MASTER OF SCIENCE IN
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MASTER'S FINAL WORK
PROJECT

EQUITY RESEARCH SONAE SGPS S.A.:
REPLICATING SONAE'S PORTFOLIO

GUILHERME MARTINS DA CONCEIÇÃO FERREIRA E CORGA

OCTOBER 2021

Lisbon School of Economics & Management
Universidade de Lisboa

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SUPERVISOR

VICTOR MAURÍLIO SILVA BARROS

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Abstract

The present document consists of an Equity Research report on Sonae SGPS, S.A. (SON). This report was used for the local Portuguese CFA Institute Research Challenge in which the team obtained a 2nd place. Please note that this report contains solely public information until the 14/01/2021.

Besides the research presented during the competition, this report contains an additional chapter which tries to replicate SON's portfolio for FY19. It explores the do-it-yourself lesson form market efficiency by assessing if the firm should or should not diversify in the investor's name. It was discovered that for FY19 the New Portfolio outperformed SON on a risk adjusted basis. This might justify the rationale for a conglomerate discount.

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

To value the conglomerate a Sum-of-the-Parts approach was employed, where a discounted cash flow analysis was developed for most of the business units, comprehensively reflecting its different value drivers.

The valuation generated a buy recommendation with a price target of 1.25€/sh for 2021YE, with an upside potential of 75% from the January 15th 2021 closing price of 0.71€, with a medium to low risk. To support the base case of the report, other methods such as Relative Valuation were also applied.

JEL Classification: G10, G32, G34

Keywords: Equity Research, Valuation, Retail, Conglomerate.

Acknowledgements

To start with, I would like to thank my team, Mafalda, Margarida, Rodrigo and Enrique. You gave me the opportunity to grow alongside you during this intense journey, both at a personal and academic level.

To my Supervisor Victor Barros, my deepest gratitude for the wisdom, confidence and support you gave us throughout the entire experience. Thank you for sharing your time with us during one of the most important moments of your life, the birth of your first child. It takes a huge amount of passion and commitment.

I would also like to thank our Dean Clara Raposo and Professor Tiago Gonçalves, for their support and incentive on a constant basis.

A special thanks to both Arthur and César who took their time to share their empiric knowledge in a selfless way with the only purpose of helping us achieve success. You transmitted us confidence and you were one of the main reasons our learning curve steeped faster.

Thank you to my friends at Lisbon Investment Society. You have helped me make sure that during this process our entrepreneurship experience, of taking the Association to the next level, was being successfully completed.

A very special thanks to my family. In particular, to my parents for being a pillar of stability, effective support and a source of values throughout my life. Thank you for always reminding me of what actually matters and sorry for the dinners I skipped during this project. Thank you to my little sister, Francisca, for being so different than me, it lets me know there are other valuable ways of looking at life. I would also like to thank my closer aunts, uncles and cousins, you have contributed tremendously both to the person that I am today and to the decisions I made that took me here and will take me far beyond.

To finish, I would like to thank VITALIS in the persons of Abraham, Maribel and Moises who gave me full support and encouraged me to apply to the CFA Research Challenge despite the time it would consume.

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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Portuguese Stock Exchange (PSI) | SONAE SGPS, S.A.

Date: January 14th, 2021 | **Current Price: €0.71/sh** | **Recommendation: BUY**
Ticker: SON | **Industry: Food Retail & Distribution** | **Price Target: €1.25 (75% upside)**

Stock Information	
Closing Price (January 14th. 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 8th. 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

Table 1: SON's Price Target, SoP

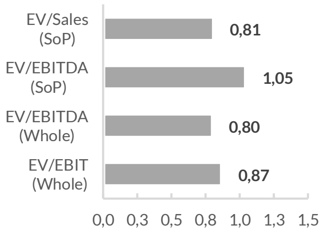
Business Unit	Base Case Method	Values (in M)
Sonae MC (100%)	FCFF	€4,245.3
Sonae Sierra (70%)	RE[1]; FCFF	€599.2
Worten (100%)	FCFF	€292.0
Sonae Fashion (100%)	FCFF	€238.1
Sonae IM (90%)	Multiples	€156.0
Sonae FS (100%)	Multiples	€89.4
ISRG (30%)	Multiples	€66.5
NOS (30.8%)	FCFF	€505.6
Adjustments		(€3,212.9)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

[1]Income Method for Real Estate

Includes 20% Conglomerate Discount

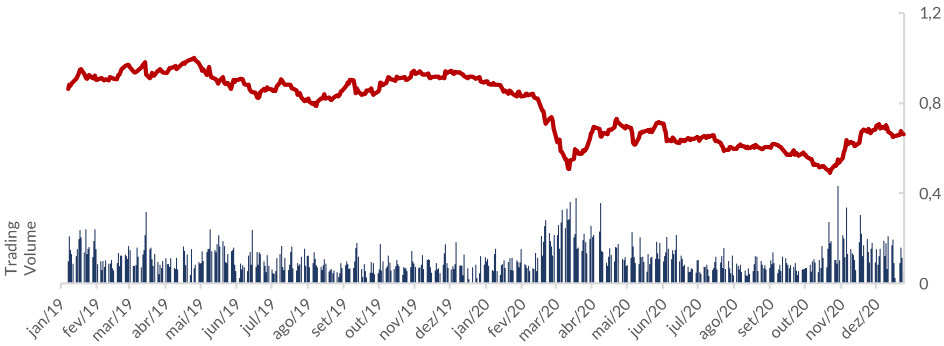
Source: Team Analysis

Figure 1: SON's Price Target with Multiples



Source: Team Analysis

SON: The Value of a Green Strategy



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.

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 CO_2 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.

