidence of a new substitute entering the market in the future.

Market Risk | Exchange rate risk (MR10)
Sales in non-euro currencies 2017YE accounted for 32.3% of total sales. The majority comes from the USA (18.5%) and the rest is scattered mainly in the rest of the Americas (7.2%) and Asia Pacific (5.9%). Raw material costs are mainly EUR denominated. In the last three years, only 3.5-6.5% of all cork purchases came from the non-euro countries. Part of the exchange rate risk is born in the non-euro investments in subsidiaries. The exchange rate had an overall negative effect on sales of €1.8M 2017YE. COR uses forwards and options to hedge the exchange rate risk. Derivative contracts are mainly used to hedge the exposure to the USD/EUR risk (more than 90% of the total hedged position).

Other relevant risks are detailed in Appendix 30.

Risks to Price Target
Wine Consumption: The growth rate for the Cork Stoppers BU sales due to changes in wine consumption is also stressed in a sensitivity analysis (Table 2). In an unlikely scenario where the trend of wine consumption stabilizes, our recommendation would change to a Sell.

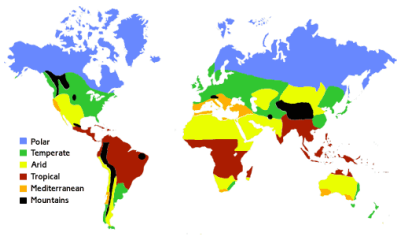
***Arroba* Price:** Considering the knowledge gathered in a survey that we conducted targeting the supply side, we forecast the price of cork in the range of prices recorded in 2016-2017. In our base case, we consider the price of raw materials to stabilize in 2021 at ~€33. Due to the price volatility, we tested some alternative scenarios to test COR's sensibility to costs. As expected, when *arroba's* price increases our TP will be reduced but with no significant impact, as the company can pass part of the costs to consumers through resetting prices (Table 11).

Terminal Growth Rate: A change in the growth rate for the terminal period would affect our recommendation, as it is a key variable in any DCF model. We considered a perpetual growth rate of 2.5%. If our conservative approach does not stand for the future, a decrease of 50 bps would result in a Hold recommendation, with an upside potential of 11%. Although we foresee such decreases as unlikely due to recent and historical growth patterns of this market leader company worldwide in the past 148 years (Table 12).

Monte Carlo Simulation
We performed a Monte Carlo simulation as a complementary analysis to our valuation. The average TP is €10.8/sh. As proved by the analysis, our model is most sensitive to changes in the price of raw materials, the terminal growth rate, and the wine consumption CAGR. This method provides a certainty of 79% to our BUY recommendation (Table 13).

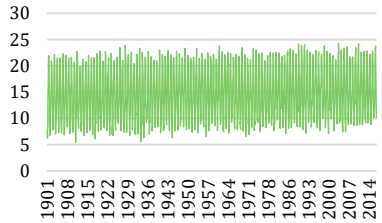
9. Temperature Forecast

Figure 32: World Climate



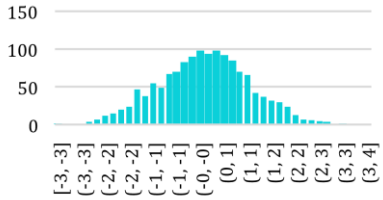
Source: Internet Geography

Figure 33: Average monthly temperature (1901-2016)



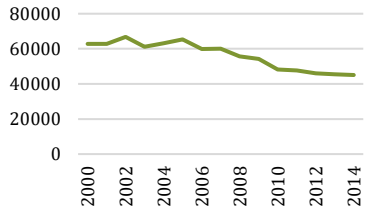
Source: World Bank Group (2019)

Figure 34: Histogram of the residuals of Fourier and Trend Model



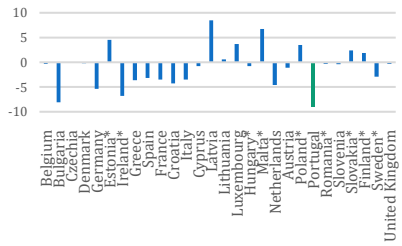
Source: Author Estimates

Figure 35: Portugal's CO_2 emissions in kt (kiloton)



Source: World Bank Group (2019)

Figure 36: Changes of GHGs emissions by country in EU (2018)



****It includes some Eurostat estimates***
Source: Eurostat (2019)

As mentioned before, Portugal is the country with the highest *Montado* area and is responsible for ~50% of cork production. COR dominates the production of cork stoppers not only at national but also at international level. As a result of that, COR is the biggest player among cork buyers, which allows them to control the majority of the *Montado*. COR stablished longstanding relations with producers and is known for being a trustful payer.

To ensure the best quality of their products, COR has a database with all the information related to the extraction of cork barks, namely, the producers, the time when cork was collected from the tree and also the type of cork. Mediterranean specific conditions, such as temperatures between -5ºC and 40ºC, rainfall from 400mm-800mm per year, presence of high level of potassium, low nitrogen and phosphorus, pH from 4.8 to 7 and altitude between 100m-300m are required to guarantee the sustainable growth of cork oaks and, consequently, their quality. (Figure 32)

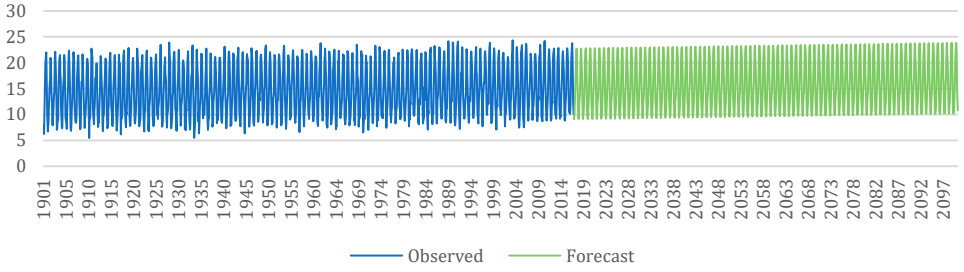
The increasing trend of temperature and the instability during each of the four seasons impacts the harvesting cycles and consequently the quality of cork. In this sense, the main focus of this chapter will be the study of the temperature in Portugal in the next decades considering the analysis of the temperatures from the beginning of the 20th century until 2016, since it is the most important factor in what concerns cork oaks growth.

Average monthly temperature (AMT[1]) shows cyclicality with a smooth upward trend since 1901 (Figure 33). This led to a decomposition of this historical time series in two parts, trend and cycles. First, the growing behavior of the variable was capture by a simple OLS regression[2]. Then, to represent the AMT's cyclicity it was required to model it according to Fourier Series in trigonometric representation (Appendix 35). The simplicity of combining trigonometric functions, such as sine and cosine, into a series to represent any infinite and periodic waves, i.e., sinusoidal waves, was very helpful to increase accuracy without losing the best approximation to cycles, such as heat waves. To reach the best model, a similar approach to the Box-Jenkins method was applied, i.e., running regressions in a statistical computing software R, studying the individually significance of the variables to the model and checking the explanatory degree of the regressors to reach the most suitable one – Fourier with Trend Model:

$$(1) \quad AMT_i = \beta_0 + \beta_1 * i + \sum_{n=1}^{5} a_n * \text{sen}(\omega * t) + \sum_{n=1}^{4} b_n * \cos(\omega * t) \qquad \omega = (2\pi)/12; i = 1, \dots, 2400; t = 1, \dots, 12$$

An adjusted R-Squared of 95.7% justifies the (almost) null differences between the observable and fitted vectors. The residuals can be approximated by a normal distribution with zero mean. (Figure 34)

After carefully choosing the final model that best explains AMT, the forecasts were obtained through punctual prediction given the data's nature because the aim of this chapter is to study the individual monthly temperature and not the AMT's future average value (average prediction). Obviously, this econometric model does not capture extreme unpredictable events, such as atypical hot (cold) air masses coming from Africa's desert (North Pole, North of Canada and Siberia)[3]. In this sense, these consequences derived from the global warming were included in the error term of the model. As a result of that, it is expected a smoother path of the temperatures and an absence of abnormal pikes from 2017 onwards:



Source: Author and WBG's estimates

Moreover, the estimates obtained with the Fourier with Trend Model are similar to the Medium-Low Emissions Scenario, one of four scenarios provided by the World Bank Group (WBG) database (Appendix 38). The reasons behind this selection is the decreasing of the CO_2 emissions since the begging of 21st century (Figure 35), the *Roteiro de Neutralidade Carbónica 2050* (RNC 2050) with green goals until 2050, and the Paris Agreement to limit the increase of temperature to 1.5ºC instead of 2ºC. On top of that, it is important to highlight that Portugal, in 2018, was able to decrease those emission in 9%. (Figure 36) The differences between these two scenarios are more intense in winter months. In this time period, the values achieved through the multiple regression are more undervalued, since that difference is on average -10%. Whereas, all the other months are in line with the expectations from the WBG's scenario mentioned above.

[1] All references to Temperature are in degrees Celsius.
[2] OLS regression stands for Ordinary Least Square regression.
[3] Portugal's climate is defined by those four air masses.

Table 14: The difference in absolute terms between the Fourier with Trend Model and Medium-Emissions Scenario

	2020-2039	2040-2059	2060-2079	2080-2099
January	-2.41	-2.12	-2.43	-2.53
February	-1.80	-1.65	-1.64	-1.42
March	-0.54	-0.22	-0.98	-0.74
April	-0.37	-0.81	-0.65	-0.57
May	0.35	-0.65	-0.21	0.19
June	-0.07	-0.80	-1.29	-0.69
July	-1.72	-2.37	-2.34	-2.27
August	-1.94	-2.41	-2.04	-2.05
September	-1.51	-1.44	-1.71	-1.91
October	-0.40	-1.00	-0.79	-0.86
November	-1.40	-2.06	-1.69	-1.96
December	-2.58	-2.47	-2.81	-2.58

Source: Author and WBG's estimates

Besides the expertise of the owners of *Montado* areas to decide when to extract the cork, the location of cork oaks plays a significant role to make the right decision. Minor factors like wind and droughts can pose challenges to producers of cork. Droughts were not considered in this study due to a solution found by COR called micro irrigation. This technique was developed according to the Forest Tree Intervention Program and it will be implemented on their first forest property, *Herdade da Baliza*. COR's motivation behind this action is to do a showcase of this technique to demonstrate the benefits of fertilization and irrigation on cork's quality.

According to the information available, the time period between May and August is the most appropriate to carry out that labor intensive task. However, the results found with the Fourier Model imply an early harvesting for the next decades, due to the increasing trend of temperature recorded in Portugal. After a deep analysis of the output, the harvesting process instead of starting in May, it will start in (mid) April and it will end in July instead of August. As a consequence of that, the buyers of cork barks may have to adapt their storage policy in the short/medium term.

The future AMTs suggest the maintenance of the leading position of Portugal in what concerns the *Montado* area. The trend verified through the econometric model will not be enough to affect abruptly the amount of cork oaks. It is expected that the market price of cork will depend only on the harvesting cycles instead of lifeless trees that would result in a sharper increase on the price. Thus, the cork supply will not be in danger until 2100 according to the results from the econometric model.

	OBSERVED VALUES						AVERAGE	FOURIER WITH TREND MODEL				AVERAGE
	1901-1919	1920-1939	1940-1959	1960-1979	1980-1999	2000-2016		2020-2039	2040-2059	2060-2079	2080-2099	
January	7.63	7.97	8.25	8.57	8.56	9.50	8.41	9.24	9.51	9.77	10.04	9.64
February	8.43	8.66	9.20	9.41	9.60	9.07	9.06	10.10	10.37	10.63	10.90	10.50
March	10.03	10.75	11.42	10.72	11.95	9.66	10.75	12.05	12.32	12.58	12.85	12.45
April	12.43	12.36	13.42	12.79	13.18	11.82	12.67	13.88	14.15	14.41	14.68	14.28
May	15.50	15.20	15.66	15.81	15.81	13.46	15.24	16.67	16.94	17.20	17.47	17.07
June	18.33	18.64	19.54	19.06	19.55	16.49	18.60	20.20	20.46	20.73	20.99	20.59
July	20.98	21.22	21.78	21.76	22.36	20.63	21.46	22.65	22.91	23.18	23.44	23.05
August	21.38	21.70	21.90	21.81	22.42	22.20	21.90	22.91	23.17	23.44	23.70	23.30
September	19.09	19.35	19.93	19.66	20.28	22.71	20.17	20.72	20.99	21.25	21.52	21.12
October	14.78	15.64	16.19	15.96	16.22	20.52	16.55	16.87	17.14	17.40	17.67	17.27
November	10.97	10.91	11.96	11.36	12.24	16.85	12.38	12.49	12.75	13.02	13.28	12.89
December	8.51	8.39	8.97	8.70	9.51	11.95	9.34	9.87	10.14	10.40	10.67	10.27

Source: Author and WBG's estimates

Appendices

Appendix 1: Statement of Financial Position (COR)

