



Lisbon School
of Economics
& Management
Universidade de Lisboa

**MASTER OF SCIENCE IN
FINANCE**

**MASTER'S FINAL WORK
PROJECT**

**EQUITY RESEARCH SONAE SGPS S.A.:
A VALUE-AT-RISK ASSESSMENT**

ENRIQUE QUESADA FONSECA

OCTOBER 2021



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SUPERVISOR

VICTOR MAURÍLIO SILVA BARROS

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Abstract

The present document consists of a report of an Equity Research on Sonae SGPS, S.A. (SON). This document was used in the CFA Institute Research Challenge 2021, obtaining a 2nd place at the local level. The report contains only public information until 14/01/2021.

SON is a Portuguese conglomerate, comprised of eight business units (BU) that go from food and non-food retail to commercial real estate and telecommunications.

The company was valued with a Sum-of-the-Parts approach, where a discounted cash flow approach was developed for most business units, incorporating all the specific features of each of them. For the smaller BUs, relative valuation methods were employed. The valuation yielded a buy recommendation with a price target of 1.25€/sh for 2021YE, comprising an upside potential of 75% from the January 15th 2021 closing price of 0.71€, with a medium to low risk. To support this valuation, other methods were also used, such as Relative Valuation.

Additionally, this report further explores the value-at-risk that an investor could face at investing in Sonae's shares. Three methods were analyzed: historical method, parametric method, and Monte Carlo simulation. The results were extrapolated to a one-year horizon and were found consistent with the recommendation of the present investigation.

JEL Classification: G10, G32, G34

Keywords: Equity Research, Valuation, Retail, Conglomerate.

Resumo

O presente documento consiste num relatório de um Equity Research sobre a Sonae SGPS, S.A. (SON). Este documento foi utilizado no CFA Institute Research Challenge 2021, obtendo o 2º lugar a nível local. Apenas informações públicas até 14/01/2021 foram consideradas.

SON é um conglomerado português, compreendido por oito unidades de negócio, que vão desde o retalho alimentar e não-alimentar, até ao imobiliário comercial e telecomunicações.

A empresa foi avaliada com uma de soma de partes, onde um modelo de fluxos de caixa descontados foi desenvolvido para a maioria das unidades de negócio, incorporando todas as características específicas de cada uma delas. Para as unidades de negócio de menor dimensão, métodos de avaliação relativa foram utilizados. A avaliação resultou numa recomendação de compra com um preço-alvo de 1.25€ por ação para 2021YE, representando um potencial de 75%, com um preço de fecho a 14 de janeiro 2021 de 0.71€, com um nível de risco médio-baixo. Para apoiar esta avaliação, outros métodos também foram utilizados, como a avaliação de múltiplos.

Além disso, este relatório explora ainda o valor em risco que um investidor poderia enfrentar ao investir nas acções da Sonae. Nesse sentido, foram analisados três métodos: método histórico, método paramétrico, e simulação Monte Carlo. Os resultados foram extrapolados para um horizonte de um ano e foram considerados consistentes com a recomendação da presente investigação.

Classificação JEL: G10, G32, G34

Palavras-Chave: Equity Research, Avaliação de Empresas, Retalho, Conglomerado.

Acknowledgements

Firstly, I want to thank my parents Carlos Enrique and Soraya for helping me to pursue my dream of studying my master abroad. Without their help, this goal would not have been possible. Also, thanks to my sister Carolina for always supporting me with my projects.

Additionally, I want to thank my colleagues from the CFA Research Challenge: Mafalda, Rodrigo, Guilherme and Margarida. The commitment and effort that each of them put into this project was outstanding and motivating. I am profoundly proud of us and what we accomplished during this journey. We made a great team together!

Moreover, I want to thank professors Victor Barros and Tiago Gonçalves for believing in me and choosing me to represent ISEG on the CFA Research Challenge. Special thanks to professor Victor Barros for his commitment and dedication during the CFA Challenge and the Equity Research class. His passion for finance and for teaching is exceptional.

Disclosures

A significant portion of this report was submitted by a group of students from ISEG, including the candidate, for the 2021 CFA Institute Research Challenge Portuguese Local Final.

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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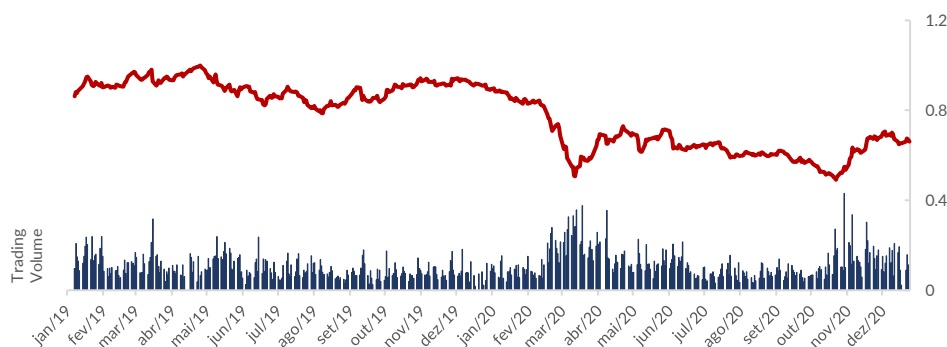
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SON: The Value of a Green Strategy

Stock Information	
Closing Price (January 14 th , 2021)	€0.71
52w Price Range	€0.49-€0.89
52w Daily Volume	0.61M-11.5M
Shares Outstanding	2.0 bn
Market Capitalization (January 8 th , 2021)	1.37bn
Free Float	805.98M (47.9%)
Dividend Yield ^{2021YE}	7.2%
ROE ^{2021YE}	6.3%
D/E ^{2021YE} (MKT Value)	0.94
P/BV ^{2021YE}	1.36x
P/E ^{2021YE}	18.5x

Source: Refinitiv, Team Analysis



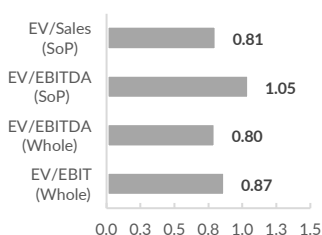
BUY is our recommendation for Sonae SGPS, S.A. (SON) with a price target of €1.25/sh for 2021YE. Our forecasted price implies a 75% upside potential from the January 14th, 2021, closing price of €0.71/sh, and we assess it as a medium to low risk. We valued the company using a SoP approach (FCFF and relative valuation) to better track the characteristics of each business unit (BU). To complement the analysis and triangulate results, we also valued each segment through multiples and other methods, as well as by valuing SON as a whole. The four axes that drive our recommendation are SON's diversified nature, its capacity to generate cash flows, its ecosystem's value, and its sustainability focus. Therefore, we consider SON to be a conglomerate with a sustainable outlook.

Table 1: SON's Price Target, SoP

Business Unit	Base Case Method	Values (in M)
Sonae MC (100%)	FCFF	€4,245.3
Sonae Sierra (70%)	RE ¹ ; FCFF	€599.2
Worten (100%)	FCFF	€292.0
Sonae Fashion (100%)	FCFF	€238.1
Sonae IM (90%)	Multiples	€156.0
Sonae FS (100%)	Multiples	€89.4
ISRG (30%)	Multiples	€66.5
NOS (30.8%)	FCFF	€505.6
Adjustments		(€3,212.9)
Total Equity		€2,979.2
Price Target		€1.25

¹Income Method for Real Estate
 Includes 20% Conglomerate Discount
 Source: Team Analysis

Figure 1: SON's Price Target with Multiples



Source: Team Analysis

The Value of Diversification | SON is comprised of eight business units (BU) that vary from food and non-food retail to commercial real estate and telecommunications. The company is in the leadership of food retail in Portugal (26.8% market share FY19), while acting as a key player in all other businesses. Its portfolio is fairly diversified, with non-cyclical businesses outweighing cyclical ones. The conglomerate is exposed to different risks and broad potential, tackling growing businesses while not losing sight of the core (Food Retail). The Covid-19 pandemic is putting the company to the test in some segments (-52% YoY 2020E Sierra's turnover), but its diversified nature did not postpone relevant investments already in the pipeline, neither jeopardized the potential of new growing businesses (5.1% 2019-2027F CAGR). In 2020E the company closed with an increase in total revenues of 7.9% YoY.

Generating Cash Flows | The steady cash flows generated from SON's diversified nature have allowed a dividend increase of 5% YoY since 2012. SON's 11.1% CFO/Sales in FY19 compared with the 6.8% average of the peers is representative of the high liquidity standards the company operates. These cash-flows allow it to continuously reinvest on its operations (Reinvestment Rate of 33.5% FY2020E-2027F), without jeopardizing the returns on its investments (5.6% ROIC FY27) and value distribution through an attractive dividend policy. Simultaneously, SON is deleveraging its balance sheet. The net debt reduction of 7.3% in the period of 2018-2020 was mainly due to change in the real estate business strategy (Sonae Sierra) and from the disposal of non-core assets.

An Ecosystem | SON takes advantage of its scale and market prevalence (currently serving 85% of Portuguese families in the food retail BU) to extract all benefits from Portugal's largest loyalty program. Through this program SON has developed a wide and rich database, allowing it to adjust its approach to each customer. This program's usage is spread out over every BU, creating an ecosystem that allows SON to be an option in customers' day-to-day life. Portuguese consumers have an above-average appetite for taking advantage of promotional sales and direct discounts. According to a survey we conducted in December 2020, with more than 1100 replies, 61.3% of respondents confirmed that loyalty cards positively influence consumer's decisions regarding shopping chains.

Sustainability | The ESG focus is on the rise and SON has established goals to go beyond what's expected of them. Looking back to 2018, the company set the target to reduce CO₂ emissions around 54% by 2030. The achievement of carbon neutrality is only expected for 2040, although this transformation is already in motion. SON's most recent policy on ESG regards the issuance of ESG-linked bonds in 2020Q4. Nowadays, green financing accounts for €280M, equivalent to 16.0% of total debt, thus emphasizing its focus on ESG matters. We also decided to incorporate ESG components in our valuation as green financing is expected to benefit SON's credit spreads in the long run.

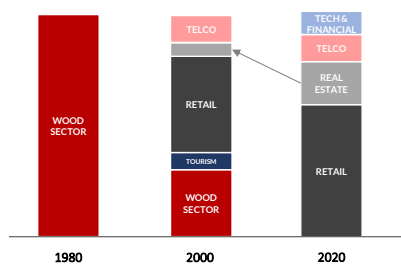
Value-at-Risk Assessment | To strengthen the risk analysis of Sonae, three value-at-risk methods were analyzed: historical method, parametric method, and Monte Carlo simulation. Assuming a portfolio of only Sonae's shares valued in €1,000, the 5% VaR over a one-year period with the parametric method is of €647. Moreover, the 5% VaR with the historical method and Monte Carlo simulations, are of €427 and €474, respectively. The adjusted Monte Carlo simulations is more conservative with a 5% VaR of €347. Even though these results might seem outstanding, according to the economic theory, a high return would need to have a corresponding risk attached to it due to the risk-return trade-off. Therefore, VaR calculations warn about the possible losses from an investment in Sonae's shares, however the upside potential of 77% justifies the buy recommendation.

Table 2: SON's BU Sales and EBITDA Contribution (FY19)

Business Unit	Sales	EBITDA
Sonae MC	67%	60%
Worten	15%	7%
Sonae Fashion	6%	5%
Sonae Sierra	2%	9%
NOS	-	19%
ISRG	3%	3%
Sonae FS	1%	2%
Sonae IM	2%	0%
Sonae SGPS	€6.4bn	€797M

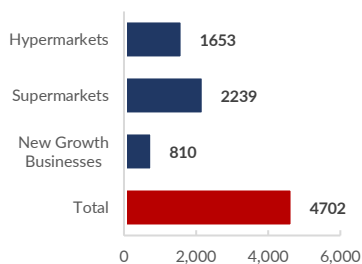
Source: SON 2019 Annual Report

Figure 2: SON's Portfolio Evolution



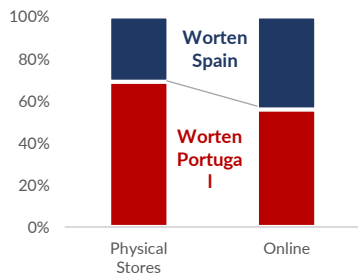
Source: SON 2020 Presentation

Figure 3: Sonae MC Turnover Contribution per Segment (in Millions, 2019)



Source: SON 2019 Annual Report

Figure 4: Worten Turnover per Sales Channel (in Millions, 2019)



Source: Team Analysis

Business Description

Sonae SGPS, S.A., Sonae (SON) a global Portuguese conglomerate currently operating in five distinct industries through eight different business units (BU), (Appendix 8), (Table 2). For decades, SON has had a strong presence in Iberia and is currently in the midst of an expansion, yet timid, to Latam. Founded in 1959 in Porto, Portugal, the company is a key player in many of its industries, except for food and electronics retail in which it leads the way. SON's FY19 turnover of €6.4bn places the company amongst the top 5 largest Portuguese companies.

Building Prosperity

In its embryonic stage, SON was solely focused on the wood industry, but has evolved over time to the diversified portfolio the group currently owns (Figure 2). In 1985, wanting to breathe new life into the group's retail business model, the former CEO Belmiro de Azevedo opened the doors of the first *Continente* Hypermarket in a joint venture with the French group *Promodès*. In the 90s SON expanded its specialized retail to fashion and electronics through the brands *Modalfa* (now *Mo*) and *Worten*. In the same period, Sonae Sierra (rebranded from Sonae Imobiliária in 2005), the group's real estate BU, inaugurated the largest Iberian shopping centre – Colombo. The move was a key milestone for SON, as Portuguese people proved to be shopping centre lovers. In the last few years, SON has expanded its portfolio of businesses into the Telco, Asset Management and Financial Services industries, demonstrating a clear entrepreneurial spirit and a never-ending drive to dilute risk for its investors and to be a permanent partner for consumption. The food-retail business under the BU Sonae MC is the company's value cornerstone due to its maturity and steady cash-flow generation.

An Integrated Ecosystem

Sonae MC | Food Retail – Sonae MC stands as the Portuguese market leader in food retail (26.8% market share in 2019). The BU aggregates three distinct categories (Figure 3), and value is mainly driven by geographical distribution to better capture consumption and its changing patterns:

Hypermarkets (HM) operates through 41 stores with the *Continente* brand (+1.9% Lf; 8.1% FY19 EBITDA Mg), including *Continente Online*. These stores' location is critical, as they are in shopping centres and in the most densely populated Portuguese cities.

Supermarkets (SM) aims to increase the geographical diversification of its proximity stores to foster a closer connection with its customers (+3.1%; 8.1%). This category of urban supermarkets is operated through two categories of stores: *Continente Modelo*, the larger supermarkets (135 stores) and the proximity supermarkets with *Continente Bom Dia* (107 stores).

New Growth Businesses (NGB) emerged to fill a gap and take advantage of SON's reputation. The category is new, yet with a promising growth and margins for SON (+8.2%; 20.2%). Health&Beauty brands (*Well's* and *Arenal*) are the focus, being the main growth avenue for the segment. Food retail franchises (*Meu Super* and *Bagga*) also help spread the food retail network.

Worten & Sonae Fashion | Electronics and Fashion Retail – *Worten* is the electronics retail BU (+0.2% Lf; 5.0% FY19 EBITDA Mg) of SON. Physical stores have been predominant (94.3% FY19 turnover) however the Covid-19 pandemic boosted the online channel, with 79% of respondents who shop online affirming they increased online spending during the pandemic (Figure 4). In 2021 we expect the closure of underperforming Spanish stores and online sales growth (10.1% CAGR 2019-2027F in Portugal and 17.9% in Spain), already announced on January 13th. Sonae Fashion's (+6.6% Lf; 8.3% FY19 EBITDA Mg) growth has decelerated in the past few years and as such the company decided to shift its strategy towards a more efficiency-focused approach by optimizing stores in Portugal (70.8% FY19 turnover) while maintaining its strong international presence (29.2%) (Figure 5).

Sonae Sierra | Commercial Real Estate – Sonae Sierra (-0.5% FY19 YoY turnover) is the commercial real estate segment with operations in Europe, South America and Northern Africa. The portfolio is comprised of 23 owned/co-owned European assets (56.5% FY19 turnover) and 111 assets under management (43.5%) (Figure 6). Sierra is transforming the commercial real estate business, shifting the focus to shopping centre management. In 2019, Sonae Sierra with Allianz Real Estate, Elo and APG, created a joint venture, giving birth to Sierra Prime. This management fund, through which the BU co-owns 6 key real estate assets in the Iberian Peninsula, has a total Open Market Value (OMV) of €3bn.

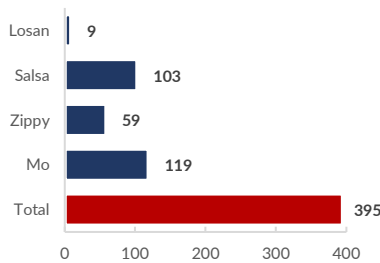
NOS | Telecommunications – NOS (+1.5% FY19 YoY), which resulted from a merger between two major players from the Portuguese telecommunications (Telco) market in 2013, is an independent publicly traded Portuguese Telco and Media company. The company is divided into two categories: Telco (38.4% FY19 EBITDA Mg) and Cinema & Audiovisual (47.2%) (Figure 7). Telco, the main category, is composed by Pay-TV services, Fixed Voice, Broadband and Mobile. SON has a stake of 30.8% in NOS with 59.5% of the company's voting rights.

ISRG | Sports Retail – ISRG (+16.1% YoY turnover; 10.1% FY19 EBITDA Mg), includes the brands JD, Sprinter, Size and SportZone. The group which resulted from a merger between key sports retail players (30% stake owned by SON), is on track to become a leader in the Iberian market.

Sonae Financial Services (Sonae FS) | Financial Services – Sonae FS (+20.2% YoY turnover), the company's financial services BU was born out of the alliance between SON's retail experience and the best fintech practices (26.5% FY19 EBITDA Mg). Its main offering is *Cartão Universo*, one of the top 3 credit cards issued in the Portuguese market, with a market share of 12.8% (FY19).

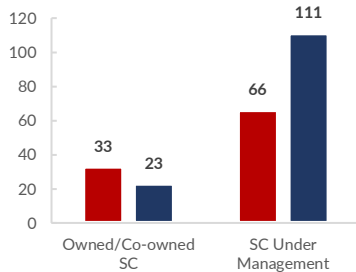
Sonae Investment Management (Sonae IM) | Investment Management – Sonae IM (+24.8% YoY turnover) manages a portfolio of companies that operate in retail technologies, telco, and cybersecurity. In 2019 the BU integrated two new companies, Nextel (retail technologies) and Excellium (cybersecurity).

Figure 5: Sonae Fashion Turnover per brand (in Millions, 2019)



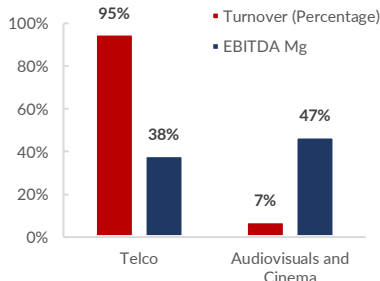
Source: Team Analysis

Figure 6: Sonae Sierra Shopping Centres (2019)



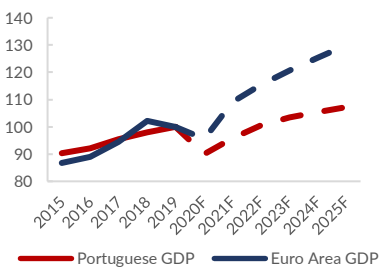
Source: SON 2019 Annual Report

Figure 7: NOS Turnover and EBITDA Mg per Segment (2019)



Source: NOS 2019 Annual Report

Figure 8: Portuguese and Euro Area GDP (base 100, 2019)



Source: IMF

Figure 9: HDI and SON's Turnover (in Millions)



Source: Pordata and SON 2019 Annual Report

This segment incarnates SON's entrepreneurial spirit by allowing the group to invest in forward-thinking companies with disruptive ideas and unique individuals.

Dott | Online Marketplace – Dott, although not a BU, is the online marketplace created in 2019 by SON and CTT (Portuguese Post Office). During its first year of operations, the platform surpassed the 2.5M products available for sale. If further developed and marketed, it could likely become one of SON's strongest weapons in the Portuguese online retail sphere.

Industry Overview and Competitive Positioning

The retail industry is the economic sector through which entities sell their finished goods to final consumers. The industry can be divided into two main segments, food and non-food retail. In 2019, food retail posted in Portugal a +2.3% YoY growth. Non-food retail (+2.3% YoY) is comprised of retail in non-specialized stores (+0.6% YoY), fashion retail (+4.2% YoY) and Telesales (+10.3% YoY).

The commercial real estate industry (6.0% CAGR 2009-2019 in Europe) comprises companies that develop, manage, or invest in properties used exclusively for business-related purposes. While the investment in real estate suffered a sharp decline in 1H20, the recovery was significant in 3Q20, with investment in Portugal showing a more than fivefold increase QoQ. The paradigm of shopping centres is changing, as people start to look for a complete immersion experience, not only as a place to shop.

The Telco industry ranges from advertising, entertainment and news, to internet, broadband, cellular, cable and landlines. In FY19, the sector in Portugal had a turnover of €5.1bn (+7.2% YoY). By late 2020H1, the number of active mobile subscriptions decreased to 12.1M (-2.0% YoY), while TV services and fixed internet subscriptions increased to 3.9M (4.1% YoY) and 3.7M (4.3% YoY), respectively. The industry is currently undergoing a transition process. In this regard, the Portuguese regulator is preparing the auction for new frequency spectrum rights, including 5G. The regulator has openly stated its objective of promoting more competition and the entry of a new player, which might trigger market structure changes.

Resilience in the Face of Adversity – An Outlook

The Covid-19 pandemic that ruled the 2020 economic, political, and social landscapes culminated in a European GDP decrease of 8% (8.1% in Portugal) (Figure 8). The lockdowns imposed by governments changed the way people live, greatly impacting SON's businesses. Yet, Sonae MC saw its food retail sales increase 5% in 2Q20, exponential growth that can be significantly attributed to the hoarding of essential goods that ensued before the lockdown.

While not being an essential business, due to the work-from-home restrictions, *Worten* saw a significant increase in sales volume (FY20E €1.1bn Turnover; 5.57% YoY). On the flip side, Sonae Fashion witnessed a decrease in total sales (€342M; -13.3%), driven by the physical stores' temporary closure. Sonae Sierra was also negatively affected due to the 3-month long closure of the shopping centres. Additionally, the bill passed by the Portuguese parliament regarding the 10-month suspension of the fixed-rents paid by tenants of shopping centres is sure to impact Sonae Sierra's turnover for the year.

However, the pandemic also brought out SON's resilience and entrepreneurial spirit, which led to the creation of the first SARS-CoV-2 inactivating reusable mask. The Portuguese hand-made mask shows how the company overcomes hardships and reinforces its commitment to the betterment of society. Additionally, the national and international sales of the mask had a significant positive impact on Sonae Fashion's 3Q20 EBITDA (185% QoQ).

Recovery of the economy is expected to be closely related to the ability to control new infection rates. Furthermore, the EU Recovery and Resilience Facility (RRF), a €1.8bn relief package, should also help stabilise the European economy.

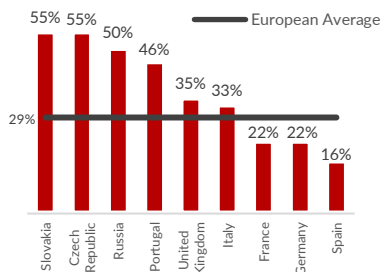
Demand Drivers

Disposable Income | An increase in disposable income will mean families have more funds available to spend on non-essential items, such as fashion and electronics. Disposable income has been increasing since the 2008 crisis, reaching a maximum value of €142bn in 2019 (Figure 9).

Ecosystem synergies | SON's loyalty card offers each client a variety of personalized discounts and the ability to accumulate money that can be spent in many of the company's brands. The Plug&Charge initiative, which allows *Continente* customers to charge their electric vehicles and accumulate money in the *Continente* card is an excellent example of the circular economy environment that SON strives to maintain. Additionally, the numerous partnerships established with brands from outside the holding company are of great importance. All these advantages will create an ecosystem for the customer, increasing the incentive to choose chain brands as their first option.

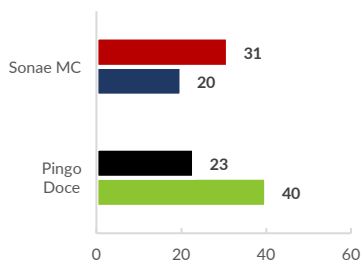
Promotional Sales | SON's main source of turnover comes from a non-cyclical business which stays resilient even during a crisis like the Covid-19 pandemic (+7.1% Lfl 9M2020 vs. +3.4% Lfl 9M2019). It operates in an environment where consumers are discount seekers, which might derive from the 2008 crisis' long-lasting effect on Portuguese people's psychology. Promotional sales in the country accounted for 46.0% of total sales FY18 (vs. 29.0% EU average – Figure 10). MC plays this game like no other, being a master at taking advantage of the Portuguese public's emotional biases by having the most aggressive promotional strategy in the market. To test this trend, our team performed a price analysis, based on the online platforms of *Continente* and its main competitor *Pingo Doce*. After comprising a basket of 150 diversified products, our team assessed the initial price and price with discount. We found that while *Continente* has the highest initial prices (Figure 11) it is also the chain that more heavily discounts its products. Our survey reinforced these results, since while only 12% of respondents choose *Continente* due to its low prices, 20% select *Continente* due to its promotions.