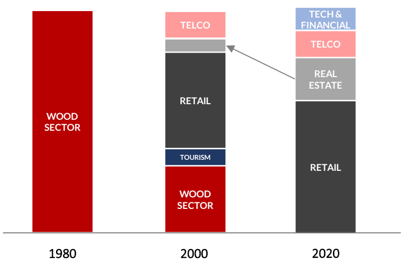
Replicating SON's Portfolio | The do-it-yourself lesson from market efficiency questions why should the company provide diversification when it is easier and cheaper for the investor to do so. This chapter studies if during FY19 a portfolio of stocks similar to SON's portfolio can outperform the latter. The stocks of the New Portfolio (NP), were chosen from the Peer group of each Segment. Besides being located in Europe, given SON's exposure to the region, they were evaluated in terms of performance and liquidity. The conclusion is that the NP largely outperforms SON on a risk adjusted basis during the studied period. Therefore, the synergies that arise from a conglomerate probably do not compensate its complexity and the lack of understanding investors have of it. That might explain the rationale for a conglomerate discount.

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**

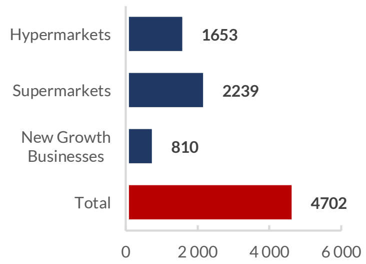
Source: SON 2019 Annual Report

Figure 2: SON's Portfolio Evolution



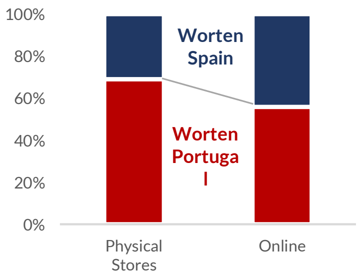
Source: SON 2020 Presentation

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



Source: SON 2019 Annual Report

Figure 4: Worten Turnover per Sales Chanel (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% Lfl; 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% Lfl; 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 13^{th}. Sonae Fashion's (+6.6% Lfl; 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.

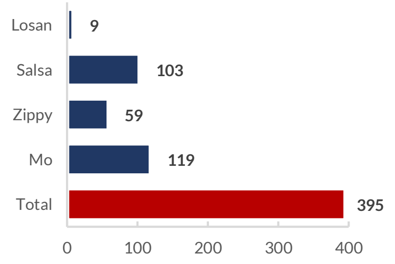
NOS | Telecommunications – NOS (+1.5% FY19 YoY), which resulted from a merger between two major players from the Portuguese telecommunications (Telco) market in 2013, is an independent publicly traded Portuguese Telco and Media company. The company is divided into two categories: Telco (38.4% FY19 EBITDA 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).

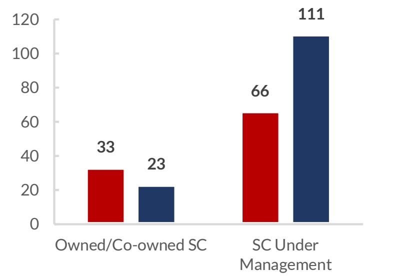
Sonae Investment Management (Sonae IM) | Investment Management - Sonae IM (+24.8% YoY turnover) manages a portfolio of companies that operate in retail technologies, telco, and cybersecurity. In 2019 the BU integrated two new companies, Nextel (retail technologies) and Excellium (cybersecurity).

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



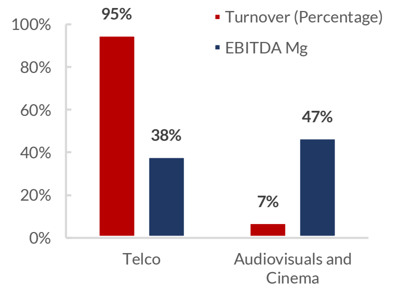
Source: Team Analysis

Figure 6: Sonae Sierra Shopping Centres (2019)



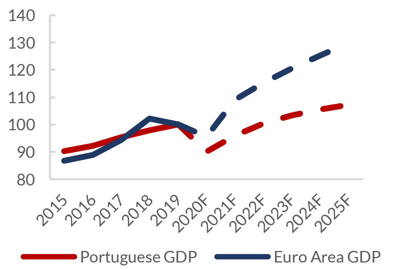
Source: SON 2019 Annual Report

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



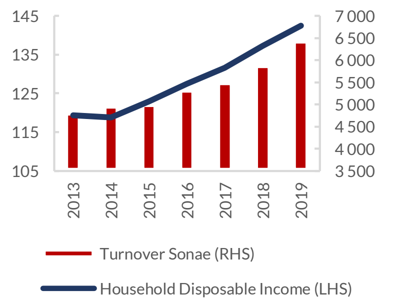
Source: NOS 2019 Annual Report

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. 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.

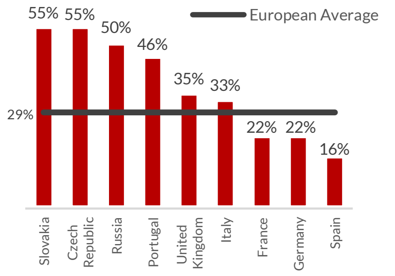
Demand Drivers

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.

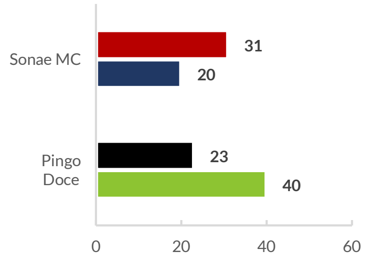
Promotional Sales | SON's main source of turnover comes from a non-cyclical business which stays resilient even during a crisis like the Covid-19 pandemic (+7.1% Lfl 9M2020 vs. +3.4% Lfl 9M2019). It operates in an environment where consumers are discount seekers, which might derive from the 2008 crisis' 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)