BALANCE	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 19F-23F
ASSETS	**667,219**	**726,873**	**869,407**	**952,190**	**978,626**	**1,018,705**	**1,059,292**	**1,089,546**	**1,131,617**	**3.7%**
NON-CURRENT ASSETS	223,690	231,723	274,180	302,200	309,750	316,078	322,552	335,046	341,562	2.5%
Property, plant and equipment	190,352	197,454	227,905	246,948	252,908	259,125	265,532	272,009	278,560	2.4%
Investment property	5,008	7,100	5,678	5,959	5,830	5,677	5,497	5,293	5,063	-3.5%
Agriculture	0	0	0	5,500	5,500	5,500	5,500	5,500	5,500	0.0%
Goodwill	0	0	9,848	13,933	13,933	13,933	13,933	19,933	19,933	9.4%
Investment in associates	13,304	9,450	11,006	11,394	11,394	11,394	11,394	11,394	11,394	0.0%
Intangible Assets	2,489	3,776	4,077	4,532	4,814	5,080	5,325	5,546	5,742	4.5%
Other financial assets	4,177	3,940	2,520	1,960	3,396	3,396	3,396	3,396	3,396	0.0%
Deferred tax assets	8,359	10,004	13,146	11,974	11,974	11,974	11,974	11,974	11,974	0.0%
CURRENT ASSETS	443,530	495,150	595,228	649,990	668,876	702,627	736,739	754,500	790,055	4.3%
Inventories	271,705	268,691	359,141	410,282	398,364	407,982	419,338	436,032	453,424	3.3%
Trade receivables	132,545	141,876	167,604	175,836	184,303	192,829	201,355	209,594	218,177	4.3%
Income tax assets	3,139	4,214	13,297	14,742	14,742	14,742	14,742	14,742	14,742	0.0%
Other current assets	28,678	29,249	38,180	37,563	37,563	37,563	37,563	37,563	37,563	0.0%
Cash and cash equivalents	7,461	51,119	17,005	11,567	33,904	49,511	63,741	56,569	66,149	18.2%
EQUITY + LIABLITIES	**667,219**	**726,873**	**869,407**	**952,190**	**978,626**	**1,018,705**	**1,059,292**	**1,089,546**	**1,131,617**	**3.7%**
EQUITY	354,133	426,943	459,991	502,876	529,211	561,367	592,648	629,633	658,143	5.6%
Share Capital	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	133,000	0.0%
Other Reserves	152,754	175,347	224,439	261,556	295,472	312,086	333,942	373,655	396,249	7.6%
Net Income	55,012	102,703	73,027	73,816	63,164	75,056	80,563	89,094	93,189	10.2%
Non-Controlling Interest	13,368	15,892	29,524	34,504	37,575	41,225	45,142	33,883	35,704	-1.3%
LIABILITIES	313,086	299,930	409,417	449,314	449,415	457,338	466,644	459,913	473,474	1.3%
Non-current liabilities	90,196	86,198	133,375	125,821	125,821	125,821	125,821	106,786	106,786	-4.0%
Interest-bearing loans	41,211	38,609	48,094	44,086	44,086	44,086	44,086	44,086	44,086	0.0%
Other borrowings and creditors	10,015	10,072	17,739	19,242	19,242	19,242	19,242	19,242	19,242	0.0%
Obligation to acquire N.C. interests	0	0	19,035	19,035	19,035	19,035	19,035	0	0	-100.0%
Provisions	32,227	30,661	41,320	36,838	36,838	36,838	36,838	36,838	36,838	0.0%
Deferred tax liabilities	6,743	6,856	7,187	6,620	6,620	6,620	6,620	6,620	6,620	0.0%
Current liabilities	222,890	213,732	276,042	323,493	323,594	331,517	340,823	353,127	366,688	3.2%
Interest-bearing loans	50,146	48,399	61,695	89,781	85,292	81,027	76,976	73,127	69,471	-5.0%
Trade payables	121,184	109,985	157,096	171,268	171,431	180,713	191,164	204,510	218,802	6.3%
Other borrowings and creditors	49,518	49,631	55,019	58,382	62,809	65,715	68,620	71,428	74,353	4.3%
Income tax liabilities	2,042	5,717	2,231	4,062	4,062	4,062	4,062	4,062	4,062	0.0%

BALANCE (Common Size)	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
ASSETS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
NON-CURRENT ASSETS	33.5%	31.9%	31.5%	31.7%	31.7%	31.0%	30.4%	30.8%	30.2%
Property, plant and equipment	28.5%	27.2%	26.2%	25.9%	25.8%	25.4%	25.1%	25.0%	24.6%
Investment property	0.8%	1.0%	0.7%	0.6%	0.6%	0.6%	0.5%	0.5%	0.4%
Agriculture	0.0%	0.0%	0.0%	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%
Goodwill	0.0%	0.0%	1.1%	1.5%	1.4%	1.4%	1.3%	1.8%	1.8%
Investment in associates	2.0%	1.3%	1.3%	1.2%	1.2%	1.1%	1.1%	1.0%	1.0%
Intangible Assets	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Other financial assets	0.6%	0.5%	0.3%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
Deferred tax assets	1.3%	1.4%	1.5%	1.3%	1.2%	1.2%	1.1%	1.1%	1.1%
CURRENT ASSETS	66.5%	68.1%	68.5%	68.3%	68.3%	69.0%	69.6%	69.2%	69.8%
Inventories	40.7%	37.0%	41.3%	43.1%	40.7%	40.0%	39.6%	40.0%	40.1%
Trade receivables	19.9%	19.5%	19.3%	18.5%	18.8%	18.9%	19.0%	19.2%	19.3%
Income tax assets	0.5%	0.6%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.3%
Other current assets	4.3%	4.0%	4.4%	3.9%	3.8%	3.7%	3.5%	3.4%	3.3%
Cash and cash equivalents	1.1%	7.0%	2.0%	1.2%	3.5%	4.9%	6.0%	5.2%	5.8%
EQUITY + LIABLITIES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EQUITY	53.1%	58.7%	52.9%	52.8%	54.1%	55.1%	55.9%	57.8%	58.2%
Share Capital	19.9%	18.3%	15.3%	14.0%	13.6%	13.1%	12.6%	12.2%	11.8%
Other Reserves	22.9%	24.1%	25.8%	27.5%	30.2%	30.6%	31.5%	34.3%	35.0%
Net Income	8.2%	14.1%	8.4%	7.8%	6.5%	7.4%	7.6%	8.2%	8.2%
Non-Controlling Interest	2.0%	2.2%	3.4%	3.6%	3.8%	4.0%	4.3%	3.1%	3.2%
LIABILITIES	46.9%	41.3%	47.1%	47.2%	45.9%	44.9%	44.1%	42.2%	41.8%
Non-current liabilities	13.5%	11.9%	15.3%	13.2%	12.9%	12.4%	11.9%	9.8%	9.4%
Interest-bearing loans	6.2%	5.3%	5.5%	4.6%	4.5%	4.3%	4.2%	4.0%	3.9%
Other borrowings and creditors	1.5%	1.4%	2.0%	2.0%	2.0%	1.9%	1.8%	1.8%	1.7%
Obligation to acquire N.C. interests	0.0%	0.0%	2.2%	2.0%	1.9%	1.9%	1.8%	0.0%	0.0%
Provisions	4.8%	4.2%	4.8%	3.9%	3.8%	3.6%	3.5%	3.4%	3.3%
Deferred tax liabilities	1.0%	0.9%	0.8%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%
Current liabilities	33.4%	29.4%	31.8%	34.0%	33.1%	32.5%	32.2%	32.4%	32.4%
Interest-bearing loans	7.5%	6.7%	7.1%	9.4%	8.7%	8.0%	7.3%	6.7%	6.1%
Trade payables	18.2%	15.1%	18.1%	18.0%	17.5%	17.7%	18.0%	18.8%	19.3%
Other borrowings and creditors	7.4%	6.8%	6.3%	6.1%	6.4%	6.5%	6.5%	6.6%	6.6%
Income tax liabilities	0.3%	0.8%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%

Appendix 2: Income Statement (COR)

INCOME STATEMENT	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 19F-23F
Sales	604,800	641,411	701,609	764,329	801,135	838,199	875,260	911,073	948,381	4.31%
COGS and changes in manufactured inv.	289,187	306,708	328,098	379,280	405,923	410,938	425,594	438,481	455,472	2.92%
Gross Value	**315,613**	**334,703**	**373,511**	**385,049**	**395,211**	**427,261**	**449,665**	**472,592**	**492,909**	**5.68%**
Third party supplies and services	100,537	103,001	116,524	120,996	126,505	132,358	138,210	143,865	149,756	4.31%
Staff costs	111,881	113,291	125,630	137,182	143,451	150,088	156,724	163,137	169,817	4.31%
Other costs and impairments	20,342	15,257	22,460	19,108	21,579	22,578	23,576	24,541	25,546	4.31%
Current EBITDA	**100,720**	**122,347**	**133,594**	**133,200**	**128,088**	**147,780**	**157,827**	**168,813**	**176,689**	**8.37%**
Depreciation	25,051	26,310	29,599	30,921	31,695	33,197	34,768	36,408	38,113	4.72%
Current EBIT	**75,669**	**96,037**	**103,995**	**102,279**	**96,394**	**114,583**	**123,059**	**132,405**	**138,577**	**9.50%**
Non-recurrent results	-2,904	-4,353	-2,913	681	0	0	0	0	0	n.a.
Financial Costs	2,139	1,646	1,471	2,564	2,270	2,265	2,322	2,403	2,491	2.34%
Others*	3,858	-34	1,230	2,249	242	253	264	275	286	
Gain on the disposal of associates	0	47,577	0	0	0	0	0	0	0	n.a.
Profit before tax	**73,066**	**142,592**	**100,842**	**102,645**	**94,365**	**112,570**	**121,001**	**130,277**	**136,372**	**9.64%**
Income tax	17,496	37,880	24,263	23,849	28,130	33,865	36,520	39,442	41,362	10.12%
Profit after tax	**55,570**	**104,713**	**76,579**	**78,796**	**66,235**	**78,706**	**84,481**	**90,835**	**95,010**	**9.44%**
Non-controlling interest	558	2,010	3,551	4,980	3,071	3,650	3,917	1,741	1,821	-12.25%
Net income - equity holders of COR	**55,012**	**102,703**	**73,027**	**73,816**	**63,164**	**75,056**	**80,563**	**89,094**	**93,189**	**10.21%**
EPS - Basic and Diluted (euros per share)	0.414	0.772	0.549	0.555	0.475	0.564	0.606	0.670	0.701	10.21%

* Includes Provisions, Financial Income and Share of (loss)/profit of associates

INCOME STATEMENT (Common Size)	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
COGS and changes in manufactured inv.	47.8%	47.8%	46.8%	49.6%	50.7%	49.0%	48.6%	48.1%	48.0%
Gross Value	**52.2%**	**52.2%**	**53.2%**	**50.4%**	**49.3%**	**51.0%**	**51.4%**	**51.9%**	**52.0%**
Third party supplies and services	16.6%	16.1%	16.6%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%
Staff costs	18.5%	17.7%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%
Other costs and impairments	3.4%	2.4%	3.2%	2.5%	2.7%	2.7%	2.7%	2.7%	2.7%
Current EBITDA	**16.7%**	**19.1%**	**19.0%**	**17.4%**	**16.0%**	**17.6%**	**18.0%**	**18.5%**	**18.6%**
Depreciation	4.1%	4.1%	4.2%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Current EBIT	**12.5%**	**15.0%**	**14.8%**	**13.4%**	**12.0%**	**13.7%**	**14.1%**	**14.5%**	**14.6%**
Non-recurrent results	-0.5%	-0.7%	-0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Financial Costs	0.4%	0.3%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Others*	0.6%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Gain on the disposal of associates	0.0%	7.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Profit before tax	**12.1%**	**22.2%**	**14.4%**	**13.4%**	**11.8%**	**13.4%**	**13.8%**	**14.3%**	**14.4%**
Income tax	2.9%	5.9%	3.5%	3.1%	3.5%	4.0%	4.2%	4.3%	4.4%
Profit after tax	**9.2%**	**16.3%**	**10.9%**	**10.3%**	**8.3%**	**9.4%**	**9.7%**	**10.0%**	**10.0%**
Non-controlling interest	0.1%	0.3%	0.5%	0.7%	0.4%	0.4%	0.4%	0.2%	0.2%
Net income - equity holders of COR	**9.1%**	**16.0%**	**10.4%**	**9.7%**	**7.9%**	**9.0%**	**9.2%**	**9.8%**	**9.8%**

Appendix 3: Cash-Flow Statement (COR)

CASH FLOW STATEMENT	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 19F-23F
OPERATING ACTIVITIES	89,867	69,285	38,284	62,295	107,999	107,958	114,782	120,590	126,570	4.0%
EBIT	75,669	96,037	103,995	102,279	96,394	114,583	123,059	132,405	138,577	9.5%
Taxes	-17,496	-37,880	-24,263	-23,849	-28,130	-33,865	-36,520	-39,442	-41,362	10.1%
Adjustments for non-cash charges										
Depreciation (PP&E)	25,051	26,310	29,599	29,593	30,137	31,550	33,029	34,573	36,181	4.7%
Depreciation of investment property	0	0	0	419	828	854	879	905	930	2.9%
Amortization of other intangibles	0	0	0	908	729	793	860	930	1,002	8.3%
Deferred taxes	1,651	1,645	3,142	-1,172	0	0	0	0	0	n.a.
Changes in operating assets and liabilities										
Accounts receivable	-9,939	-9,331	-25,728	-8,232	-8,467	-8,527	-8,526	-8,239	-8,583	0.3%
Inventory	-24,072	3,014	-90,450	-51,141	11,918	-9,618	-11,356	-16,695	-17,392	n.a.
Prepaid expenses & Other assets	-3,911	-1,646	-18,014	-828	0	0	0	0	0	n.a.
Accounts payable	5,881	-11,199	47,111	14,172	163	9,282	10,451	13,346	14,292	206.0%
Other liabilities	37,033	2,335	12,892	145	4,427	2,906	2,906	2,808	2,925	-9.8%
INVESTMENT ACTIVITIES	-31,395	-33,576	-43,740	-55,519	-37,809	-39,525	-41,242	-61,936	-44,629	4.2%
CAPEX PP&E	-31,395	-33,576	-43,740	-48,637	-36,097	-37,767	-39,437	-41,050	-42,731	4.3%
Investment in Intangible Assets	0	0	0	-1,363	-1,012	-1,059	-1,105	-1,151	-1,198	4.3%
Investment in Investment Properties	0	0	0	-700	-700	-700	-700	-700	-700	0.0%
Obligation to acquire Bourrassé	0	0	0	0	0	0	0	-19,035	0	
Other investments	0	0	0	681	0	0	0	0	0	
Herdade da Baliza	0	0	0	-5,500	0	0	0	0	0	
FINANCIAL ACTIVITIES	-58,296	-35,027	-3,992	-12,214	-47,853	-52,827	-59,309	-65,827	-72,361	10.9%
Dividends paid	-51,205	-31,920	-34,580	-35,910	-39,900	-46,550	-53,200	-59,850	-66,500	13.6%
Debt issuances/repayments	-2,237	-4,349	22,781	24,078	-4,489	-4,265	-4,051	-3,849	-3,656	-5.0%
Financial Result	-2,790	948	-1,280	-2,445	-2,028	-2,012	-2,058	-2,128	-2,204	2.1%
Other financing items	-2,064	294	9,087	2,063	-1,436	0	0	0	0	-100.0%
Change in cash & cash equivalents	176	682	-9,448	-5,438	22,337	15,606	14,231	-7,173	9,580	-19.1%
Beginning cash	6,036	7,461	51,119	17,005	11,567	33,904	49,511	63,741	56,569	48.7%
Ending cash	6,212	8,143	41,671	11,567	33,904	49,511	63,741	56,569	66,149	18.2%