Figure 10: Promotional Sales by Country (2018)



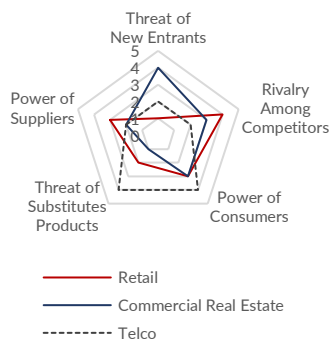
Source: Nielsen

Figure 11: Most Expensive Products Count per Competitor



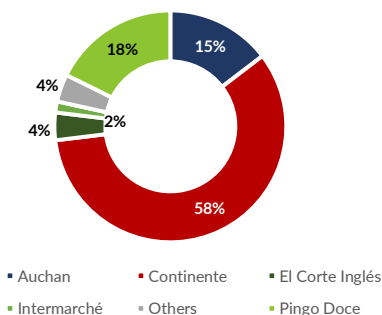
Source: Team Analysis

Figure 12: Porter Five Forces



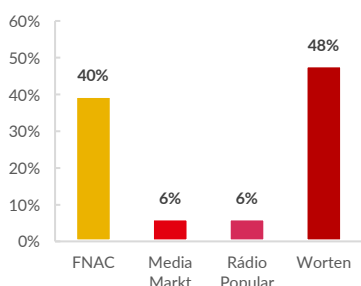
Source: Team Analysis

Figure 13: Supermarkets Online Positioning in Portugal



Source: Team Survey, December 2020

Figure 14: Electronics Online Positioning



Source: Team Survey, December 2020

Trends

The Online Boom | In past years, online sales have been increasing, forcing companies to adapt and expand its online presence. The Portuguese people show a clear lack of interest in online sales, as demonstrated by our survey, with 72% of respondents pointing to prefer to shop in physical stores. It is then imperative that companies strive to capture these consumers, as the first to do so successfully will gain a substantial competitive advantage. With its *Continente* and *Worten* online channels, SON has shown a clear effort to achieve this leadership position. Despite online sales' low historical growth, the Covid-19 pandemic and the subsequent lockdowns imposed a structural change in consumption patterns. With entire countries confined to their homes, consumers had to find alternative ways to satisfy their shopping needs and cravings. Through our survey, we found that 80% of inquired individuals increased the volume of online purchases. In the post-Covid period, 75% of this sample state that they will continue to shop online just as much as they did during the lockdown.

Securing a Future | Natural disasters resulting from climate-change are a reality of today and need to be addressed with urgency. With younger generations having witnessed first-hand the effects of climate change, and since these are tomorrow's consumers, sustainability is crucial. We believe that it is paramount for companies to adapt to this reality and face these issues collectively. Not addressing these situations and maintaining a dated strategy will compromise the sustainability of the company.

Immersion Experiences | People like to feel important and unique. As more individuals are actively searching for ways to enrich their lives, whether through something so intimate as reading a book or a shopping outing, companies need to adapt their array of offerings to cater for these new habits. Moreover, 80% of European shoppers show a preference for a more personalized shopping experience, which further demonstrates the need for paradigm change.

Competitive Positioning

The markets where SON is present are highly mature, with competitors that hold consolidated positions. In markets where entry barriers are high and customer switching costs low, competition is conducted mostly through prices and advertising (Figure 12). There are two ways of sustaining growth, diversification, and internationalization for a mature company in a mature market. SON has adopted a strategy of diversification, acting under many BUs in different industries. Yet, looking to the company's competitors, we note that many employ a strategy of internationalization. Such is the case of Jerónimo Martins, SON's main competitor, that shows a clear focus in its food retail business, while growing through international expansion. SON has previously tried this approach, with little success. The attempts to internationalize its food retail business have proved fruitless. Also, *Worten's* operations in Spain have not been successful, with SON having been forced to shut down most of its physical stores in an effort to stop the bleeding. For further analysis on Porter Five Forces, please refer to Appendix 10.

The Same Strategy in Opposite Directions | SON's approach for Spanish *Worten* stores consists of the closure of physical locations to focus on the online channel instead. In the same geography, *Worten's* competitor *MediaMarkt* is taking a different route. The latter is increasing its number of physical stores to increase exposure and drive the sales of its online channel through its click-and-collect program. *MediaMarkt* acquired 17 of *Worten's* physical locations. This is a threat for SON since its competitor's increased exposure could jeopardize the online market share of *Worten's* stores.

M&A | In highly saturated markets such as retail, one of the main ways for a company to increase its market share is through M&A activities. SON has demonstrated its accurate perception of market trends, with the acquisitions of the Spanish parapharmacy *Arenal*, premium clothing brand *Salsa* and mobile repairment company *iServices*. However, in the food retail market SON has not shown the same intuition. With the lack of movement SON is putting itself at risk of losing market share to a bigger international player. Such is the case of the Canadian food retail company *Couche-Tard* that recently attempted to acquire *Carrefour* in France, with the offer failing due to the opposition of competent authorities.

All in all, despite its current solid competitive positioning, SON cannot lose sight of the future and adapt to maintain its leadership position.

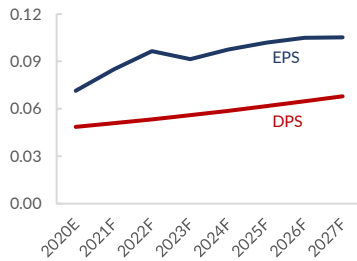
Investment Summary

Our recommendation for Sonae SGPS S.A. stands at a BUY. Our 2021YE price target of €1.25/sh represents a 75% upside potential to the company's stock price of €0.71/sh (January 14th, 2021) with medium to low risk. Our recommendation is based on the company's diversification, solid cash flow generation and sustainable outlook.

Prime Market Positioning

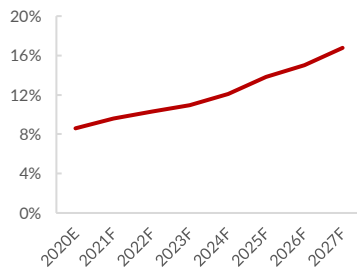
The food retail BU (Sonae MC) has maintained an undisputed leadership position in the Portuguese food retail market for the past decades. This BU held in FY19 a 26.8% market share while Pingo Doce, the chain controlled by Jerónimo Martins came in second place with 23.0%. The company capitalizes on its longstanding history with the Portuguese public. According to a survey conducted by our team in December 2020, 48% of respondents elected *Continente* as their preferred food retail chain (Figure 13). The nationwide lockdowns imposed in 2020 by the Portuguese government drove many of SON's BUs to grow and reinforce their online presence. *Worten* is in a leadership position in the online space (Figure 14), representing about 20% of total online sales of electronics in Portugal. This leadership is estimated to be sustained throughout the Iberian Peninsula, as online sales continue to grow (10.1% 2019-2027F CAGR in Portugal and 17.9% in Spain). Moreover, Sonae Sierra also holds a privileged spot, supported by Sierra Prime's assets, including six of the most notorious shopping centres in Iberia. Additionally, NOS stands in the second place of the Portuguese Telco market with a 36.8% market share, after Altice (40.5%). However, the ongoing 5G auction is challenging this industry.

Figure 15: EPS and DPS (in Euro)



Source: Team Analysis

Figure 16: Weight of Green Financing in Total Debt (in Percentage)



Source: Team Analysis

Table 3: SoP Approach

Segment	Main Valuation	Complementary
Sonae SGPS	FCFF	DDM; Multiples
Sonae MC	FCFF	Multiples
Worten	FCFF	Multiples
Sonae Fashion	FCFF	Multiples
Sonae Sierra	RE ¹ ; FCFF	-
NOS	FCFF	DDM; FCFE; APV; Market Cap; Multiples
Sonae FS	Multiples	-
Sonae IM	Multiples	-
ISRG	Multiples	-

¹Income Method for Real Estate

Source: Team Analysis

Table 4: SON's SoP Price Target

	EV to P	EV Contribution
Sonae MC (100%)	€4,245.3	69%
Sonae Sierra (70%)	€599.2	10%
Worten (100%)	€292.0	5%
Sonae Fashion (100%)	€238.1	4%
Sonae IM (90%)	€156.0	2%
Sonae FS (100%)	€89.4	1%
ISRG (30%)	€66.5	1%
NOS (30.8%)	€505.6	8%
Total Firm Value	€6,192.1	100%
Adjustments	(€3,212.9)	-51.9%
Total Equity	€2,979.2	48.1%
Price Target (20% Conglomerate Discount)	€1.25	

Source: Team Analysis

Generating Cash Flows and Distributing Value

SON has a bold dividend strategy in place, promising to keep increasing DPS at a rate of 5% YoY. Even if such promise seems risky, SON has in its portfolio market leaders and key players across different industries that will be able to generate sustainable cash flows in the future. Our forecasts show precisely that. The company will be able to increase the DPS while maintaining the payout ratio in the range 55%-62% (Figure 15) and the Net Debt/EBITDA will fall below 2.5x in 2027F. Moreover, SON's cash generating ability is further demonstrated by an 11% CFO/Sales ratio in FY19, well above the peer's group average of 6.8%. Simultaneously, NWC efficiency is expected to drive an already top-line current ratio of 0.74x (0.54x peers' average) to 0.85x by 2027F. This generation of cash flows helps distribute value and reinvest in BUs with higher growth potential.

A Green Outlook

The newly adopted green financing policy demonstrates the company's commitment to reach its self-imposed ESG targets. Some of these goals are related to the increase of women on boards and the reduction of CO₂ emission levels. Green bonds already represent 16.0% (2020E) of Sonae SGPS and Sonae MC's total gross debt (Figure 16), and we estimate an increase of 9.4% CAGR 2020E-2027F, benefiting from expanding sources of funding and yielding a lower credit spread. The company's ESG actions aiming to reach total carbon neutrality by 2040 embody a significant step in the ongoing sustainability expansion of SON's operations, as we later explore in the ESG chapter.

Valuation Methods

We valued the company using a SoP approach through a combination of FCFF and relative valuation to achieve a price target of €1.25/sh (Table 3). In the base case, we estimated the FCFF over the period 2021F-2027F for the five main BUs (Sonae MC, Worten, Sonae Fashion, Sonae Sierra, and NOS) which was coupled with a Relative Valuation to assess the value of Sonae FS, Sonae IM and ISRG. To complement our analysis and to triangulate results, additional methods were employed, all of them supporting the buy recommendation (Table 3). A DDM valuation was also performed, due to the importance the company places on its dividend policy (+5%/sh YoY), yielding a price target of €0.99/sh.

A SoP approach using only relative methodology was also used to value SON, with the results being in line with the base case. The Enterprise Value multiples used (EV/EBITDA, EV/Sales) set a price target at €1.05/sh and €0.81/sh, respectively. Lastly, to assess the value of NOS, additional methods were used, namely FCFE, APV, DDM, average market capitalization and Relative Valuation (Appendix 17).

Risk to Reach Price Target

Despite the strong cash flow generation and diversified nature, we see SON facing relevant risks. SON's margins are largely dependent on the Portuguese population's purchasing power, with food retail accounting for 84% of FY20 EBITDA (excl. NOS and Sonae Sierra). Additionally, investors should consider SON's lack of geographical diversification, with 96.9% of FY19 turnover coming from the Iberian Peninsula. This region has been severely impacted by the Covid-19 pandemic and will continue to suffer the repercussions at an economic, financial, and social level. SON was forced to close stores that carried non-essential goods in Iberia, as well as shopping centres, the latter suffering from -75% Fixed rents YoY. Moreover, increasing surveillance from Competition Authorities is also a risk for SON, as demonstrated by the most recent fine related to collusion charges imposed on Sonae MC of €121.9M, equivalent to 0.06€/ share. Regarding NOS, the imminent 5G auction is likely to change the current market landscape. Lastly, the increasing threat of cyber-attacks (+138% YoY 2020H1 in Portugal) is also a substantial risk for SON, which runs the risk of a breach in the group's entire ecosystem.

Valuation

In a Conglomerate, the Whole is made from the Parts

SON's value was derived from a Sum of the Parts Approach (SoP) approach (Table 4). Dissimilar businesses require separate analysis to better track specific BUs risk and growth potential. Thus, a DCF method is performed for the base case. A two-stage growth model was followed with a perpetual growth rate specific to each BU and a normalized discount rate to trace the value from each segment. The valuation considers forecasts for the period 2020E-2027F. The extension of the forecast period to 7 years is required to reach normalized figures following the Covid-19 Pandemic. Additionally, Relative Valuation was also performed for all BUs. As the group's real estate BU, Sonae Sierra was valued through an income approach to Real Estate on owned/co-owned shopping centres and a DCF approach on commercial assets management services. Moreover, since SON's stake on NOS represents a relevant portion of its value, we estimated its stake through an FCFF approach and complemented with FCFE, DDM, APV, and Multiples. Appendix 13 to Appendix 18 detail the valuation that we summarize below.

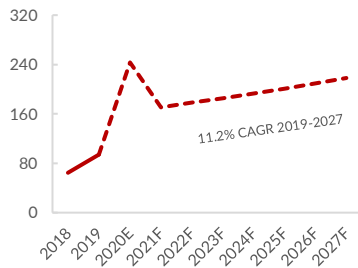
Food Retail | Sonae MC

Turnover

Sonae MC owns a vast number of brands that provide customers with essential goods. Due to specificities of each operation, SON has aggregated them into three categories that were taken into account individually when forecasting the segment: Hypermarkets (HM), Supermarkets (SM) and New Growth Businesses (NGB).

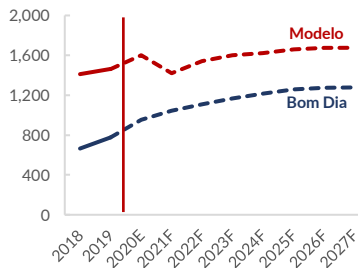
HM | Hypermarkets are the pillars of Sonae MC's operation. This segment encompasses 41 *Continente* physical stores since 2017 and also the online channel. While the physical stores represent most of the turnover (98% FY19), the online channel is slowly but surely reclaiming its stake in the Portuguese market (Figure 17) after being significantly boosted by the Covid-19 pandemic. Our survey shows that about 90% of respondents prefer *Continente* for online shopping. Although no further openings are

Figure 17: Continente Online Turnover Evolution (in Millions)



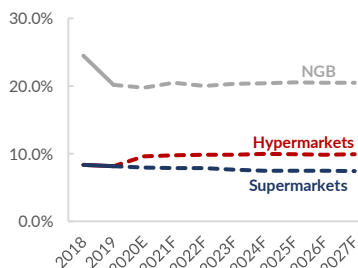
Source: Team Analysis

Figure 18: Supermarket Segment Turnover Evolution (in Millions)



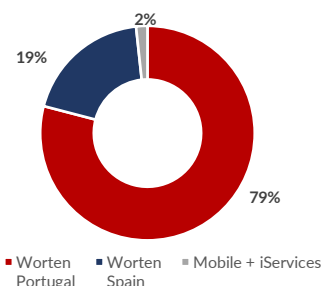
Source: SON's Data, Team Analysis

Figure 19: Sonae MC EBITDA Mg Evolution



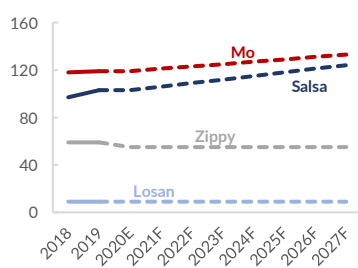
Source: SON's Data, Team Analysis

Figure 20: Worten Segments Turnover Contribution 2027F



Source: Team Analysis

Figure 21: Sonae Fashion Stores Evolution per Brand



Source: SON's Data and Team Analysis

planned in HM, Hypermarkets will continue its sustained organic growth (+0.5% 2019-2027F CAGR) despite the entry of a new player in Portugal's Northern region - *Mercadona*. The EBITDA Mg of this segment is estimated to increase +160 bps (2020E-2027F) to 9.8%.

SM | The Supermarket segment includes the *Continente Modelo* large supermarkets (FY19 138 stores) and *Continente Bom Dia* proximity supermarkets (119). In 2020E, organic growth is estimated to be +2.5% (YoY) and slowly decay to 1.5% 2027F due to the market saturation. We estimate a continuous increase in the number of stores (135 new stores 2020E-2027F CAGR). Despite total turnover being expected to follow an upward trend, we estimate a decrease in turnover per store in both banners, *Bom Dia* (-4.3% 2019-2027F CAGR) and *Modelo* (-0.3%) (Figure 18). Turnover per sales area will also decrease (-2.3% and -0.4%). While it might seem irrational to open new stores reducing each unit's turnover, we believe the strategy is to gain market share as well as geographical coverage. The decrease in COGS and SG&A will not be in the same proportion as Turnover/Store, hurting EBITDA margin (8.2% FY19 compared to an average 7.2% 2020E-2027F).

NGB | With physical appearance taking a front-seat in people's minds and being SON a pioneer in the massification of the Health&Beauty category with *Wells* and *Arenal* brands, we forecast NGB to show the highest growth. We estimate an increase of 9.4% (2020E-2027F CAGR) in sales area, positioning NGB with 1,590 stores (2027F) throughout the Iberian Peninsula. Turnover per store is forecasted to decrease at -1.4% (2020E-2027F CAGR) reaching €0.7M (2027F), due to market saturation. Besides that, we estimate the total turnover to increase at 5.1% CAGR, representing 20% of the BU's total turnover (2027F). In FY19, the EBITDA Margin of the segment was 20.2% and should stabilize at 22.0% (2020E-2027F) (Figure 19). Total sales area in Spain represents 15.6% 2020Q3 of total sales area (+110bps from FY19). Such trend is expected to continue increasing. Spain's higher disposable income, average salary, and higher GDP per Capita than Portugal are expected to contribute positively to NGB's turnover.

All in all, the total sales of the food retail segment are expected to grow at a 3.1% CAGR 2019-2027F, presenting a 2027F total turnover of €6.0bn.

CAPEX

SON has disclosed plans to invest in the opening of new stores. We split the forecast of CAPEX for MC into expansion and maintenance, with the latter estimated to grow at +1.9% 2020E-2027F CAGR. The expansion CAPEX (+3.3% CAGR) is driven by the opening of proximity stores and NGB.

Electronics Retail | Worten

To estimate the value of *Worten* and fully grasp the different strategies employed in this electronics segment we divided the BU into its three categories (Figure 20): *Worten Portugal*, *Worten Spain* and *Worten Mobile&iServices*. The operations in Portugal and Spain were also split into physical stores and online, as tracking different growth avenues is paramount.

Worten Portugal | This category will be the biggest turnover catalyst (79% *Worten's* total turnover 2027F). The online channel is forecasted at +10.1% (CAGR 2019-2027F), in line with historical data contributing 9% of the category's total turnover by 2027F with physical stores accounting for the remaining 91%. In 2019 the online contributed only 4.7%, but the pandemic changed the playing field. Yet, we expect that *Worten* will continue opening new stores in Portugal, reaching 195 stores by 2027 (+38 stores since 2019). However due to the saturation of the market and the growth of the online segment, turnover per store is forecasted to decrease at -1.1% (2019-2027F CAGR).

Worten Spain | This operation has been in a crossroad. The key goal in Spain is to stop the profitability deterioration, not to expand. It is expected the closure of the underperforming stores (-25 stores; reaching 16 in 2021F) while accelerating the development of the online channel (47.7% of category's turnover in 2027F; 17.9% CAGR 2019-2027F). Restructurings always face unforeseeable issues which required us to take a conservative approach on the category. Turnover per store is expected at +1.0% CAGR 2019-2027F, considering that less profitable stores are closed and the ones that remain show better performance.

Mobile&iServices | This category is forecasted to represent 1.7% of *Worten's* total sales by FY27, being the one where the biggest turnover growth lies (3.2% 2020E-2027F CAGR) mainly driven by the acquisition of the company *iServices* in late 2019.

Worten's total turnover is forecasted to grow at 0.2% (2019-2027F CAGR). The saturation of the Portuguese and the Spanish markets coupled with the restructuring process in Spain drive the small growth. EBITDA Mg is forecasted to grow by 47bps. to 4.5% in 2027. (Appendix 14).

Fashion Retail | Sonae Fashion

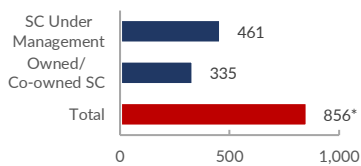
For Fashion retail, our forecast was split into the different brands this segment encompasses (*Mo*, *Zippy*, *Losan* and *Salsa*). While *Zippy*, *Losan* and *Mo's* sales (61.7% FY27 BU total turnover) are expected to grow alongside Portuguese and Spanish inflation (1.5% for Portugal and 1.65% for Spain), *Salsa* has a different outlook. The BU's newest acquisition will post the most significant growth regarding the number of stores (+21; reaching 124 FY27) (Figure 21) and should be the growth driver.

Fashion's total turnover is forecasted to increase at 2.6% (CAGR 2019-2027F). EBITDA Mg is estimated to improve by 71bps to 9.0% in 2027.

Commercial Real Estate | Sonae Sierra

To adjust for the changes in *Sonae Sierra's* strategy, with the increased focus on the asset management services, we divided the BU into two categories: i) owned/co-owned shopping centres, and ii) services (shoppings under management). *Sierra's* operations assume a vital role within SON, as people increasingly look to shopping centres as places to socialize and have new experiences.

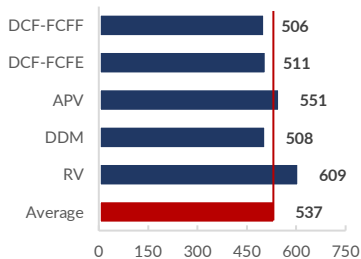
Figure 22: Sonae Sierra Segments EV
(in Millions)



* including €60M from Aliancec Sonae (Avg 2020 Market Cap Approach)

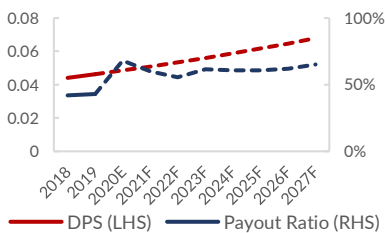
Source: Team Analysis

Figure 23: NOS Valuation (in Millions)



Source: Team Analysis

Figure 24: DPS and Payout Ratio Evolution



Source: Team Analysis

Table 5: WACC and Terminal WACC per Segment

Segment	WACC	Terminal WACC
Sonae SGPS	5.58%	6.05%
Sonae MC	5.18%	5.68%
Worten	6.07%	6.50%
Sonae Fashion	6.11%	6.61%
Sonae Sierra	6.01%	6.86%
NOS	4.79%	5.73%

Source: Team Analysis

Figure 25: Cost of Debt per Segment

Segment	Cost of Debt
Sonae SGPS	1.2%
Sonae MC	1.0%
Worten	1.0%
Sonae Fashion	1.0%
Sonae Sierra	2.8%
NOS	1.5%
SRG	1.0%
FS	1.0%
IM	1.0%

Source: Team Analysis

Owned/Co-Owned Shopping Centres | To forecast turnover, we split this category into assets that belong to Sierra Prime (40% FY27 total turnover) and others (60%). Regarding others, we further divide them into Iberia and Rest of Europe. Turnover is forecasted considering the Gross Leasable Area (GLA), which is estimated to increase due to the expansion projects the BU has for Sierra Prime Shopping centres. In the end, the category's total turnover is forecasted to increase to €98.5M by 2027 (+0.7% 2019-2027F CAGR).

To reach operating profit, the operating costs were forecasted considering peer's EBIT Mg (CAGR +1% 2019-2027F) being directly related to the increase in GLA of owned assets. To complete the income approach to real estate, a cap rate was necessary to discount operating profit. For this, the 10-year benchmark for Portuguese real estate funds of 7.34% was chosen.

Shopping Centres under Management | To assess the services provided by Sonae Sierra we performed a DCF using the FCFF/WACC approach. Considering historical data, that mirrors the expected upward trend in shopping centres management, GLA is forecasted to increase at 3.1% CAGR (2020E-2027F). Operating costs exhibit the same growth as turnover since these two variables are directly linked.

To achieve a final EV value that takes into consideration both segments of the BU, we considered the total GLA forecasted for 2027 of both owned/co-owned assets (52%) and assets under management (48%), with a final EV of €779.4M (Figure 22). SON's stake in Sonae Sierra (70%) corresponds to an EV of €599.2M.

NOS

The two NOS's segments, Telco and Multimedia, were forecasted separately but later summed up together with the goal of obtaining a holistic FCFF to be discounted. After valuing NOS, we computed the value of SON's 30.8% stake which was then added to the SoP. To conservatively incorporate the impending 5G auction in Portugal into the valuation, a possible loss in market share was considered due to the likely entry of an additional player in the market. Moreover, as explained in the Investment Risk chapter, we considered possible scenarios for the loss in market share as a consequence of the 5G auction (Appendix 17). Additional valuation methods were performed to complement our perspective for NOS (Figure 23).

Dividend Policy | DDM

SON's dividend strategy is centred around a 5% YoY increase in dividends per share (DPS), which the company has been delivering since 2012 and is committed to maintain going forward (Figure 24). Given SON's dividend strategy, we decided to value it through a DDM H-Model approach with a convergence period of 4 years after 2027, to have an additional proxy to our price target. In the end, the model yielded a price target of €0.99/sh, which is in line with our buy recommendation justified by the SoP approach.

Weighted Average Cost of Capital

A portfolio of a conglomerate bears different risks despite all the diversification benefits that may arise. To discount the FCFF for each segment (excluding FS, IM and ISRG), six different WACC rates were computed to more accurately track the specific risks that exist within each industry (Appendix 21) (Table 5). To select the RFR for the CAPM approach, a normalized 10-year German Government Bond Yield was used (0.8%), with CRP (1.7%) and MRP (6.9%) also being accounted for. Betas for each segment follow the pure-play method by adjusting peer's beta to SON's overall financial risk, using a stable capital structure and an expected corporate tax rate. Lastly, to more appropriately account for long-run risk and because of the current low yields, we normalized the RFR (1.7%) and CRP (2.0%) for the terminal period.

Cost of Debt | Benefiting from ESG Approach

Given that SON is very focused on its ESG policy and committed to reaching its targets in this spectrum, we wanted to better understand how that could impact its valuation. The green bonds that the company is currently issuing tend to charge lower spreads, which can impact SON's Cost of Debt (Figure 25). To account for this effect, we adjusted the Terminal Period spread to 0.3%, based on our research on the negative premiums that ESG bonds have compared to regular bonds (Appendix 22).

Peer's Selection

To find a peer group for SON, we followed two different approaches. Firstly, we looked at SON as a whole, finding conglomerate companies that shared similar characteristics. The other approach was to find a peer group for each segment. We also found a peer group for NOS looking at the whole company. In both approaches, peers were filtered based on their geographical location and similar key financial results.

Relative Valuation

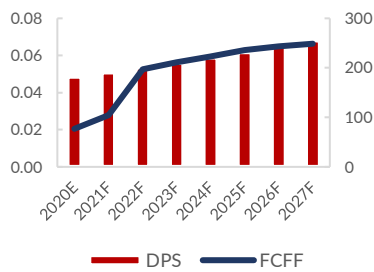
Several Relative Valuation Multiples were computed as alternative valuation methods to complement the DCF approach. Specifically, EV/EBIT and EV/EBITDA to overcome the issues of different capital structures of SON's peers. However, this approach does not fully capture the company's whole value since there are no peers that share the same portfolio profile. SON is trading at a discount based on both multiples. Using EV/EBIT the price target is €0.87/sh and EV/EBITDA yields a price of €0.80/sh, which further support our buy recommendation using the SoP approach (Appendix 26).