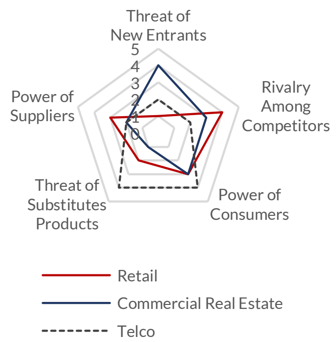
Source: Nielsen

Figure 11: Most Expensive Products Count per Competitor



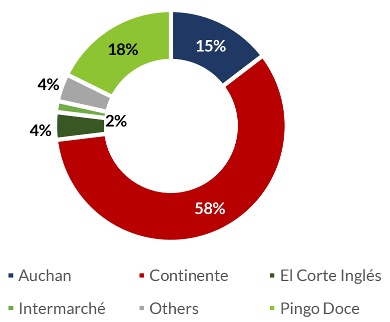
Source: Team Analysis

Figure 12: Porter Five Forces



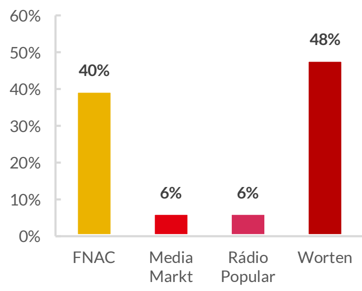
Source: Team Analysis

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.

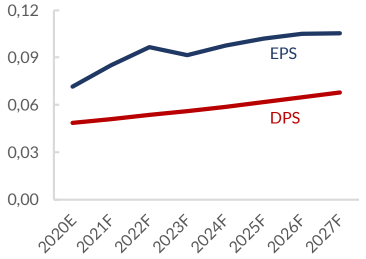
Investment Summary

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

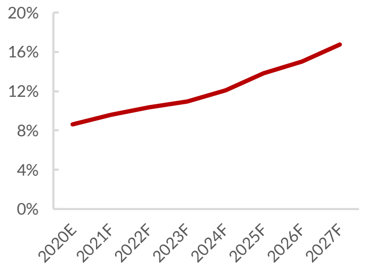
The food retail BU (Sonae MC) has maintained an undisputed leadership position in the Portuguese food retail market for the past decades. This BU held in FY19 a 26.8% market share while Pingo Doce, the chain controlled by Jerónimo Martins came in second place with 23.0%. The company capitalizes on its 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	-

[1] Income 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 CO_2 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.

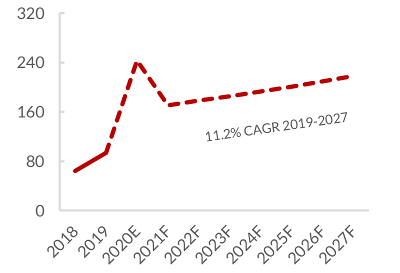
Food Retail | Sonae MC

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).

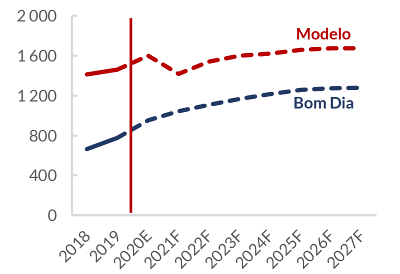
HM | Hypermarkets are the pillars of Sonae MC's operation. This segment encompasses 41 *Continente* physical stores since 2017 and also the online channel. While the physical stores represent most of the turnover (98% FY19), the online channel is slowly but surely reclaiming its stake in the Portuguese 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 planned in HM,

Figure 17: Continente Online Turnover Evolution (in Millions)



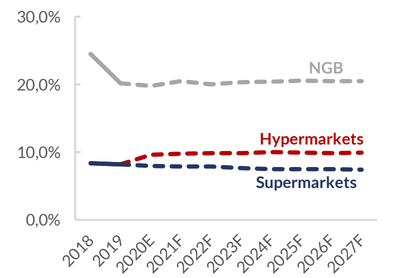
Source: Team Analysis

Figure 18: Supermarket Segment Turnover Evolution (in Millions)



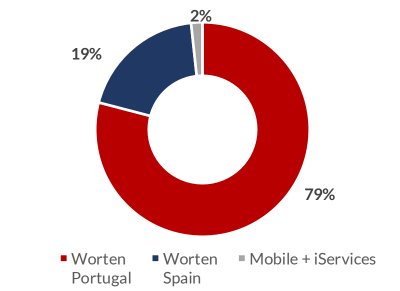
Source: SON's Data, Team Analysis

Figure 19: Sonae MC EBITDA Mg Evolution



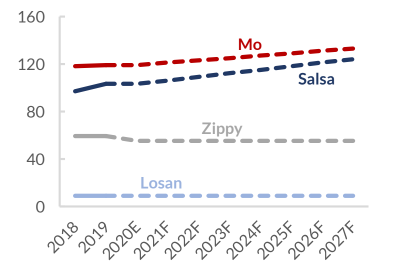
Source: SON's Data, Team Analysis

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

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

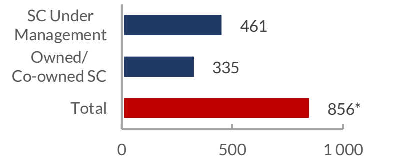
For Fashion retail, our forecast was split into the different brands this segment encompasses (Mo, Zippy, Losan and Salsa). While Zippy, Losan and Mo's sales (61.7% FY27 BU total turnover) are expected to grow alongside Portuguese and Spanish inflation (1.5% for Portugal and 1.65% for Spain), Salsa has 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.