CASH FLOW STATEMENT (Common-Size)	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
OPERATING ACTIVITIES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
EBIT	84.2%	138.6%	271.6%	164.2%	89.3%	106.1%	107.2%	109.8%	109.5%
Taxes	-19.5%	-54.7%	-63.4%	-38.3%	-26.0%	-31.4%	-31.8%	-32.7%	-32.7%
Adjustments for non-cash charges	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Depreciation (PP&E)	27.9%	38.0%	77.3%	47.5%	27.9%	29.2%	28.8%	28.7%	28.6%
Depreciation of investment property	0.0%	0.0%	0.0%	0.7%	0.8%	0.8%	0.8%	0.8%	0.7%
Amortization of other intangibles	0.0%	0.0%	0.0%	1.5%	0.7%	0.7%	0.7%	0.8%	0.8%
Deferred taxes	1.8%	2.4%	8.2%	-1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Changes in operating assets and liabilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Accounts receivable	-11.1%	-13.5%	-67.2%	-13.2%	-7.8%	-7.9%	-7.4%	-6.8%	-6.8%
Inventory	-26.8%	4.4%	-236.3%	-82.1%	11.0%	-8.9%	-9.9%	-13.8%	-13.7%
Prepaid expenses & Other assets	-4.4%	-2.4%	-47.1%	-1.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Accounts payable	6.5%	-16.2%	123.1%	22.7%	0.2%	8.6%	9.1%	11.1%	11.3%
Other liabilities	41.2%	3.4%	33.7%	0.2%	4.1%	2.7%	2.5%	2.3%	2.3%
INVESTMENT ACTIVITIES	-34.9%	-48.5%	-114.3%	-89.1%	-35.0%	-36.6%	-35.9%	-51.4%	-35.3%
CAPEX PP&E	-34.9%	-48.5%	-114.3%	-78.1%	-33.4%	-35.0%	-34.4%	-34.0%	-33.8%
Investment in Intangible Assets	0.0%	0.0%	0.0%	-2.2%	-0.9%	-1.0%	-1.0%	-1.0%	-0.9%
Investment in Investment Properties	0.0%	0.0%	0.0%	-1.1%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%
Obligation to acquire Bourrassé	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-15.8%	0.0%
Other investments	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Herdade da Baliza	0.0%	0.0%	0.0%	-8.8%	0.0%	0.0%	0.0%	0.0%	0.0%
FINANCIAL ACTIVITIES	-64.9%	-50.6%	-10.4%	-19.6%	-44.3%	-48.9%	-51.7%	-54.6%	-57.2%
Dividends paid	-57.0%	-46.1%	-90.3%	-57.6%	-36.9%	-43.1%	-46.3%	-49.6%	-52.5%
Debt issuances/repayments	-2.5%	-6.3%	59.5%	38.7%	-4.2%	-4.0%	-3.5%	-3.2%	-2.9%
Financial Result	-3.1%	1.4%	-3.3%	-3.9%	-1.9%	-1.9%	-1.8%	-1.8%	-1.7%
Other financing items	-2.3%	0.4%	23.7%	3.3%	-1.3%	0.0%	0.0%	0.0%	0.0%
Change in cash & cash equivalents	0.2%	1.0%	-24.7%	-8.7%	20.7%	14.5%	12.4%	-5.9%	7.6%
Beginning cash	6.7%	10.8%	133.5%	27.3%	10.7%	31.4%	43.1%	52.9%	44.7%
Ending cash	6.9%	11.8%	108.8%	18.6%	31.4%	45.9%	55.5%	46.9%	52.3%

Appendix 4: Key Financial Ratios

KEY FINANCIAL RATIOS	Units	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
Liquidity Ratios										
Current Ratio	times	1.99	2.32	2.16	2.01	2.07	2.12	2.16	2.14	2.15
Quick Ratio	times	0.77	1.06	0.86	0.74	0.84	0.89	0.93	0.90	0.92
Cash Ratio	times	0.03	0.24	0.06	0.04	0.10	0.15	0.19	0.16	0.18
Efficiency Ratios										
Total Assets Turnover	times	0.94	0.92	0.88	0.84	0.83	0.84	0.84	0.85	0.85
Receivables Turnover	times	4.74	4.67	4.53	4.45	4.45	4.45	4.44	4.43	4.43
Collection Period (DSO)	days	77	78	81	82	82	82	82	82	82
Inventory Turnover	times	1.18	1.09	1.06	1.04	1.00	1.02	1.03	1.03	1.02
Days in Inventory (DIO)	days	308	335	344	350	364	358	355	356	356
Payables Turnover	times	2.60	2.55	2.49	2.44	2.37	2.33	2.29	2.22	2.15
Payables Period (DPO)	days	140	143	146	149	154	156	159	165	170
Operating Cycle	days	385	413	425	432	446	440	437	438	439
Cash Cycle	days	245	270	278	283	292	284	277	274	269
CAPEX/Dep	times	1.25	1.28	1.48	1.57	1.17	1.17	1.17	1.16	1.15
CAPEX/Sales	%	5.2%	5.2%	6.2%	6.5%	4.6%	4.6%	4.6%	4.6%	4.6%
PP&E/sales	%	31.5%	30.8%	32.5%	32.3%	31.6%	30.9%	30.3%	29.9%	29.4%
Operating Costs/Sales	%	38.5%	36.1%	37.7%	36.3%	36.4%	36.4%	36.4%	36.4%	36.4%
NWC/Sales	%	43.5%	43.5%	52.6%	53.6%	50.2%	48.7%	47.4%	46.5%	45.6%
Profitability Ratios										
Gross Profit Margin	%	52.2%	52.2%	53.2%	50.4%	49.3%	51.0%	51.4%	51.9%	52.0%
EBITDA Margin	%	16.7%	19.1%	19.0%	17.4%	16.0%	17.6%	18.0%	18.5%	18.6%
EBIT Margin	%	12.5%	15.0%	14.8%	13.4%	12.0%	13.7%	14.1%	14.5%	14.6%
Net Profit Margin	%	9.1%	16.0%	10.4%	9.7%	7.9%	9.0%	9.2%	9.8%	9.8%
ROA	%	8.6%	14.7%	9.1%	8.1%	6.5%	7.5%	7.8%	8.3%	8.4%
ROCE	%	17.0%	18.7%	17.5%	16.3%	14.7%	16.7%	17.1%	18.0%	18.1%
ROC	%	12.9%	13.7%	13.9%	12.3%	10.3%	11.7%	12.0%	12.4%	12.5%
ROE	%	16.4%	26.3%	16.5%	15.3%	12.2%	13.8%	14.0%	14.6%	14.5%
EPS	€/unit	0.41	0.77	0.55	0.56	0.47	0.56	0.61	0.67	0.70
SG&A/Sale	%	18.5%	17.7%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%
Solvency Ratios										
Long- and short-term Debt Ratio	%	13.7%	12.0%	12.6%	14.1%	13.2%	12.3%	11.4%	10.8%	10.0%
Long-term Debt Ratio	%	6.2%	5.3%	5.5%	4.6%	4.5%	4.3%	4.2%	4.0%	3.9%
Debt to Equity Ratio	times	0.26	0.20	0.24	0.27	0.24	0.22	0.20	0.19	0.17
Equity Multiplier	times	1.88	1.70	1.89	1.89	1.85	1.81	1.79	1.73	1.72
Debt to EBITDA	times	0.91	0.71	0.82	1.01	1.01	0.85	0.77	0.69	0.64
Net Debt to EBITDA	times	0.83	0.29	0.69	0.92	0.75	0.51	0.36	0.36	0.27
Interest Coverage Ratio	times	35.38	58.35	70.70	39.89	42.46	50.58	52.99	55.10	55.64
Equity to Assets	%	53.1%	58.7%	52.9%	52.8%	54.1%	55.1%	55.9%	57.8%	58.2%

Source: *Company data & Team estimates*

Appendix 5: Income Statement Assumptions

INCOME STATEMENT	Notes	2019F	2020F	2021F	2022F	2023F	TV	Assumptions
SALES								
Raw Materials BU	Raw Materials as % of Cork Stoppers Sales	34.93%	34.18%	33.43%	32.68%	31.93%		Raw Material Sales were estimated as % of Cork Stoppers Sales. In 2019, it was assumed a % equal to the average Raw Materials Sales to Cork Stopper Sales (2012-17). Thereafter, the mentioned percentage decreases 75 bps YoY, reflecting the expected increase in the average selling price of cork stoppers (+100 bps YoY).
Cork Stoppers BU	Total expected growth YoY	6.05%	6.05%	5.54%	5.04%	5.04%		Cork Stopper Sales in t = Volume of Cork Stoppers sold in t * Average Selling Price in t. The Volume of Cork Stoppers sold is expected to grow at 4-5% YoY, bolstered by increasing preference for this type of closure. The Average Selling Price per Cork Stopper is estimated to increase +100 bps YoY as consumer preferences are shifting towards more expensive wines which require pricier Cork Stoppers.
	Volume sold (in billions)	5.95	6.25	6.53	6.79	7.07		
	Average Selling Price per cork stopper (in €)	0.095	0.096	0.097	0.098	0.099		
	Overall YoY	-0.40%	1.60%	3.10%	3.60%	3.60%		
Floor & Wall Coverings BU	Global Construction Industry CAGR	3.60%	3.60%	3.60%	3.60%	3.60%		The Floor & Wall Coverings BU is expected to grow at the Global Construction Industry CAGR 2018-22. Nonetheless, as the BU has been experiencing some operational issues related to cost management and low revenue production, it was assumed that in the period 2019-21, sales would grow at a YoY rate lower than the abovementioned CAGR, gradually recovering over time.
	Discount for BU problems	4.00%	2.00%	0.50%	0.00%	0.00%		
Composite Cork BU		1.89%	1.89%	1.89%	1.89%	1.89%		Historical Composite Cork BU CAGR 2012-17.
Insulation Cork BU	Global Construction Industry CAGR	3.60%	3.60%	3.60%	3.60%	3.60%		Insulation Cork BU is engaged in the production of insulation agglomerates destined to the Construction Industry at a worldwide level. It will grow at the Global Construction Industry CAGR 2018-22.
Holding	Sales of the Holding as % of Total Sales of the BUs			0.46%				Average Holding as % of the 5 BUs' Sales (2012-17).
Adjustment	Adjustment as % of Total Sales of the BUs			20%				An adjustment is carried out to eliminate sales within BUs as well as amounts that are not allocated to a given BU. Computed as % of Total Sales of the BUs, assuming a constant value of 20% based on the Average Adjustment to Total Sales of the 5 BUs (2012-17).
COGS								
COGS	COGS as % of Total Sales	49.03%	49.03%	49.03%	48.53%	48.03%		COGS in t are related to the cork purchased in t-1, reflecting, therefore, the price per *arroba* of the previous year. It was computed as % of Total Sales and considering the effect of changes in *arroba* price on COGS. From 2019F to 2021F we used the historical average COGS/Sales between 2012-17. From 2022F onwards, we applied a discount factor of 0.5% to the historical average since the Average Selling Price of Cork Stoppers is increasing over time and the *arroba* price is expected to stabilize.
	@ Price	34.20	33.50	33.00	33.00	33.00		
	Change in @ price	-10.00%	-2.05%	-1.49%	0.00%	0.00%		
Δ Manufactured Inventories		0.00%	0.00%	0.00%	0.00%	0.00%		As mentioned during the conference call on Dec 18, 2018, the company produces by order. Therefore, we assumed changes in manufactured inventories to be zero.
OPEX								
Third party supplies and services	TPSS as % of Total Sales	15.79%	15.79%	15.79%	15.79%	15.79%		Computed as % of Sales assuming a constant % equal to the one in 2018F.
Staff costs	Staff Costs as % of Total Sales	17.91%	17.91%	17.91%	17.91%	17.91%		Computed as % of Sales assuming a constant % equal to the one in 2018F.
Impairment of assets		0.00%	0.00%	0.00%	0.00%	0.00%		We considered that impairments will be 0 as of 2019. Hard to predict.
Other gains	Other gains as % of Total Sales	1.52%	1.52%	1.52%	1.52%	1.52%		Average of Other Gains as % of Total Sales (2012-17).
Other costs	Other costs as % of Total Sales	1.17%	1.17%	1.17%	1.17%	1.17%		Average of Other Costs as % of Total Sales (2012-17).
D&A								
PP&E Depreciation Rate				3.92%				Average of Depreciation Rate (2012-17).
Investment Property Depreciation Rate				6.30%				Average of Depreciation Rate (2012-17).
Intangible Assets Amortization Rate				3.63%				Average of Amortization Rate (2012-17).
Financial Result								
Interest Costs and other financial costs	Cost of debt	1.70%	1.75%	1.86%	1.99%	2.13%	3.31%	Interest Costs and Other Financial Costs = Total Interest-Bearing Loans in t-1 * Cost of debt in t.
Provisions		0.00%	0.00%	0.00%	0.00%	0.00%		As in 3Q2018 provisions were 0, the team assumed that no further provisions will be recognized in the coming years. Hard to predict.
Financial Income		0.03%	0.03%	0.03%	0.03%	0.03%		Median of Financial Income as % of Sales (2012-17).
Other								
Non-recurrent Results		0	0	0	0	0		In the forecasted years, nonrecurrent results are assumed to be 0. Hard to predict.
Share of loss/profit in associates		0	0	0	0	0		Depends on the profitability of subsidiary companies, therefore the team assumed a value of 0 in the coming years. Hard to predict.
Gain on the disposal of associates		0	0	0	0	0		The amount recorded in 2015 is related to the disposal of US Floors. No further disposals of associates are expected to occur in the coming years, therefore the team assumed that this item will be 0 throughout the forecasted period.
Non-controlling interest (NCI)		4.64%	4.64%	4.64%	1.92%	1.92%		In the first 3 forecasted years, NCI was computed as Profit after Tax * % NCI on Profit after Tax in 2017. As of 2022, the percentage allocated to NCI decreases to the average of NCI as % of Profit after Tax (2012-16) as a consequence of the acquisition of the additional ownership stake of *Bourrassé.*
Taxes								
Tax Rate	Effective	29.81%	30.08%	30.18%	30.28%	30.33%	30.33%	Effective Tax Rate considering the Portuguese Legal Tax Rate, State Surcharge Rate and Municipal Tax Rate. Source: PWC Tax Guide 2018. The tax rate in the terminal period is equal to the one in 2023F. Appendix 2.
	Legal Tax Rate	21.00%	21.00%	21.00%	21.00%	21.00%	21.00%	
	Municipal Surcharge Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	