Financial Analysis

Profitability at the Core

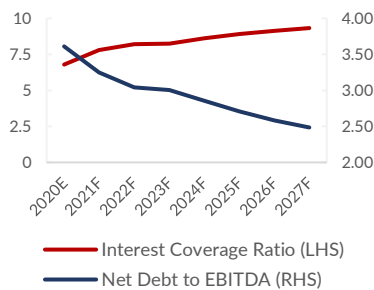
Profitability has been one of SON's strengths. The conglomerate provided a CFO/Sales of 11.1% in FY19 (+78bps YoY), exceeding the 6.8% peer group average (+60bps YoY). By 2027F, we expect that ratio to decrease to 9.8%. Additionally, from FY18 to FY19, the EBITDA Mg has grown 110bps to 9.0% in line with peers' average. In 2020E, it decreased 2% during Q1 and Q2 due to the pandemic costs, but

Figure 26: DPS and FCFF Evolution
(in Millions - RHS)



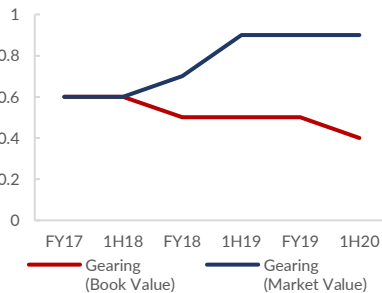
Source: Team Analysis

Figure 27: Net Debt to EBITDA and Interest Coverage Ratio Evolution



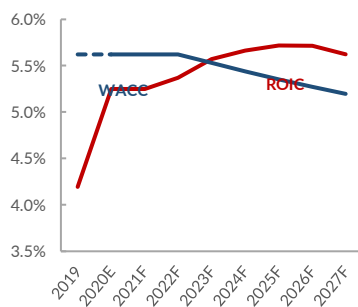
Source: Team Analysis

Figure 28: SON's Gearing Ratio Evolution



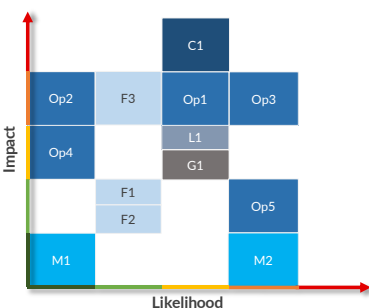
Source: Team Analysis

Figure 29: RoIC and WACC Comparison



Source: Team Analysis

Figure 30: Risk Matrix



Source: Team Analysis

we don't expect a material impact on SON's FY profitability since in Q3 it bounced back to two digits. We estimate the upward trend to continue, reaching 10.3% by 2027F, mainly due to improvements in SG&A/Sales efficiency (-173bps 2019-2027F). The outlook for NGBs will drive those improvements, MC's most profitable category (22% EBITDA Mg in 2027F), as well as the closure of *Worten's* underperforming stores in Spain and the increasing optimization in Sonae Fashion. In addition, Sierra's capital recycling strategy will also be a key driver of profitability since Shopping centres under management have operating margins +7% higher than owned/co-owned Shopping's.

Consistent Cash Flows

SON has generated strong FCFFs in recent years, averaging €266M between 2018-2019. Despite decreasing to €134M in 2020E due to lower CFO, impacted by the abovementioned costs, we expect it to grow at 9.0% CAGR afterwards (2020E-2027F). Our price target for 2021YE implies a FCF Yield of 4.2%. Additionally, we estimate Cash Flows from Operations to continue being sufficient to finance CAPEX (1.45x). Given that, these FCFs will allow SON to continuously distribute dividends at its target DPS growth rate of +5% YoY and keep on amortizing debt throughout the years (Figure 26).

Enhancing Liquidity

SON's impressive Cash Conversion Cycle (CCC) topped -42 days in FY19, compared to an average of -21 for the peers. This was mainly driven by the core business and market position of SON's largest segment, MC. We estimate the CCC to remain stable during the forecasted period, even though a decrease in 2020E and 2021F payables days is expected (105 and 103 days) since the company decided to support its suppliers in the advent of the crisis caused by Covid-19. SON's highly liquid position throughout the years gives room to this kind of initiative without jeopardizing the company's financial health. Likewise, SON's 0.74x current ratio is well above peers' average (0.59x in FY19) and is expected to increase to 0.85x due to efficiency gains in NWC. Finally, SON's financing policies determine that the company should pre-finance its liquidity needs 18 months in advance. In the beginning of the pandemic SON had €1,083M in cash and available credit lines.

Deleveraging in Sight

Despite being a highly leveraged company, SON's strong operating cash flows, asset disposals and dividends received in FY19 enabled a decrease in Net Debt of 12.7% YoY to €1,150M. Hence, Net Debt to EBITDA decreased 118bps to 4.1x and the gearing of the group, at book value, stood constant at 0.5x (Figure 28). SON's Interest Coverage Ratio (ICR) grew from 0.53 FY18 to 0.68 FY20, as a result of higher margins (Figure 27). ICR is expected to keep increasing until 9.3x by 2027F, converging to its peer's average of 11.6x. Hereafter, we estimate the Cost of Debt to remain constant at 1.2% during the forecasted period. In 2020, SON refinanced €850M of debt, anticipating bond payments maturing in 2022 and 2023. In turn, these operations allowed for an increase in the average bonds' maturities (13.6% YoY). It is worthy to note that starting in late 2020 SON, through a partnership with Banco BPI, SON began issuing ESG-linked bonds. The €280M the company already has financed through these instruments, and the internal benefits it extracts from this partnership lead us to conclude that this is an amount that will continue to grow going forward.

Outperforming Peers' ROIC

Sierra is pursuing a strategy of transferring real estate assets and, consequently, their debt from SON's balance sheet to the Funds it manages. While allowing the risks of the underlying assets to be shared with other investors SON is reducing its Invested Capital. This decrease is expected to set SON's ROIC to 5.7% in FY27F, increasing 50bps from 5.2% in FY20 (8.4% excluding non-recurrent events). Such ROIC is slightly above the 5.4% WACC expected for the same period (Figure 29). Despite having an average ROE of 7.9% FY19, below the expected 9.0% Cost of Equity, the attractive dividend yield of 5.1% FY19 still adds value to shareholders. Both ROE and ROIC figures are in line with its peers' average.

Investment Risks

Strategic and Operational Risks

Cyber-Attacks [Op1] (Medium likelihood / Medium-high Impact)

A data breach related to suppliers, employees, and customer's data could represent a critical risk. Reports of cybercrimes increased 139% in the first 5 months of 2020 compared to 2019. Poor IT systems and employee information protection could deteriorate SON's reputation, resulting in heavy fines. **Mitigant:** SON owns S21SEC, a European leading cybersecurity company (part of Sonae IM), which adds internal expertise to prevent cybercrime.

Business Portfolio Management [Op3] (Medium-Low Likelihood / Medium-High Impact)

Excessive geographical concentration might expose SON to a weaker macroeconomic outlook for Portugal as well as to the threat of new competitors (Alibaba Group, Amazon, Mercadona, etc). Additionally, SON's degree of complexity can be perceived as a risk, which is why conglomerate discounts are applied. Often, investors perceive conglomerates as being inefficient since management may have a harder time allocating time and resources in an efficient manner. **Mitigant:** SON's core businesses are non-cyclical (Food Retail), which protect cash flows even during periods of economic uncertainty.

Competition Risks [Op5] (Medium-high Likelihood / Medium-low Impact)

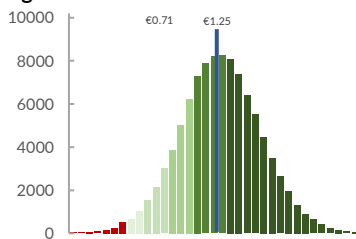
Even though SON remains as one of the biggest players in the market, the company is not immune to competitive threats. Moreover, pricing and discount competition could drive deflation in food retail products, impacting SON's profitability. **Mitigant:** SON's market share is hard to challenge given the brand recognition and scale built during decades.

Figure 31: Legal and Regulatory Risks

Legal & Regulatory Risks	
Description	Potential Impact
Contingent liabilities related to uncertain tax positions	-€1.2bn
Price collusion resolution	-€122M
Portuguese 5G auction (NOS)	-2.66% market share (estimation)

Source: SON's 2019 Annual Report, Team Analysis

Figure 32: Monte Carlo Simulation



Source: Team Analysis

Table 6: Sensitivity Analysis for Sonae MC's Terminal WACC and Terminal Growth Rate

	Terminal WACC/MC							
	6.3%	6.1%	5.9%	5.7%	5.5%	5.3%	5.1%	4.9%
0.00%	0.89	0.92	0.96	0.99	1.04	1.08	1.13	1.18
0.25%	0.93	0.97	1.01	1.05	1.09	1.14	1.19	1.25
0.50%	0.98	1.02	1.06	1.11	1.16	1.21	1.27	1.33
0.75%	1.03	1.08	1.12	1.17	1.23	1.29	1.35	1.42
1.00%	1.09	1.14	1.19	1.25	1.31	1.37	1.45	1.53
1.25%	1.15	1.21	1.26	1.33	1.39	1.47	1.55	1.64
1.50%	1.22	1.28	1.35	1.42	1.49	1.58	1.67	1.78
1.70%	1.29	1.35	1.42	1.50	1.58	1.68	1.78	1.90

Source: Team Analysis

Table 7: Shareholder Structure

Shareholder	Participation
Efanor Investimentos	52.9 %
CaixaBank BPI	4.8 %
Criteria Caixa	2.0 %
Invesco	2.0 %
Norges Bank	2.0 %
Others	36.3 %

Source: Team Analysis

Table 8: Executive Directors

Name	Position
Cláudia Azevedo	CEO
João Pedro Dolores	CFO
João Gunther Amaral	CDO
Luís Moutinho	CEO Sonae MC
Fernando Oliveira	CEO Sonae Sierra
Miguel Almeida	CEO NOS
Miguel Mota Freitas	CEO Worten and ISRG
Luís Reis	CEO Sonae Fashion and Sonae FS
Eduardo Piedade	CEO Sonae IM

Source: Team Analysis

Legal Risk

Rising Legal and Regulatory Environment [L1] (Medium Likelihood / Medium Impact)

Political instability and perceived hostility against large corporations may originate regulations that directly impact SON. Additionally, the company's tax position in FY19 was uncertain. Litigations are currently being disputed in tax courts and could impact SON (€1.2bn). Lastly, NOS considers the 5G auction that will take place in Portugal, unfairly designed, favouring new entrants with special conditions.

Pandemic Risk

Covid-19 Long-term presence [C1] (Medium-high Likelihood / High Impact)

The inefficacy of a vaccine for Covid-19 or a slow national vaccination program, could prolong the negative effects that the pandemic has had on some of SON's businesses. Sierra saw great limitations to its activities in shopping centres, NOS was forced to close cinemas and some of *Well's* and *Arenal* stores were temporarily shut down during the crisis. **Mitigant:** SON is well positioned in its online channels, providing support and an alternative in case of further intermittent lockdowns.

Strategic and Operational Risks

Brand reputation [Op2] (Low Likelihood / Medium-high Impact)

Sonae owns several valuable brands which are susceptible to reputation issues. In this regard, SON and other five players have been fined by the Portuguese Competition Authority (€121.9M) for illegally fixing prices of beverage products between 2008-2017. This accounts for €-0.06/sh in our price target. However, SON firmly denies this claim is going to confront it on legal courts. **Mitigant:** SON has a strong brand reputation and a loyal client base. Moreover, the company has been investing in its image through ESG related initiatives.

Risks to Price Target

The following variables were tested using Monte Carlo Simulation and sensitivity analysis, to stress the robustness of our recommendation.

For further detail on Investment Risks, please refer to Appendix 27.

Terminal Growth Rate | A market disruption from the entrance of new players in the food retail market or Portugal's long-term economic growth lower than expected could impact the perpetuity growth rates we estimated in our base case.

Risk-Free Rates and Spreads | During the last years interest rates have been at historically low levels. Therefore, we assumed that the RFR would increase (Appendix 21). If these low yields persist in the long run, it could impact our estimates.

Conglomerate Discount | Conglomerate discount can change in the future depending on the complexity of the corporate structure of SON.

Country Risk Premium | A change of this premium could impact the Cost of Equity, thus the target price.

5G Auction in Telecom Market | Different impacts on the market share of NOS have a direct influence on our price target.

Monte Carlo Simulation

The Monte Carlo simulation tested the aforementioned variables by running 100.000 trials. In the end we reached the conclusion that 98.9% of the scenarios yielded a price target above SON's current share price.

Sensitivity Analysis

As Sonae MC is SON's largest segment, we considered appropriate to do a sensitivity analysis on its perpetuity growth rate and on its terminal WACC, to visualize the impact of these variables in our price target (Table 6). By reviewing the implied WACCs from its peer group we defined a range from 4.9% to 6.3%, and a maximum growth rate of 1.7% given the long-term GDP forecast for Portugal. We can conclude from this analysis that our recommendation remains unchanged in all scenarios.

Environmental, Social and Governance

Shareholder Structure

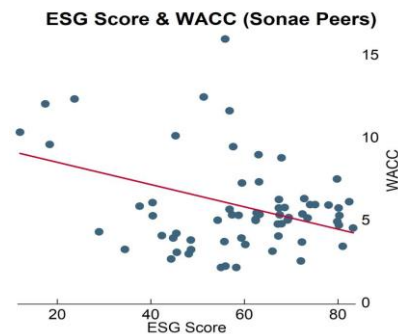
SON's main shareholder is *Efanor Investimentos* SGPS, S.A., which is controlled by the Azevedo family (62.8% of share capital). *Efanor* owns 52.9% of SON's share capital (Table 7), with this stake having been stable over the past decade. Likewise, Sonae SGPS's shareholder structure has remained constant since 2015.

Governance

SON follows a one-tier governance model (Appendix 28), where the management structure lies with the Board of Directors (BoD), and the supervisory structure includes a Statutory Audit Board and a Statutory External Auditor, PwC, which has been auditing SON since 2018. The controlling shareholder - the Azevedo family - elects the corporate body members to 4-year office terms. In 2019, Paulo Azevedo left the 11-year CEO role to his sister Cláudia Azevedo, a role he accumulated with Chairman since 2015. In the 2016-2019 term, Cláudia Azevedo was already in a leadership role as the acting CEO of Sonae Capital, another company of the family portfolio and Sonae IM.

The conglomerate comprises several operating companies, which have its own governing body with relevant expertise in each industry (Table 8). This structure has allowed SON's BUs to position themselves as key players in all industries. Currently, Efanor is controlled by siblings Cláudia and Paulo Azevedo. Ângelo Paupério and Carlos da Silva are also part of Efanor's board, while acting as NED at SON. Efanor board members' role on SON and a minority of independent NEDs represent one of the

Figure 33: ESG Score and WACC Relation



Source: Team Analysis

Table 9: Ellen MacArthur 2020 Ranking

ELLEN MACARTHUR RANKING	
Reusable Plastic Packaging (%)	
Sonae MC	4th
Carrefour	6th
Jerónimo Martins	8th
2019 Reusable, Recycled or Compostable Plastic Packaging (%)	
Sonae MC	7th
Carrefour	8th
Jerónimo Martins	9th

Source: Team Analysis

main corporate governance risks that minority shareholders are exposed to. Additionally, the complex structure and static shareholder structure pose a risk to minority investors since Efanor and the Azevedo family will ultimately control decisions. However, it is in the family's best interest to keep the company profitable while maintaining an attractive dividend policy, which increases the distribution of value amongst all the shareholders. Additionally, SON is trying to grow towards a more sustainable corporate governance structure, as demonstrated by the recent segregation of the CEO and Chairman roles, which contrast with 4 years of CEO duality. More women on board are also expected following the ESG-linked bonds' targets.

Board Structure and Remuneration Policy | SON's BoD comprises 10 members, 2 are executive directors and 4 are independent. Additionally, the board has 3 female members, including the CEO – Cláudia Azevedo. SON strives to ensure a diverse representation, having different nationalities, backgrounds (from hands-on management experience to academia) and genders on board. The remuneration policy defined by the 3 independent members of the Remuneration Committee consists of a fixed amount plus two variable components for executive members. The first is based on last fiscal year financial performance, while the latter captures share price and business performance evolution over the previous 4 years. NEDs are remunerated on a fixed basis only, according to best practices. 2019 figures point to a fixed remuneration of €1.25M for the BoD, plus a variable remuneration of €0.91M for the executive team.

Social Responsibility and Environmental Focus

Sustainability has been gaining traction amongst investors over the past years. Companies are joining the trend aimed at reducing their footprint and ensuring a better outlook for the planet. SON is not an exception and has been developing activities aligned with the United Nations Sustainable Goals (SDGs), in Planet and People fields, not only for the betterment of the planet but also for those inhabiting it.

ESG in the Valuation of SON | Aligned with its ESG strategy SON started refinancing debt through ESG-linked bonds. Public perception and scrutiny are on the rise, and it is not just words on this that matter. Not only does this reinforce SON's commitment to their ESG goals, but it also allows the company to manage its credit spread in the long run (Appendix 30). Our analysis of Sonae SGPS SA and Sonae MC's peer companies showed a negative correlation between the implied Cost of Debt and the ESG scores. The same conclusion was found for the WACC. As in (Figure 33), higher scores yield benefits through a marginal cost of debt reduction, yet no investment is associated with substantially higher costs. As such, we believe SON's approach to green financing will be instrumental to the company's value creation.

CO₂ and Climate Change | In accordance with the Paris Pledge for Action, SON is committed to reducing CO₂ emissions that are inevitably linked to its businesses' nature. SON decided to plant as many trees as necessary to offset its own carbon footprint to compensate this negative externality. Through this project – *Floresta Sonae*, SON aims to plant and manage the largest private forest in Portugal, while anticipating by 10 years the milestone of its Carbon Neutral Status.

Nature and Biodiversity | SON has been developing a set of activities to preserve habitats, eliminate food waste from its operations and bring people's awareness to the importance of a balanced diet.

Plastic | To combat the nefarious consequences of the increase of discarded plastics, SON has established the "Sonae Companies' Charter of Principles for Plastic". In 2019, Sonae MC became the first Portuguese retailer to join the Ellen MacArthur "Foundation's New Plastics Economy Global Commitment", being ranked, in December 2020, amongst the world's biggest players (Table 9).

People | During the Covid-19 pandemic, SON offered support to various institutions by distributing food and non-food products to vulnerable people and health and security professionals. The company also donated hundreds of computers to schools, allowing children to follow classes remotely. Additionally, it promoted the increase of members of the *Clube dos Produtores Continente* (CPC), in an effort to help small producers sell their crops and avoid food waste.

Table 10: ESG 2019 Actions

Sonae SGPS	Sonae MC	Worten	Sonae Fashion	Sonae Sierra	NOS
PLANET					
+16 Photovoltaic Plants installed (157 total)	Backhauling Program 2800 tones of CO ₂ emissions avoided	-	-	-82% of GHG emissions since 2005	-9% of energy consumption in NOS buildings
-450 tonnes of sugar; -300 tonnes of saturated fat and 60 tonnes of salt eliminated	Sustainable Fishing Police Increase of 20% of sustainably sourced fish	Troca Eficiente Program 20600 trees donated	Shirt's line created from post-consumer and post-industrial waste.	-35% of water efficiency since 2003	-
2000 tonnes of plastic eliminated from the packaging and goods	Partnership with SPV to explain how each product should be recycled	-120 tonnes of virgin plastic eliminated through the inclusion of recycled plastic in bags	-11% of plastic used in packaging	-	Dive In This Wave Against Plastic -4 tonnes of annual waste
PEOPLE					
Missão Continente Food donation to 1000 institutions		11M hours invested in Community Support		€426.189 invested in sustainable solidary campaigns	-

Source: Team Analysis

A Value-at-Risk Assessment of Sonae

Table 11 Parametric method stats

	Simple Return	Log-Norm return
Observations	767	767
Mean	-0.1%	-0.1%
Standard deviation	1.77%	1.77%
Annualized mean	-14.0%	-18.0%
Annualized StDev	28.3%	28.3%

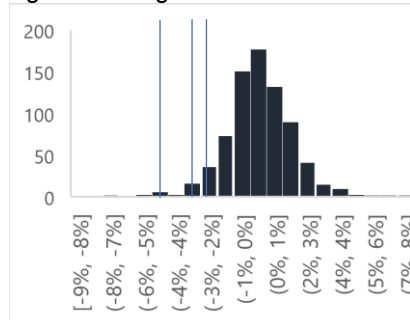
Source: Team Analysis

Table 12 Historical method - Ranked results

# rank	Log-Norm Return	Cutoff point
1	-9.3%	
2	-8.3%	
3	-7.5%	
4	-7.0%	
5	-6.3%	
6	-5.6%	
7	-5.6%	
8	-5.5%	1% (confidence level)
9	-5.2%	
(...)	(...)	
38	-2.7%	
39	-2.7%	5% (confidence level)
40	-2.7%	
(...)	(...)	
76	-2.1%	
77	-2.1%	10% (confidence level)
78	-2.0%	
(...)	(...)	
765	6.7%	
766	7.1%	
767	7.5%	

Source: Team Analysis

Figure 33 Histogram – Historical method



Source: Team Analysis

Value at Risk of Sonae

To analyse Sonae as an investment prospect, a further risk assessment was taken. The widely used risk metric Value-at-Risk (VaR) was chosen to define the expected loss that could happen over a specific time horizon and under normal market conditions. Knowing the VaR of an investment like Sonae, can help facilitate capital allocation decisions and assess the risk of Sonae as an investment inside of the investor's portfolio. For the calculations, two key elements will be taken into consideration: the confidence level, and the time horizon required for the VaR, to be interpreted within the context of a target date. For the analysis Sonae's daily share prices will be used, and then the results will be extrapolated to a one-year horizon. For this evaluation, three methods will be used to determine the VaR of an investment in Sonae. First, the parametric method, secondly the historical method and finally, the Monte Carlo simulation.

Assumptions

For the VaR calculations, the lookback period of 3 years was chosen, with January 14 of 2021 as the reference date. The reason for the chosen lookback period is to have enough information on the dataset, in order to be able to extrapolate the results to a one-year horizon. The number of observations is 767 with an average of 256 trading days per year. Additionally, based on the daily prices of the last 3 years, the returns were estimated with on the mathematical approximation using a log-normal function (Alexander, 2009).

$$X_t \approx \frac{P_{t+1} - P_t}{P_t} \approx \ln\left(\frac{P_{t+1}}{P_t}\right)$$

Based on this definition of the returns, it can be assumed that the data follows a normal distribution. This definition of the distribution function of the returns will be relevant further in this chapter to calculate the VaR.

Parametric Method

The parametric method is also known as the variance-covariance method or analytical method. In this case, the returns are assumed to follow a normal distribution because they are calculated with the log-normal approximation, and the mean is close to zero (table 11). To obtain the VaR two parameters are needed, the expected value and the standard deviation. Using the properties of a normal distribution, one can define a VaR threshold of 5%, and the parametric VaR would be the point that lies 1.65 standard deviations from the expected value. For a VaR expected over a year with a 5% confidence level, it is required to annualize the daily parameters found on the data. With 256 trading days, the annualized expected value would be of -0.1798 and the standard deviation of 0.2833, as follows:

$$E(R) = -0.0007 * 256 = -0.1798$$

$$\sigma = 0.0117 * \sqrt{256} = 0.2833$$

Now, the expected value will be subtracted by the standard deviation per 1.65. The result of the parametric VaR of Sonae is equal to $-0.1798 - 1.65 * 0.2833 = -0.6775$. Finally, this number is multiplied by -1 to present it in absolute value. Since the VaR is expressed as a rate of return, it can be converted to monetary terms. Assuming an investment of €1.000, the expected loss after 1 year would be of €676 a 5% of the times.

Historical Method

The historical method uses the current portfolio and the actual historical changes of the risks that the portfolio's assets experienced during the lookback period. The main advantage of the historical method compared to the parametric method is that it does not have to make assumptions about the parametric form of the distribution function of its assets (Alexander, 2009). There is no need to define the mean return or the standard deviation. The drawback of this method is that the past might not be a good representation of what will happen in the future. If historical prices were determined by particular or outlier events, this would impact the information and its outcomes. The application consists of obtaining the returns that happened each day during the historical lookback period and sorting the values from the largest loss to the highest gain. After this, one could estimate the one-day VaR at any confidence level by choosing the position on the resulting sorted data where the desired percentile needed is. (table 12). Finally, to obtain the annual VaR, the one-day VaR must be multiplied by the square root of the trading days.

$$VaR_{annual} = VaR_{one-day} * \sqrt{256}$$

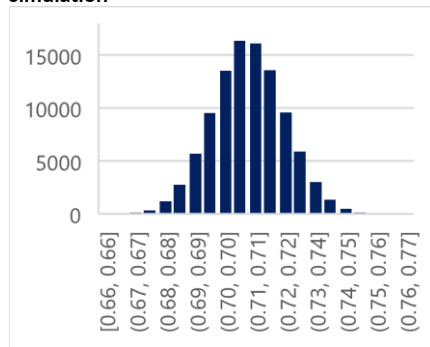
The result from this method is a one-day VaR of 2.67% and an annual VaR of 42.7%. In the Figure 33 is the histogram of the sorted daily returns over the last 3 years. The vertical lines represent the position of the one-day VaR at 1%, 5% and 10% confidence levels. With the VaR in terms of rate of return, now it can be expressed in terms of the portfolio value or as an investment amount. Assuming an investment of €1.000, the expected loss after 1 year would be of €427, 5% of the time.

Table 11: Monte Carlo - Base case

Assumptions	
μ	-0.070%
δt	1
σ	0.0177
sqrt(dt)	1
S_0	0.71

Source: Team Analysis

Figure 34 Histogram - Monte Carlo simulation



Source: Team Analysis

Table 12: Monte Carlo - adjusted case

Assumptions	
μ	0.76%
δt	1
σ	0.0178
sqrt(dt)	1
S_0	0.71

Source: Team Analysis

Table 16. Summary 5% VaR

	Parametric VaR	Historical VaR	Monte Carlo
One-day	2.99%	2.67%	2.96%
Annual	64.75%	42.75%	47.40%

Source: Team Analysis

Monte Carlo Simulation

This method requires generating random values of the assets under the portfolio. The outcomes from this exercise will represent the hypothetical returns from the portfolio based on the specified characteristics. This method is more flexible than the parametric method in terms of the assumptions one could make related to the parameters. However, for comparability reasons and for consistency, the random values will be generated following a normal distribution. These processes will be simulated instead of determining an expected return and volatility like in the parametric method. Additionally, the results will be tabulated, and this will permit an overall risk analysis from it. For this method, 100 thousand simulations were executed.