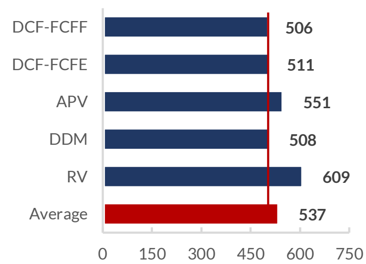
Figure 22: Sonae Sierra Segments EV
(in Millions)



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

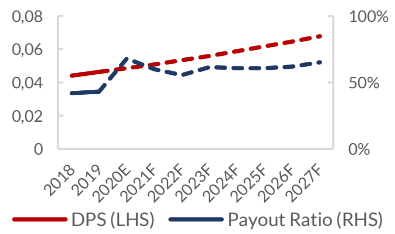
Source: Team Analysis

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%
ISRG	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

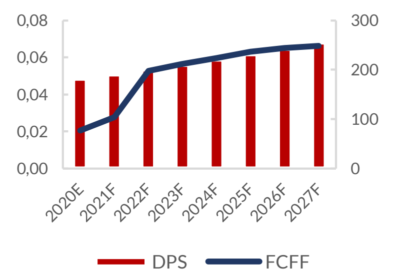
Several Relative Valuation Multiples were computed as alternative valuation methods to complement the DCF approach. Specifically, EV/EBIT and EV/EBITDA to overcome the issues of different capital structures of SON's peers. However, this approach does not fully capture the company's whole value since 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

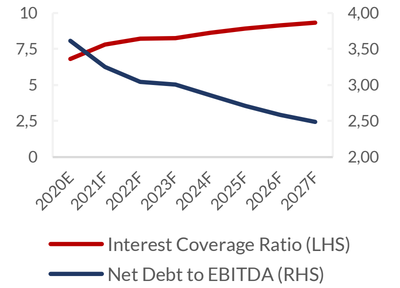
Profitability has been one of SON's strengths. The conglomerate provided a CFO/Sales of 11.1% in FY19 (+78bps YoY), exceeding the 6.8% peer group average (+60bps YoY). By 2027F, we expect that ratio to decrease to 9.8%. Additionally, from FY18 to FY19, the EBITDA Mg has grown 110bps to 9.0% in line with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

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



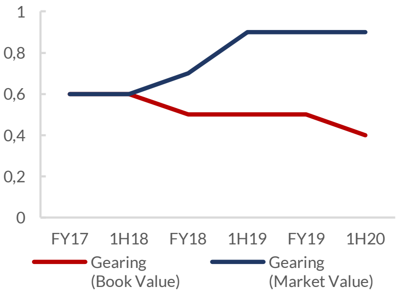
Source: Team Analysis

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



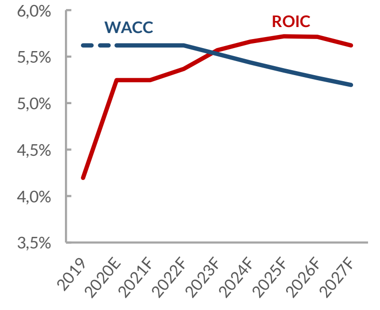
Source: Team Analysis

Figure 28: SON's Gearing Ratio Evolution



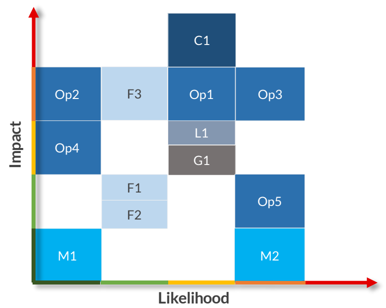
Source: Team Analysis

Figure 29: RoIC and WACC Comparison



Source: Team Analysis

Figure 30: Risk Matrix



Source: Team Analysis

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.

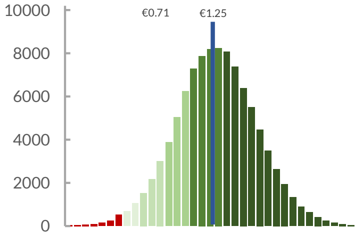
Competition Risks [Op5] (Medium-high Likelihood / Medium-low Impact)
Even though SON remains as one of the biggest players in the market, the company is not immune to competitive threats. Moreover, pricing and discount competition could drive deflation in food retail products, impacting SON's profitability. 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 colussion 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 Growth Rate MC \ 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

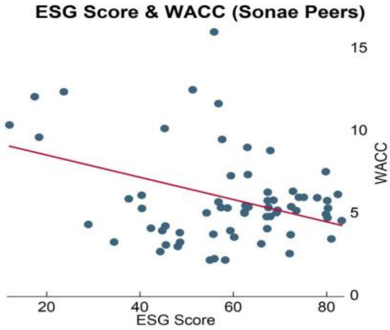
SON's main shareholder is *Efanor Investimentos* SGPS, S.A., which is controlled by the Azevedo family (62.8% of share capital). *Efanor* owns 52.9% of SON's share capital (Table 7), with this stake having been stable over the past decade. Likewise, Sonae SGPS's shareholder structure has remained constant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

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

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.

CO_2 and Climate Change | In accordance with the Paris Pledge for Action, SON is committed to reducing CO_2 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

Replicating SON's Portfolio

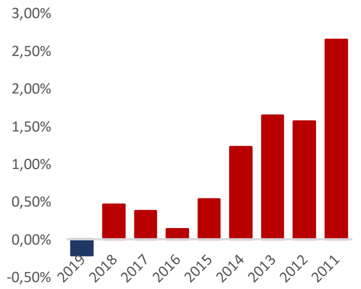
Table 11: New Portfolio Weights (2019)

Segment	% SON's EBITDA	Weights in NP
Food Retail	57,1%	57,1%
Telecom	18,1%	18,1%
Electronics	6,7%	6,7%
Fashion	4,8%	4,8%
Commercial Real Estate	8,6%	8,6%
Sports Retail	2,9%	2,9%
FS	1,9%	1,9%
Total	**100%**	**100%**

*It excludes SONAE IM which has a negative weight on SON's EBITDA

Source: SON's Annual Report FY19

Figure 34: German 10Y Bund Average Yield (2011-2019)



Source: Team Analysis

Table 12: Fashion Stocks Liquidity Indicator Example

Name	Avg. Volume (thousands €)	Avg Price (€)	Avg. Daily Liquidity
Aprangа APB	19.41	1.72	**33.31**
French Connection Group PLC	35.99	44.57	**1 603.97**
Superdry PLC	383.96	531.00	**203 884.13**

* Considering GBP/EUR = 1,1403

Source: Team Analysis

Table 13: Exchange Rate Pairs

Pair	Country
GBP/EUR	Great Britain
SEK/EUR	Sweden
PLN/EUR	Poland
NOK/EUR	Norway
RUB/EUR	Russia

Source: Team Analysis

Diversification - Company vs. Investor

In the field of Finance there has always been discussions about whether or not a company should provide portfolio diversification instead of being the investor to do so, the so called do-it-yourself alternative of market efficiency. Since SON is a conglomerate, the goal of this chapter will be to replicate SON's portfolio to assess if the newly created one can outperform the former. If that hypothesis comes out to be true it might indicate that SON should focus solely on the Segment that performs the best within its current portfolio, leaving the diversification to investors.