Appendix 6: Statement of Financial Position Assumptions

BALANCE SHEET	Notes	2019F	2020F	2021F	2022F	2023F	Assumptions
Non-current Assets							
Total CAPEX		4.63%	4.63%	4.63%	4.63%	4.63%	Total CAPEX is estimated as % of Sales, assuming a constant rate of 4.63% based on the 4Y (2012-16) historical average CAPEX/Sales ratio. Appendix 11.
Property, plant and equipment	% of Total CAPEX	97.27%	97.27%	97.27%	97.27%	97.27%	PP&E in t = PP&E in t-1 + Investment in PP&E - Depreciation in t. Investment in PP&E in t represents 97.27% of Total CAPEX. Appendix 11.
Investment property	YoY Investment	700	700	700	700	700	Inv. Properties in t = Inv. Properties in t-1 + Investment in Inv. Properties in t - Depreciation in t. Investment in Inv. Properties are estimated to be € 700 YoY. Appendix 11.
Agriculture				5,500			In 4Q2018, COR acquired *Herdade da Baliza* for € 5.5M, representing the company's first investment in a forest property. According to information provided by the company, such property will function as a showcase rather than being used for production. *Herdade da Baliza* was recorded at its acquisition cost and no goodwill was considered. In the forecasted period 2019-23, the value is assumed to remain equal to the one in 2018.
Goodwill		0	0	0	6,000	0	Equal to the nominal value of 2018 in the first 3 years. In 2022, the company will acquire the remaining 40% of *Bourrassé* and recognize € 6M in goodwill. Goodwill in 2023 is the same as in 2022. No further acquisitions are expected. Appendix 10.
Investment in associates		0	0	0	0	0	Related to entities in which COR has a stake and through which the group operates, acting as distribution channels. Investment in associates in t = Investment in Associates in t-1 + Share of (loss)/profit of associates in t + Gain on the disposal of associates in t.
Intangible Assets	% of Total CAPEX	2.73%	2.73%	2.73%	2.73%	2.73%	Intangible Assets = Intangible Assets in t-1 + Investment in Intangibles in t - Amortization in t. Investment in Intangibles in t represents 2.73% of Total CAPEX. Appendix 11.
Other financial assets		3,396	3,396	3,396	3,396	3,396	Consists mostly of available-for-sale equity instruments. In the forecasted period, it was assumed a value equal to the 5Y (2012-17) historical average, which is expected to remain constant throughout the years.
Deferred tax assets		0	0	0	0	0	Equal to the 2018F nominal value.
Current Assets							
Inventories	Expected quantity of *arroba* purchased	11,317	11,840	12,364	12,870	13,397	Appendix 9.
	Δ Manufactured Inventories	0	0	0	0	0	
	Historical Avg Goods & Advances (2012-17)	11,329	11,329	11,329	11,329	11,329	
Trade receivables		1.05	1.05	1.04	1.04	1.04	It will grow according to Sales growth YoY. Trade Receivables in t = Trade Receivables in t-1 * (1+ Δ% Sales in t).
Income tax assets		0	0	0	0	0	Equal to the 2018F nominal value.
Other current assets		0	0	0	0	0	Equal to the 2018F nominal value.
Equity							
Share Capital		0	0	0	0	0	No share issue is expected. Equal to the 2018FY nominal value.
Other Reserves		0	0	0	19,000	0	Other Reserves in t = Other Reserves in t-1 + Net income in t-1 - Dividends paid in t. In 2022F, € 19M are added back as a result of the acquisition of the remaining ownership stake. Appendix 10.
Non-Controlling Interest		0	0	0	-13,000	0	Appendix 10.
Non-current liabilities							
Interest-bearing loans		0.00%	0.00%	0.00%	0.00%	0.00%	Debt is assumed to be constant from 2018F onwards.
Other borrowings and creditors		0.00%	0.00%	0.00%	0.00%	0.00%	Equal to the 2018F nominal value.
Obligation to acquire N.C. interests		0.00	0.00	0.00	-19,035	0.00	Appendix 10.
Provisions		0.00%	0.00%	0.00%	0.00%	0.00%	Equal to the 2018F nominal value.
Deferred tax liabilities		0.00%	0.00%	0.00%	0.00%	0.00%	Equal to the 2018F nominal value.
Current liabilities							
Interest-bearing loans		-5.00%	-5.00%	-5.00%	-5.00%	-5.00%	Strong operating cash flow enables a debt repayment of 5% YoY.
Trade payables		1.00	1.05	1.06	1.07	1.07	Trade Payables in t = Trade Payables in t-1 * (1+ Δ% Inventories in t + 3%). The extra factor added corresponds to the power over suppliers of cork.
Other borrowings and creditors		7.84%	7.84%	7.84%	7.84%	7.84%	Composed mostly of VAT and accrued costs related to staff and services. Historical Average of Other Borrowings and Creditors to Sales (2012-17).
Income tax liabilities		0.00%	0.00%	0.00%	0.00%	0.00%	Equal to the 2018F nominal value.

Appendix 7: Sales breakdown by BU

The **Raw Materials BU** sales are predominantly within the Group, with the Cork Stoppers BU representing the largest buyer. Having this in mind, Raw Material Sales were estimated as a % of Cork Stoppers Sales. In 2019, it was assumed to be a % equal to the average Raw Materials Sales to Cork Stopper Sales (2012-17). Thereafter, the mentioned percentage decreases 75 bps YoY, reflecting the expected increase in the average selling price of cork stoppers (+100 bps YoY) due to changing consumer preferences toward premium wines.
The **Cork Stoppers BU** is directly related to the wine consumption. We assumed that the wine closures industry will grow at the same pace as wine consumption (3.23% CAGR 2018-2023). Wineries forecast the amount of bottled wine based on the consumption, as it is stable and historically below total production. Increasing consumer preferences toward cork and the shift in wine preferences to premium wines allow the cork stoppers industry to grow above the closures market at +4% CAGR from 2018F-23F. COR's competitive positioning, combined with the investment in CAPEX, will enable the company to keep growing organically and reinforce its position as the market leader. In the forecasted period, Cork Stoppers Sales were estimated as:

(2) $$Cork\ Stoppers\ Sales = Volume\ of\ Cork\ Stoppers\ sold * Average\ Selling\ Price$$

The $Volume\ of\ Cork\ Stoppers\ sold$ will grow at an above average rate of 4-5% YoY, reflecting the acquisition of Bourrassé as well as increasing demand for this closure. The $Average\ Selling\ Price$, on the other hand, is projected to increase 100 bps YoY as consumer preferences are shifting towards more expensive wines which require pricier Cork Stoppers.

The **Floor & Wall Coverings BU** supplies products to the construction industry, therefore it is expected to grow at +3.6% CAGR from 2018-22 of the Construction Industry. Nonetheless, as this BU has been experiencing some operational issues related to cost management and low revenue production (Sales decreased -7.7% in 9M2018 compared to the homologous period), we assumed that in the period 2019-21 sales would grow at a YoY rate lower than the abovementioned CAGR, gradually recovering over time. The newly changed management coupled with a continuous investment in R&D to launch cutting edge products is expected to prompt the recovery of the BU.
The **Composite BU** is present in 25 different sectors, from construction to footwear. In the kickoff meeting (16th November 2018) was mentioned that this BU was created for brand-awareness. In this sense, we assumed a conservative approach for the forecasted period by using the historical CAGR 2012-17 of this BU.
The **Insulation BU** will grow at the same pace as the construction industry (+3.6% CAGR 2018F-23F).

Sales Breakdown	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
Raw Materials	**135,437**	**148,634**	**156,074**	**177,744**	**198,425**	**205,911**	**212,559**	**218,263**	**224,001**
YoY	3.1%	9.7%	5.0%	13.9%	11.6%	3.8%	3.2%	2.7%	2.6%
% Total Sales	22.4%	23.2%	22.2%	23.3%	24.8%	24.6%	24.3%	24.0%	23.6%
Cork Stoppers	**392,825**	**422,766**	**477,058**	**535,733**	**568,145**	**602,518**	**635,927**	**667,978**	**701,644**
YoY	9.9%	7.6%	12.8%	12.3%	6.1%	6.1%	5.5%	5.0%	5.0%
% Total Sales	65.0%	65.9%	68.0%	70.1%	70.9%	71.9%	72.7%	73.3%	74.0%
F&W Coverings	**109,843**	**117,128**	**121,536**	**112,964**	**112,512**	**114,312**	**117,856**	**122,099**	**126,495**
YoY	-5.6%	6.6%	3.8%	-7.1%	-0.4%	1.6%	3.1%	3.6%	3.6%
% Total Sales	18.2%	18.3%	17.3%	14.8%	14.0%	13.6%	13.5%	13.4%	13.3%
Composites	**99,980**	**100,085**	**98,777**	**102,776**	**104,719**	**106,698**	**108,715**	**110,770**	**112,863**
YoY	18.6%	0.1%	-1.3%	4.0%	1.9%	1.9%	1.9%	1.9%	1.9%
% Total Sales	16.5%	15.6%	14.1%	13.4%	13.1%	12.7%	12.4%	12.2%	11.9%
Insulation	**10,040**	**11,440**	**10,589**	**11,557**	**11,973**	**12,404**	**12,851**	**13,313**	**13,793**
YoY	0.3%	13.9%	-7.4%	9.1%	3.6%	3.6%	3.6%	3.6%	3.6%
% Total Sales	1.7%	1.8%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Holding&Adjustment	**-143,325**	**-158,641**	**-162,425**	**-176,445**	**-194,640**	**-203,645**	**-212,649**	**-221,350**	**-230,414**
YoY	3.1%	10.7%	2.4%	8.6%	10.3%	4.6%	4.4%	4.1%	4.1%
% Total Sales	-23.7%	-24.7%	-23.2%	-23.1%	-24.3%	-24.3%	-24.3%	-24.3%	-24.3%

Appendix 8: EBITDA margin per BU

EBITDA Margin	2015	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
Raw Materials	**16,988**	**18,328**	**22,375**	**30,577**	**22,916**	**26,224**	**27,687**	**29,213**	**30,145**
EBITDAm	12.5%	12.3%	14.3%	17.2%	11.5%	12.7%	13.0%	13.4%	13.5%
Contribution	16.9%	15.0%	16.7%	23.0%	17.9%	17.7%	17.5%	17.3%	17.1%
Cork Stoppers	**62,753**	**75,604**	**91,350**	**95,390**	**88,879**	**103,938**	**112,199**	**121,101**	**127,903**
EBITDAm	16.0%	17.9%	19.1%	17.8%	15.6%	17.3%	17.6%	18.1%	18.2%
Contribution	62.3%	61.8%	68.4%	71.6%	69.4%	70.3%	71.1%	71.7%	72.4%
F&W Coverings	**8,173**	**12,732**	**8,284**	**3,320**	**7,570**	**8,481**	**8,943**	**13,554**	**14,119**
EBITDAm	7.4%	10.9%	6.8%	2.9%	6.7%	7.4%	7.6%	11.1%	11.2%
Contribution	8.1%	10.4%	6.2%	2.5%	5.9%	5.7%	5.7%	8.0%	8.0%
Composites	**14,585**	**16,989**	**15,010**	**10,315**	**14,031**	**15,765**	**16,428**	**15,270**	**15,644**
EBITDAm	14.6%	17.0%	15.2%	10.0%	13.4%	14.8%	15.1%	13.8%	13.9%
Contribution	14.5%	13.9%	11.2%	7.7%	11.0%	10.7%	10.4%	9.0%	8.9%
Insulation	**1,241**	**2,157**	**1,680**	**1,047**	**995**	**1,137**	**1,205**	**1,282**	**1,336**
EBITDAm	12.4%	18.9%	15.9%	9.1%	8.3%	9.2%	9.4%	9.6%	9.7%
Contribution	1.2%	1.8%	1.3%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Holding&Adjustment	**-3,022**	**-3,465**	**-5,107**	**-7,450**	**-6,304**	**-7,766**	**-8,636**	**-11,610**	**-12,459**
Contribution	-3.0%	-2.8%	-3.8%	-5.6%	-4.9%	-5.3%	-5.5%	-6.9%	-7.1%

Appendix 9: Inventories

Inventories are composed of Raw Materials, Finished and Semi-Finished Goods, Work in Progress, By-Products, Goods and Advances. Historically, non-cork products (Goods and Advances) averaged €11.3M. To estimate the inventories related to cork products, we used purchases as a proxy. As mentioned during the conference call, the company produces by order. Therefore, we assumed changes in manufactured inventories to be zero. In this sense, we forecasted the amount of *arroba* needed based on the previous year amount which will grow at the same pace as sales.

(3) $$Inventories_t = Quantity\ of\ Arroba_t * Arroba\ price_t + Avg.Goods\&Advances + \Delta Manufactured\ Inventories$$

(4) $$Quantity\ of\ Arroba_t = Quantity\ of\ Arroba_{t-1} * \left(1 + \frac{Sales_t - Sales_{t-1}}{Sales_t}\right)$$

Appendix 10: Consolidation of *Bourrassé's* acquisition in COR's Financial Statements

On July 2017, COR announced the acquisition of *Bourrassé*, a French company engaged in the production of cork stoppers. Under the terms of the agreement, COR first acquired 60% of *Bourrassé's* capital in 2017, while the additional 40% ownership is expected to be acquired by 2022.

As there is no publicly available information on the exact date in which the remaining stake will be acquired, it was assumed that the acquisition would take place in 2022. It is our belief that COR will opt to finalize the deal in 2022 as in this way it will make use of *Bourrassé's* profits from the years in-between to acquire the additional share of ownership. Upon the acquisition of the 60% of capital, the acquiree's net assets and liabilities were consolidated within the Group. Additionally, it was recorded: (1) a Financial Liability of € 19M as a result of the agreement to acquire the remaining 40%, (2) Non-Controlling Interests in the amount of €13M and (3) a counterbalancing €19M decrease in "Other Reserves". In 2022, the abovementioned items are reversed as COR now holds 100% of *Bourrassé*.