The simulations were developed using a stochastic construction. Stock prices are usually assumed to follow a Markov Process where only the current value is relevant for predicting the future (Hull, 2015). The specific Markov process that will be used is called a generalized Wiener process which assumes a stochastic procedure with a constant variance rate per period and a constant expected drift rate. The refined equation to generate the randomized simulations has the following form:

$$S_1 = S_0 * e^{(\mu - \frac{\sigma^2}{2}) * \delta t + \sigma \epsilon \sqrt{\delta t}}$$

Intuitively, the simulated price of Sonae, will be equal to Sonae's current share price with a drift and a randomized process following a normal distribution. The summary of the elements used to generate the figures are presented in the table 13. Once the share prices are simulated, the returns are calculated and ranked from the smallest to the largest. To determine the VaR at 5%, the result was obtained at the position 5000 from the sorted data. Sonae's share price in the position 5000 is of 0.689 euros. Since the reference share price as of January 14th is of 0.71 euros, then the corresponding return is of -2.96%. This value represents the 5% one-day VaR. By multiplying the one-day VaR by $\sqrt{256}$ the annualized VaR using Monte Carlo simulation is of 47.4%. Now, assuming an investment of €1.000 in Sonae's shares, the expected loss after 1 year would be of €474, 5% of the time.

Table 135: Monte Carlo simulation results summary with a 100k simulations

Simulation #	E	dS/S	S	Return
1	0.424	0.007	0.715	0.67%
2	1.025	0.017	0.722	1.75%
3	0.008	-0.001	0.709	-0.07%
4	-0.930	-0.017	0.698	-1.72%
(...)	(...)	(...)	(...)	(...)
99997	-0.169	-0.004	0.707	-0.39%
99998	0.236	0.003	0.712	0.33%
99999	-1.153	-0.021	0.695	-2.10%
100000	0.822	0.014	0.720	1.38%

Source: Team Analysis

Adjusted Monte Carlo simulation

This method has the flexibility that the user can develop his own assumptions about the distribution function. For this reason, it is considered appropriate to repeat the simulations with a forward-looking perspective instead of based on the past. The parameter μ in the model represents the expected rate of return on the stock. For this value it was applied the risk-free rate of 0.76% used throughout the report and not the negative average return that happened during the last 3 years. For the volatility, the standard deviation used from the last 6 months was of 1.78%, instead of the one from the last 3 years used before. The daily VaR found was of 2.172% and the annualized VaR was of 34.76%. It is worth noting that, after making these adjustments, the VaR became smaller than it was in the previous tests. This result makes sense as the expectations about the future are brighter than what the historical data suggests.

Contrasting results

In table 16 are the results of the 3 different methods. Under the 3 methods consistent results were found for the one-day VaR, with the parametric VaR being the largest. These values lie between 2.5% and 3%. Empirical evidence suggests these results are reasonable. Sukono (2017), found a daily 5% VaR of a food retail company of 2.55% and Milojevic (2014) found an average 5% Var of 2.42% for several Eastern European stock indexes. When the calculations are extrapolated to the annualized VaR both Historical and Monte Carlo simulations methods remain consistent, ranging from 42% and 48%. The annual parametric VaR is the one that stands out with a 64.7%. This difference is explained by the approach by which the parametric result was extrapolated through the parameters. In this case the mean and the standard deviation were annualized separately to reach an independent calculation for the annual VaR. This was not the case of the Historical and Monte Carlo methods that permitted to apply a direct extrapolation of the result.

Table 14: VaR at 1%, 5% and 10% confidence level

VaR	Parametric	Historical	Monte Carlo
1%	84.0%	87.7%	66.1%
5%	64.7%	42.7%	47.4%
10%	54.2%	32.8%	37.4%

Source: Team Analysis

Value-at-Risk at different confidence levels

Two additional confidence levels were studied besides the base case scenario of a VaR at a 5% confidence level. In table 17 is the summary of the results of the 3 methods at 3 confidence levels (1%, 5% and 10%). The value at risk for the 3 methods is considerably higher at a 1% level. Even though this result was expected, it calls the attention that at this level of confidence, the largest level of risk is found in the historical method with an 87.7%. Additionally, it is consistent with the result found for the parametric method. This could be explained by the concentration of observations on the tails of the distribution functions of each data set. Additionally, at a 10% VaR, both Historical and Monte Carlo methods show consistent figures between 32% and 38%, while the parametric method is of 54.3%.

Conclusion

To strengthen the risk analysis of an investment in Sonae's shares the value-at-risk metric was chosen. This represented a challenge taking on count the particularities of the available historical data. In January of 2018, Sonae's share price reached an historically high price of €1.27/sh and in 2020 covid pandemic crisis hit the global economy. Due to this context, Sonae's historical data showed volatile and pessimistic expected returns that might have increased the negative results of each methodology. However, with the Monte Carlo simulation, alternative assumptions were incorporated that are more aligned with the future expected economic environment and Sonae's share price evolution.

The results show that the worse scenario was found under the parametric method. The 5% VaR of a portfolio of only Sonae's shares valued in €1,000, is of €647 over a one-year period. In the case of the historical method and Monte Carlo simulations, the 5% VaR is of €427 and €474, respectively. The adjusted Monte Carlo simulations is more conservative with a 5% VaR of €347. Even though these results might seem outstanding about the riskiness of an investment in Sonae, this equity research suggests Sonae's shares have an upside potential of 77%. According to the economic theory, a high return would need to have a corresponding risk attached to it due to the risk-return trade-off. Therefore, VaR calculations warn about the possible losses from an investment in Sonae's shares, however the upside potential of 77% justifies the buy recommendation.

Appendices

Appendix 1 | Statement of Financial Position (Sonae SGPS)

Balance Sheet (mEUR)	2018	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	CAGR 20-27
Property, Plant & Equipment	1,656	1,688	1,784	1,889	1,996	2,102	2,207	2,311	2,412	2,510	5.0%
Right of Use Tangible Assets	969	1,060	1,056	1,051	1,043	1,034	1,022	1,008	991	971	-1.2%
Intangible Assets	366	402	406	410	413	416	418	419	419	417	0.4%
Goodwill	779	679	679	679	679	679	679	679	679	679	0.0%
Investments in JV & Associates (NOS & Others)	1,979	1,608	1,618	1,628	1,639	1,650	1,658	1,658	1,658	1,667	0.4%
Other long-term Assets	1,438	812	812	812	812	812	812	812	812	812	0.0%
Assets Held for Sale	0	1,126	0	0	0	0	0	0	0	0	0.0%
TOTAL NON-CURRENT ASSETS	7,187	7,375	6,356	6,469	6,582	6,693	6,796	6,887	6,972	7,057	1.5%
Inventories	671	664	691	664	693	717	736	754	768	779	1.7%
Account Receivables	222	217	251	252	262	271	277	283	288	290	2.1%
Other Current Assets	179	178	178	178	178	178	178	178	178	178	0.0%
Cash & Short-Term Investments	696	610	683	592	598	616	646	693	742	785	2.0%
TOTAL CURRENT ASSETS	1,768	1,669	1,803	1,686	1,731	1,782	1,838	1,908	1,976	2,032	1.7%
ASSETS	8,955	9,044	8,158	8,155	8,313	8,475	8,634	8,795	8,948	9,088	1.6%
Long-Term Debt	1,591	1,592	1,337	1,308	1,289	1,273	1,241	1,193	1,162	1,114	-2.6%
Long/term Green Financing	0	0	255	283	302	318	350	398	430	477	9.4%
Capitalized Lease Obligations	991	1,088	1,068	1,057	1,047	1,036	1,026	1,016	1,005	995	-1.0%
Liabilities on Held for Sale assets	0	387	0	0	0	0	0	0	0	0	0.0%
Other non-current liabilities & Deferred Taxes	643	605	605	605	605	605	605	605	605	605	0.0%
TOTAL NON-CURRENT LIABILITIES	3,226	3,672	3,264	3,253	3,243	3,232	3,222	3,212	3,202	3,192	-0.3%
Accounts Payable	1,287	1,338	1,378	1,289	1,343	1,388	1,423	1,456	1,481	1,498	1.2%
Accrued Expenses	249	255	255	255	255	255	255	255	255	255	0.0%
Short-Term Debt	500	195	190	185	180	175	170	165	160	155	-2.9%
Capitalized Lease Obligations	74	103	112	111	109	108	107	106	105	104	-1.0%
Other Current Liabilities	425	375	375	379	383	388	394	400	406	412	1.4%
TOTAL CURRENT LIABILITIES	2,535	2,266	2,309	2,218	2,271	2,314	2,349	2,382	2,407	2,424	0.7%
LIABILITIES	5,760	5,938	5,574	5,471	5,514	5,547	5,571	5,593	5,608	5,615	0.1%
Share capital	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	0.0%
Own shares (Cash Equity Swap)	(104)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	0.0%
Legal Reserve	252	268	221	221	221	221	221	221	221	221	0.0%
Reserves and earnings	(286)	(202)	(129)	(87)	(52)	(0)	65	135	209	282	-211.8%
Profit/Loss for the Period	207	165	139	137	159	177	189	198	203	204	5.6%
Total Shareholders' Equity ex. Minority Interest	2,069	2,132	2,131	2,171	2,228	2,298	2,375	2,455	2,534	2,608	3%
Minority Interest - Equity	1,126	975	453	512	571	630	689	747	806	865	9.7%
TOTAL SHAREHOLDER'S EQUITY	3,195	3,107	2,585	2,684	2,799	2,928	3,063	3,202	3,340	3,473	4.3%
TOTAL LIABILITIES&EQUITY	8,955	9,044	8,158	8,155	8,313	8,475	8,634	8,795	8,948	9,088	1.6%

Balance Sheet (Common Size)	2018	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Property, Plant & Equipment	18%	19%	22%	24%	24%	25%	26%	27%	27%	28%
Right of Use Tangible Assets	11%	12%	13%	13%	13%	12%	12%	12%	11%	11%
Intangible Assets	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%
Goodwill	9%	8%	8%	8%	8%	8%	8%	8%	8%	7%
Investments in JV & Associates (NOS & Others)	22%	18%	20%	20%	20%	19%	19%	19%	19%	18%
Other long-term Assets	16%	9%	10%	10%	10%	10%	9%	9%	9%	9%
Assets Held for Sale	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%
TOTAL NON-CURRENT ASSETS	80%	82%	79%	80%	80%	80%	79%	79%	79%	78%
Inventories	7%	7%	8%	8%	8%	8%	9%	9%	9%	9%
Account Receivables	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%
Other Current Assets	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Cash & Short-Term Investments	8%	7%	8%	6%	6%	7%	7%	7%	8%	8%
TOTAL CURRENT ASSETS	20%	18%	21%	20%	20%	20%	21%	21%	21%	22%
ASSETS	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Long-Term Debt	18%	18%	16%	16%	15%	15%	14%	14%	13%	12%
Long/term Green Financing	0%	0%	3%	3%	4%	4%	4%	5%	5%	5%
Capitalized Lease Obligations	11%	12%	13%	13%	13%	12%	12%	12%	11%	11%
Liabilities on Held for Sale assets	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
Other non-current liabilities & Deferred Taxes	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
TOTAL NON-CURRENT LIABILITIES	36%	41%	40%	40%	39%	38%	37%	36%	36%	35%
Accounts Payable	14%	15%	17%	16%	16%	16%	16%	17%	17%	16%
Accrued Expenses	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Short-Term Debt	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Capitalized Lease Obligations	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Other Current Liabilities	5%	4%	5%	5%	5%	5%	5%	5%	5%	5%
TOTAL CURRENT LIABILITIES	28%	25%	28%	27%	27%	27%	27%	27%	27%	27%
LIABILITIES	64%	66%	68%	67%	66%	65%	64%	64%	63%	62%
Share capital	22%	22%	25%	25%	24%	24%	23%	23%	22%	22%
Own shares (Cash Equity Swap)	-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%
Legal Reserve	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%
Reserves and earnings	-3%	-2%	-2%	-1%	-1%	0%	1%	2%	2%	3%
Profit/Loss for the Period	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Total Shareholders' Equity ex. Minority Interest	23%	24%	26%	27%	27%	27%	28%	28%	28%	29%
Minority Interest - Equity	13%	11%	6%	6%	7%	7%	8%	8%	9%	10%
TOTAL SHAREHOLDER'S EQUITY	36%	34%	32%	33%	34%	35%	36%	36%	37%	38%
TOTAL LIABILITIES&EQUITY	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Appendix 2 | Income Statement (Sonae SGPS)

Income Statement (mEUR)	2018	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	CAGR 20-27
Revenue from Goods & Services	5,891	6,435	6,946	6,742	7,056	7,316	7,512	7,691	7,819	7,896	1.8%
COGS	(4,053)	(4,342)	(4,748)	(4,517)	(4,722)	(4,887)	(5,013)	(5,129)	(5,213)	(5,263)	1.5%
Gross Profit	1,838	2,092	2,199	2,226	2,334	2,429	2,500	2,562	2,606	2,633	2.6%
SG&A	(1,384)	(1,542)	(1,552)	(1,535)	(1,607)	(1,666)	(1,710)	(1,748)	(1,776)	(1,792)	2.1%
Others	13	29	(10)	0	(4)	(8)	(10)	(12)	(14)	(15)	6.3%
EBITDA	466	579	637	691	723	756	780	801	816	825	3.8%
<i>Depreciation & Amortization (total)</i>	<i>(291)</i>	<i>(331)</i>	<i>(332)</i>	<i>(377)</i>	<i>(393)</i>	<i>(407)</i>	<i>(418)</i>	<i>(430)</i>	<i>(440)</i>	<i>(450)</i>	<i>4.4%</i>
Depreciation PP&E	-	-	(160)	(182)	(190)	(196)	(202)	(207)	(212)	(217)	4.4%
Amortization	-	-	(48)	(55)	(57)	(59)	(61)	(63)	(64)	(66)	4.5%
Depreciation Right of use	-	-	(124)	(140)	(146)	(151)	(156)	(160)	(164)	(167)	4.4%
Operating income	176	248	304	313	330	349	362	371	376	375	3.0%
Non-Recurring Results & Others	25	(58)	-	-	-	-	-	-	-	-	-
Financial Result	(88)	(98)	(93)	(92)	(91)	(91)	(90)	(89)	(88)	(88)	-0.8%
Results of joint ventures & Associates	156	143	43	33	42	44	45	46	47	48	1.5%
Income before Taxes	269	235	255	254	280	303	317	328	334	336	4.0%
Income Taxes	(24)	(18)	(46)	(46)	(50)	(54)	(57)	(59)	(60)	(60)	4.0%
Net Income after Tax	245	216	209	208	230	248	260	269	274	275	4.0%
Discontinued Operations	(5)	18	-	-	-	-	-	-	-	-	0.0%
Net Income	240	234	209	208	230	248	260	269	274	275	4.0%
Net Income Attributable to Minority Interest	(33)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	(69)	0.0%
Net Income Attributable to SONAE SGPS	207	165	140	139	161	179	191	200	205	206	5.7%

Income Statement (Common Size)	2018	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Revenue from Goods & Services	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
COGS	-68.8%	-67.5%	-68.3%	-67.0%	-66.9%	-66.8%	-66.7%	-66.7%	-66.7%	-66.7%
Gross Profit	31.2%	32.5%	31.7%	33.0%	33.1%	33.2%	33.3%	33.3%	33.3%	33.3%
SG&A	-23.5%	-24.0%	-22.3%	-22.8%	-22.8%	-22.8%	-22.8%	-22.7%	-22.7%	-22.7%
Others	0.2%	0.4%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.2%	-0.2%	-0.2%
EBITDA	7.9%	9.0%	9.2%	10.2%	10.2%	10.3%	10.4%	10.4%	10.4%	10.5%
<i>Depreciation & Amortization (total)</i>	<i>-4.9%</i>	<i>-5.1%</i>	<i>-4.8%</i>	<i>-5.6%</i>	<i>-5.6%</i>	<i>-5.6%</i>	<i>-5.6%</i>	<i>-5.6%</i>	<i>-5.6%</i>	<i>-5.7%</i>
Depreciation PP&E	0.0%	0.0%	-2.3%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%
Amortization	0.0%	0.0%	-0.7%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%
Depreciation Right of use	0.0%	0.0%	-1.8%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
Operating income	3.0%	3.9%	4.4%	4.6%	4.7%	4.8%	4.8%	4.8%	4.8%	4.8%
Non-Recurring Results & Others	0.4%	-0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Financial Result	-1.5%	-1.5%	-1.3%	-1.4%	-1.3%	-1.2%	-1.2%	-1.2%	-1.1%	-1.1%
Results of joint ventures & Associates	2.6%	2.2%	0.6%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Income before Taxes	4.6%	3.6%	3.7%	3.8%	4.0%	4.1%	4.2%	4.3%	4.3%	4.3%
Income Taxes	-0.4%	-0.3%	-0.7%	-0.7%	-0.7%	-0.7%	-0.8%	-0.8%	-0.8%	-0.8%
Net Income after Tax	4.2%	3.4%	3.0%	3.1%	3.3%	3.4%	3.5%	3.5%	3.5%	3.5%
Discontinued Operations	-0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Net Income	4.1%	3.6%	3.0%	3.1%	3.3%	3.4%	3.5%	3.5%	3.5%	3.5%
Net Income Attributable to Minority Interest	-0.6%	-1.1%	-1.0%	-1.0%	-1.0%	-0.9%	-0.9%	-0.9%	-0.9%	-0.9%
Net Income Attributable to SONAE SGPS	3.5%	2.6%	2.0%	2.1%	2.3%	2.5%	2.5%	2.6%	2.6%	2.6%

Appendix 3 | Cash Flow Statement (Sonae SGPS)

Cash Flow Statement (mEUR)	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	CAGR 20-27
EBIT	305	314	330	350	362	371	376	376	3.0%
Taxes	(46)	(46)	(51)	(55)	(57)	(59)	(60)	(60)	4.0%
Non-Cash Charges (D&A and Others)	333	378	394	407	419	430	440	450	4.4%
Changes Net Working Capital	(19)	(60)	21	17	14	15	13	10	-191.5%
CASH FLOW FROM OPERATING ACTIVITIES	573	586	694	719	738	757	769	776	4.4%
CAPEX	(494)	(481)	(496)	(507)	(514)	(521)	(525)	(527)	0.9%
Investments and others (incl. Held for Sale)	193	-	-	-	-	-	-	-	-
Dividends Received	33	23	31	33	38	46	47	40	2.9%
CASH FLOW FROM INVESTING ACTIVITIES	(269)	(458)	(465)	(474)	(477)	(475)	(478)	(487)	8.9%
Dividend Paid - Sonae SGPS	(183)	(107)	(112)	(117)	(123)	(128)	(134)	(140)	-3.7%
Loans, Bonds & Leases	(272)	(45)	(36)	(32)	(48)	(64)	(48)	(64)	-18.7%
Green Bonds	255	29	19	16	32	48	32	48	-21.3%
Interests & Similar Charges	(93)	(92)	(91)	(91)	(90)	(89)	(88)	(88)	-0.8%
CASH FLOW FROM FINANCING ACTIVITIES	(293)	(216)	(220)	(224)	(229)	(234)	(239)	(244)	-2.6%
Net Change in Cash & Eq.	10	(89)	9	20	32	49	52	45	23.2%
Beginning Cash & Eq.	610	620	531	540	560	592	641	693	1.8%
Ending Cash & Eq.	620	531	540	560	592	641	693	738	2.5%

Cash Flow Statement (Common Size, in % of CFO)	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F
EBIT	53%	54%	48%	49%	49%	49%	49%	48%
Taxes	-8%	-8%	-7%	-8%	-8%	-8%	-8%	-8%
Non-Cash Charges (D&A and Others)	58%	65%	57%	57%	57%	57%	57%	58%
Changes Net Working Capital	-3%	-10%	3%	2%	2%	2%	2%	1%
CASH FLOW FROM OPERATING ACTIVITIES	100%	100%	100%	100%	100%	100%	100%	100%
CAPEX	-86%	-82%	-72%	-71%	-70%	-69%	-68%	-68%
Investments and others (incl. Held for Sale)	34%	0%	0%	0%	0%	0%	0%	0%
Dividends Received	6%	4%	4%	5%	5%	6%	6%	5%
CASH FLOW FROM INVESTING ACTIVITIES	-47%	-78%	-67%	-66%	-65%	-63%	-62%	-63%
Dividend Paid - Sonae SGPS	-32%	-18%	-16%	-16%	-17%	-17%	-17%	-18%
Loans, Bonds & Leases	-48%	-8%	-5%	-5%	-7%	-8%	-6%	-8%
Green Bonds	44%	5%	3%	2%	4%	6%	4%	6%
Interests & Similar Charges	-16%	-16%	-13%	-13%	-12%	-12%	-12%	-11%
CASH FLOW FROM FINANCING ACTIVITIES	-51%	-37%	-32%	-31%	-31%	-31%	-31%	-31%
Net Change in Cash & Eq.	2%	-15%	1%	3%	4%	6%	7%	6%
Beginning Cash & Eq.	107%	106%	77%	75%	76%	78%	83%	89%

Appendix 4 | Key Financial Ratios

Key Financial Ratios	Units	2018	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Efficiency Ratios											
Total Asset Turnover	times	0.81	0.72	0.81	0.83	0.86	0.87	0.88	0.88	0.88	0.87
Fixed Assets Turnover	times	2.76	2.39	2.46	2.29	2.32	2.33	2.32	2.31	2.29	2.26
Receivables Turnover	times	28.43	29.32	29.68	26.83	27.49	27.49	27.43	27.44	27.39	27.32
Payables Turnover	times	3.27	3.31	3.50	3.39	3.59	3.58	3.57	3.56	3.55	3.53
Inventory Turnover	times	5.85	6.50	7.01	6.67	6.96	6.93	6.90	6.88	6.85	6.80
Days of Inventory Outstanding (DIO)	days	62	56	52	55	52	53	53	53	53	54
Days Payables Outstanding (DPO)	days	112	110	104	108	102	102	102	102	103	103
Days of Sales Outstanding (DSO)	days	13	12	12	14	13	13	13	13	13	13
Cash Conversion Cycle (CCC)	days	(36)	(42)	(40)	(39)	(36)	(36)	(36)	(36)	(36)	(36)
Operating Cycle	days	75	69	64	68	66	66	66	66	67	67
Profitability Ratios											
Gross Margin	%	31.2%	32.5%	31.7%	33.0%	33.1%	33.2%	33.3%	33.3%	33.3%	33.3%
EBITDA Margin	%	7.9%	9.0%	9.2%	10.2%	10.2%	10.3%	10.4%	10.4%	10.4%	10.5%
EBITDA Margin MC	%	10.6%	10.2%	10.4%	10.8%	10.7%	10.8%	10.8%	10.8%	10.8%	10.8%
EBITDA Margin Worten	%	-	5.0%	5.0%	5.1%	5.2%	5.2%	5.3%	5.3%	5.4%	5.5%
EBITDA Margin Fashion	%	-	6.7%	8.4%	8.5%	8.6%	8.7%	8.8%	8.9%	9.0%	9.0%
EBITDA Margin NOS	%	-	39.6%	40.1%	38.8%	38.9%	39.1%	39.3%	39.4%	39.4%	39.5%
EBIT Margin	%	3.0%	3.9%	4.4%	4.6%	4.7%	4.8%	4.8%	4.8%	4.8%	4.8%
Net Profit Margin	%	3.5%	2.6%	2.0%	2.1%	2.3%	2.5%	2.5%	2.6%	2.6%	2.6%
ROA	%	2.9%	1.8%	1.6%	1.7%	2.0%	2.1%	2.2%	2.3%	2.3%	2.3%
ROE	%	10.3%	7.9%	6.6%	6.5%	7.3%	7.9%	8.1%	8.3%	8.2%	8.0%
ROCE	%	2.7%	3.7%	5.2%	5.3%	5.4%	5.7%	5.7%	5.8%	5.7%	5.6%
ROIC	%	2.7%	4.2%	5.2%	5.2%	5.4%	5.6%	5.7%	5.7%	5.7%	5.6%
CFO/Sales	%	10.4%	11.1%	8.2%	8.7%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%
SG&A/Sales	%	23.5%	24.0%	22.3%	22.8%	22.8%	22.8%	22.8%	22.7%	22.7%	22.7%
Liquidity Ratios											
Current Ratio	times	0.70	0.74	0.75	0.73	0.74	0.74	0.76	0.78	0.80	0.82
Quick Ratio	times	0.36	0.36	0.38	0.35	0.35	0.36	0.37	0.39	0.41	0.42
Cash Ratio	times	0.27	0.27	0.27	0.24	0.24	0.24	0.25	0.27	0.29	0.30
Solvency Ratios											
Total Debt to Total Book Value of Equity	times	1.53	1.40	1.39	1.35	1.31	1.26	1.21	1.17	1.12	1.08
Total Debt to Total Capital	times	0.60	0.58	0.58	0.58	0.57	0.56	0.55	0.54	0.53	0.52
Total Debt to Total Assets	times	0.35	0.33	0.36	0.36	0.35	0.34	0.33	0.33	0.32	0.31
Long-term Debt to Total Book Value of Equity	times	1.25	1.26	1.25	1.22	1.18	1.14	1.10	1.06	1.02	0.99
Long-term Debt to Total Capital	times	0.49	0.52	0.52	0.52	0.51	0.50	0.50	0.49	0.48	0.47
Long-term Debt to Total Assets	times	0.29	0.30	0.33	0.32	0.32	0.31	0.30	0.30	0.29	0.28
Equity Multiplier	times	2.80	2.91	3.16	3.04	2.97	2.89	2.81	2.74	2.67	2.61
Interest Coverage Ratio	times	5.3	5.9	6.8	7.5	7.9	8.3	8.7	9.0	9.2	9.4
Net Debt to EBITDA	times	5.27	4.09	3.68	3.50	3.31	3.11	2.95	2.80	2.66	2.56
Value Creating and Cash Flows											
Economic Value Added (EVA)						-12.9	2.0	12.0	20.0	24.5	23.9
Debt Coverage						11.26%	11.99%	12.49%	12.88%	13.13%	13.19%
Cash to Income						2.1	2.1	2.0	2.0	2.0	2.1
Earnings Quality (CFO/Net_Income_at_SON)						4.3	4.0	3.9	3.8	3.7	3.8