In broad terms, the objective is to create a liquid portfolio, balanced accordingly to the weights of each segment in SON's EBITDA and composed only by European equities given SON's geographical exposure. Moreover, each stock of the New Portfolio (NP) will be chosen based on a combination of performance and liquidity metrics. It will also be shown an investment scenario that plots how an investor with 100.000€ would perform if it invests in the NP and how does that compare with an investment in SON or the Benchmark. A better performance by SON, might be explained by synergies that arise from the structure of a conglomerate. However, if it is the other way around, the gap in performance might be due to the complexity of such structures which originate a lack of understanding on the investor's side. The latter may also justify the rationale for a conglomerate discount.

Assumptions

SON's portfolio is dynamic, meaning that its exposure to different Segments changes every year, not only in terms of weights but also because some sectors might be added or subtracted (M&A effect). Accordingly, the peer group should be revaluated every year. Adding to that, there is the fact that some peers like Euskatel S.A. and Dixons Carphone PLC might become delisted or bought by other companies during the period of the study. To simplify, the chosen timeframe was FY19 so that the companies already filtered in the section "Peers Selection" (Appendix 24) could be used.

Furthermore, the terms of comparison between the NP and SON's one should be defined. First, it is assumed that Segments' weights on the NP will be equal to the weights of Segments in SON's EBITDA FY19 (Table 11). That is because Telecommunications and ISRG (21% of FY19 EBITDA) are not consolidated in Revenues. In addition, EBITDA is a proxy of cash flow so the NP will replicate better SON's portfolio in terms of where the money comes from.

An investor who wants to get exposure to the European equities market has passive and cost-efficient ways. There are ETFs like ETZ, EXSA and C060 (0.20% p.a expense ratio) so, both NP and SON's portfolio should also be compared to those alternatives. All of the previous mentioned ETF's replicate the Euro Stoxx 600 (^STOXX), which was the selected benchmark (BMK). That choice is based on the fact that the Index is composed only of European equities from various sectors and includes large, medium and small-caps.

Investors should evaluate the performance of a portfolio on a risk-adjusted basis. For those computations, it is assumed that every investor would prefer returns without taking risks. Because of that assumption, investors will only accept certain levels of volatility for returns above a riskless one. Therefore, the risk free asset should be deducted from portfolio and market returns. The German 10Y Bund for FY19 (-0.209%) was the selected risk free rate (Figure 34).

It is worth noticing that the chosen risk-free rate has been negative since May 2019. Negative yields came as a result of a weak European economy along with a half-decade of unprecedented monetary intervention. To spur the European economy, the European Central Bank cut interest rates through large scale purchases of bonds and other securities, pushing up their prices and lowering their yields. Apparently, the economic rationale for buying negative-yielding bonds does not seem to make sense. Nonetheless, investors might still buy it because of short-term capital gains, security purposes (looking at the negative yield as a storage cost), forex gains (might offset negative returns) or purchasing power maintenance (when deflation is expected).

Regarding stock picking, for all the peers in each segment, overall performance was assessed using a variety of performance indicators namely, Sharpe Ratio, Treynor Ratio, Jansen's Alpha and Information Ratio. For the final portfolio, Value at Risk (VaR) and Conditional Value at Risk (CVaR) were also computed. On top of that, liquidity was also measured as the product of the average daily volume by the average daily price for each peer (Table 12).

Given liquidity's importance, restrictions were also imposed and scored depending on liquidity thresholds. To stocks with average daily volume inferior to €500k it was attributed a score of 2; €500k-€1M (1) and higher than €1M (0). Given both the proposed investment scenario, €100k, and the weights of the NP, it is assumed that a transaction representing more than 10% of the daily volume might bring liquidity problems. Since the maximum initial investment, in Food Retail, is 57 143€ (57,14%), stocks below €500k appear to be fairly illiquid. Moreover, SON's average daily volume was close to 2M (FY19). For comparison purposes, we considered that stocks with more than 1M average daily volume would present a similar or higher level of liquidity to SON's one, thus, not being penalized on the final score.

Figure 35: Stocks' Final Score Equation

$$S = 0.125 * (SR + TR + IR + JA) + 0.5 * Liq$$

$$SR, TR, IR, JA = 1, \dots, n \quad , \quad n = number\ of\ peers$$

$$Liq = \begin{cases} < €500k, 2 \\ €500k - €1M, 1 \\ > €1M, 0 \end{cases}$$

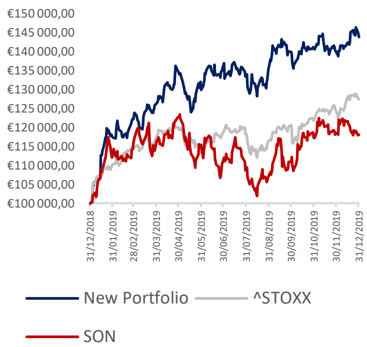
Source: Team Analysis

Table 14: Correlation Matrix of New Portfolio

	JMT.LS	CTY1S.HE	UNIR.MI	SDRY.L (EUR)	RESURS.ST (EUR)	FRAS.L (EUR)	HTO.AT	^STOXX
JMT.LS	1,00	0,17	0,18	0,05	0,18	0,10	0,08	0,40
CTY1S.HE	0,17	1,00	0,16	0,15	0,08	0,15	0,18	0,39
UNIR.MI	0,18	0,16	1,00	0,04	0,17	0,10	0,18	0,34
SDRY.L (EUR)	0,05	0,15	0,04	1,00	0,07	0,31	0,01	0,26
RESURS.ST (EUR)	0,18	0,08	0,17	0,07	1,00	0,18	0,15	0,43
FRAS.L (EUR)	0,10	0,15	0,10	0,31	0,18	1,00	0,07	0,38
HTO.AT	0,08	0,18	0,18	0,01	0,15	0,07	1,00	0,24
^STOXX	0,40	0,39	0,34	0,26	0,43	0,38	0,24	1,00