Appendix 11: COR's CAPEX

Total CAPEX, as defined by the company, encompasses Investment in PP&E and Intangibles. As disclosed in the kick-off meeting, the company invested €50M in 2018YE in Total CAPEX, of which €35M were employed to increase the production capacity of the Cork Stoppers BU, at that time operating at full capacity. From 2019 onwards, Total CAPEX is estimated as % of Sales, assuming a constant rate of 4.63% based on the historical average (2012-16) Total CAPEX-to-Sales ratio. In further detail, the team considered that, in order to boost and sustain growth during the forecasted years, the company will need to invest in PP&E and Intangibles, mostly to maintain and replace currently owned assets. Thus, CAPEX should grow with Sales.

PP&E Investment is estimated at 97.27% of Total CAPEX, considering the 2012-16 average weight of PP&E Investment on Total CAPEX. Investment in Intangibles corresponds to the difference between Total CAPEX and Investment in PP&E, yielding values that are in line with the average expenditure on this type of asset from 2015-17.

Additionally, we assume that in each year the company invests a fixed amount of 0.7M€ in Investment Properties to maintain the average increase in this asset verified in previous years.

Investment in PP&E, Intangibles and Inv. Properties	2018F	2019F	2020F	2021F	2022F	2023F
Total Investment	**50,700**	**37,809**	**39,525**	**41,242**	**42,901**	**44,629**
Total CAPEX	50,000	37,109	38,825	40,542	42,201	43,929
CAPEX PP&E	48,637	36,097	37,767	39,437	41,050	42,731
Investment in Intangibles	1,363	1,012	1,059	1,105	1,151	1,198
Investment in Investment Properties	700	700	700	700	700	700

Depreciation Rate %	2018F	2019F	2020F	2021F	2022F	2023F
Total Depreciation	**30,921**	**31,694**	**33,197**	**34,768**	**36,407**	**38,112**
PP&E	29,593	30,136	31,550	33,029	34,573	36,180
Investment Property	419	828	853	879	904	929
Intangible Assets	908	729	793	859	929	1,002

Appendix 12: Cost of Debt

COR has a long-lasting relationship with banks which allows them to use bank overdrafts whenever needed. Additionally, the company obtains special loan agreements. An example is a loan obtained with the European Investment Bank (EIB) in 2015, that was negotiated at a lower cost which reduced the average rate of interest-bearing debt. The strong operating cash flow allows COR to pay their debt, but it may not be optimal. For the forecasted period we assumed a floating cost of debt linked with the 6M Euribor rate. For the terminal period, the 30-year 6M Euribor rate is considered.

(5) $$Cost\ of\ Debt_t = Cost\ of\ Debt_{t-1} + \Delta\ \text{Forecast 6M Euribor Rate}_t$$

Cost of debt	2017	2018F	2019F	2020F	2021F	2022F	2023F	TV
6M Euribor	-0.27%	-0.25%	-0.25%	-0.19%	-0.09%	0.04%	0.18%	1.37%
Changes in Euribor		0.02%	0.00%	0.06%	0.11%	0.13%	0.14%	1.18%
Cost of debt	**1.67%**	**1.69%**	**1.70%**	**1.75%**	**1.86%**	**1.99%**	**2.13%**	**3.31%**

Appendix 13: WACC Assumptions

WACC	2019F	2020F	2021F	2022F	2023F	TV
Re	**6.24%**	**6.52%**	**6.52%**	**6.52%**	**6.52%**	**8.29%**
Rf	0.89%	1.17%	1.17%	1.17%	1.17%	2.94%
MRP	7.44%	7.44%	7.44%	7.44%	7.44%	7.44%
Levered Beta (β)	0.72	0.72	0.72	0.72	0.72	0.72
After tax Rd	**1.19%**	**1.22%**	**1.30%**	**1.38%**	**1.48%**	**2.30%**
Cost of debt	1.70%	1.75%	1.86%	1.99%	2.13%	3.31%
Tax Rate	29.81%	30.08%	30.18%	30.28%	30.33%	30.33%
WACC	**5.70%**	**5.95%**	**6.00%**	**6.05%**	**6.09%**	**7.69%**
E/V	89.24%	89.27%	90.04%	90.80%	91.38%	90.00%
D/V	10.76%	10.73%	9.96%	9.20%	8.62%	10.00%

Cost of Equity: Is applied the Capital Asset Pricing Model (CAPM). Since we considered the MRP for Portugal, the CRP was not deemed necessary because our approach already reflects country idiosyncratic risks. Despite the fact that the company is sensitive to Portuguese risks (most costs are incurred in Portugal), in the demand side, the company sells worldwide. Moreover, the company finances itself in Portugal, but has been able to finance at very low rates – which are only suitable for a company operating in a AAA country. We view COR as having a better rating than Portugal, therefore it seems deemed appropriate to use German Bond Yield.

(6) $$R_e = RFR + \beta * MRP$$

Risk-Free Rate: We considered the 10-year German Government Bond forecast as our risk-free rate for 2019-23 and for the terminal period the 20-year average of the 10-year German Government Bond.

Unlevered Beta:
Approach A: We used the Pure-Play Method based on peers to reach the levered beta, but OENEO is the solely appropriate peer. First: we computed the unlevered beta considering OENEO's figures for 2017. Second: We used the unlevered beta obtained on the first step to reach COR's levered beta, considering the company's level of debt, equity and tax rate. This approach is not the most accurate to value COR as we only consider one peer.
Approach B: Using the same approach as in A but considering the unlevered beta for the industry retrieved from Thomson Reuters. COR's fits into the Forest and Wood Products industry which includes companies that are not completely comparable with COR, so, again the results would not be correct.
Approach C: We performed four regressions considering 4 indices – PSI20, STOXX50, EuroNext100 and EuroNext150 – and COR's monthly returns to obtain the beta ("raw"). By performing the Blume Adjustment, we obtained the adjusted beta for each index. This adjustment will allow us to obtain a more precise forecast of the beta. The index that best fits COR returns is PSI20, because of the higher adjusted R-squared.

	Approach A: Pure Play Method using Peers	Approach B: Pure Play Method using the Unlevered Beta of the industry	Approach C: Regressions			
			PSI20	STOXX50	EuroNext100	EuroNext150
Beta	0.48	1.14	0.72	0.69	0.80	0.83

MRP: The inputs used to reach the MRP for the company were the monthly returns for PSI20 and the monthly 10-year German Government Bond for the period between 2008-2018.

(7) $$ERP = \frac{\sum(R_{PSI20} - RFR)}{\sigma_{PSI20\ Historical}} * \sigma_{PSI20\ Forecast}$$

The Constant Sharpe ratio was obtained through the annualized excess return – based on the supply side model, i.e., the difference between the monthly returns for PSI20 and the monthly 10-year German Bond – and the historical volatility of the returns of PSI20. The forecasted volatility of the PSI20, was calculated based on the GARCH Model.

WACC: For the WACC we used Equity market values and for the Debt we used book values as a proxy for market values. We used a P/B approach to forecast the market values of equity.

P/B Approach	2018F	2019F	2020F	2021F	2022F	2023F
P/B	2.49	2.33	2.14	2.14	2.14	2.14
Equity BV	€503M	€529M	€561M	€592M	€630M	€658M
Equity MV	€1,252M	€1,233M	€1,201M	€1,268M	€1,347M	€1,408M
E/V	89.10%	89.24%	89.27%	90.04%	90.80%	91.38%
D/V	10.90%	10.76%	10.73%	9.96%	9.20%	8.62%

For each year, we applied the P/B ratio to the equity book value. Through this, we obtained the market capital structure for the forecasted years, which converge for the weights of the terminal period, 90% Equity and 10%Debt. This structure is fairly similar to the current one using COR's market values for the input variables.

(8) $$WACC = \frac{E}{EV} * R_e + \frac{D}{EV} * R_d * (1 - T_{effective})$$

Tax Rate: Considering the state surcharge tax rate, the company will be taxed on a scale considering three ranges of profit, which one of them will be taxed at a different rate. Profits between €1.5M and €7.5 the tax rate is 3%; for profits between €7.5M and €35M the tax rate is 5%; and profits higher than €35M the company will be taxed with a rate of 9%. Considering everything we obtained the state surcharge for each year. The municipal tax rate, 1.5% for Santa Maria da Feira (Aveiro), was applied to the profit before tax for each year. Adding everything to the income tax (obtained through the legal tax rate of 21%) and then divide that by the profit before tax we obtained the effective tax rate for each year. For the terminal period, we considered the rate from 2023F. Historically the tax rate is similar to this value.

Appendix 14: Terminal Growth Rate

In the terminal period, we assumed a going concern approach in which cash flows grow perpetually at a continuous rate. Showy growth can also be obtained either by increasing CAPEX to grow organically or through strategical M&A deals. Yet, no future acquisitions are expected, thus COR should grow solely through internal expansion. The first approach to estimate the terminal growth rate is a function of the company's reinvestment rate. Having this in mind, we proceeded to compute the growth rates for each forecasted year considering that:

(9) $$\boldsymbol{FCFF}: g = Reinvestment\ rate * ROIC$$

(10) $$\boldsymbol{FCFE}: g = Reinvestment\ rate * ROE$$

(11) $$Reinvestment\ rate = \frac{CAPEX - D\&A + \Delta NWC}{EBIT(1-t)}$$

The results are presented in the tables below.

FCFF	2019	2020	2021	2022	2023
Reinvestment Rate	-3.88%	14.46%	14.31%	15.79%	15.09%
ROIC	10.27%	11.67%	12.04%	12.36%	12.51%
g	**-0.40%**	**1.69%**	**1.72%**	**1.95%**	**1.89%**

FCFE	2019	2020	2021	2022	2023
Reinvestment Rate	-3.88%	14.46%	14.31%	15.79%	15.09%
ROE	12.24%	13.76%	13.96%	14.58%	14.47%
g	**-0.48%**	**1.99%**	**2.00%**	**2.30%**	**2.18%**

The reinvestment rate above is fairly conservative giving company's market power and growth in the short- to medium-term above 4% YoY. The addition of expected inflation for Portugal of 2.1% to the organic growth rate of the company in 2023F would yield a figure which we do not foresee as sustainable in the long run. As such, the perpetual growth rate for the FCFF was adjusted to 2.5% considering that COR is in a mature stage and has been market leader since day 1, exhibited flexibility to adapt to unfavorable winds and seeks to M&A deals and innovation as a way to reinforce market power and to differentiate. However, we believe that in the medium term (5 to 9 years), company's business and cash flows will grow faster than 2.5%. The company is expected to post consistent growth rates of 4-5% YoY spurred by increasing demand for cork stoppers.

An equally conservative approach was employed to the perpetual *g* for the FCFE, although considering an adjustment upwards from the benefits of leverage. Bearing this in mind, *g* for the FCFE is forecasted at 3.0%.

Appendix 15: FCFF Valuation

In what concerns the FCFF model, an adjustment was carried out when moving from the Enterprise to Equity Value to take into account non-operational assets and financial liabilities. Other borrowings and creditors consisting of reimbursable grants received to finance operational activities and Non-Controlling Interests were deducted, whereas Investments in associates were added back. The acquisition of the additional stake of *Bourrassé* in 2022 is considered an investment of the company and, therefore, included under CAPEX & Other Investments in the same year.

FCFF	2019F	2020F	2021F	2022F	2023F
EBIT(1-tc)	67,659	80,113	85,917	92,318	96,546
Non-Cash Charges	31,695	33,197	34,768	36,408	38,113
CAPEX and other Investments	-37,809	-39,525	-41,242	-61,936	-44,629
Δ NWC	8,041	-5,957	-6,525	-8,780	-8,757
FCFF	**69,586**	**67,828**	**72,919**	**58,010**	**81,272**

Terminal growth rate (unlevered cash flow)	2.50%

Price Target	
Enterprise Value	**1,581,058**
- Net Debt	-95,474
- Other borrowings and creditors	-15,717
- Non-controlling interests	-37,575
+ Investments in associates	11,394
Equity Value	**1,443,686**
Number of shares outstanding	133,000
Price Target 2019YE	**10.9**

Share Price as in 31 Dec, 2018	9.00
Upside Potential	+21%

Appendix 16: FCFE

The Equity Value in the FCFE was adjusted to include Investments in Associates. While in the forecasted period, we assumed that net borrowings were equal to changes in the debt level (Debt issue - Debt repayments) coming from the cash flow statement, in the terminal period we followed a different approach. As such, in that same period, net borrowings correspond to the amount invested in net CAPEX and NWC that is financed through debt to sustain the capital structure as 10% of D/EV:

(12) $$Net\ Borrowings_{Terminal} = \frac{D}{EV} \times (CAPEX - D\&A + \Delta\ NWC)$$

FCFE	2019F	2020F	2021F	2022F	2023F	TV
Net Income	63,164	75,056	80,563	89,094	93,189	95,985
Non-Cash Charges	31,695	33,197	34,768	36,408	38,113	39,256
CAPEX and other Investments	-37,809	-39,525	-41,242	-61,936	-44,629	-45,968
Δ NWC	8,041	-5,957	-6,525	-8,780	-8,757	-9,020
Net Borrowing	-5,925	-4,265	-4,051	-3,849	-3,656	-1,527
FCFE	**59,166**	**58,506**	**63,513**	**50,937**	**74,260**	**78,726**

Terminal growth rate (levered cash flow)	3.00%

Price Target	
Equity Value	**1,425,301**
+ Investments in associates	11,394
Equity Value after adjustments	**1,436,695**
Number of shares outstanding	133,000
Price Target	**10.8**

Share Price as in 31 Dec, 2018	9.00 €
Upside Potential	+20%

Appendix 17: Dividend Discount Model (DDM)

Regarding the DDM, the three-stage model was applied together with the H-model for the terminal period. In the H-model we considered a short-term growth rate of 10% that reflects the converging dividend growth YoY from 2019F to 2023F. Such rate will gradually decrease until it reaches a constant growth of 3% in the terminal period from 2028 onwards, which corresponds to the perpetual growth rate for the FCFE. Despite the growing dividends, payout ratio will average 69.5% in the period 2019-23.