Appendix 5 | Statement of Financial Position Assumptions

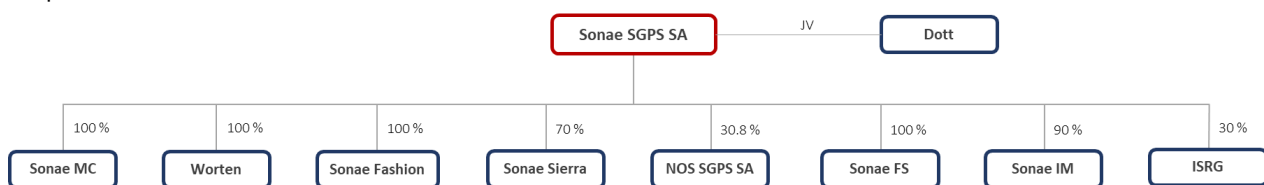
Macroeconomic Variables	Units	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Comment	
Inflation	%	0.0%	1.1%	1.2%	1.2%	1.4%	1.5%	1.5%	1.5%	IMF forecast (2020-2025), we assumed it to remain constant for the remaining years.	
Interest Rate (Euribor)	%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	OCDE forecast (2020-2022), we assumed it to remain constant for the remaining years	
Income Tax	%	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	Estimated an effective tax rate based on adjustments from Sonae's income tax decomposition, with the exception of the effects of different income tax rates from other countries and under(over) tax estimates.	
GDP Growth	%	-8.1%	3.9%	4.5%	2.4%	2.0%	1.7%	1.7%	1.7%	Bank of Portugal forecast (2020-2023), IMF forecast (2024-2025) and constant for 2027	
Balance Sheet (mEUR)											
Units	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Comment		
Total CAPEX		Sum of the Parts									Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.
Property, Plant & Equipment	% Assets	18.5%	18.7%	21.9%	23.1%	23.9%	24.7%	25.4%	26.2%	PP&E(t-1) + CAPEX*59.8% - D&At*48%. The 59.8% is a proportion of PP&E in PP&E+Intangibles+Right_of_Use_Tangible_Assets.	
NON-CURRENT ASSETS											
Right of Use Tangible Assets	% Assets	10.8%	11.7%	13.0%	12.9%	12.5%	12.1%	11.8%	11.4%	RUTA(t-1) + CAPEX*28% - D&At*27%. The 28% is a proportion of Right of Use Tangible Assets in PP&E+Intangibles+Right_of_Use_Tangible_Assets.	
Intangible Assets	% Assets	4.1%	4.4%	5.0%	5.0%	4.9%	4.9%	4.8%	4.7%	PP&E(t-1) + CAPEX*12.2% - D&At*15%. The 12.2% is a proportion of Intangibles in PP&E+Intangibles+Right_of_Use_Tangible_Assets.	
Goodwill	%	0%	0%	0%	0%	0%	0%	0%	0%	Equal to the nominal value of 2019.	
Investments in Associates (NOS & Others)	%	0%	0%	0%	0%	0%	0%	0%	0%	Assumed constant and equal to the nominal value of 2019.	
Other long term/assets	%	0%	0%	0%	0%	0%	0%	0%	0%	Assumed constant and equal to the nominal value of 2019.	
Assets Held for Sale	%	0%	0%	0%	0%	0%	0%	0%	0%	SON reported assets held for sale of €1.126M in FY19, related to a divesture from Sierra. In the 9M2020 report, these assets were already removed. Since to be considered held for sale the assets should be expected to be sold within 12 months, it turns out to be unpredictable. For that reason, we forecasted this item to be 0.	
CURRENT ASSETS											
Inventories		Sum of the Parts									Calculated individually per segment and added together for the forecasted financial statements of SON. For this

Account receivables										account, we excluded the segments accounted by equity method.
Other Current Assets	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.
TOTAL NON-CURRENT LIABILITIES										Assumed constant and equal to the nominal value of 2019.
Long-Term Debt	%	84.0%	82.2%	81.0%	80.0%	78.0%	75.0%	73.0%	70.0%	Long term debt is divided into Debt and Green Debt. SON reported a refinancing strategy through ESG Bonds for a total amount of €280m in 2020YE. This value represents 16% of total debt excluding leases. Therefore, we assume that throughout the forecasted period Debt will be refinanced into Green Debt. We expect the former to represent 70% of LT Debt by 2027.
Long/term Green Financing	%	16.0%	17.8%	19.0%	20.0%	22.0%	25.0%	27.0%	30.0%	For the reason mentioned above, Green Debt is expected to increase in proportion of Total LT Debt during the forecasted period.
Capitalized Lease Obligations	%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	LT Leases in % of Total Leases. Totals leases are decreasing 1% YoY and are split between current and non-current liabilities based on the proportions of 2019.
Liabilities on Held for Sale assets	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	In 2019 SON reported €387M of liabilities on assets held for sell related to a divesture from Sierra. In the 9 months report from SON, these liabilities were already removed from the accounts. We forecasted this account to be 0 in forecasted years.
Other non-current liabilities & Deferred Taxes		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	Assumed constant and equal to the nominal value of 2019.
TOTAL CURRENT LIABILITIES										
Accounts Payable										Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.
Accrued Expenses	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	Assumed constant and equal to the nominal value of 2019.
Short-Term Debt	% Total Debt	6.4%	6.3%	6.2%	6.0%	5.9%	5.7%	5.6%	5.5%	Nominal amount of 2019, decreasing 5M per year.
Capitalized Lease Obligations	%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	ST Leases in % of Total Leases. Totals leases are decreasing 1% YoY and are split between current and non-current liabilities based on the proportions of 2019.
Other Current Liabilities	%	0.0%	1.1%	1.2%	1.2%	1.4%	1.5%	1.5%	1.5%	Assumed to grow with inflation.
TOTAL SHAREHOLDERS' EQUITY										
Share capital	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	Assumed constant and equal to the nominal value of 2019.
Own shares	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	Assumed constant and equal to the nominal value of 2019.
Legal Reserve	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2020 forecasted as the nominal amount of 2019, but with an adjustment of 47 related to the change in assets help for sell which impacted the capital. Constant from 2021-2027
Minority Interest - Equity	% Total Equity	35.2%	31.4%	17.6%	18.9%	20.1%	21.2%	22.2%	23.1%	Nominal amount of 2019-dividends for joint ventures and associates.
TOTAL SHAREHOLDERS' EQUITY										

Appendix 6 | Income Statement Assumptions

Income Statement (mEUR)	Units	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Comment
Revenue from Goods & Services										Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.
COGS										Additionally, we adjusted total revenue for Intercompany transactions.
External supplies and services										Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.
Employee benefits expense										Additionally, we adjusted total revenue for Intercompany transactions.
Other operating Income/expense (net)										We forecast ESS as an historical average (2017-2019) in % of total SG&A forecasted from the individual segments.
Depreciation & Amortization										We forecast EBE as an historical average (2017-2019) of the % of total SG&A forecasted from the individual segments.
Financial Expense Loans	%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	Calculated individually per segment and added together for the forecasted financial statements of SON.
Financial Expense Leases	%	4%	4%	4%	4%	4%	4%	4%	4%	Calculated individually per segment and added together for the forecasted financial statements of SON.
Results of joint ventures & Associates	%									Calculated individually per segment and added together for the forecasted financial statements of SON.
Net Income Attributable to Minority Interest	%	0%	0%	0%	0%	0%	0%	0%	0%	Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.

Appendix 7 | SON's Portfolio



Appendix 8 | SON's BU Brands (FY20 Turnover Contribution)



Industry Overview & Competitive Positioning

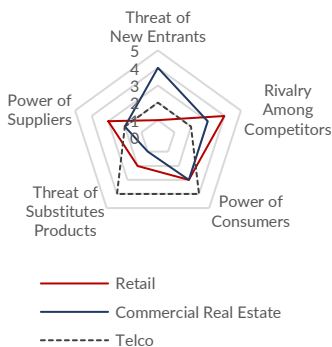


Appendix 9 | Supply Outlook

SON operates in retail subsectors where suppliers are diversified, implying that each supplier accounts for only a small proportion of total purchases. However, particularly in food retail, the Company strives to maintain solid and lasting relationships with its supplier network. An example of these efforts is the *Clube dos Produtores Continente* (CPC), the 20+ years old initiative with more than 200 members, that provides small local producers access to major markets in Portugal. In 2019, SON purchased from this partnership €300M worth of fresh goods (19% YoY). Additionally, in the fashion, sports and electronic retail BUs, the landscape is maintained, with the company acquiring the finished products from a differentiated pool of suppliers.

Source: Adapted from CPC Presentation

Appendix 10 | Porter Five Forces



Threat of new Entrants

High levels of investment are required to enter the food retail segments (i.e. \$1.52m/new store for Sonae MC on average FY19). Additionally, any new entrants would have great difficulty in developing highly efficient supply chains, which are necessary to obtain economies of scale. In the case of NOS, the capital intensiveness of the industry makes it difficult for new entrants to compete. Nonetheless, the undergoing broadband auction will likely open the door to a new player in the Telco industry, diluting the existing players' market shares. Lastly, for real estate the threat can be considered moderate, due to comparatively low levels of investment necessary to enter the asset management segment (vs. the development segment).

Rivalry among Competitors

Rivalry in Sonae's segments exists in the form of pricing competition, advertising campaigns and customer service/experience. Due to the maturity of the retail segment, market share gains are mainly possible at the expense of a competitor's stake. Switching costs for consumers are low in both the physical and online spectrums. Additionally, since most of the products sold lack differentiation, it is very hard for Sonae to permanently retain a customer across its array of BUs. Therefore, we consider rivalry among competitors high.

Power of Consumers

In the retail segments, consumers exhibit a considerable price elasticity, however they do not exert enough pressure on firms to structurally change their operations. In the online sphere, consumers increase their power by giving feedback that can influence other potential buyers. Nevertheless, we consider this risk to remain somewhat residual. In the case of NOS, since the services provided are standardized customers can find an equivalent product in other operators, so they tend to compare services and use their bargaining power to get the best possible conditions. Nonetheless, individual consumers don't have material impact on the company, for that reason we consider their power to be low.

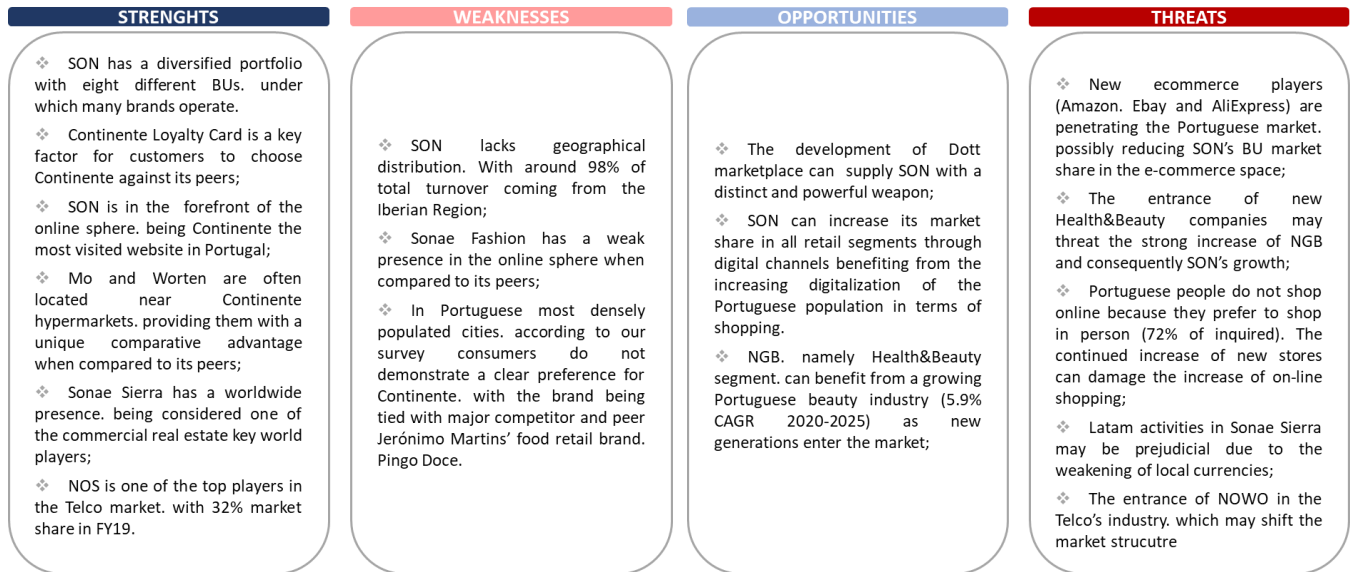
Threat of Substitute Products

In most of Sonae's segments the threat of substitute products is insignificant. If we consider the food retail business, it's notable that SON's BU already covers the most of food & beverages goods and its substitutes, with the same applying to non-food. In the Telco businesses the general dependence on cell phones and internet reduces the number of substitutes for this line of business.

Power of Suppliers

Sonae is not largely affected by its suppliers as most are of a significant smaller scale when compared to the company. As such, the bargaining power of suppliers is negligible by nature.

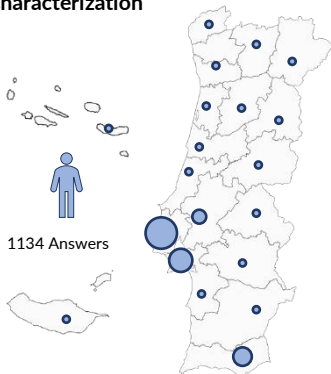
Appendix 11 | SWOT Analysis



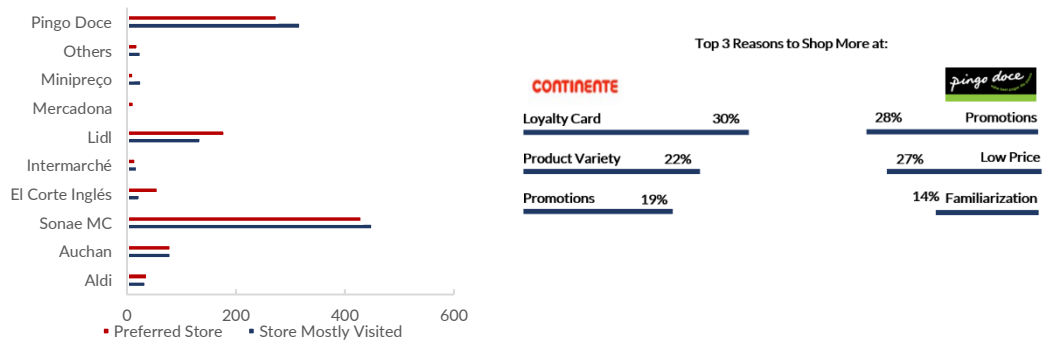
Appendix 12 | Survey Analysis

Sonae, through all of its segments, has a constant presence in the Portuguese population day-life. Thus, we decided to develop a survey to understand the current and future habits of consumers living in Portugal. The survey was shared through online platforms, in the latest December 2020. We collected a total of 1134 answers from a diversified sample of the Portuguese population. It encompasses, people from different geographies and different ages, which is linked with different generations and its consumption patterns. The main results are presented below:

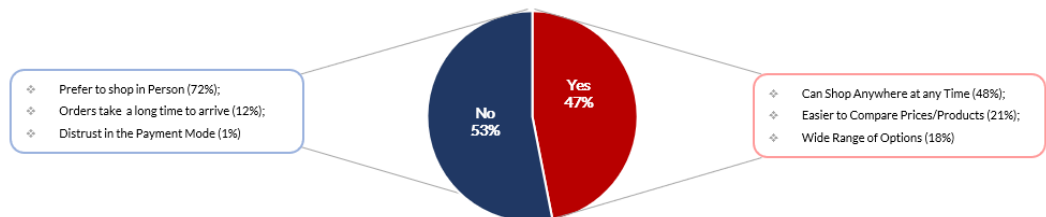
Sample Characterization



Food-Retail Analysis



On-line Analysis



Dott Platform Analysis

Do you Know Dott Platform



Valuation

Appendix 13 | Sonae MC's Valuation

	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Total Revenues	4,307.50€	4,702.00€	5,255.70€	5,133.80€	5,397.00€	5,609.10€	5,759.30€	5,892.10€	5,972.90€	6,000.80€
Hypermarkets	1,622.10€	1,652.80€	1,893.00€	1,742.60€	1,763.00€	1,781.40€	1,797.80€	1,812.10€	1,827.70€	1,844.60€
Brick & Mortar Sales	1,622.14€	1,652.80€	1,751.97€	1,673.13€	1,691.54€	1,706.76€	1,718.71€	1,727.30€	1,735.94€	1,744.62€
Online Sales Base Case	-	-	141.06€	69.46€	71.48€	74.68€	79.10€	84.78€	91.75€	99.99€
Supermarkets	2,075.90€	2,239.10€	2,552.70€	2,463.80€	2,654.10€	2,766.70€	2,842.20€	2,914.30€	2,951.00€	2,952.00€
<i>Bom Dia</i>	664.70€	776.00€	952.50€	1,043.40€	1,110.80€	1,168.40€	1,217.90€	1,256.40€	1,276.10€	1,277.80€
Lfl growth of established stores	-	20.60€	83.20€	89.80€	107.00€	120.80€	128.30€	143.40€	158.60€	173.70€
level 1 Revenue Contribution	371.10€	555.60€	704.50€	785.30€	829.70€	841.20€	893.50€	928.60€	946.10€	946.30€
level 2 Revenue Contribution	156.20€	122.20€	71.40€	77.90€	49.40€	87.90€	83.50€	78.50€	73.00€	67.20€
level 3 Revenue Contribution	106.80€	63.70€	70.10€	46.80€	83.30€	79.10€	75.20€	70.70€	65.70€	60.50€
level 4 Revenue Contribution	30.70€	34.60€	23.30€	43.60€	41.50€	39.40€	37.40€	35.20€	32.70€	30.10€
Average Turnover/Store	6.20€	6.40€	6.50€	6.50€	6.20€	5.90€	5.60€	5.20€	4.90€	4.50€
<i>Modelo</i>	1,411.10€	1,463.10€	1,600.20€	1,420.40€	1,543.30€	1,598.30€	1,624.30€	1,658.00€	1,674.90€	1,674.20€
Lfl growth of established stores	-	43.70€	112.00€	91.70€	-	22.30€	15.00€	15.30€	15.70€	15.80€
level 1 Revenue Contribution	1,383.10€	1,399.60€	1,411.10€	1,455.50€	1,488.90€	1,500.00€	1,533.30€	1,566.60€	1,584.00€	1,584.60€
level 2 Revenue Contribution	-	10.70€	43.10€	32.40€	10.80€	32.40€	32.40€	32.40€	32.00€	31.40€
level 3 Revenue Contribution	9.40€	38.40€	29.10€	9.70€	29.10€	29.10€	29.10€	29.10€	28.80€	28.30€
level 4 Revenue Contribution	18.60€	14.40€	4.80€	14.50€	14.50€	14.50€	14.50€	14.50€	14.40€	14.10€
Average Turnover/Store	10.40€	10.70€	10.80€	10.80€	10.80€	10.80€	10.80€	10.80€	10.70€	10.50€
NGB	609.50€	810.10€	809.90€	927.50€	979.90€	1,061.00€	1,119.30€	1,165.70€	1,194.20€	1,204.30€
Lfl growth of established stores	-	46.90€	21.10€	19.50€	-	14.00€	10.00€	10.70€	11.20€	11.50€
level 1 Revenue Contribution	571.50€	704.70€	780.90€	860.50€	935.20€	1,004.90€	1,069.90€	1,118.70€	1,150.00€	1,163.10€
level 2 Revenue Contribution	38.00€	58.50€	50.20€	47.50€	44.70€	42.00€	39.40€	36.40€	33.10€	29.60€
Average Turnover/Store	0.70€	0.90€	0.80€	0.80€	0.80€	0.80€	0.80€	0.80€	0.80€	0.70€
Operational costs & expenses ex. D&A	3,849.60€	4,221.50€	4,709.60€	4,579.00€	4,817.90€	5,005.10€	5,137.40€	5,255.20€	5,326.80€	5,351.50€
COGS	3,003.10€	3,288.10€	3,670.10€	3,565.80€	3,747.90€	3,889.20€	3,989.10€	4,078.20€	4,132.40€	4,151.10€
SG&A	906.80€	970.40€	1,082.70€	1,057.60€	1,111.80€	1,155.50€	1,186.40€	1,213.80€	1,230.40€	1,236.20€
Others	- 60.30€	- 37.00€	- 43.20€	- 44.40€	- 41.80€	- 39.60€	- 38.10€	- 36.80€	- 36.00€	- 35.70€
Depreciation & Amortization	212.50€	243.80€	242.90€	279.40€	285.90€	290.30€	292.50€	293.80€	293.20€	291.00€
Inventories	407.40€	396.80€	443.50€	433.20€	455.40€	473.30€	486.00€	497.20€	504.00€	506.40€
Receivables	98.40€	123.10€	157.70€	154.00€	161.90€	168.30€	172.80€	176.80€	179.20€	180.00€
Payables	832.10€	871.00€	917.50€	891.40€	937.00€	972.30€	997.30€	1,019.60€	1,033.10€	1,037.80€

	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Hypermarkets										
New Stores	-	-	0	0	0	0	0	0	0	0
<i>Bom dia</i>										
New Stores	-	12	8	15	15	15	15	15	15	15
Factor of Efficiency (Level 1)	1.14	1.12	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Totally Efficient Stores (level 1)	52	77	96	107	119	127	142	157	172	187
Factor of Efficiency (Level 2)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Later Transition Stores (level 2)	25	19	11	12	8	15	15	15	15	15
Factor of Efficiency (Level 3)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Early Transition Stores (level 3)	19	11	12	8	15	15	15	15	15	15
Factor of Efficiency (Level 4)	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
New Stores (level 4)	11	12	8	15	15	15	15	15	15	15
Total Stores	107	119	127	142	157	172	187	202	217	232
<i>Modelo</i>										
New Stores	-	3	1	3	3	3	3	3	3	3
Factor of Efficiency (Level 1)	1.04	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Totally Efficient Stores (level 1)	127	127	128	131	134	135	138	141	144	147
Factor of Efficiency (Level 2)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Later Transition Stores (level 2)	0	1	4	3	1	3	3	3	3	3
Factor of Efficiency (Level 3)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Early Transition Stores (level 3)	1	4	3	1	3	3	3	3	3	3
Factor of Efficiency (Level 4)	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
New Stores (level 4)	4	3	1	3	3	3	3	3	3	3
Total Stores	132	135	135	138	141	144	147	150	153	156
NGB										
New Stores	-	105	100	95	90	85	80	75	70	65
Factor of Efficiency (Level 1)	1.05	0.98	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Totally Efficient Stores (level 1)	737	825	930	1030	1125	1215	1300	1380	1455	1525
Factor of Efficiency (Level 2)	0.58	0.64	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
New Stores (level 2)	88	105	100	95	90	85	80	75	70	65
Total Stores	825	930	1030	1125	1215	1300	1380	1455	1525	1590

Turnover

Sonae MC is divided into 3 segments, Hypermarkets (HM), Supermarkets (SM) and New Growth Businesses (NGB). The numbers presented refer to the forecast period (2019-2027F), unless stated otherwise. There are 2 main drivers of turnover: increment in number of stores and organic growth (Lfl). We computed total sales using turnover per store for each segment times the number of stores, a like for like growth was also considered to account for gains in efficiency. We expect Total Sales to increase at 3.1% CAGR from €4.7bn (FY19). That's the result of its segments growth rates 0.5% CAGR (HM), 3.5% (SM) and 5.1% (NGB). COGS of both HM and SM were computed based on peer's gross margins. The remainder, in historical years, was attributed to NGB which incorporate a lot of different businesses and it was then forecasted using the historical average of that margin.

Hypermarkets (HM)

The HM segment has 41 stores (2019YE), accounting for 276k sqm. The company doesn't pretend to increase the number of HM in future years. We forecasted turnover using Lfl growth (0.5% CAGR) due to increasing efficiencies. Additionally, it is worth mentioning that besides growth due to expansion, HM grows also at a Lfl rate of 6% (2020E) and -4.5% (2021F), which reflects the positive effect of the pandemic and the subsequent adjustment. Between 2022F-2027F the average Lfl growth is 0.7%.

Supermarkets (SM)

The SM segment has 257 stores (436k sqm), 138 from the *Modelo* banner (SM) and 119 from *Bom Dia* (proximity SM). We project SM to remain as the main driver of MC turnover with 49% of total sales in 2027F. The main cause for that is MC's main expansion plan being focus on openings of *Bom Dia* stores. For that banner, we followed the lower limit of the target provided by the MC's CEO (15-20 stores per year) with an adjustment for Covid-19 in 2020 openings mainly based on the 9M 2020 report. *Modelo* stores are 1.6x bigger than *Bom Dia* ones, which implies a bigger annual Turnover/Store (€10.7M in FY19) for the former and €6.4M for the latter. Both ratios are expected to decrease 0.3% and 4.4% CAGR, respectively, since the Portuguese food retail market is capped, and MC is already the market leader. Therefore, opening more stores doesn't mean increasing Sales in the same proportion. Moreover, a new SM only becomes as efficient as an established one 2-3 years after its opening. Thus, an Efficiency Factor was applied to new stores so that each year the ability to generate turnover increases but only reaches its full potential in year 3. Besides growth due to expansion, both banners grow at a Lfl rate of 8% (2020E) and -6.5% (2021F), which reflects the positive effect of the pandemic on the segment and the subsequent adjustment. Between 2022F-2027F the average Lfl growth is 1.0%.

New Growth Businesses (NGB)

The NGB segment has 930 stores (199k sqm) expected to grow at 6.9% CAGR (2020E-2027F). This segment is expected to drive up profitability due to the higher margins of its businesses, 20.3% average EBITDA Mg 2020E-2027F. It has been growing at a fast pace in the last years and we expect it to represent 20% of total sales in 2027F (vs. 17% in 2019). While the 33% growth rate from FY18 to FY19 don't seem reasonable to be maintained, this is the only segment that has an internationalization project, reason why we expect a growth of 5.1% CAGR (2020E-2027F). In FY19, MC entered in Spain through the acquisition of Arenal (€50M) a Health&Beauty brand. This internationalization process aims to diversify the geographic risk of MC while increasing the opportunity for organic growth. The average annual Turnover/Store is €0.8M (FY19) decreasing at 1.4% CAGR (2020E-2027F). On average, a recently created NGB store only becomes as efficient as an established one c.1 year after its opening. The same procedure as the one described for SM was conducted. Like in other segments, the Lfl growth of 2020E (-3%) and 2021F (+2.5%) reflect the negative effect of the pandemic in 2020E which was further adjusted in 2021F. Between 2022F-2027F we expect an average Lfl growth rate of 1.0%.