Source: Team Analysis

Figure 36: Investment Scenario of €100k in Each Portfolio (2019)



Source: Team Analysis

Table 15: Performance Summary (2019)

	NP	SON	^STOXX
Volatility	15.80%	20.73%	11.54%
Return	41.44%	18.04%	27.37%
Beta	0.75	0.75	1.00
Excess Return	14.07%	(9.33%)	-
Tracking Error	13.43%	19.11%	-
Sharpe Ratio	2.64	0.88	2.39
Treynor Ratio	0.556	0.24	0.28
Jensen's Alpha	20.98%	(2.54%)	-
Information Ratio	1.05	(0.49)	-
VaR(95)	(1.29%)	(2.07%)	(1.32%)
VaR(99)	(2.20%)	(3.12%)	(1.69%)
CVaR(95)	(1.85%)	(2.84%)	(1.65%)
CVaR(99)	(2.66%)	(4.07%)	(2.25%)

Source: Team Analysis

Given that some stocks of the studied investment universe do not trade in Euro (EUR) which is the base currency for the NP, their returns were adjusted using the daily exchange rate of return between the currencies they trade in and the EUR (Table 13).

Moreover, since Sonae IM has a negative value in SON's EBITDA, it is not considered as a Segment in the NP. Additionally, it is assumed that the NP is rebalanced on the first day of each month. It is also important to mention that all the computations ignore taxes and transaction costs.

The Construction of the New Portfolio

The first objective was to select the "best" peer out of each Segment to be the representative of its sector in the NP. The NP should be composed of 7 stocks, given the 7 segments of SON's portfolio. To determine the best, each stock was evaluated with the performance and liquidity indicators mentioned above.

First, daily stock prices and daily volume were extracted to an excel sheet, using Python. The data was taken for each stock of each Segment's peer group for FY19. Then, that database needed to be cleaned since the peer group trades in different stock exchanges, presenting different trading days. So, instead of assuming zero return and variance, it was assumed that the given stock return was equal to the average of its peer group daily return in those days.

After having a clean database, the log returns, covariance matrix, correlations, betas, excess returns and tracking error for each stock in every peer group were computed using Python. From that moment on, all the data needed to compute performance and liquidity indicators was ready.

For performance indicators, each stock was ranked from 1 to *n*, being *n* equal to the number of peers of a certain segment (Appendix 34). Regarding the liquidity indicator, as mentioned in Assumptions, each stock received a score depending on the liquidity threshold it was in. To have a more quantitative way of selecting stocks, an equation was created to produce a final score weighing performance and liquidity indicators (Figure 35). The best stock in a given Segment was selected depending on that final score.

The objective is to minimize f(*S*) for each peer group. The dependent variable, *S*, is equal to the final score for each stock, SR (Sharpe Ratio rank), TR (Treynor Ratio rank), IR (Information Ratio rank), JA (Jansen's Alpha rank) and Liq (Average Daily Liquidity score).

Each indicator captures different aspects of the performance of a certain stock or portfolio. They are complementary so, to simplify, it was decided to weight them equally. The total weight of performance in the equation is, therefore, 50%. Since liquidity is extremely important to create a portfolio that could actually be implemented rather than being theoretical, the other half was attributed to it.

Following that method, the stocks chosen to be part of the NP were Jerónimo Martins (JMT.LS, Food Retail), Hellenic Telecommunications Organization (HTO.AT, Telecommunications), Citycon Oyj (CTY1S.HE, Commercial Real Estate), Unieuro (UNIR.MI, Electronics), Superdry PLC (SDRY.L, Fashion), Frasers Group PLC (FRAS.L, Sports Retails) and Resurs Holding AB (RESURS.ST, Financial Services).

Results – A Big Gap in Performance

Regarding NP's performance, total returns for FY19 were 41.44% (18.04% for SON and 27.37% for ^STOXX). SON is not composed by the best-in-class in each segment, Fashion is an example. That might hurt the returns when comparing with the NP that has the best performers on a risk adjusted basis. Moreover, as stated previously, investors might penalize SON for not focusing at being the best in a certain segment.

The annual volatility was 15.80% (20.7%, 11.54%). A lower volatility in comparison with SON can be explained by the low (and sometimes almost inexistent) correlations between the individual stocks within the NP (Table 14). One might argue that the companies that comprise SON's portfolio are more correlated than they would be if they weren't part of the conglomerate. That correlation might come from intra company sales, a capital structure defined at the holding level, similar decision making processes through management teams, among other aspects. Therefore, the diversification effect might be less effective.

The risk-adjusted performance metrics indicate that the NP performed outstandingly against SON and the European market. An investment of 100.000€ in the new portfolio during FY19, before taxes and ignoring transaction costs would have been 141,435€, while investing in SON would generate €118,037 and investing in the BMK €127,369 (Figure 36).

The Sharpe Ratio of 2.64 (0.88, 2.39) shows that the returns adjusted by the risk-free rate are more than 2.6x greater than portfolio's volatility. This is again explained by almost uncorrelated stocks with great performances. The Treynor ratio shows us a similar result 0.556 (0.242, 0.276). This ratio is similar to the Sharpe Ratio but uses the beta, or systematic risk, instead of the portfolio's volatility.