	2019F	2020F	2021F	2022F	2023F
EPS	0.47	0.56	0.61	0.67	0.70
YoY	*-14.4%*	*18.8%*	*7.3%*	*10.6%*	*4.6%*
DPS	0.30	0.35	0.40	0.45	0.50
YoY	*11.1%*	*16.7%*	*14.3%*	*12.5%*	*11.1%*

Price Target	
Inputs	
Dividend 2023	0.50
H (5 years)	2.50
Long-term Growth	3.0%
Short-term Growth	10.0%
Terminal Value	11.38
PV DPS	1.74
PV Terminal Value	8.84
Price Target	**10.6**

Appendix 18: Residual Income

This method is more appropriate for non-dividend paying firms which do not present stable cash flow structure over time. As COR does not meet the abovementioned requirements, the present method might not provide the most reliable results. Also, complexities in COR's accounting options do not allow accounting adjustments that are deemed necessary. We reached a price target of €9.7/sh, although still providing upside potential from the current price.

Residual Income	2019F	2020F	2021F	2022F	2023F
Book Value of Equity	529,211	561,367	592,648	629,633	658,143
Book Value of Equity per share	3.9790	4.2208	4.4560	4.7341	4.9484
Re	6.24%	6.52%	6.52%	6.52%	6.52%
ROE	12.24%	13.76%	13.96%	14.58%	14.47%
Charge for Equity Capital	0.24	0.26	0.28	0.29	0.31
EPS	0.47	0.56	0.61	0.67	0.70
Residual Income	0.24	0.30	0.33	0.38	0.39

Price Target	
Projected P/B in 2023	2.14
Book Value of Equity per share in 2023	4.95
Projected Share Price in 2023	10.59
PV Residual Income	1.43
PV Projected Share Price	8.23
Price Target	**9.66**

Share Price as in 31 Dec, 2018	9.00 €
Upside Potential	7.34%

Appendix 19: Valuation through Multiples

Apart from COR, OENEO is the only listed company operating in the cork stoppers business, thus for the multiples valuation we only considered OENEO as a peer company. The search for other peers in the closures market, namely *Guala* in the screwcaps and *Nomacorc* producing mainly synthetic stoppers, is not helpful because of market data availability. *Guala's* IPO is very recent to provide reliable figures. *M. A. Silva* is also not listed and much smaller in size.

It should be noted that, although considered as peers, COR and OENEO are not directly comparable, as the latter has a considerably smaller dimension and operates in the wine barrels business. Historically, COR multiples trade at discount. Companies operating in the wine closures market can as well be perceived as peers, however, as none (except Guala), are publicly traded we could not carry forward a multiple valuation based on these firms. The existence of only one listed peer prevents us from carrying out a valuation that yields accurate results. As a consequence, the present valuation method will not be used to support our recommendation, acting instead as a complement to our analysis.

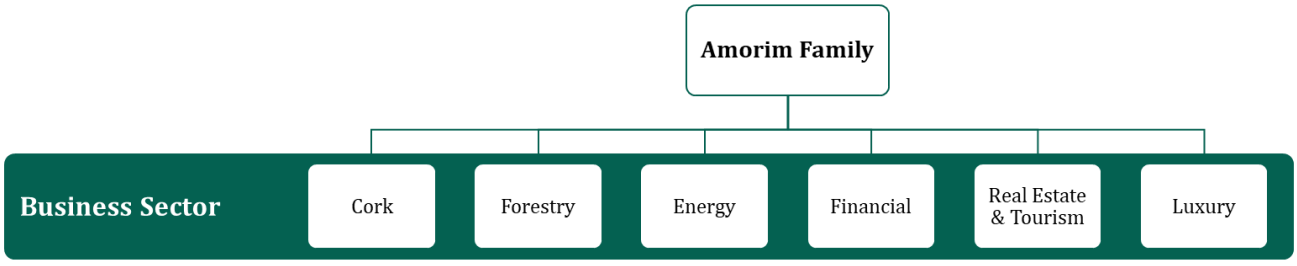
To perform the valuation, we considered the most suitable EV and Price multiples to reach the price target. The EV multiples provide better results when comparing companies with different levels of leveraging, whereas the Price ones are more equity focused. As both companies have different fiscal years, COR's year-end multiples in 2019F were compared to those of OENEO in March 30, 2020. COR's multiples were based on team estimates, while OENEO's forecasted ratios were collected from Reuters.

2017YE	COR	OENEO
Total Sales (in €)	702 M	249 M
Cork Stoppers Sales as % of Total Sales	67.30%	65.60%
Market Share in the Cork Stoppers Industry	~44%	~20%
EBITDA margin (%)	19.04%	23.10%
EBIT Margin (%)	14.82%	16.10%
Net Profit Margin (%)	10.41%	12.30%
Debt to Equity (x)	0.24	0.44
ROE (%)	16.47%	12.40%
Asset Turnover (x)	0.88	0.59

	EV/Sales	EV/EBITDA	P/E	P/B	P/S
COR	1.97	12.34	22.86	2.73	1.80
OENEO	2.12	9.27	16.61	1.95	1.97

	EV/Sales	EV/EBITDA	P/E	P/B	P/S
Enterprise Value	**1,698,406**	**1,187,380**			
Net Debt	-95,474	-95,474			
Other borrowings and creditors	-15,717	-15,717			
Non-controlling interests	-37,575	-37,575			
Investments in associates	11,394	11,394			
Equity Value	**1,561,034**	**1,050,008**	**1,049,154**	**1,031,962**	**1,578,235**
Number of shares outstanding	133,000	133,000	133,000	133,000	133,000
Price Target	**11.74**	**7.89**	**7.89**	**7.76**	**11.87**
Average	**9.82**		**9.17**		

Appendix 20: Amorim family portfolio of investments



Appendix 21: Wine consumption prospects by main regions

European Union
France consumed the most wine in 2017, at 27mhl, with a per capita consumption averaging 40 liters. However, the French market has been experiencing a decrease in consumption. From 2013 to 2017, total consumption decreased by 2.9%. Changes in drinking habits of younger generations have been attributed the blame, with this demographic perceiving wine as an occasional beverage for special times instead of a cultural heritage. Overall, lower growth in the consumption of wine is expected for the European Union when compared to the global market, mainly due to shifts in consumer behavior and health concerns. Forecasts are for +1.13% CAGR from 2017-25.

USA
North-Americans are the world's leading consumers of wine (13.4% of global consumption), with sales revenue for 2017 in the industry of USD 62.7B. Consumption of wine in the country has increased by 5.8% since 2013 and is expected to continue to grow at a 6% CAGR from 2018-22. Lower-priced wines account for 55% of this market, however, the segment is decreasing in favor of more expensive wines (considered to be those above $10). Premium wines ($10-$20) and fine wines (>$20) are expected to grow at 10% and 8% YoY, respectively, 2018-2022. Increased purchasing power due to higher GDP (Figure 14) helps explain this preference toward high-end goods. This shift will benefit the cork industry as demand for natural cork stoppers will increase.

China
Wine consumption increased by 8.5% between 2013 (16.5 mhl) and 2017 (17.9 mhl), with an annual average increase of almost 5%. During this period, wine imports doubled, increasing 2.1% CAGR from 2011-17. Growing health concerns contributed to this growth, as 77% of Chinese admit to drink wine because of its health benefits. Additionally, according to Tsang (2018), wine is no longer perceived as an occasional beverage, unlike in Europe, and at-home consumption has been rising and now represents over 50% of overall consumption. Sales in the Chinese market are expected to reach USD 24.02B by 2018YE, with a projected CAGR 2018-21 of 5%. According to ISWR and Vinexpo (2017), China will become the world's second largest wine consuming country by 2021. For the cork industry, this increase will translate into an augmented market share for this region.

Appendix 22: Construction Industry prospects by main regions

China
The Chinese construction industry is set to face a deceleration with a forecasted CAGR in 2017-21 of 5.70%, down from a CAGR in 2012-2016 of +7.43%. Despite such slowdown, China is expected to continue holding the largest market in the industry.

US
The United States represents the second largest market of the industry and is expected to grow at a CAGR in 2018-2022 of +2.22%, slightly lower than the +3.80% CAGR of 2013-2017, but a clear improvement gave the contraction of -1% in 2017. Such growth will be mainly supported by public and private investment to build and revamp infrastructures.

Western Europe
After a period of sluggishness, first due to the subprime crisis and second as a consequence of the debt crisis, the Western European construction market is expected to bounce back between 2018 and 2022, expanding at a CAGR of +2.4%, up from +1.1% in 2013-2017. Germany will continue to lead the way with a CAGR in 2018-2022 of +1.9% bolstered by increasing demand for housing units and public investment in transportation infrastructure.

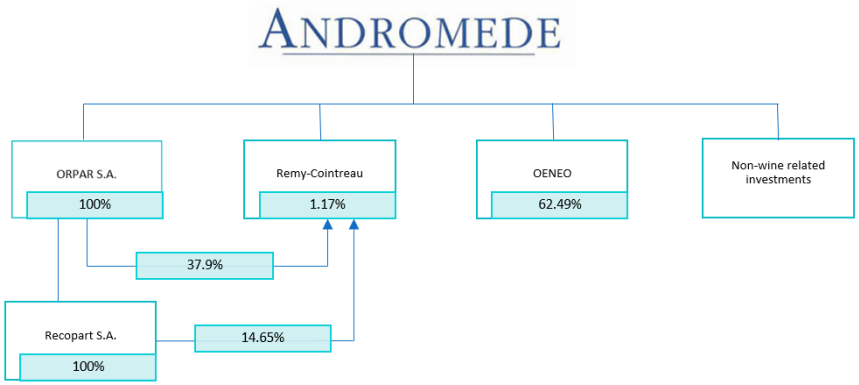
Appendix 23: Possible game-changing acquisitions

M&A activity is not likely in the coming years since COR has to focus on managing efficiency on the recent acquisitions of *Bourrassé, Sodiliège* and *Elfverson.* The appetite for M&A to consolidate its leading position may have a few candidates, although deals would be difficult to settle. OENEO's closure segment is an example, as it is responsible for the production of 2.5B stoppers (20% market share) in 2017YE. The segment is divided between two subsidiaries, *Diam* (1.8B stoppers) and *Piedade* (0.7B stoppers) and both focus on the manufacture of technical cork stoppers. In 2017, *Piedade's* natural and agglomerated cork stoppers activities were discontinued. OENEO is fully owned by the Dubreuil family through its family holding *Andromède*.

The investment portfolio of the Dubreuil family ranges, among others, from cork stoppers and wine barrels business, through OENEO (Market cap: €570M), to the production of cognac, liqueurs and spirits business, through Rémy-Cointreau (Market cap: €5B). The family's presence in the wine business makes it highly unlikely for a takeover to occur. OENEO supplies the famous cognac producer Rémy-Cointreau with closures (40-50M bottles) in an integrated value chain, boosting the profits of the group. OENEO's closure segment represents 65% of the company's revenue, which imposes a floor on the acquisition price of roughly 65% (€ 370M) of the company's market cap. Historical premiums in similar acquisitions (e.g., Bourrassé) of 45% would imply an investment around €500M - €550M for OENEO's, which would be a huge, if not impossible bite for Amorim.

After COR's acquisition of *Bourrassé*, *M.A. Silva* emerged as the 3rd largest player, with a total output of 0.6B stoppers. Owned by the Silva family, this Portuguese-based company offers both natural and technical stoppers. EBITDA margin of 6.75% 2017YE for sales of €66m and interest-bearing debt 56.2% of total assets, of which around 83% due short-term, makes it an attractive target for COR. Industry's multiples and recent premiums price *M.A. Silva* in the range of €30-35M for a takeover. The synergies would mostly come from Amorim's abilities to operate more efficiently (~13% difference in EBITDA margins) and purchase raw material at a lower price, leaving room for an added value of €70M-€75M. Still, the family character of *M.A. Silva* is a relevant barrier for a deal, and it may be too expensive for COR's strategy of consolidating its position in the industry.

By the same token, not negligible and perhaps more likely, is the threat of a possible deal between *M.A. Silva* and COR's biggest competitor. OENEO's operational efficiency (20.1% EBITDA margin in 2017YE) also allows them to obtain similar synergies from the deal. Moreover, their intention to discontinue the agglomerated and natural cork stoppers segment of its subsidiary, *Piedade*, may serve as a bargaining chip. *M.A.Silva* could be interested in the natural



cork stoppers business of *Piedade*, while simultaneously obtaining synergies from OENEO's more efficient management of the technical stoppers segments. The combined company would have close to 25% of market share, being a significant threat to COR's leadership in the cork stoppers industry.

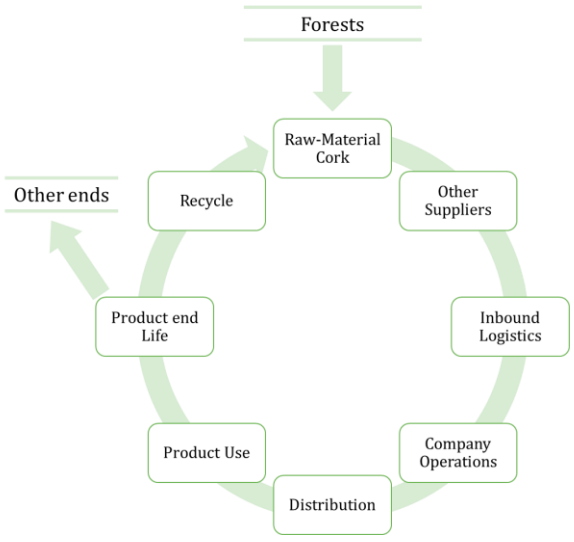
2017	Bourrassé (Acquired in 2017)	M. A. SILVA (Potential acquisition)	OENEO	Amorim
Sales (in M)	53.30	66.10	248.60	701.60
Number of employees	450.00	234.00	1,130.00	4,248.00
Gross margin	26.69%	38.63%	41.20%	53.24%
EBITDA margin	6.25%	6.75%	23.10%	19.04%
Net profit margin	3.44%	1.56%	12.30%	10.41%
ROE	11.51%	7%	12.40%	15.88%
Asset turnover	1.44	1.13	0.60	0.81
D/E	1.06	2.24	0.44	0.24
Number of stoppers	0.7B	0.6B	2.5B	4.7B

Possible acquisition targets	M. A. SILVA	OENEO
Equity stake	15-20M	370M**
Premium	17M*	130-180M
Acquisition price	30-35M	500-550M

*estimated premium based on the same % of potential synergies paid in a Bourrassé deal (22%)
Total potential synergy from MASILVA deal c. 75M
** 65% of OENEO's Market Cap

Valuation of M. A. SILVA	Industry average (2017)	EV	Net debt	Equity	Premium	Acquisition price
EV/EBITDA	10.9	48.5	30.4	18.1	17.0	35.1
EV/EBIT	14.0	45.4	30.4	15.0	17.0	32.0
Average				**16.6**		**33.6**

Appendix 24: Supply Chain (COR)



Appendix 25: Other information regarding the cork stoppers industry

We carried out a survey to the supply side of the cork industry to further deepen our knowledge in this industry and to understand the degree of uncertainty imminent to the business.