CAPEX and D&A

CAPEX is expected to grow at 2.2% CAGR (2019-2027F) and it is divided into Maintenance & Optimization, Intangibles and PP&E. While the first two are in proportion of total assets, PP&E is increasing/decreasing proportionally to the Total New Sqm for each forecasted year. We expect an investment of almost €3bn in Capex between 2020E and 2027F. Depreciations and Amortizations are expected to grow at a similar rate of 2.2% CAGR.

Net Working Capital

Being a food retail company, it is normal that MC has low accounts receivable, since buyers are used to pay upfront when they go to a hypermarket, supermarket, para-pharmacy or a restaurant. On the other hand, due to its size and relevance in the Portuguese market, negotiating with suppliers becomes easier so, accounts payable, tend to be higher. Even if by nature the company needs big amounts of inventories, they are not enough to offset the dimension of payables and other related liabilities. Therefore, MC's NWC tends to be negative which means more cash in hands that can be reinvested. The exception is 2020E (+26M) and 2021F (+14M) since the company decided to help its suppliers, usually smaller, in the advent of the pandemic.

After completing the forecasts, we proceeded with the calculation of FCFF, as detailed below:

	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Terminal Value
EBIT	233.25	303.84	276.00	293.71	314.29	329.89	343.64	353.33	358.77	
Non-cash Expenses	247.31	243.39	279.74	286.29	290.71	292.86	294.10	293.55	291.25	
Δ in Net Working Capital	(7.99)	24.44	14.87	(19.72)	(14.36)	(10.04)	(9.10)	(5.49)	(1.84)	
CAPEX	322.84	320.24	368.07	376.69	382.52	385.34	386.97	386.24	383.22	
FCFF	123.73	147.85	123.12	170.16	180.28	188.07	198.01	202.52	204.06	4,408.10

For the final EV contribution of Sonae MC please refer to Appendix 18.

Appendix 14 | Worten's Valuation

Electronics Retail | Worten

	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Revenues	1,148.2	951.3	972.2	994.4	1,018.0	1,043.7	1,071.6	1,102.6
Portugal	815.0	798.1	810.5	822.8	835.0	847.2	859.3	871.7
Spain	318.1	137.7	145.6	154.9	165.9	178.8	194.1	212.1
Mobile+iServices	15.0	15.6	16.1	16.6	17.2	17.7	18.2	18.8
Operational costs & expenses	1,128.2	937.5	957.8	979.2	1,002.1	1,026.7	1,053.6	1,083.2
COGS	909.5	752.6	768.6	785.6	803.8	823.5	845.1	869.0
SG&A	140.7	116.9	119.4	122.1	125.0	128.0	131.4	135.1
Others	40.0	33.3	34.0	34.8	35.6	36.4	37.4	38.4
Depreciation & Amortization	37.9	34.7	35.7	36.7	37.7	38.7	39.7	40.7
CAPEX	41.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0
Inventories	171.1	141.8	144.9	148.2	151.7	155.5	159.7	164.3
Receivables	9.2	7.6	7.8	8.0	8.2	8.4	8.6	8.8
Payables	406.5	336.8	344.2	352.1	360.5	369.5	379.4	390.4

Worten's total turnover is closely related with the number of stores. For the analysis of this metric, we took into account the proportion of total sqm and total turnover, since stores from different categories have different sizes. Looking to historical data we can define that Portuguese Worten stores are the most representative in terms of average sqm with 65.85% of total turnover. Spanish stores account for 33.45% and Mobile&iServices represent only 0.68% of total sqm. Historically total turnover grew at 3.4% (FY17-FY19 CAGR). Considering this indicator and the sqm contribution of each category we were able to forecast the evolution of turnover per store. While in Portugal this value decreases due to the increase of the online sales and the saturation of the market, the strategy employed in Spain translates into a timid increase in turnover per store. Additionally, the expansion of online channels for both Portugal and Spain was also accounted for. While the online market in Portugal will grow at a 10% 2019-2027F CAGR, in line with historical growth, (10% YoY FY18-FY19) in Spain this value is much more aggressive (17.9%). The latter is a result of the BU's strategy to close underperforming stores while increasing the omnichannel approach, and the two nationwide lockdowns imposed due to the Covid-19 pandemic, which led to the temporary closure of the stores. The Portuguese total number of stores was forecasted considering historical growth rates (2.61% YoY FY19). For Spain, a different approach was followed.

Our initial approach consisted in sharply decreasing physical stores until 2022, with a terminal value of 35. However, recent news gives notice of the sale of 17 of the physical locations in Spain, and the closure of an additional 14. As such, we adjusted our model to include these new developments, by drastically reducing the number of stores in 2021 (-61% YoY, a total of 25 stores), keeping it constant from FY21 and beyond, and increasing

Worten BU		2019-2027F CAGR
Worten Portugal	Physical Stores	-1.2%
	Online	10.1%
Worten Spain	Physical Stores	1.0%
	Online	17.9%
Worten Mobile + iServices		2.8%

the growth rate of the online channel (20% YoY from 2022). In FY20 and FY21 the online growth was determined considering historical data, and the effect of the Covid-19 pandemic and subsequent lockdowns, which resulted in an intense growth of Worten's online channels (75% YoY in Portugal and 150% in Spain). In 2020 the Spanish online channel grew substantially more than the Portuguese, in line with the bigger appetite of the Spanish public for online sales and the two lockdowns imposed (vs. one in Portugal). Mobile&Services stores are forecasted to grow at 2% for the entirety of the forecasted period.

CAPEX and D&A

With Worten being a business that works with ever-evolving technology, we forecasted that every year pre-existing stores undergo maintenance to continue keep up with market trends. As such, we estimate constant maintenance (€0.18M) and expansion (€1.04M) in line with historical data. For Mobile&Services the same approach was applied, although it was taken into consideration that the sales area of this segment only represents 3.97% of the total area of Worten Portugal, since these brands only exist in Portugal. Depreciations are forecasted to grow at a 0.7% FY19-FY27F CAGR. The timid growth is driven by the mass closures of big Spanish stores, which is not compensated by the opening of smaller stores in Portugal.

Margins

EBITDA Margin (4.98% FY19; +25bps) is forecasted to converge to the median of the peer's value (5.4% FY19). The industry benchmark was reached through the analysis of three of Worten's Peers (Fnac Darty SA, Unieuro SpA and Dixons Carphone). In line with Worten's total turnover shy growth (0.17% FY19-FY27F CAGR) we deemed fit to converge EBITDA Mg to the peer's current value, since the restructuring of the Spanish operations and the sales growth that comes slightly above inflation (2.1%) won't allow for a significant gain in efficiency.

Net Working Capital (NWC)

For the NWC forecast, the historical values of payables and receivables were used. Inventory values were computed using a median of inventory turnover of a set of the same set of peer companies (6.71x). NWC presents a variation of 0.17% CAGR 2019-2027F, supported by sluggish sales growth.

The FCFF was computed as detailed below:

	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	Terminal Value
EBIT	8.54	19.96	13.80	14.44	15.15	15.98	16.94	18.05	19.36	
Unlevered Net Income	7.01	16.37	11.32	11.84	12.43	13.10	13.89	14.80	15.88	
Depreciation & Amortization	38.67	37.93	34.72	35.72	36.72	37.72	38.72	39.73	40.73	
Δ in Net Working Capital	1.52	(11.93)	38.78	(4.12)	(4.36)	(4.66)	(5.04)	(5.52)	(6.09)	
CAPEX	42.81	41.04	39.98	40.98	41.98	42.99	43.99	44.99	45.99	
FCFF	1.34	25.19	(32.73)	10.70	11.52	12.51	13.67	15.06	16.71	318.20

For the final EV contribution of Worten please refer to Appendix 18.

Appendix 15 | Sonae Fashion's Valuation

Fashion Retail | Sonae Fashion

	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Revenues	342.4	403.1	416.0	429.4	443.0	457.0	471.3	486.0
Mo	114.4	136.4	141.0	145.6	150.4	155.3	160.3	165.4
Zippy	58.1	63.4	64.4	65.4	66.3	67.3	68.3	69.4
Losan	50.9	59.5	60.4	61.3	62.3	63.2	64.1	65.1
Salsa	119.0	143.7	150.3	157.0	164.0	171.2	178.5	186.1
Operational costs & expenses	348.0	409.2	422.0	435.0	448.3	462.2	476.4	491.0
COGS	166.1	195.3	201.3	207.4	213.7	220.3	227.1	234.1
SG&A	148.6	174.7	180.2	185.7	191.4	197.4	203.4	209.7
Others	(1.0)	(1.2)	(1.3)	(1.3)	(1.3)	(1.4)	(1.4)	(1.5)
Depreciation & Amortization	34.4	40.5	41.8	43.1	44.5	45.9	47.3	48.8
CAPEX	19.9	23.4	24.1	24.9	25.7	26.5	27.4	28.2
Inventories	76.0	89.5	92.4	95.3	98.3	101.4	104.6	107.9
Receivables	85.5	32.7	33.8	34.9	36.0	37.1	38.3	39.5
Payables	34.1	40.1	41.4	42.7	44.1	45.5	46.9	48.4

Turnover and Number of Stores

To forecast the total turnover of Sonae Fashion a similar approach to that of Worten was followed. Using the total turnover of each brand for 2018, our team assigned its respective contribution weight to total turnover:

Sonae Fashion Brand	% Contribution
Mo	33.4%
Zippy	17.0%
Losan	14.9%
Salsa	34.8%

Due to the widespread distribution of these brands in the Portuguese market, and in line with the estimated stability of the Portuguese consumer spending habits, we estimate these contributions to remain steady in the forecasted period. Thus, we obtained the turnover per store of each brand, which is then estimated to grow in line with the Portuguese and Spanish inflation, (Mo, Zippy and Losan) while Salsa exhibits higher growth (1.5% FY19-FY27F CAGR) due to the focus on the development of the brand. In 2020, Covid-19 led to the closure of all of Fashion's physical stores, leading to a sharp turnover decline (-25% 2020H1). Yet, the release and sales of Mo-AdTech masks and the reopening of stores led to a turnover recovery of 92% in 2020Q3 (QoQ). These events led to a loss mitigation, with total turnover being estimated to decrease only by 13% in FY20.

For the forecast of number of stores, it was also necessary to analyse the differences between Fashion's Portuguese and international operations. As such, total number of stores were allocated into its respective locations. The brand Mo only has stores in Portugal (+14 stores; reaching 133), while Zippy and Salsa both have operations in Portugal (53 in 2027; 78) and abroad (2; 46). Losan, the wholesale brand, is the only label that only has operations outside of Portugal, with a total number of stores estimated to remain constant (0% FY19-FY27F CAGR). Fashion's total turnover (2.6% FY19-FY27F CAGR) is mainly driven by the growth of brands Salsa (3.62%) and Mo (2.73%).

CAPEX and D&A

For the fashion BU, CAPEX was estimated based on its historical proportion to total turnover. As such, total CAPEX is estimated to grow at a 6% CAGR FY19-FY27F. Regarding depreciations (3.4%), in historical terms these have been higher than CAPEX. Therefore, to proceed with the appropriate valuation of the BU, a normalization process was applied in the terminal period. In 2020YE, the CAPEX assumed represents a higher figure when compared with the other years due to the acquisition of the remaining 50% of Salsa.

Margins

Following a similar approach to the one applied in electronics retail, EBITDA Mg was forecasted to grow at a 1.3% CAGR (reaching 9.2% in FY27F). The industry benchmark was computed considering three of Sonae Fashion's peers, FC Group PLC, Wittchen SA and Apranga APB. The median EBITDA Mg

of these peers is around 11%. However, considering Sonae Fashion's FY19 EBITDA Mg (8.3%), and the losses that took place in 2020, we decided to take a conservative approach, as converging the value to the industry median would be unreasonable for such short period of time.

Net Working Capital (NWC)

To estimate NWC (2.6% CAGR 2019-2027F) historical values of payables and receivables were used. In addition, inventory values were calculated using inventory turnover of peer companies (4.5x).

	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	Terminal Value
EBIT	(10.86)	(5.62)	(6.17)	(5.91)	(5.61)	(5.28)	(5.21)	(5.14)	(5.05)	
Unlevered Net Income	(8.91)	(4.61)	(5.06)	(4.84)	(4.60)	(4.33)	(4.27)	(4.21)	(4.14)	
Depreciation & Amortization	37.18	34.37	40.47	41.77	43.11	44.48	45.88	47.32	48.79	
Δ in Net Working Capital	3.78	(10.70)	12.36	2.64	2.71	2.78	2.85	2.92	2.99	
Capex	17.71	85.46	23.39	24.15	24.92	25.71	26.52	27.35	28.21	
FCFF	6.78	(44.99)	(0.35)	10.14	10.88	11.66	12.24	12.84	13.45	254.35

For the final EV contribution of Sonae Fashion please refer to Appendix 18.

Appendix 16 | Sonae Sierra's Valuation

Commercial Real Estate | Sonae Sierra

The valuation of Sonae Sierra was performed following three approaches: Net Income valuation for the owned/co-owned assets, Net Asset Value (NAV) to confirm the value obtained in the previous analysis and Relative valuation to appraise the services offered by the company (assets under management). The analysis focuses on assets located in the Iberian Peninsula and Europe since the BU doesn't have substantial returns from Latam.

	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F
Owned/Co-Owned Shopping Centres								
Turnover	47.2	93.4	94.7	97.6	98.0	98.0	98.5	98.5
Fixed Rent	14.3	57.9	58.9	60.8	61.3	61.3	61.7	61.7
Turnover Rent	-	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Mall Income	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Common Charges	29.3	29.6	29.9	30.8	30.8	30.8	30.8	30.8
Operating Costs	24.1	47.7	48.3	49.8	50.0	50.0	50.3	50.3
Operating Profits	23.1	45.7	46.4	47.8	48.0	48.0	48.2	48.2
NOPLAT	18.9	37.5	38.0	39.2	39.4	39.4	39.5	39.5
V_t			35.4	34.0	31.8	29.6	27.7	25.8
Shopping Centres Under Management								
Turnover	74	76	79	81	84	86	89	92
Operating Costs	29	30	31	32	33	34	35	36
FCFF	45	47	48	49	51	53	54	56

Owned/Co-Owned Shopping Centres | To perform a more accurate forecast, we divided the category into assets that belong to Sierra Prime and others. Turnover can be further divided into four accounts: fixed rents, turnover rents, mall income and common charges. Fixed rents, turnover rents and common charges were projected considering the Real Gross Leasable Area, which is the GLA multiplied by the occupancy rate of the asset.

Fixed rents | Due to the capital recycling strategy employed by Sonae Sierra, and the saturation of the European market, we estimate the number of owned/co-owned shopping centres in this geography to remain constant, although Sierra Prime shopping centres will undergo expansion projects, which will result in an increase of GLA. Furthermore, due to the past-years' sales of less profitable assets, the shopping centres that remain in Sierra's portfolio are the ones that bring the highest value to the BU. As such, for the Prime assets, the rent/sqm will increase 1% reaching €58/sqm by 2027, due to the attractiveness of these assets. Regarding other geographies, the rest of Iberia and Romania rent will remain constant at €55, and €21 for the other European shopping centres. Sierra Prime's assets are forecasted to represent 41% of fixed rents by FY27F (3.1% FY19-FY27F CAGR), driven by the expansion projects which will increase total GLA, while others will represent 59% (0% CAGR). In the forecast of these values, we took into consideration for the year 2020 the bill approved by the Portuguese Parliament, which mandates that store owners are exempt of paying fixed rents related to the periods between April and December 2020, representing a loss of 75% in turnover for Sonae Sierra.

Turnover Rents | Regarding turnover rents, we followed a macro-perspective approach, in which the threshold for the existence of the turnover rents is based on the sales volume of Prime assets (€6M/sqm in 2019). Since these are the highest grossing shopping centres, it's understood that the stores located in other shopping centres do not meet the criteria for the payment of this rent. By FY27F, turnover rents will reach €2.3M (1.4% FY19-FY27F CAGR).

Mall Income | Mall Income, the portion of turnover that stems from mall activation activities (pop-up stores, exhibitions, playgrounds, etc), is forecasted to remain constant for the entirety of the period under analysis (€3.7M), in line with historical growth (0.1% CAGR 2016-2019).

Common Charges | Common charges are the amounts that each store pays in contribution to the overall expenses of the shopping centre. These include support for costs such as water and electricity bills. Following the assumption that the shopping centres will remain constant in number, the total 2019 value for Common Charges was divided into the total number of sqm. This ratio is estimated to increase by 0.5%, (FY19-FY27F CAGR) only being affected by the increase in GLA resulting from project expansions.

Operating Costs | For the forecast of operating costs the EBIT Mg of peers was considered. By analysing four of Sonae Sierra's peers (Capital&Regional PLC, Wereldhave NV and Eurasia Foncier Investissements and Atrium European Real Estate LTD) we reached an EBIT Mg of 52%. Due to the maturity and likeness between these companies and Sonae Sierra, we estimate this EBIT Mg to remain stable throughout the forecasted period.

To calculate the contribution of the owned/co-owned assets through the Income Method to Real Estate, a cap rate is required. For this, the 10-year benchmark for Portuguese real estate funds was chosen (7.34%). Rates for the Portuguese market were selected since more than 50% of owned/co-owned assets are located in Portugal. This choice is further justified with the importance of Sierra Prime, and by the fact that 86% of total GLA of these assets are located in Portugal. The EV estimated for this category is €644.1M.

Furthermore, we decided to apply Net Asset Value (NAV) to value the segment. Based on our assumption that Sonae Sierra's portfolio of owned/co-owned assets is currently composed by only the best shopping centres, we forecast that the company will maintain these assets. For Sierra Prime's assets, the developments in line for each of the assets were also taken into consideration, leading to an increase in GLA. Thus, and using the FY19 NAV, we decided to compute NAV per GLA of owned/co-owned SC and then we multiplied it by the total GLA forecasted. However, we opted not to use NAV to value Sonae Sierra, mainly due to the changes in the segment's strategy, which would not be reflected in this model:

	2018	2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F
NAV	1,455.76	1,328.53	942.13	1,366.22	1,378.76	1,420.55	1,420.55	1,420.55	1,420.55	1,420.55

Shopping Centres under Management | To assess the services provided by Sonae Sierra, a DCF method was followed. Turnover encompasses common charges, service fees and parking income. Total turnover from assets under management is forecasted to grow at 3.1% (FY20E-FY27F CAGR), due to the BU's strategy to grow its focus on services. To obtain operating income, the median EBIT margin of peers (61%) was used. For this purpose, we choose four European companies that manage shopping centres (Immofinanz AG, Citycon Oyj, Plaza Centres PLC and Eiendomsspar AS). To discount the cash-flows the same peer companies were used to compute an appropriate WACC (ranging from 6.01% in FY22 to 6.86% for the terminal period). A terminal growth rate of 1.2% was used to compute a final EV of €960.1M.

To value the Stake Sonae has in Aliansce Sierra, we used the market cap approach, taking the average market cap of the publicly traded company of 2020. Since the company is quoted in Brazilian Reais, and since the real was very volatile in 2020, we converted the real to euro using the average exchange rate of the two currencies in 2020, with a final value of €60M.

Lastly, to compute final EV the proportions of GLA of owned/co-owned assets and of assets under management were computed (52%;48%), reaching a final Enterprise Value of €855.9M for the segment, of which €599.2M are attributable to SON.

For the final EV contribution of Sonae Sierra please refer to Appendix 18.

Appendix 17 | NOS Valuation

	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
Revenues	1576.16	1599.23	1484.36	1510.57	1517.00	1567.91	1592.34	1612.90	1633.77	1654.96
Operational costs & expenses	293.51	295.45	280.3	284.8	285.0	293.5	297.7	301.2	304.8	308.4
Depreciation & Amortization	129.95	129.91	124.1	140.7	131.1	135.5	137.6	139.4	141.2	143.0
CAPEX	130.67	136.97	127.7	144.9	134.9	139.5	141.7	143.5	145.4	147.2
Inventories	11.99	10.51	10.2	10.3	10.4	10.7	10.9	11.0	11.2	11.3
Receivables	138.61	142.62	134.0	136.4	136.9	141.5	143.7	145.6	147.5	149.4
Payables	146.31	150.48	137.2	139.6	140.2	144.9	147.1	149.0	151.0	152.9

Turnover

Turnover growth was divided into NOS' Telco and Audiovisuals segments. In 2020 both segments were impacted by the pandemic crisis, the former due to a decrease in turnover related to roaming services, and the latter because cinemas were closed for several months, and with low number of visitors when it was operating. Due to this situation, we forecasted a negative growth of -6.2% for Telco and -52% for the first year of the forecast. From FY21 onwards we assumed a recovery rate for Telco and a slow recovery for Audiovisuals based of the historical CAGR of 1.4% and 0.5% respectively. Additionally, we contemplated the risk of a loss in market share due to the 5G auction and the estimations of the Portuguese regulator ANACOM. Our base case scenario considers a loss of market share of 2.7%, due to the likely entry of a new player (NOWO) in the telecom industry, which could have an impact on NOS's market share. NOWO's management team claimed that they intend to increase their current market share from 4% to 12% over the next years. By taking a conservative approach we are assuming NOWO will be successful in this expansion. Therefore, we assumed this increase of 8% would be split between the 3 current main players (NOS, Altice and Vodafone).

CAPEX

CAPEX was forecasted taking into account technical CAPEX and costumer related CAPEX, however we included adjustments for potential investments related to the 5G auction. Technical CAPEX was estimated using the historical growth of 1.5%, although with an impact of -1.6% for FY20 as reported by NOS in their 9M20 report. Moreover, costumer related CAPEX was forecasted as a percentage of revenues based on historical values. Additionally, the regulator defined a reserve price of €239M from the auction, yet we considered a higher amount might be reached. We estimated an amount of €300M and that it would be split between the participants according to their current market shares. The final correspondent amount of CAPEX for NOS (€96M) was distributed along the following 7 years, as it's stated in the rules of the auction.

Additional FCF

In 2020 NOS announced the completion of a tower sale deal worth €550M. The first tranche of €375M was received in 2020, and the remainder amounts are expected to be received over the next 5 years. We included these amounts as direct FCF in our forecast, assuming the remaining €175M will be distributed in equal amounts of €35M during the next 5 years.

FCFF | For our base case SoP valuation we derived the value of NOS through a FCFF approach, for which we reached a total equity value attributable to SON of €505.6M. The WACC that we used to discount the FCFF of each period was of 4.79% and for the terminal period 5.73%. Additionally, we assumed NOS will continue to grow at a constant rate of 1% in perpetuity, calculated using the Stable Growth Model.

	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	Terminal Value
EBIT	201.8	172.1	129.7	166.8	175.7	179.7	183.0	186.4	189.8	
Unlevered Net Income	165.5	141.1	106.3	136.7	144.0	147.3	150.0	152.8	155.6	
Depreciation & Amortization	421.3	402.3	456.4	425.0	439.5	446.4	452.1	458.0	463.9	
Δ in Net Working Capital	(4.4)	5.1	(0.4)	(0.1)	(0.8)	(0.4)	(0.3)	(0.3)	(0.4)	
CAPEX	(444.2)	(414.1)	(469.8)	(437.5)	(452.4)	(459.5)	(465.4)	(471.4)	(477.5)	
FCFF	138.2	509.4	127.5	159.2	165.3	168.8	171.4	139.0	141.7	3,026.9

FCFE | As an additional valuation method for NOS, we also derived its value using a FCFE model. To compute this, we forecasted NOS's P&L statement until FY27F to arrive at a net income figure for each forecasted period. Given the capital structure assumption required by this model, and since NOS does not have a target capital structure, we used its peer group median to arrive at a 45% Debt-to-Capital ratio. In the end, we reached a total equity value attributable to SON of €510.6M, which is in line with the other models that were used for NOS.

	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	Terminal Value
Net Income	143.50	117.29	82.11	112.42	118.90	121.80	124.18	126.62	129.11	
CAPEX - D&A	22.89	11.81	13.40	12.48	12.90	13.10	13.27	13.44	13.62	
(1-DR)*(Capex-D&A)	12.59	6.50	7.37	6.86	7.10	7.21	7.30	7.39	7.49	
ΔNWC	(4.41)	5.09	(0.44)	(0.11)	(0.85)	(0.41)	(0.34)	(0.35)	(0.35)	
(1-DR)*ΔNWC	(2.43)	2.80	(0.24)	(0.06)	(0.47)	(0.22)	(0.19)	(0.19)	(0.19)	
FCFE	133.33	482.99	109.98	140.62	147.27	149.81	152.07	119.42	121.81	1,568.74

APV | Our assumptions related to NOS's capital structure also allowed us to value it using the Adjusted Present Value model. The benefit of applying this method, is that we could obtain the portion of value coming from financing effects of interest expenses. The FCFF was discounted with the pre-tax

WACC of 4.91%, and the debt capacity and its effect on taxes were also computed. Lastly, we reached a value of €2,970.1M for the unlevered part of the firm, and €269.8M for the portion coming from interest expenses.

	2022F	2023F	2024F	2025F	2026F	2027F	Terminal value	Total EV
FCFF	159.2	165.3	168.8	171.4	139.0	141.7	2,886.7	
DCF	151.7	150.2	146.2	141.5	109.4	106.2	2,164.9	2,970.1
Debt Capacity	68.3	67.6	65.8	63.7	49.2	47.8	974.2	
Tax savings	12.3	12.2	11.8	11.5	8.9	8.6	204.6	269.8

Market Cap Approach | The market cap value was obtained as the average share price of the last 6 months, multiplied by the number of common shares outstanding (515.2M). The total value achieved was €1.7bn. SON's stake of 30.8% of NOS is then valued at €522.0M. However, due to the uncertainty of the 5G auction and the sensitivity of the market cap to new releases of information, we deemed this approach to be unreliable since market cap alone is not an accurate indicator of NOS's intrinsic value.