Figure 37: Fama-French 5 Factors Model

$$Ri - Rf = \alpha i + \beta m(Rm - Rf) + \beta s * SMBt + \beta h * HMLt + \beta r * RMWt + \beta c * CMAt$$

Ri = portfolio returns

Rf = risk free rate

Rm – Rf = market risk premium

SMB = return spread of small minus large stocks (size effect)

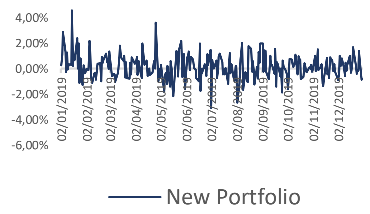
HML = return spread of cheap minus expensive stocks (value effect)

RMW = return spread of most profitable firms minus least profitable (profitability effect)

CMA = return spread of firms that invest conservatively minus aggressively (investment type effect)

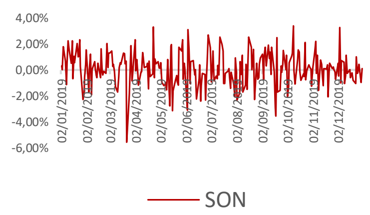
Source: (Fama & French, 2014)

Figure 38: New Portfolio's Daily Returns



Source: Team Analysis

Figure 39: SON's Daily Returns



Source: Team Analysis

Table 16: Fama & French 5 Factors Model Statistically Significant Variables at 95% Confidence Level

	Variables	p-values	Coef.
SON	HML	0,001	2,37
	CMA	0,002	(5,35)
NP	Mkt-Rf	0,003	1,15

Source: Team Analysis

Table 17: Fama & French 5 Factors Model Statistically Significant Variables at 90% Confidence Level

	Variables	p-values	Coef.
SON	Mkt-Rf	0,093	0,62
	HML	0,032	1,94
	CMA	0,034	(3,90)
NP	Mkt-Rf	0,002	1,02
	Constant (alpha)	0,062	0,01

Source: Team Analysis

Both a lower Tracking Error of 13.43% (vs. 19.11%) and a Jensen's Alpha (JA) of 20.98% (vs. -2.54%) shows us that during FY19 the NP has beaten the BMK consistently. If we deduct the return of the BMK from NP's return, we get that the latter beat the BMK by 14.07% (-9,33%). However, those excess returns should be adjusted to the market risk that the portfolio is exposed to. That's why JA shows a more impressive number, given that NP's beta is 0.749 (vs. 0754). Additionally, the Information Ratio of 1.05 (vs. -0.49%) also shows the outperformance of the NP but this time adjusted by the tracking error, or the volatility of the excess daily returns (Table 15).

The Value at Risk (VaR) and the Conditional Value at Risk (CVaR) were also computed. The first shows us that there is a 5% probability that the NP loses -1.29% (-2.07%, -1.32%) of its value in one day, while there's a 1% chance that it loses -2.20% (-3.12%, -1.69%). The CVaR shows that in the worse 5% of FY19 returns, the average loss of the NP was -1.85% (-2,84%, -1.65%) while during the worse 1% the NP lost on average -2.66% (-4,07%, -2,25%).

Modelling the Portfolio

The Fama-French 5 Factors Model, using European Factors and robust standard deviations was used to test if it could explain NP's average monthly returns (Figure 37). The model aims to capture different kinds of risks such as exposure to size, value, profitability and investment type. The results show that the only independent variable statistically significant at a 95% confidence level is the market risk premium (Appendix 35). The beta of 0.95 tells that the returns of NP almost mimic the market movement. If all non-statistically significant variables are excluded, including the model's constant, the beta goes up to 1.15 demonstrating higher sensitivity to the market returns (Table 16). The latter model explains 55,7% of the NP's average daily returns (Adj. R^2 of 0.557). It is worth mentioning that at a 90% confidence level the model's constant (alpha) becomes statistically significant (Table 17). The beta suggests NP slightly outperforms the market.

Using the same model applied to SON's average monthly returns, both CMA (-5.35 beta) and HML (2.37) are statistically significant at a 95% confidence level. It suggests that SON has an aggressive investment strategy while still being cheap. That converges to the theory of a conglomerate that is not that well understood by the market. Market risk premium's p-value is 0.104 and the model explains 31.6% of SON's returns. However, if Mkt-RF is included in the model adding to HML and CMA, they all become statistically significant at a 90% confidence level (0.093, 0.032, 0.034) explaining 46.1% of SON's monthly returns.

Going back to the NP, given its high exposure to market returns, another model was tested using the ^STOXX daily returns as the independent variable, to see how it was correlated with the returns of the NP. Since the constant of that model wasn't statistically significant, we excluded it and rerun the linear regression. The ^STOXX daily returns explain 29.8% of the NP daily returns and it has a sensitivity of 0.74. However, using monthly returns for both variables, the ^STOXX explains 80,5% of the monthly returns of the NP increasing the sensitivity to 1.26, meaning the NP becomes more aggressive than the European equities market on a monthly basis. Nevertheless, since we only use 12 observations to compute the monthly returns, the results might be biased.

Further Research

Further Research could be conducted to test if the results are consistent over time. An example would be to construct a portfolio that starts in 1983 (year of SON's IPO). Besides monthly rebalancing the weights, the peer group and Segments that composed the NP would be rebalance each year in accordance with the evolution of SON's portfolio, tracking the M&A effect over time. Each year could then be analysed to compare the portfolio's performance with SON stock and understand if at any given point in time there was an actual advantage from the investor perspective to hold SON instead of the artificial portfolio.

Another perspective would be to look at Azevedo's family as an individual investor, through Efanor. The family is actually diversifying their own portfolio, so it could be tried to assess if they have been successful at doing so. That would require exploring other variables related to running a business and cash flow generation against holding a portfolio of public stocks.

Conclusion

It can be argued that conglomerates create synergies through cost savings, cross-selling opportunities and more efficient capital structures. It can also be stated that the diversification factor contributes to a more resilient company when facing turbulent economic cycles and other forces that affect certain industries. Those factors should be enough to make investors choose conglomerates over diversifying their portfolios by themselves.