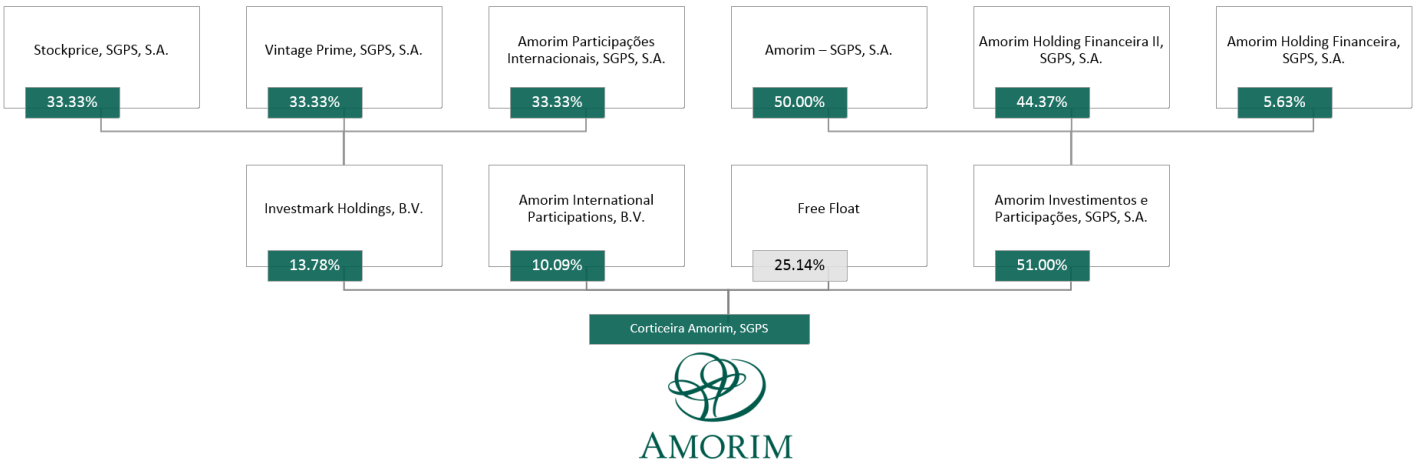
Other minor risks affecting the cork oak forest: The increased urbanization leads to the need for more infrastructures, reducing the availability of land. Often, properties are handed down between generations, which no longer take advantage of the cork oaks. This reduces the amount of cork oaks available for harvest, impacting companies in this industry.

Purchases of *arroba*: As a natural hedge against the uncertainty of cork bark price, producers buy raw materials above their needs. This is a widely adopted policy and does not represent an extra cost for companies, as facilities are already prepared for it. Extraction costs, on the other hand, may add costs to the company. These can be included in the cork price if the seller is responsible for the extraction. If the responsibility relies on the buyer, cork price will be lower. An integrated chain value will be a competitive advantage in these cases.

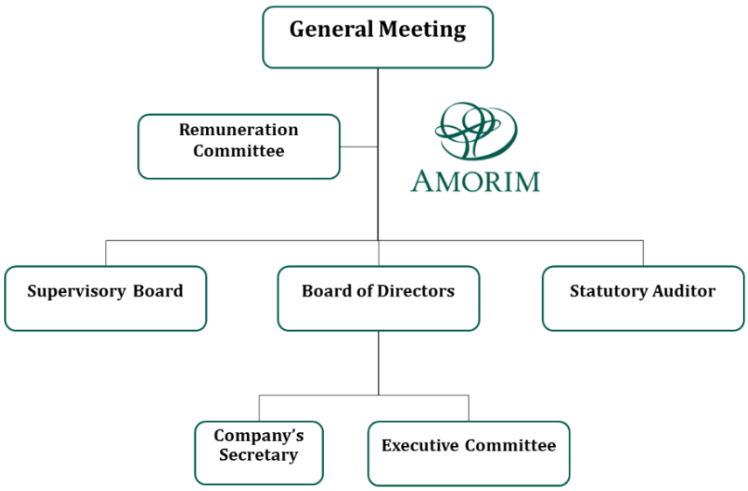
General Costs per Stopper: Costs will vary based on the type of stopper. Natural cork stoppers require a whole piece of cork bark, representing three-quarters of the cost, while the rest is dependent on human labor. Technical stoppers, on the other hand, are made from grinded leftover cork, which is cheaper. Therefore, the raw-materials will only account for one-quarter of the cost.

Storage: After the production, cork stoppers have no limited storage time, if kept in suitable facilities. The stoppers are still not ready to be used, yet the final treatment is only applied by wineries. Before moving to the bottle, winemakers will print the final label and prepare stoppers for inserting. Afterward, cork stoppers may only be stored for 6 months.

Appendix 26: COR's Shareholder Structure



Appendix 27: Governance Model



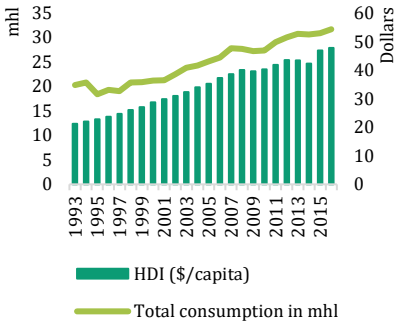
Appendix 28: BoD Remuneration

Director	Age	Position	Held Since	Term	Fixed	Variable	Total Remuneration
António Rios de Amorim	50	Chairman of the BoD and CEO	2001	2019	239,239 €	110,600 €	349,839 €
Nuno Barroca de Oliveira	47	Vice-Chairman	2003	2019	169,239 €	55,600 €	224,839 €
Fernando Santos Almeida	56	Executive Board Member	2009	2019	141,239 €	59,885 €	201,124 €
Cristina Amorim Baptista	49	Non-Executive Board Member	2012	2019	-	-	-
Luísa Ramos Amorim	44	Non-Executive Board Member and CFO	2003	2019	-	-	-
Juan Viñas	77	Non-Executive Board Member	2012	2019	-	-	-
Total					**549,718 €**	**226,085 €**	**775,803 €**

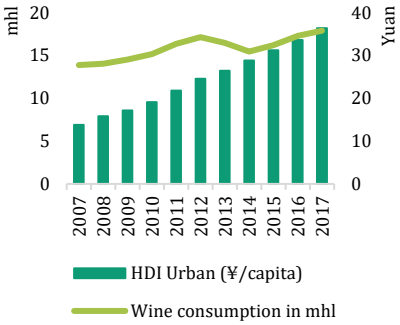
Appendix 29: Relation between Household Disposable Income (HDI) and wine consumption

To test the correlation between wine consumption and HDI, we performed two regressions using data from the US and China. The results obtained were the following:

$$Wine\ Consumption_i^{US} = 7.5 + 0.00051 HDI_i^{US}$$



$$Wine\ Consumption_i^{China} = 12.1 + 0.00015 HDI_i^{China}$$



Source: OECD and OIV

Appendix 30: Risk Matrix

Source: *Team estimates*

New Entrants (MR7)

Barriers to entry in this industry are quite high, even though the industry is fragmented. COR, and other players have longstanding relations with suppliers, as the amount of cork bark harvested changes every year. It would be unlikely for a new player entering the market to establish these connections. Furthermore, COR has over 40% market share and recently acquired the 3rd player in this industry, *Bourrassé*. The company is a price setter, making it difficult for a new entrant to impact the market.

Climate Change Risk (MR6)

Cork oak trees grow in the Western Mediterranean Basin, where temperatures vary from -5ºC to 40ºC. The rainfall per year is between 400mm and 800mm and the soil has a high level of potassium, low nitrogen and phosphorus, no presence of chalk and with a pH from 4.8 to 7.0. However, due to climate change, this region is becoming hotter (Figure 31). Resulting droughts affect the growth of the trees and the quality of cork extracted. In Spain, owners have been increasing extraction cycles to contradict the lack of quality. COR developed a micro-irrigation and fertilization system that enables to overcome the scarcity of water and its consequences. Still, the system is yet to be implemented throughout the *Montados* area.

Interest Rate Risk (MR9)

By 2017YE, almost 78% of COR's financial debt was floating. Debt is totally in EUR, making the company exposed to ECB's monetary policies. The company has been benefiting from low-interest rates, however these are expected to increase after the summer of 2019. Since COR finances itself mostly through equity, changes in interest rates will have a low impact due to the capital structure.

Forest Risk (MR3)
Wildfires pose a problem for this industry as it delays the harvest of burned trees. Even though these trees are highly resistant to elevated temperatures, due to its humidity content, the government imposes some rules to assure its perseverance. After being affected by fires, cork oaks must recover for a minimum of one year before the harvest of the bark is allowed. Nevertheless, the majority of fires in Portugal are located in the north, and the probability of these affecting the *Montados* area is medium-low.

Lack of Human Resources (OR2)
Human Resources play a crucial role in the company's business, impacting the harvesting, production and distribution processes. The cork harvest and production activities are expected to continue witnessing a decline in its workforce as a consequence of the rising education levels of the population coupled with the prevailing rural exodus trend. In order to tackle such issue, COR has been investing in R&D activities that prompt the automatization of certain production processes, increasing efficiency and reducing the need for human resources in the medium/long-term.

Price of the cork stoppers (MR4)
COR's average price *per* stopper sold is increasing YoY. Over the last 5 years, it increased by 16.5% to slightly above 10 cents. This increase reflects the change in the product mix, as well as COR's ability to pass to the customers part of the increased raw material costs. As the company faces an elastic demand, that narrows its options of passing some of the increasing costs to customers. Disregarding natural cork stoppers, the average price of stoppers is almost flat during the previous years, despite the increase in costs. The change in product mix is affected by the shift in consumers' preferences towards premium wines, often sealed with natural cork stoppers. Consequently, sales of this type of stopper have been increasing (+1% YoY for the last 5 years), representing 75% of the still wine segment 2017YE. Improved product mix accounted for 40% of the gross margin increase 2017YE (less than 30% 2016YE). Thus, any change in consumer preferences would make a significant adverse effect on the company's sales and margins.

Corporate Governance Risk (GR1)
COR is a family-owned company which carries some risks to minority shareholders. Even though COR only fully meets 26 of the 43 CMVM Corporate Governance Recommendations, we do not believe the company is harming the interest of shareholders. Despite the lack of an explicit target payout policy, profits are being distributed regularly and investments are being made to improve the company's overall performance.

Regulatory Risk (RL1)
The Mediterranean oak is the national tree of Portugal, protected by law to guarantee its conservation and maintenance. It's mandatory to respect the 9 years harvesting cycles to assure the recovery of the oak, and the tree can never be ripped out even in case of sickness or death. (*Decreto Lei nº 155/2004*) In the other regions were cork-oaks are grown, the 9-year cycles are also maintained, as this ensures the quality of the bark.

Construction Industry (MR8)
The Construction Industry contributes to approximately 22% of the company's sales. A sharp slowdown in the business would trigger a contraction in the overall demand, affecting the company's financial performance. Moreover, the cyclical nature of the industry suggests a higher sensitivity to economic cycles' swings.

Appendix 31: Porter's Five Forces

Construction Industry
Threat of Substitute Products | Low (2)
Raw materials and products used in the construction industry benefit from a unique nature, with the vast majority of them not having close substitutes. The services rendered are also difficult to substitute as most involve human labor, which cannot be fully automatized. Nowadays, there is a growing preference for more environmentally friendly construction products as a way to cope with increasing pollution. Notwithstanding, as these products still have a residual market share and hardly replace those considered to be core, the threat of substitutes in this industry is believed to be low.

Bargaining Power of Suppliers | Low (2)
Construction companies rely heavily on suppliers who provide raw materials, machinery and equipment deemed necessary to carry out their activity. Raw materials suppliers have weaker bargaining power in comparison to those of equipment and machinery which can exert higher, but not significant, pressure on buyers. Overall, the bargaining power of suppliers is considered to be relatively low as the lack of product differentiation coupled with low switching costs does not leave significant room for price negotiation on the supply side. Moreover, the existence of a large number of suppliers, in particular, those of Raw materials, also contributes to lower bargaining power.

Bargaining Power of Buyers | Moderate (3)
As the size of the supply side is considerably superior to the demand one, buyers are exposed to a wide range of suppliers willing to sell a quite similar product or service at very different prices. Buyers' easiness in switching from one supplier to other is a clear indicator of the significant power these can exert on the supply side. For all these reasons, the bargaining power of buyers is considered to be moderate.

Rivalry Among Existing Competitors | Significant (4)
Competition among players is high as the companies that comprise the Construction industry are quite homogenous, providing very similar services and products. The limited number of projects spurs intense rivalry, especially within SME companies, which altogether account for the majority of the industry. Large companies with extensive financial resources often undertake large-scale governmental projects, competing fiercely between themselves to win the bidding process. As the industry is highly fragmented and operates on low-profit margins, companies will strive to gain competitive advantage mostly through price reductions and sub-contracts. Additionally, the highly saturated nature of market contributes to an intensification of the competition within industry firms.

Threat of New Entrants | Low (2)
The start-up costs to enter in the industry vary across the different segments of the industry. Segments that are more capital intensive, such as the Infrastructure one, present higher barriers to entry compared to those which do not require high investment in physical assets. Nevertheless, the overall barriers to entry in the industry are deemed as high mostly due to the heavy initial investment that is required. In addition to this, newcomers find it difficult to have access to distribution channels as the existent companies benefit from well-established networks based on reputation and trust. The lack of economies of scale coupled with the low margins of the industry pose as well as an issue to firms trying to enter in the market, as these will struggle to keep up with the existent ones. Bearing this in mind, the threat of newcomers in the market is fairly low.