DDM | In order to assess the DDM for NOS we analysed its historical payout ratio. Over the last 7 years, the payout ratios have been on average 109%. However, NOS announced that the dividend payment for 2020 was going to be adjusted according to the uncertainty related to the 5G auction. We decided to take a conservative approach and forecasted a payout ratio of 90% during the first 4 years, however reaching an average of 100% by the end of 2027. Based on these assumptions, we obtained the dividends per year and estimated the DDM discounted by NOS's cost of equity:

	Average 2012-2019	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Average
	Forecast									
Net Income	94.1	117.3	82.1	112.1	118.5	121.4	123.8	126.2	128.7	119.9
Payout Ratio	108%	90%	90%	90%	90%	100%	120%	120%	100%	100%
Dividends	104.0	105.6	73.9	101.2	107.0	121.8	149.0	151.9	129.1	117.4

After applying the 6 methods used for the valuation of NOS, the Equity value found using the DCF model with the FCFF is of €1,639.7M, while using the alternative methods, it is on average of €1,751.4M. Based on the 6 approaches, the average equity value that corresponds to Sonae SGPS is of €536.8M (taking into account the 30.8% stake of SON in NOS).

	DCF-FCFF	DCF-FCFE	APV	DDM	RV	Avg. Market Cap*	Average
Enterprise Value	3,094	-	3,240	-	3,430	-	3,235
Equity Value	1,640	1,656	1,785	1,647	1,976	1,693	1,733
Sonae's stake 30.8%	506	511	551	508	609	522	537

Appendix 18 | SoP Valuation, Base Case

Business Unit	Base Case Method	Values
Sonae MC (100%)	FCFF	€4,245.3
Sonae Sierra (70%)	RE; FCFF	€599.2
Worten (100%)	FCFF	€292.0
Sonae Fashion (100%)	FCFF	€238.1
Sonae IM (90%)	Multiples	€156.0
Sonae FS (100%)	Multiples	€89.4
ISRG (30%)	Multiples	€66.5
NOS (30.8%)	FCFF	€505.6
Total Firm Value		€6,192.1
Debt		(€2,944.3)
Cash		€531.2
Minority Interest		(€512.3)
Provisions		(€42.6)
Competition Authority's fine (pricing)		(€121.9)
Adjustments Contingent Liabilities: E(Loss)=10%		(€123.0)
Total Equity		€2,979.2
Price Target		€1.25

To value SON, our team decided to use a SoP approach. Thus, each BU was valued separately and then summed up. For this purpose, the FCFF approach was applied for Sonae MC, Worten, Fashion, NOS and Sierra (Shopping Centres Under Management). Additionally, to complement Sierra's valuation, we also used the Income Method, specific to Real Estate valuations. For the remaining segments, a Multiple Approach was used to derive their value. In the end, several adjustments were made to get from the final Enterprise Value to Equity Value. Net debt was subtracted, including leases, as well as Minority Interest and Provisions. Additionally, we also discounted a fine (€121.9M), related to Sonae MC, which is being imposed by the Portuguese Competition Authority. Even though this case is still being disputed in court, we took a conservative approach and assumed that SON will be forced to pay it in the end. Lastly, we also deducted 10% of Contingent Liabilities (€123M), mostly related to tax matters, that are also still being battled in the Portuguese Court of Law. Even though SON does not consider these to be a risk, we decided to take a conservative approach and estimate a 10% chance of SON having to face these charges.

Appendix 19 | DDM Valuation

SON's dividend policy of a 5% YoY increase in dividends per share, allowed us to value it using a DDM. We executed a two-stage model where the terminal value was derived by the H-Model. With this methodology we assumed a constant high dividend growth rate that later gradually converges to our expected growth rate in perpetuity. Our assumption is that the 5%YoY dividend growth policy will remain stable from 2022F-2027F, and then to decrease for 4 years until it reaches the terminal growth rate. The price target obtained is of €0.99/sh.

H-Model	
Dividend per share 2027	0.068
Cost of Equity TV	9.7%
H	2
gS	5.0%
gL	2.2%
Price per share	€1.24
PT (discount 20%)	€0.99

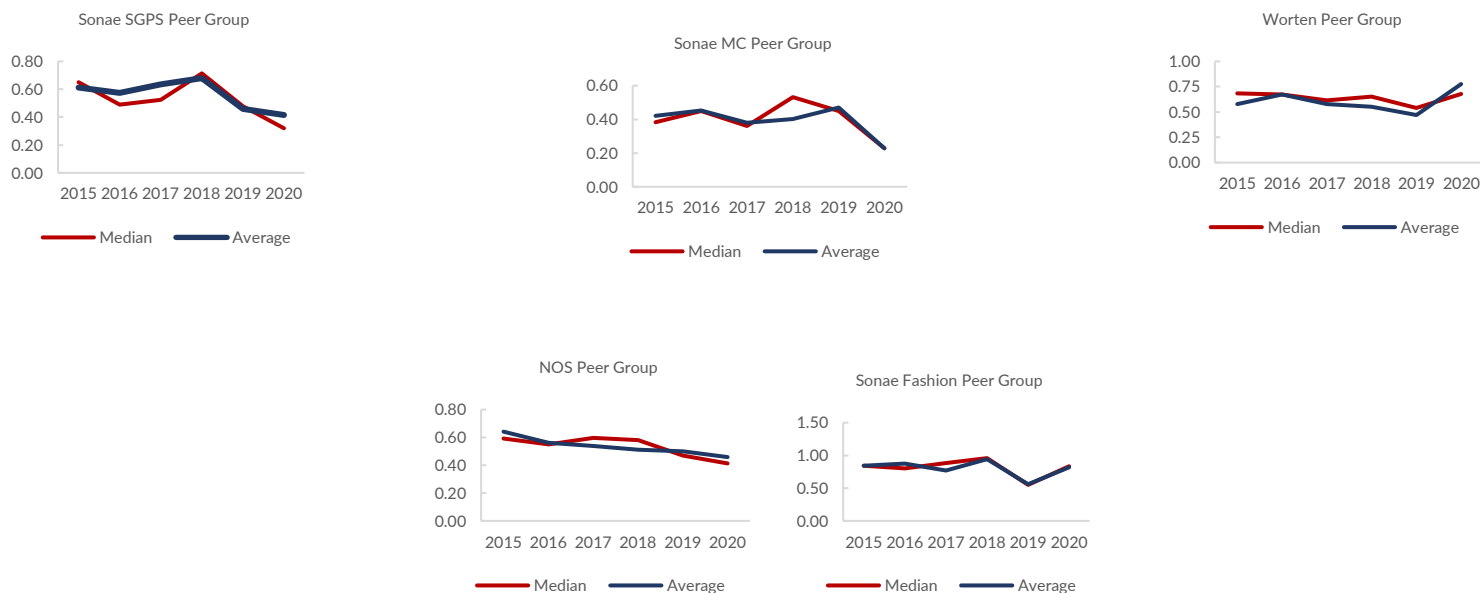
	2021	2022	2023	2024	2025	2026	2027
Dividend per share	0.051	0.054	0.056	0.059	0.062	0.065	0.068
YoY	5%	5%	5%	5%	5%	5%	5%
EPS	0.073	0.084	0.094	0.100	0.105	0.108	0.108
YoY	-0.55%	15.48%	11.46%	6.51%	4.72%	2.70%	0.45%
Payout Ratio	70%	63%	60%	59%	59%	60%	63%

Appendix 20 | Unlevered Betas evolution

To understand if 2020's volatility tampered with the betas for that period, we decided to analyse their evolution, per segment, for the years of 2015-2020, using data from Refinitiv. What we found was that for some segments it impacted significantly, while for others it remained stable. The largest

discrepancy regarding the betas happened with the Food Retail industry during 2020. Given the Covid-19 pandemic that struck the economies in which these companies are based, Food Retail was an industry that would bring low levels of expected volatility. Such trend is also to be expected for the year of 2021, since the pandemic will probably still be around. Therefore, as we can see from Sonae MC's Peer Group chart, the betas dropped significantly from 2019 to 2020.

If we were to use those betas for the computation of the Cost of Equity and WACC, it would have overstated the true value of Sonae MC, resulting in a disproportionate Enterprise Value. Bearing all this in mind, we have decided to use 2019 values since they were adequate for all segments and for consistency purposes.



Appendix 21 | WACC Assumptions

A total of six different WACC's were computed. One for each of SON's segments and one for Sonae as a whole. Additionally, we also computed a WACC for NOS. These rates differ since there are changes in the levered betas, costs of debt and capital structure. WACC rates change YoY, in some segments, due to changes in debt to equity. Lastly, since the company did not have a target capital structure, we considered SON's target to be composed of 45% debt and 55% equity, derived from its peer group median. Additionally, Sierra's, NOS's and ISRG's target capital structure was also derived from its peer group median. Given that we did not discount any cash flows for Sonae FS, Sonae IM and ISRG, those values are not shown in the tables below. Nevertheless, they were also computed, and they are 7.26%, 5.86% and 5.92%, respectively.

Cost of Equity

To compute the cost of equity, we used the CAPM model:

$$\text{CAPM} = R_e = RFR + \beta^*(MRP + CRP).$$

Sonae SGPS	Levered Beta	D/E	Unlevered Beta
WM Morrison Supermarkets PLC	0.69	0.57	0.47
J Sainsbury PLC	1.08	1.41	0.50
Marks and Spencer Group PLC	1.09	1.00	0.60
Tallinna Kaubamaja Grupp AS	0.70	0.56	0.48
Jeronimo Martins SGPS SA	0.32	0.34	0.25
Median	-	-	0.48
Sonae SGPS	1.50		

Sonae MC	Levered Beta	D/E	Unlevered Beta
X5 Retail Group NV	1.15	1.23	0.62
Lenta Plc	0.88	2.08	0.36
Koninklijke Ahold Delhaize NV	0.63	0.63	0.43
Carrefour SA	0.94	1.44	0.47
Median	-	-	0.45
Sonae MC	1.02		

Worten	Levered Beta	D/E	Unlevered Beta
Fnac Darty SA	0.84	1.44	0.42
Unieuro SpA	0.84	2.01	0.33
Dixons Carphone PLC	1.40	1.38	0.66
Groupe LDLC SA	0.89	0.35	0.71
Median	-	-	0.54
Worten	1.50		

Sonae Fashion	Levered Beta	D/E	Unlevered Beta
Apranga APB	0.88	0.60	0.58
French Connection Group PLC	0.86	0.85	0.51
Superdry PLC	1.40	1.43	0.65
Wittchen SA	0.60	0.27	0.50
Median	-	-	0.55
Worten	1.55		

Sonae Sierra	Levered Beta	D/E	Unlevered Beta
Immofinanz AG	1.00	0.91	0.59
Citycon Oyj	0.79	1.28	0.41
Plaza Centres PLC	0.52	0.42	0.39
Eindomsspar AG	0.50	0.32	0.41
Median	-	-	0.41
Sonae Sierra	1.02		

NOS	Levered Beta	D/E	Unlevered Beta
Euskaltel SA	0.74	0.98	0.43
United Internet AG	0.55	0.35	0.44
Orange Polska SA	0.98	0.97	0.55
Hellenic Telecommunications Organization SA	0.80	0.31	0.65
Telefonica Deutschland Holding AG	0.67	0.65	0.46
Median	-	-	0.46
NOS	0.80		

Sonae SGPS

WACC-Variables	2022	2023	2024	2025	2026	2027	TV
Risk Free Rate (RFR)	0.76%	0.76%	0.76%	0.76%	0.76%	0.76%	1.7%
Country Risk Premium (CRP)	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	2.0%
Beta (β)	1.00	0.98	0.96	0.94	0.93	0.91	0.90
Market Risk Premium (MRP)	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Cost of Equity	9.4%	9.3%	9.1%	8.9%	8.8%	8.6%	9.7%
Spread (Adj. for RFR)	0.44%	0.44%	0.44%	0.44%	0.44%	0.44%	1.00%
Cost of Debt	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	2.7%
Tax Rate	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	21.0%
After-tax Cost of Debt	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	2.1%
Weight of Debt	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Weight of Equity	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Pre-tax WACC	5.72%	5.63%	5.54%	5.45%	5.37%	5.29%	6.53%
WACC	5.62%	5.53%	5.44%	5.35%	5.27%	5.20%	6.27%
Terminal Growth Rate	-	-	-	-	-	-	2.2%

Sonae MC

WACC-Variables	2022	2023	2024	2025	2026	2027	TV
Risk Free Rate (RFR)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.7%
Country Risk Premium (CRP)	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	2.0%
Beta (β)	0.93	0.92	0.90	0.88	0.86	0.85	0.83
Market Risk Premium (MRP)	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Cost of Equity	8.8%	8.7%	8.5%	8.4%	8.2%	8.1%	9.1%
Spread (Adj. for RFR)	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.19%
Cost of Debt	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.9%
Tax Rate	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	21.0%
After-tax Cost of Debt	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.5%
Weight of Debt	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Weight of Equity	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Pre-tax WACC	5.3%	5.2%	5.1%	5.1%	5.0%	4.9%	5.9%
WACC	5.2%	5.1%	5.1%	5.0%	4.9%	4.8%	5.7%
Terminal Growth Rate							1.0%

Worten

WACC-Variables	2022	2023	2024	2025	2026	2027	TV
Risk Free Rate (RFR)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.7%
Country Risk Premium (CRP)	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	2.0%
Beta (β)	1.12	1.10	1.08	1.06	1.04	1.02	1.00
Market Risk Premium (MRP)	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Cost of Equity	10.5%	10.3%	10.1%	9.9%	9.7%	9.6%	10.6%
Spread (Adj. for RFR)	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.19%
Cost of Debt	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.9%
Tax Rate	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	21.0%
After-tax Cost of Debt	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.5%
Weight of Debt	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Weight of Equity	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Pre-tax WACC	6.2%	6.1%	6.0%	5.9%	5.8%	5.7%	6.7%
WACC	6.1%	6.0%	5.9%	5.8%	5.7%	5.6%	6.5%
Terminal Growth Rate							1.2%

Sonae Fashion

WACC-Variables	2022	2023	2024	2025	2026	2027	TV
Risk Free Rate (RFR)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.7%
Country Risk Premium (CRP)	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	2.0%
Beta (β)	1.13	1.11	1.09	1.07	1.05	1.03	1.01
Market Risk Premium (MRP)	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Cost of Equity	10.5%	10.3%	10.2%	10.0%	9.8%	9.7%	10.7%
Spread (Adj. for RFR)	0.24%	0.24%	0.24%	0.24%	0.24%	0.24%	0.19%
Cost of Debt	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.9%
Tax Rate	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	21.0%
After-tax Cost of Debt	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.5%
Weight of Debt	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Weight of Equity	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Pre-tax WACC	6.2%	4.7%	4.7%	4.7%	4.7%	4.7%	6.2%
WACC	6.2%	6.1%	6.0%	5.9%	5.8%	5.7%	6.6%
Terminal Growth Rate							1.2%

WACC-Variables	2022	2023	2024	2025	2026	2027	TV
Risk Free Rate (RFR)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	1.7%
Country Risk Premium (CRP)	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	2.0%
Beta (β)	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Market Risk Premium (MRP)	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Cost of Equity	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	8.8%
Spread (Adj. for RFR)	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Cost of Debt	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	2.4%
Tax Rate	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	21.0%
After-tax Cost of Debt	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.9%
Weight of Debt	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Weight of Equity	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Pre-tax WACC	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	6.0%
WACC	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	5.7%
Terminal Growth Rate							1.0%

- To calculate the risk-free rate (RFR) we used the normalized 10Y German Bond Yield, as of 20th December 2020.
- A country risk premium (CRP) was added to the risk-free rate in order to account for Portugal's specific risks. This premium was retrieved from Refinitiv as the difference between the Portuguese 10Y Bond Yield and the equivalent of a German Bond, over a 10-year period. An adjustment to this variable was made for the Terminal Period since we estimate that the difference between the Portuguese and German bonds will most likely be higher in perpetuity. To account for this, we looked at the difference between a 20-year monthly average of a Portuguese 10Y Bond Yield and a German 10Y Bond. In the end, we reached a figure of 2.0%, which was used to the Terminal Period.
- Market risk premium (MRP) was also added to the RFR to account for the Portuguese market specific risks. This premium was retrieved from "Survey: Market Risk Premium and Risk-Free Rate used for 81 countries in 2020" (Fernandez et al).
- We decided to approach the computation of the Betas using Sonae as a whole, as well as its segments separately. To achieve this, the pure-play method was used since it allows us to better estimate the risk that is associated with each of SON's segments and their respective industries. The levered betas of all peer groups shown are computed as an average of 2015-2019 betas, using monthly data.

Nevertheless, we have also graphed the evolution of the unlevered betas of all the different peer groups selected for each segment. In the end, we concluded that for some segments it was evident that 2020 was an outlier (i.e Sonae MC) for the betas while for others the change was not very significant (i.e NOS). This confirmed that using 2019 betas was a better and safer approach for the computation of individual betas for each segment, since it excluded the 2020 period of increased volatility and financial turmoil.

Appendix 22 | Cost of Debt & ESG Bonds Impact on Spreads

Cost of Debt will remain the same for all segments of Sonae, during the forecasted period, since the company manages debt as one. The only exception to this is Sonae Sierra (2.8%), which has a separate figure. Additionally, NOS also has its own Cost of Debt (1.5%) as reported by the company. Additionally, we also calculated the Spread (Adjusted for RFR) by taking the difference between reported Cost of Debt and the RFR that we were using as an assumption.

$$\text{Cost of Debt} = \text{RFR} + \text{Spread}$$

For the Terminal Period, we calculated RFR by using a 20-year monthly average of a 10Y German Bond Yield (1.69%). Lastly, to account for the effect of the current debt refinancing with ESG-linked bonds that SON is currently pursuing, we adjusted the spreads for the Terminal Period to reflect the impact this strategy will have on SON's Cost of Debt for the future. Therefore, and based on our Team research, we found that green bonds usually carry a negative premium spread when compared to regular bonds (between -0.05% to -0.30%). We decided to take a conservative approach and assume for our base case that SON's green bonds would only allow for a -0.05% adjustment in spreads for the Terminal Period (other scenarios are contemplated in the Monte Carlo Simulation). This resulted in a Terminal Value spread of 0.19% for SON's segments, which was then added on top of the RFR for that period to compute the Terminal Period Cost of Debt. In the case of NOS and Sonae Sierra, we did not use this approach and kept spreads constant.

Appendix 23 | Terminal Growth Rate

For the Terminal Period, we assumed that cash flows would continue to grow in perpetuity, at a constant rate. To compute the terminal growth rate, we used two different approaches: Stable Growth Model and Dividend Sustainable Growth Model. In the end, only values derived from the Stable Growth Model were used. To compute both models, we summed all values from 2021F-2027F. After computing the Stable Growth Model, we only rejected Sonae MC's value since we consider that it is not sustainable for that segment to grow at such rate in perpetuity, and therefore used a 1% growth rate since it better reflects the outlook for the industry in the long run. In the case of Sonae Sierra, for the category that was valued using a DCF approach, we decided to use a 1.2% growth rate. This is because we consider the performance of this category to be closely correlated to the consumer discretionary retail industry, hence we used the same growth rate as Fashion and Worten. Lastly, the Dividend Sustainable Growth model value was rejected since we consider it to be unsustainable for SON to achieve.

Stable Growth Model

Sonae SGPS	2019-2027
Δ NWC	(59.36)
CAPEX	(4341.40)
D&A	3605.23
EBIT	3111.23
NOPLAT	2457.87
Reinvestment Rate	27.54%
Tax Rate	21%
ROE	8.0%
g	2.2%

Sonae MC	2019-2027
Δ NWC	-36.15
CAPEX	3314.35
D&A	2517.32
EBIT	2846.83
NOPLAT	2248.99
Reinvestment Rate	33.83%
Tax Rate	21%
ROE	8.0%
g	2.7%

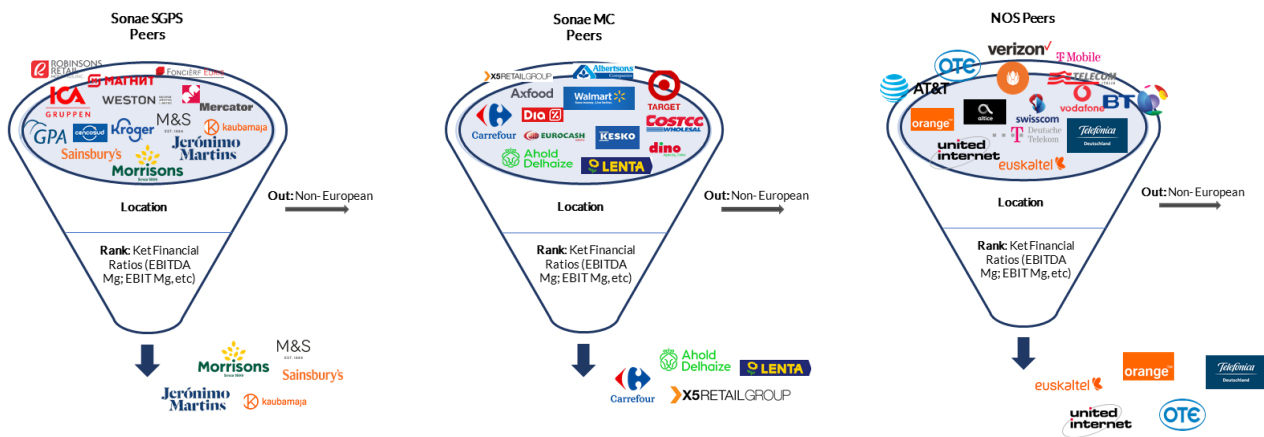
Worten & Sonae Fashion	2019-2027
Δ NWC	-25.28
CAPEX	409.19
D&A	365.10
EBIT	163.14
NOPLAT	128.88
Reinvestment Rate	14.60%
Tax Rate	21%
ROE	8.0%
g	1.2%

NOS	2019-2027
Δ NWC	38.66
CAPEX	4892.77
D&A	4806.25
EBIT	1894.19
NOPLAT	1496.41
Reinvestment Rate	8.37%
Tax Rate	21%
ROE	11.8%
g	1.0%

	2021	2022	2023	2024	2025	2026	2027
Dividends	(97.24)	(102.10)	(107.20)	(112.56)	(118.19)	(124.10)	(130.30)
Net Income	159.02	185.52	177.71	191.12	203.61	214.10	217.06
Retention Ratio	39%	45%	40%	41%	42%	42%	40%
Dividends 2019-2027F (Sum)	(972.49)						
Net Income 2019-2027F (Sum)	1649.47						
Retention Ratio	41%						
g	3.3%						

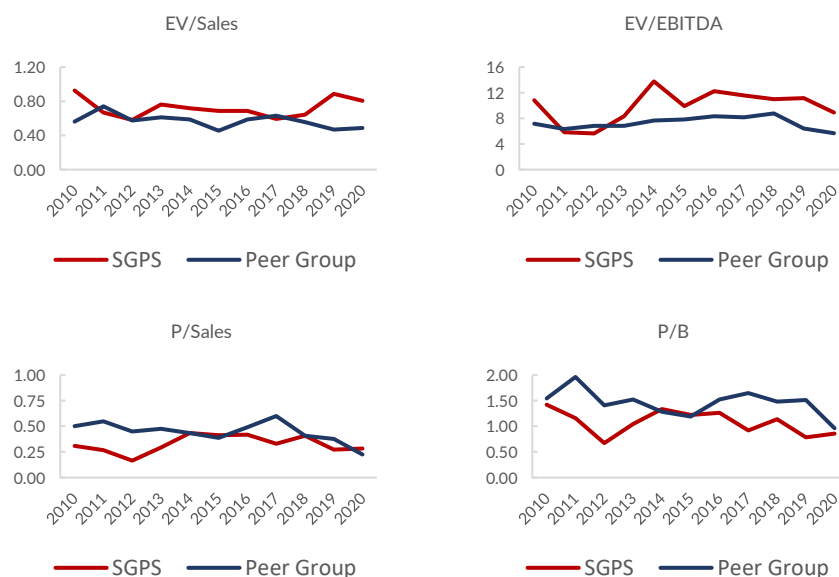
Appendix 24 | Peers Selection

In order to value SON through multiples, we followed two different approaches. The first one was to find peers for SON as a whole, sharing similar conglomerate characteristics, and the second was to select peers for each individual segment to perform a SoP approach to Relative Valuation. For all peer groups, we chose comparable companies that operate in the same industry and were based in Europe, as it would capture the macroeconomic risks similarities to which they are all exposed to. Additionally, financial metrics were also considered to narrow the number of total peers, such as Debt to Equity, EBITDA Margin, EBIT Margin, etc. In the end, we were able to have between 4 to 6 peers for every segment, which we considered to be appropriate. The final peer groups of SON, NOS and Sonae MC are shown below.

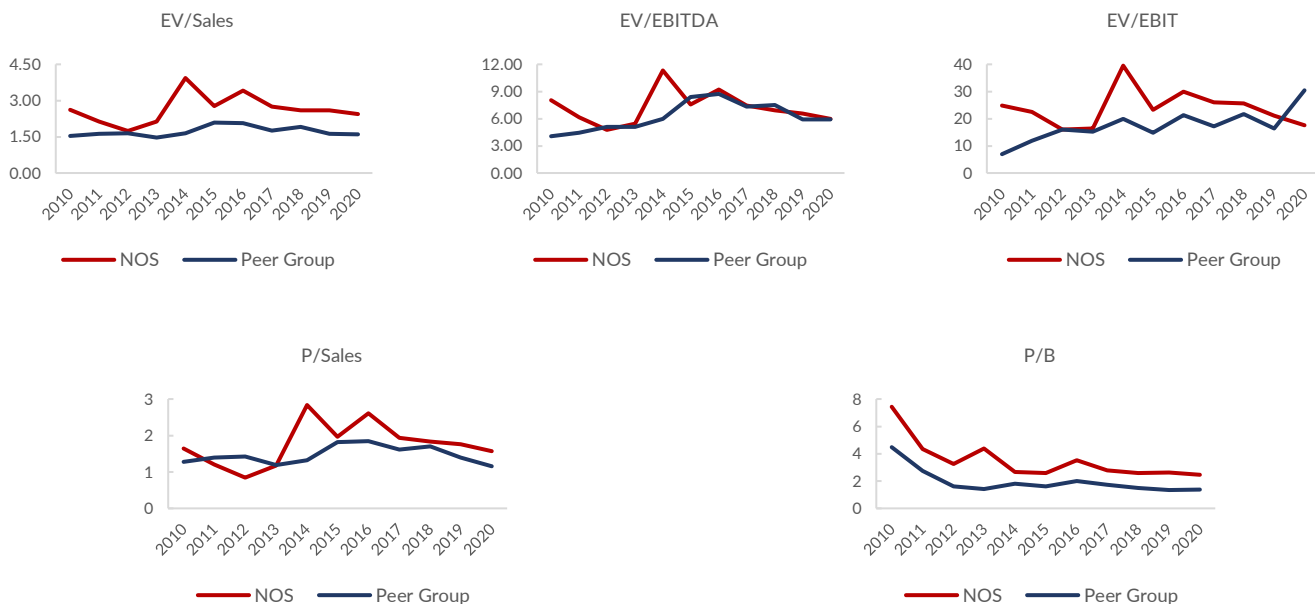


Appendix 25 | Multiples through Time

SGPS
The multiples used for this analysis were computed for the periods of 2010-2020YE. All values were extracted from Refinitiv. We first chose to analyse SON's multiples compared with its peer group median to better understand how the company has been valued by the market in comparison to them. We find that Sonae has historically been trading at a premium compared to its peers, if Enterprise Values multiples are considered. If we look at Price multiples, the premium is not as substantial, and in some cases, non-existent. We believe that this is because SON has historically been a highly levered company, hence the high EV multiples. However, we can extract from this analysis that markets recognize room for SON to grow (EV/EBITDA), mostly due to its diversified portfolio, which is priced at a premium in some instances. Nevertheless, the premium between SON and its peers appears to be shrinking, indicating that markets are reviewing their stance on the company, and considering that its outlook is more aligned its peer group.