Appendix 32: Sensitivity Analysis

Other Bus: We are assuming that the Floor & Wall Coverings BU will experience a slow growth until it reaches a growth equal to the construction industry CAGR. Changes in the construction CAGR will not change our BUY recommendation. Additionally, we forecast the Composites BU to grow at the historical rate. If this rate increases to the construction CAGR, our BUY recommendation will persist. Both BUs do not affect significantly the price target, due to the low % they have on total sales.

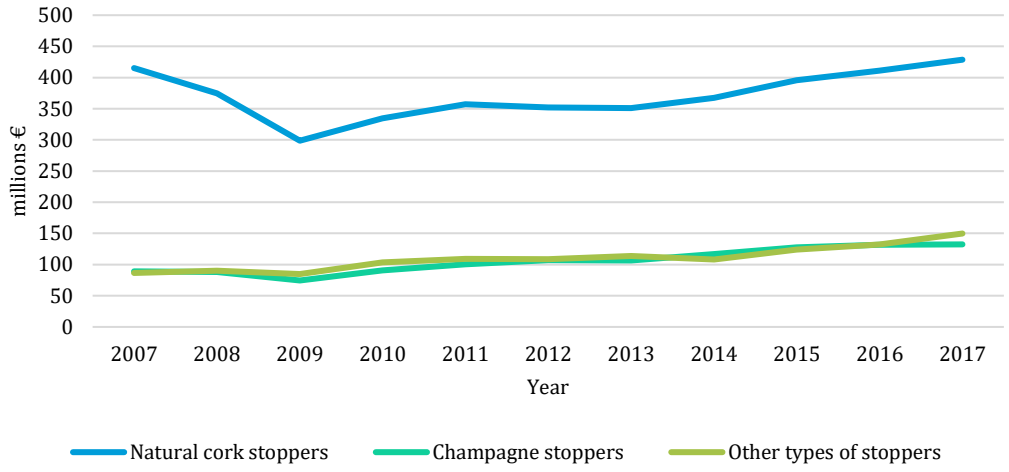
		Price Target
		10.9 €
F&W growth	0.36%	10.5 €
	1.08%	10.5 €
	2.52%	10.7 €
	3.60%	**10.9 €**
	5.40%	11.1 €
	7.20%	11.4 €
	9.00%	11.8 €

		Price Target
		10.9 €
Composites Growth	1.70%	10.8 €
	1.89%	**10.9 €**
	2.27%	10.9 €
	2.65%	11.0 €
	3.02%	11.0 €
	3.59%	11.1 €

Appendix 33: Piotroski Score

	13	14	15	16	17	18F	19F	20F	21F	22F	23F
Profitability											
Positive NI	1	1	1	1	1	1	1	1	1	1	1
Positive ROA	1	1	1	1	1	1	1	1	1	1	1
Positive OCF	1	1	1	1	1	1	1	1	1	1	1
OCF > NI	1	1	1	0	0	0	1	1	1	1	1
Leverage, Liquidity											
LTD ratio N < LTD ratio N-1	1	1	0	1	0	1	1	1	1	1	1
CR N > CR N-1	0	1	1	1	0	0	1	1	1	0	1
Δ shares issued	1	1	1	1	1	1	1	1	1	1	1
Efficiency Criteria											
GP N > GP N-1	0	0	1	0	1	0	0	1	1	1	1
ATR N > ATR N-1	0	1	1	0	0	0	0	1	1	1	1
Total	**6.00**	**8.00**	**8.00**	**6.00**	**5.00**	**5.00**	**7.00**	**9.00**	**9.00**	**8.00**	**9.00**

Appendix 34: Exports of cork by type of stoppers



Appendix 35: Fourier Series

The Fourier Series in trigonometric representation has the following formulation:

(13) $$f(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n * \text{sen}\left(\frac{n\pi t}{L}\right) + b_n * \cos\left(\frac{n\pi t}{L}\right))$$

Appendix 36: Forecasting Process

Forecasted values can be reached through two approaches. The first one is based on **punctual prediction**, more suitable to time series, and where is possible to obtain one number *per* future observation. On the other side, **average prediction,** destined to sectional data, results from a conditional expected value, which is translated by one number for all future observation, i.e., in this case it will represent the average temperature for the future without considering each month from each year. Hence, the forecasted monthly temperatures were obtained according to the first approach mentioned.

(14) $$f_i = \widehat{\beta_0} + \widehat{\beta_1} * i + \sum_{n=1}^{5} \widehat{a_n} * \text{sen}(\omega * t) + \sum_{n=1}^{4} \widehat{b_n} * \cos(\omega * t)$$

Appendix 37: Regression Results

The output of the final model was more satisfactory given a higher explanatory degree having into consideration all the regressors (Adjusted R-Squared) and the significance of each variable.

```
Call:
lm(formula = i..Real ~ trend + sen1 + sen2 + sen3 + sen4 + sen5 +
    cos1 + cos2 + cos3 + cos4, data = Mana)

Residuals:
    Min      1Q  Median      3Q     Max
-3.3110 -0.6887  0.0146  0.6774  3.6597

Coefficients:
             Estimate Std. Error  t value Pr(>|t|)
(Intercept) 13.9285957  0.0555629  250.681   <2e-16 ***
trend        0.0011041  0.0000697   15.840   <2e-16 ***
sen1        -4.4897238  0.0392680 -114.336   <2e-16 ***
sen2         0.7215378  0.0392679   18.375   <2e-16 ***
sen3        -0.0907220  0.0392666   -2.310   0.0210 *
sen4         0.0689927  0.0392677    1.757   0.0791 .
sen5         0.0667487  0.0392671    1.700   0.0894 .
cos1        -5.0786623  0.0392672 -129.336   <2e-16 ***
cos2        -0.6774954  0.0392666  -17.254   <2e-16 ***
cos3        -0.0868142  0.0392666   -2.211   0.0272 *
cos4         0.0707655  0.0392666    1.802   0.0717 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.031 on 1369 degrees of freedom
Multiple R-squared:  0.9573,    Adjusted R-squared:  0.957
F-statistic:  3072 on 10 and 1369 DF,  p-value: < 2.2e-16
```

Appendix 38: Comparison with WBG's Forecasts

WBG presents four possible scenarios of a model developed by Beijing Climate Center, China Meteorological Administration. Each scenario has a certain concentration of greenhouse gases (GHG) according to the Representative Concentration Pathways (RCPs). Before doing the comparison, it was necessary to put the information in the same format, so an average for each month for each time period was mandatory.

	FOURIER WITH TREND MODEL			
	2020-2039	2040-2059	2060-2079	2080-2099
January	9.24	9.51	9.77	10.04
February	10.10	10.37	10.63	10.90
March	12.05	12.32	12.58	12.85
April	13.88	14.15	14.41	14.68
May	16.67	16.94	17.20	17.47
June	20.20	20.46	20.73	20.99
July	22.65	22.91	23.18	23.44
August	22.91	23.17	23.44	23.70
September	20.72	20.99	21.25	21.52
October	16.87	17.14	17.40	17.67
November	12.49	12.75	13.02	13.28
December	9.87	10.14	10.40	10.67

The differences between the estimated values from the model developed and these scenarios are presented below. To notice that, the absolute difference is the forecasted minus WBG's value and the relative difference is the same difference but in percentage.

	8.5 (High Emission)							
	Absolute Difference				Relative Difference			
	2020-2039	2040-2059	2060-2079	2080-2099	2020-2039	2040-2059	2060-2079	2080-2099
January	-2.45	-2.39	-3.40	-3.68	-26%	-25%	-35%	-37%
February	-1.54	-1.72	-2.43	-2.81	-15%	-17%	-23%	-26%
March	-0.99	-0.70	-2.14	-2.26	-8%	-6%	-17%	-18%
April	-0.65	-0.76	-1.84	-2.31	-5%	-5%	-13%	-16%
May	-1.02	-1.16	-2.27	-2.86	-6%	-7%	-13%	-16%
June	-1.29	-2.18	-3.20	-3.54	-6%	-11%	-15%	-17%
July	-2.12	-3.13	-4.42	-5.63	-9%	-14%	-19%	-24%
August	-2.73	-2.58	-3.96	-4.83	-12%	-11%	-17%	-20%
September	-1.80	-1.92	-3.26	-4.33	-9%	-9%	-15%	-20%
October	-0.71	-1.70	-3.03	-3.30	-4%	-10%	-17%	-19%
November	-1.99	-2.23	-3.20	-3.82	-16%	-17%	-25%	-29%
December	-3.17	-3.31	-3.69	-4.32	-32%	-33%	-35%	-41%

	6 (Medium-High Emission)							
	Absolute Difference				Relative Difference			
	2020-2039	2040-2059	2060-2079	2080-2099	2020-2039	2040-2059	2060-2079	2080-2099
January	-2.29	-2.39	-2.17	-2.33	-25%	-25%	-22%	-23%
February	-1.42	-1.62	-1.69	-1.87	-14%	-16%	-16%	-17%
March	-0.82	-1.40	-1.26	-1.41	-7%	-11%	-10%	-11%
April	-0.78	-0.83	-1.31	-1.32	-6%	-6%	-9%	-9%
May	-0.29	-0.48	-0.86	-1.62	-2%	-3%	-5%	-9%
June	-0.90	-1.44	-1.65	-1.69	-4%	-7%	-8%	-8%
July	-2.34	-2.09	-3.18	-3.17	-10%	-9%	-14%	-14%
August	-1.84	-2.52	-3.39	-3.35	-8%	-11%	-14%	-14%
September	-1.08	-2.26	-2.19	-2.20	-5%	-11%	-10%	-10%
October	-0.73	-1.14	-0.98	-1.15	-4%	-7%	-6%	-7%
November	-1.86	-2.24	-1.86	-2.31	-15%	-18%	-14%	-17%
December	-2.81	-2.52	-3.14	-2.55	-28%	-25%	-30%	-24%

	4.5 (Medium-Low Emission)							
	Absolute Difference				Relative Difference			
	2020-2039	2040-2059	2060-2079	2080-2099	2020-2039	2040-2059	2060-2079	2080-2099
January	-2.41	-2.12	-2.43	-2.53	-26%	-22%	-25%	-25%
February	-1.80	-1.65	-1.64	-1.42	-18%	-16%	-15%	-13%
March	-0.54	-0.22	-0.98	-0.74	-4%	-2%	-8%	-6%
April	-0.37	-0.81	-0.65	-0.57	-3%	-6%	-5%	-4%
May	0.35	-0.65	-0.21	0.19	2%	-4%	-1%	1%
June	-0.07	-0.80	-1.29	-0.69	0%	-4%	-6%	-3%
July	-1.72	-2.37	-2.34	-2.27	-8%	-10%	-10%	-10%
August	-1.94	-2.41	-2.04	-2.05	-8%	-10%	-9%	-9%
September	-1.51	-1.44	-1.71	-1.91	-7%	-7%	-8%	-9%
October	-0.40	-1.00	-0.79	-0.86	-2%	-6%	-5%	-5%
November	-1.40	-2.06	-1.69	-1.96	-11%	-16%	-13%	-15%
December	-2.58	-2.47	-2.81	-2.58	-26%	-24%	-27%	-24%

	4 (Low Emission)							
	Absolute Difference				Relative Difference			
	2020-2039	2040-2059	2060-2079	2080-2099	2020-2039	2040-2059	2060-2079	2080-2099
January	-2.37	-2.17	-1.93	-1.63	-26%	-23%	-20%	-16%
February	-1.52	-1.41	-0.76	-1.07	-15%	-14%	-7%	-10%
March	-0.87	0.45	-0.34	-0.03	-7%	4%	-3%	0%
April	-0.58	0.21	0.39	0.02	-4%	1%	3%	0%
May	-0.42	-0.28	0.64	0.76	-2%	-2%	4%	4%
June	-1.26	-0.96	0.53	0.39	-6%	-5%	3%	2%
July	-2.41	-2.00	-1.61	-0.80	-11%	-9%	-7%	-3%
August	-2.11	-1.58	-1.73	-0.98	-9%	-7%	-7%	-4%
September	-1.62	-1.44	-1.27	-0.81	-8%	-7%	-6%	-4%
October	-0.90	-0.70	-0.91	0.01	-5%	-4%	-5%	0%
November	-1.83	-1.49	-1.85	-1.17	-15%	-12%	-14%	-9%
December	-2.72	-2.59	-2.57	-1.68	-28%	-26%	-25%	-16%

Appendix 39: List of Abbreviations

Average Monthly Temperature (AMT)
Basis points (bps)
Billion (B)
Board of Directors (BoD)
Business Unit(s) (BU(s))
Capital Asset Pricing Model (CAPM)
Capital Expenditures (CAPEX)
Chief Executive Officer (CEO)
Chief Financial Officer (CFO)
Comissão do Mercado e Valores Mobiliários (CMVM)
Compounded Annual Growth Rate (CAGR)
Corticeira Amorim S.G.P.S., S.A. (COR)
Debt-to-Enterprise Value (D/EV)
Depreciation and Amortization (D&A)
Discounted Cash Flow (DCF)
Dividend Discount Model (DDM)
Dividends per Share (DPS)
Earnings Before Interest, Taxes, Depreciations and Amortizations (EBITDA)
Enterprise Value (EV)
Enterprise Value to Sales (EV/S)
Environment, Social and Governance (ESG)
Floor and Wall (F&W)
Forecasted (F)
Free Cash Flow to Equity (FCFE)
Free Cash Flow to the Firm (FCFF)
Gross Domestic Product (GDP)
Household Disposable Income (HDI)
International Monetary Fund (IMF)
Market Risk Premium (MRP)
Mergers and Acquisitions (M&A)
Million Hectare Liters (mhl)
Millions (M)
Net Working Capital (NWC)
Price to Book (P/B)
Price to Earnings (PE)
Price to Sales (P/S)
Research & Development and Investigation (R&D+I)
Return on Equity (ROE)
Risk-Free Rate (RFR)
Roteiro de Neutralidade Carbónica 2050 (RNC 2050)
Share (Sh)
Sum of the Parts (SoP)
Sustainable Development Goals (SDGs)
Target Price (TP)
Trichloroanisole (TCA)
Trillion (T)
Weighted Average Cost of Capital (WACC)
World Bank Group (WBG)
Year End (YE)
Year on Year (YoY)

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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%