NOS
Looking at NOS, we can observe that for most multiples, the company has been trading at a premium, much like Sonae, mainly due to the higher expectations for growth that the market perceives. Even though NOS is expected to lose market share in the future, due to the ongoing 5G auction, markets are still pricing the company alongside its peers (EV/EBITDA), and for some multiples, at a premium (EV/Sales). This indicates that despite the adversities that NOS is expected to encounter in the future, markets still identify potential.



Appendix 26 | Valuation through Multiples

To derive the value of SON through multiples, we used a SoP approach using multiples for each segment. The values for this analysis were extracted from Refinitiv and are from 2019. The reason why we chose FY19 values instead of FY20 follows the same rationale as the unlevered betas approach. The multiples used for this were EV/EBITDA and EV/Sales, since they exclude the effect that capital structure brings to Price multiples, by being computed with the Enterprise Value instead. In the end, the EV/EBITDA yields a price target of €1.05/sh, while the EV/Sales yields €0.81/sh, both showing an upside, aligned with our base case and recommendation. Likewise, a conglomerate discount was applied to the multiples, to be consistent with our base case.

Additionally, we also derived the value of SON using multiples from its own peer group, however we do not believe that this approach thoroughly reflects the true value of SON. This is because its peers, as similar as they can possibly be, will not have the same exact weight of different businesses nor stakes in other companies, like the case of NOS. Therefore, we consider this approach to be unfit. Nevertheless, even when computing EV/EBITDA and EV/EBIT, SON still shows upside with a price target of €0.86/sh and €0.81/sh respectively, further supporting our recommendation.

Given that we did not value Sonae FS, Sonae IM and ISRG using a DCF approach, their final EV were derived from relative valuation exclusively. The multiples chosen to get the final values of these 3 segments were: Sonae FS (EV/EBITDA), Sonae IM (EV/EBIT) and ISRG (P/Sales). We chose the multiples for these segments based on what we believe to be more appropriate given the features of each BU. Lastly, ISRG was valued using a price multiple because we do not have enough information that allows us to get from EV to the Equity Value. Nonetheless, we also computed other multiples, which can be seen in the tables below.

		Sonae SGPS		Soane MC		NOS		ISRG	
		Median	Average	Median	Average	Median	Average	Median	Average
Values	EV/Sales	4130	3767	2606	2684	2644	3385	558	567
	EV/EBITDA	4663	6709	3445	3389	3430	3700	579	577
	EV/EBIT	4796	6709	3489	3561	3050	3508	1330	1406
	EV/FCF	1919	2132	1994	1992	3039	4052	N/A	N/A
	P/E	3828	2132	N/A	N/A	2740	3508	N/A	N/A
	P/Sales	2757	2215	N/A	N/A	1657	2044	222	281
	P/B	2245	2213	N/A	N/A	1105	1346	N/A	N/A
Multiples	EV/Sales	0.59x	0.61x	0.52x	0.51x	2.24x	1.75x	0.81x	0.82x
	EV/EBITDA	9.65x	6.49x	6.11x	6.21x	6.30x	5.84x	8.36x	8.40x
	EV/EBIT	12.37x	14.08x	12.93x	12.67x	27.05x	23.52x	40.77x	38.54x
	EV/FCF	16.81x	15.13x	16.18x	16.20x	19.77x	14.82x	N/A	N/A
	P/E	60.14x	23.67x	N/A	N/A	42.73x	33.37x	N/A	N/A
	P/Sales	0.34x	0.41x	N/A	N/A	1.35x	1.10x	0.41x	0.32x
	P/B	1.11x	1.12x	N/A	N/A	1.57x	1.29x	N/A	N/A

		Worten		Sonae Fashion		Sonae FS		Sonae IM	
		Median	Average	Median	Average	Median	Average	Median	Average
Values	EV/Sales	314	301	375	335	115	116	768	886
	EV/EBITDA	266	250	296	298	89	95	367	390
	EV/EBIT	240	223	N/A	N/A	84	95	173	194
Multiples	EV/Sales	0.32x	0.33x	0.83x	0.93x	2.74x	2.70x	7.28x	6.32x
	EV/EBITDA	5.14x	5.49x	8.69x	8.64x	8.63x	8.10x	13.05x	12.29x
	EV/EBIT	16.18x	17.38x	N/A	N/A	10.13x	8.97x	15.99x	14.27x

Appendix 27 | SON's Investment Risks

Operational Risk

Inability to recruit and retain talent [Op4] (Low likelihood / Medium Impact)

Labour market is increasing its competitiveness, which might jeopardize SON's ability to retain crucial employees. Additionally, SON reports a scarcity of attractive compensation and careers plans. **Mitigant:** The prestige of the Company and the fact that SON is one of the largest private employers of the country (c.45k employees in 2019YE), will support its ability to retain and attract talent.

Market Risk

Exchange Rate Risk [M1] (Low Likelihood / Low Impact)

For the majority of SON's BU's exchange rate is immaterial as most transactions are in euros. In the case of NOS, the exposure results from payments made in terminal equipment suppliers and producers of TV content, denominated in US dollars. On the other hand, Sonae IM exchange rate exposure is larger due to its international operations, having subsidiaries in countries like Brazil, USA, UK, Mexico, etc. **Mitigant:** Sonae IM don't represent a big part of SON but is pursuing to reduce this exposure by offsetting credits granted and debits. When this is not achievable it adopts hedging positions using derivative instruments.

Price Risk [M2] (Medium-High Likelihood / Low Impact)

SON is exposed to equity price risk on their equity investments, which are held to strategic reasons rather than for trading. In 2007, SON entered a Total Return Swap with SON Holding shares as the underlying (132.8M shares). Even if by Sep. 2020 that number had come down to (89.8M), the company became exposed to variations of a portion of its own outstanding stock in the market over the last years. **Mitigant:** SON has been cancelling its position on the equity swap over the last years, with a remaining exposure of only 4.5% of SON's common shares.

Financial Risks

Credit Risk [F1] (Medium-Low Likelihood / Medium-Low Impact)

SON is mainly exposed to credit risk from financial instruments, such as short-term investments like bank deposits (594M in 2019). Additionally, Sonae MC, Worten and Sonae Fashion are exposed to very low levels of credit risk as most transactions are made in cash. Sonae Sierra and IM face the risk of defaults in rent and accounts receivables, respectively. NOS's credit risk is on its operating and treasury activities, mostly coming from services provided to customer's credits. **Mitigant:** SON usually does business with counterparts of prestige and requires authorization in advance before making any contracts. Moreover, SON only maintains non-speculative hedging strategies.

Liquidity Risk [F2] (Medium-low Likelihood / Medium-Low Impact)

The company is frequently raising external funds to finance its investments plans and activities. As of December 2019, total gross debt was €1,789M (LT Loans, structured facilities and ST commercial paper). Moreover, the current ratio is less than one. However, this could be normal due SON's operating nature and the negative working capital requirements. **Mitigant:** SON has the policy of financing its liquidity needs 18 months in advance, which puts the company in a short-term comfortable position in terms of its liabilities and has one of the highest current ratios among the peers.

Interest Rate Risk [F3] (Medium-low Likelihood / Medium-High Impact)

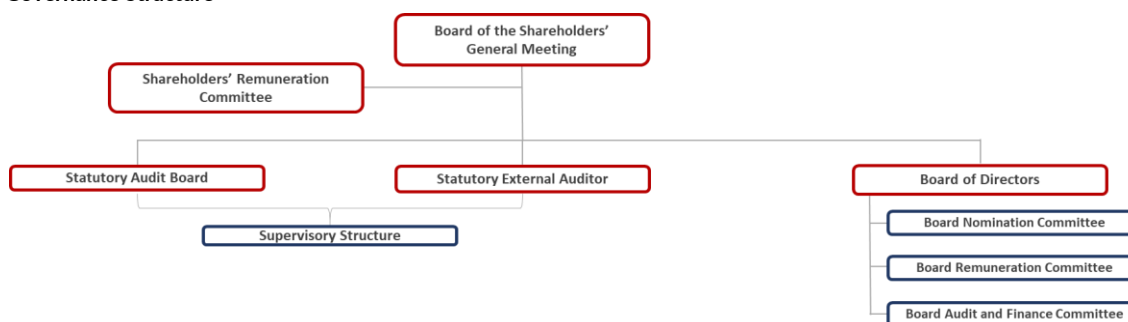
Sonae MC, Worten and Sonae Fashion's exposure to interest rate is due to long term loans bearing interest at Euribor. In the case of Sierra, the exposure is very low because its operating cash-flows are independent of changes in interest rates, and its loans depends on rates in euros, which haven't significantly changed in recent periods. Sonae IM's total debt is indexed to variable rates, causing a volatile Cost of Debt. Lastly, NOS's borrowings follow the same pattern, however the company's hedging policy covers future payments. **Mitigant:** SON makes use of financial instruments for hedging purposes regarding interest rates fluctuations. Sonae IM's debt level isn't high enough to have any material impact.

Grey Sky Scenario

Given the high upside that our base case implies, we wanted to understand the conditions at which our price target would show a downside of -10%. To reach a price target of €0.64/sh, and according to our model, several unlikely factors would have to occur simultaneously in the terminal period. The main ones are a RFR increase to 3% and a decrease in terminal growth rates by half in all segments. Additionally, we also considered a greater loss in market share for NOS (5%), and a higher CRP (2.5%).

Environmental, Social and Governance

Appendix 28 | Governance Structure



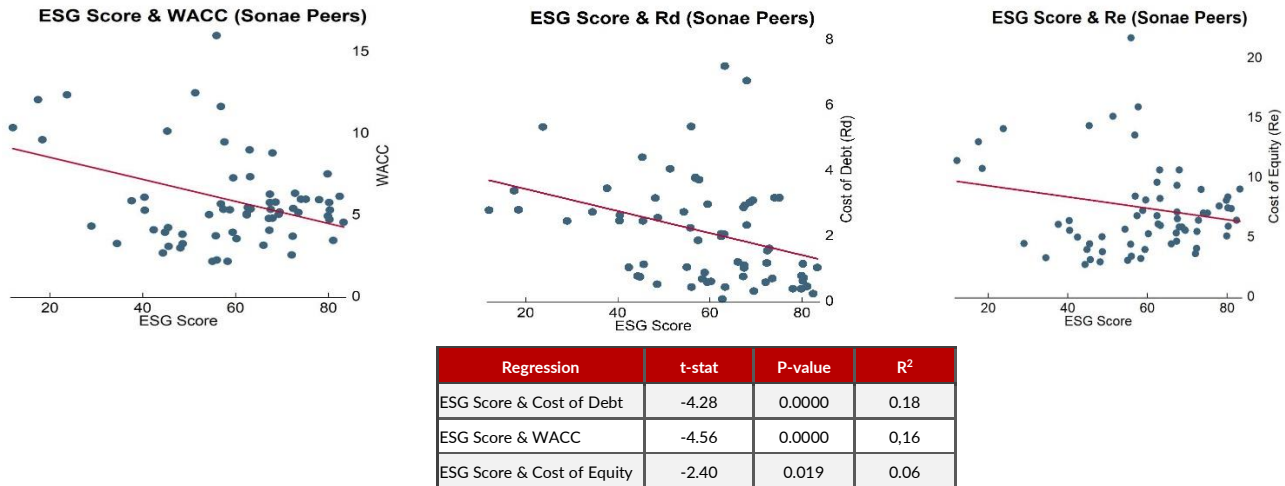
Appendix 29 | Non-Executive Directors

Name	Position	Independence	Remuneration	Held Since	Term
Paulo Azevedo	Chairman	No	€423,100	2000	2022
Ângelo Paupério	NED	No	€323,636	2000	2022
José Adelino	Lead NED	No	€69,767	2007	2022
Margaret Trainer	NED Independent	Yes	€59,233	2015	2022
Marcelo Faria de Lima	NED Independent	Yes	€52,267	2015	2022
Carlos Moreira da Silva	NED	No	€36,100	2019	2022
Fuencisla Clemares	NED Independent	Yes	€35,967	2019	2022
Philippe Haspesslagh	NED Independent	Yes	€37,667	2019	2022
Cláudia Azevedo	CEO	No	€715,600	2019	2022
João Pedro Dolores	CFO	No	€360,200	2019	2022

Appendix 30 | How ESG Score Affects Companies

The recent increase in issuance of green bonds can be mainly attributed to the growing notoriety of the term Sustainability. Investors are increasingly looking for more defensive and reputable companies to invest in. SON has acknowledged this trend and in late 2020 started refinancing its debt through these specific bonds, with the spread being linked to the attaining of targets related to sustainable and inclusive actions. Thus, to achieve low spreads in the future, SON depends heavily on itself. Moreover, gains in public image are also advantageous.

To determine if high investments in ESG bring companies any financial gains, our team decided to do an analysis, through STATA, to try and identify if there is a significant relationship between ESG Score and Cost of Debt, WACC and Cost of Equity. For this, 24 peer companies of SON were analysed, with data from a time frame of 6 years (2013-2019). The outputs of the analysis show a statistically significant negative correlation between the ESG Scores and the first two indicators, for all significance levels. Regarding the relation between ESG Score and Cost of Equity, the regression is weaker than the previous two. Furthermore, the relation between the two indicators is only significant for a 5% and 10% significant level, which lead us to discard this approach. It is then noticeable that while companies with a high ESG Score have a marginal gain in terms of cost of debt, companies with low or inexistent ESG Scores have significantly higher cost of debt. A similar and more robust conclusion is reached when looking at the relationship between ESG Scores and WACC values. Therefore, we decided to account for this effect in the valuation of SON, by adjusting its Cost of Debt for the Terminal Period.



Appendix 31 | Ellen MacArthur Foundation 2020 Ranking

ELLEN MACARTHUR RANKING	
Reusable Plastic Packaging (%)	
Selfridges	1st
Kesko Corporation	2nd
Kmart Australia Limited	3rd
Sonae MC	4th
S Group	5th
Carrefour	6th
Walmart Inc.	7th
Jerónimo Martins	8th

ELLEN MACARTHUR RANKING	
2019 Reusable, Recycled or Compostable Plastic Packaging (%)	
Kmart Australia Limited	1st
S Group	2nd
Selfridges	3rd
Pick n Pay	4th
Kesko Corporation	5th
Woolworths Holdings Limited	6th
Sonae MC	7th
Carrefour	8th
Jerónimo Martins	9th

Appendix 32 | Analysts' Price Targets

Analyst's Company	Date	Price Target
Renta4Banco	14/01/2021	€1.59
BaaderEurope	14/01/2021	€1.19
JBCapitalMarkets	14/01/2021	€1.05
N A U	14/01/2021	€1.25
Caixa BI	13/01/2021	€1.30

Appendix 33 | Conglomerate Discount Sensitivity Analysis

Conglomerate Discount	30%	25%	20%	15%	10%	5%	0%
Price Target	1.10	1.17	1.25	1.33	1.41	1.49	1.57
Upside/ Downside	54%	65%	75%	88%	99%	110%	121%
Recommendation	Buy	Buy	Buy	Buy	Buy	Buy	Buy

Appendix 34 | Bloomberg Criteria for Precedent Transactions Search

Date	Deal Status	Payment Type	Sector/Industry	Region
January 1st, 2016 - June 4th 2021	Completed	Cash	Include Retail/Shoe, Apparel	Eastern/Western Europe

Appendix 35 | Precedent Transactions Analysis

Target Name	Total Value	Transaction		LTM			EV/		
		Enterprise Value	Discount	Revenue	EBIT	EBITDA	LTM Rev	EBIT	LTM EBITDA
KappAhl AB	150.02 €	190.97 €	-21%	357.19 €	9.27 €	20.89 €	0.53x	20.61x	9.14x
Courir France SAS	283.00 €	522.19 €	-46%	382.97 €	22.07 €	40.00 €	1.36x	23.66x	13.05x
Besson Chaussures SAS	220.00 €	258.24 €	-15%	268.29 €	27.30 €	30.00 €	0.96x	9.46x	8.61x
Peak Performance	254.98 €	323.75 €	-21%	143.44 €	17.07 €	19.09 €	2.26x	18.96x	16.96x
Tom Tailor Holding SE	201.73 €	187.00 €	8%	843.80 €	-216.20 €	25.70 €	0.22x	-0.86x	7.28x

Max	283.00 €	522.19 €		382.97 €	27.30 €	40.00 €	1.36x	23.66x	13.05x
75th Percentile	251.50 €	390.22 €		370.08 €	24.68 €	35.00 €	1.16x	22.14x	11.10x
Median	220.00 €	258.24 €	-21%	357.19 €	17.07 €	25.70 €	0.96x	18.96x	9.14x
25th Percentile	185.01 €	224.61 €		312.74 €	15.67 €	25.45 €	0.75x	15.04x	8.87x
Min	150.02 €	190.97 €		268.29 €	9.27 €	20.89 €	0.53x	9.46x	8.61x

Final EV	Acquisition Discount	Final Price	Final Share Price	Upside Potential
262.77 €	-21.24%	206.95 €	1.26 €	77%

References

- Alexander, C. (2009). *Value-At-Risk Models. Market Risk Analysis Volume IV.* John Wiley & Sons, Ltd.
- ANACOM. (2020). *Factos & Números.*
- APED - Associação Portuguesa de Empresas de Distribuição. (2019). *Flash Report - Retail.*
- Banco de Portugal. (2020). *Boletim Económico.*
- Banco de Portugal. (s.d.). *Boletim Económico Junho 2020.*
- BCG. (2018). *O Impacto do Digital na Economia Portuguesa.*
- Berger, P. G., & Ofek, E. (1995). Diversification's Effect on Firm Value. *Journal of Financial Economics*, (37).
- Besson Chaussures. (2017). *Besson Chaussures Bilan Financier.* Annual Report.
- Business Valuation Resources. (2020). *Get a Sneak Peek at Control Premium Data on Acquired Companies.*
- Comment, R., & Jarrell, G. A. (1995). Corporate Focus and Stock Returns. *Journal of Financial Economics*, (37).
- CTT. (2019). *E-Commerce Report 2019.*
- Décideurs Magazine. (2018, October). *Décideurs Magazine.*
Retrieved August 2nd, 2021, from Casino Cede Courir au Fonds Equistone: <https://www.magazine-decideurs.com/news/casino-cede-courir-au-fonds-equistone>
- Deloitte. (2019). *Global Powers of Retailing 2019.*
- Dinheiro Vivo. (2020, March). *Continente quer mais fornecedores no Clube de Produtores.*
Retrieved January 3rd, 2021, from <https://www.dinheirovivo.pt/empresas/continente-quer-mais-fornecedores-no-clube-de-produtores-12689444.html>
- Ecommerce Europe. (2019). *European Ecommerce Report.*
- EcommerceDB. (s.d.). *E-Commerce Revenue Analytics.*
Retrieved December 28th, 2020, from <https://ecommercedb.com/en/store/worten.es>
- EcommerceDB. (s.d.). *Store Ranking & Overview.*
Retrieved December 28th, 2020, from <https://ecommercedb.com/en/ranking/PT/electronics-media>
- Ellen MacArthur Foundation. (2016). *The New Plastics Economy - Rethinking the future of plastics.*
Retrieved December 26th, 2020, from https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundation_TheNewPlasticsEconomy_Pages.pdf
- Ellen MacArthur Foundation. (2020). *The Global Commitment 2020 Progress Report.*
- Essential Business. (2020). *2020 set to be Portugal's third best year for real estate investment. Lisbon.*
Retrieved December 20th, 2020 from <https://www.essential-business.pt/2020/11/06/2020-set-to-be-portugals-third-best-year-for-real-estate-investment/>
- Eurostat. (2021). *Online Shopping Ever More Popular in 2020.*
Retrieved August 1st, 2021, from <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210217-1>
- Fernandez, P., Apellániz, E., & Acín, J. F. (25 de March de 2020). *Survey: Market Risk Premium and Risk-Free Rate used for 81 countries in 2020.*
- Hootsuite, We are Social. (2020). *Digital 2020 Global Digital Overview.*
- Hull, J. (2015). *Options, Futures, and Other Derivatives.* Pearson. Ninth Edition.
- IC Group. (2017). *Annual Report 2017.*
- ICSC. (2020). *The Future of the Shopping Center Industry.*
- International Monetary Fund (FMI). (2020). *World Economic Outlook: Along and Dificult Ascent.*
- Internet Retailing. (2021). *Internet Retailing.*
Retrieved July 30th, 2021, from <https://internetretailing.net/rxgeu/rxgeu/european-ecommerce-revenues-jump-30-to-us465bn-in-2021>
- Jornal de Negócios. (2020). *MásMóvil quer construir rede de fibra em Portugal para dar força à Nowo.*
Retrieved December 15th, 2020, from <https://www.jornaldenegocios.pt/empresas/telecomunicacoes/detalhe/masmovil-quer-construir-rede-de-fibra-em-portugal-para-dar-forca-a-nowo>
- Jornal de Negócios. (2021, January 14). *Sonae soma 2,5% depois de mudança "estrategicamente positiva" com venda da Worten em Espanha.*
Retrieved January 14th, 2021, from <https://www.jornaldenegocios.pt/mercados/detalhe/sonae-soma-25-depois-de-mudanca-estrategicamente-positiva-com-venda-da-worten-em-espanha>
- Jornal Económico. (2020, September 19). *Ciberataques: Um fenómeno para ficar e que o contexto pandémico ajudou.*
Retrieved November 13th, 2021, from <https://jornaleconomico.sapo.pt/noticias/ciberataques-um-fenomeno-para-ficar-e-que-o-contexto-pandemico-ajudou-635389>
- Jornal Económico. (2020, June). *Grupo Nowo-Oni disponível para ir ao leilão do 5G.*
Retrieved December 15th, 2020, from <https://jornaleconomico.sapo.pt/noticias/grupo-nowo-oni-disponivel-para-ir-ao-leilao-do-5g-596620>

- KPMG. (2020). *Global Retail Trends 2020*.
- Lang, L. H., & Stulz, R. M. (1993). *Tobin's Q, Corporate Diversification and Firm Performance*. Cambridge: National Bureau of Economic Research.
- LLorente Y Cuenca. (2020). *Tendências Consumer 2020*.
- Milejevic, M. (2014). Testing Applicability of Value at Risk Models in Stocks Markets. *Mediterranean Journal of Social Sciences*.
- New Plastics Commitment Signatory 2020 Ranking. (s.d.). (Airtable, Compilador)
Retrieved December 23rd, 2020, from <https://airtable.com/shr0VoLjEqYhfQixj/tbljPKdyc4qHY3nm8>
- Nielsen. (March, 2019). 3,5 mil milhões de euros na "Selva Promocional" dos bens de grande consumo.
Retrieved November 1st, 2020, from <https://www.nielsen.com/pt/pt/insights/article/2019/3-point-5-billion-euros-in-promotional-jungle-of-consumer-goods/>
- NOS, SGPS, S.A. (2019). *Annual Report 2019*.
- OECD. (2020). *OECD Economic Outlook*. OECD.
- Officer, M. S. (2006). *The Price of Corporate Liquidity: Acquisition Discount for Unlisted Targets*.
- Rajan, R., Servaes, H., & Zingales, L. (2020). The Cost of Diversity: The Diversification Discount and Inefficient Investment. *The Journal of Finance*, LV (1).
- Reduniq. (2020). *À entrada de uma Nova Fase do Mundo Covid*.
- Scharfstein, D. S. (January de 1998). The Dark Side of Internal Capital Markets II: Evidence from Diversified Conglomerates.
- SEB Group. (2018). *KappAhl Corporate Research*. Equity Research.
Retrieved September 5th, 2021, from <https://research.sebgroup.com/oapi/puppeteer/93836>
- Shin, H.-H., & Stulz, R. M. (s.d.). Are Internal Capital Markets Efficient? *The Charles A. Dice Center for Research in Financial Economics*.
- Sonae MC. (2019). *Annual Report 2019*.
- Sonae SGPS SA. (2019). *Annual Report 2019*.
- Sonae SGPS SA. (2020). *Annual Report*.
- Sonae SGPS SA. (2020). *Investor Kit - 3Q 2020*.
- Sonae SGPS SA. (2019). *Investor Kit 2019*.
- Sonae Sierra. (2019). *Annual Report 2019*.
- Sonae Sierra. (2019). *Economic, Environmental and Social Report 2019*.
- Statista. (2021). *Retail e-commerce sales worldwide from 2014 to 2024*.
Retrieved September 20th, 2021, from <https://www.statista.com/topics/871/online-shopping/#dossier-chapter1>
- Stein, J. C. (March, 1997). Internal Capital Markets and the Competition for Corporate Resources. *The Journal of Finance*, LII (1).
- Sukono, E. (2017). Estimation the Value-at-Risk for some stocks at the capital market in Indonesia based on ARMA-FIGARCH models. *Journal of Physics: Conference Series*.
- Wulandari, F., Schaefer, D., Stephan, A., & Sun, C. (April, 2018). *The Impact of Liquidity Risk on the Yield Spread of Green Bonds*.
- Zanni, K. M. (2015). Quantifying the Private Company Discount: Multiples Approach and Acquisition Approach. *Business Valuation Alert*, 16 (1), 7.

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Level of Risk ¹	SELL	REDUCE	HOLD/NEUTRAL	BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%

¹ The recommendation table was adapted for purposes of the CFA competition.