Nevertheless, the study conducted for FY19 does not show it that way. During the studied period, it can be seen that a combination of stocks, similar to the composition of SON's portfolio on different levels, largely outperformed both the market and SON on a risk-adjusted basis.

It is always easier to make decisions looking at historical data and, as it is commonly said, past returns do not guarantee future returns. However, it seems that conglomerates, maybe due to their complexity, tend to underperform other baskets of similar stocks. That might justify the tendency of professional investors to penalize conglomerate's valuations through a conglomerate discount.

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	2000	2000	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%**
Depreciation & Amortization (total)	(291)	(331)	(332)	(377)	(393)	(407)	(418)	(430)	(440)	(450)	4.4%
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%**
Depreciation & Amortization (total)	**-4.9%**	**-5.1%**	**-4.8%**	**-5.6%**	**-5.6%**	**-5.6%**	**-5.6%**	**-5.6%**	**-5.6%**	**-5.7%**
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 FOW 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 FOW 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%
Ending Cash & Eq.	108%	91%	78%	78%	80%	85%	90%	95%

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

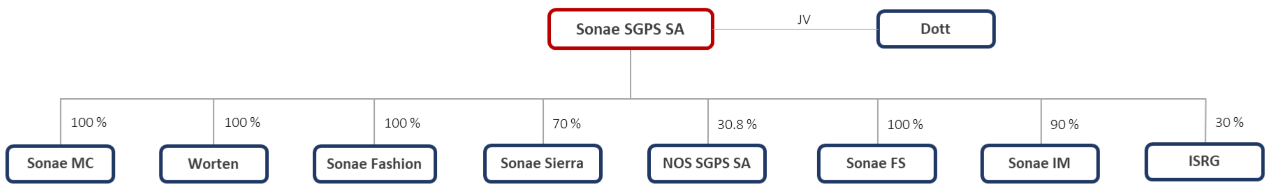
Balance Sheet (mEUR)	Units	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Comment
Total CAPEX		Sum of the Parts								Calculated individually per segment and added together for the forecasted financial statements of SON. For this account, we excluded the segments accounted by equity method.
Property, Plant & Equipment	% Assets	18.5%	18.7%	21.9%	23.1%	23.9%	24.7%	25.4%	26.2%	PP&E(t-1) + CAPEXt*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) + CAPEXt*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) + CAPEXt*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, we excluded the segments accounted by equity method.
Account receivables		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.
Other Current Assets	%	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 NON-CURRENT LIBILITIES										
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 CURRENTLIABILITIES										
Accounts Payable					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.
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										

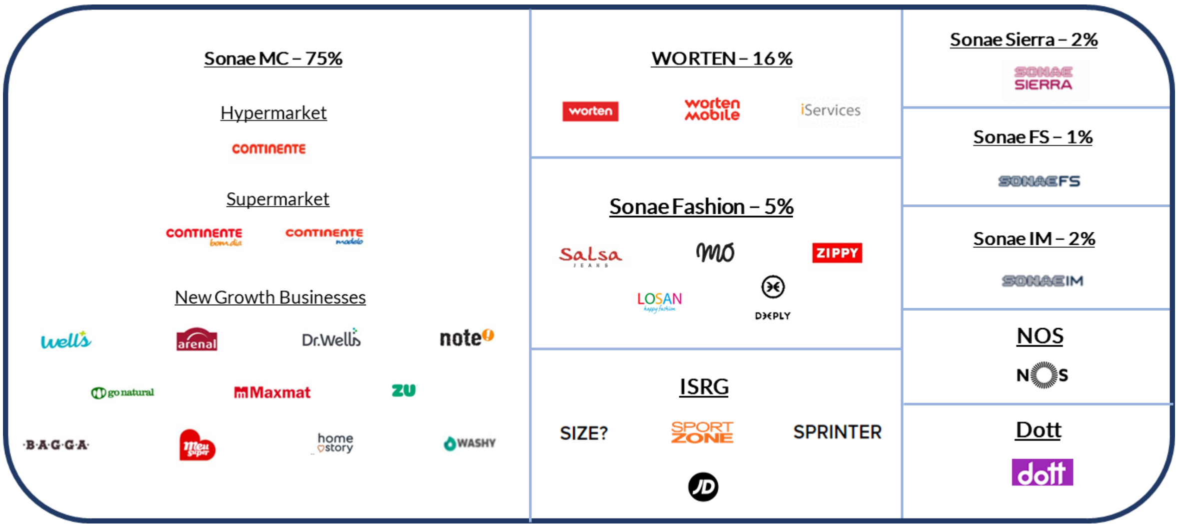
Appendix 6 | Income Statement Assumptions

Income Statement (mEUR)	Units	2020E	2021F	2022F	2023F	2024F	2025F	2026F	2027F	Comment
Revenue from Goods & Services					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. Additionally, we adjusted total revenue for Intercompany transactions.
COGS					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. Additionally, we adjusted total revenue for Intercompany transactions.
External supplies and services					Sum of the Parts					We forecast ESS as an historical average (2017-2019) in % of total SG&A forecasted from the individual segments.
Employee benefits expense					Sum of the Parts					We forecast EBE as an historical average (2017-2019) of the % of total SG&A forecasted from the individual segments.
Other operating Income/expense (net)					Sum of the Parts					Calculated individually per segment and added together for the forecasted financial statements of SON.
Depreciation & Amortization					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.
Financial Expense Loans	%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	We used SON's Cost of Debt to forecast loans' related financial expenses
Financial Expense Leases	%	4%	4%	4%	4%	4%	4%	4%	4%	Historical average of the cost of leases. (Leases_interest_ t) / (PV_of_gross_leases_principal_amount_t)
Results of joint ventures & Associates	%				Sum of the Parts					Sum of the Net Income of JV & Associates adjusted by the weights of SON's participation in them.
Net Income Attributable to Minority Interest	%	0%	0%	0%	0%	0%	0%	0%	0%	We forecasted Net Income attributable to MI to remain constant.

Appendix 7 | SON's Portfolio



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



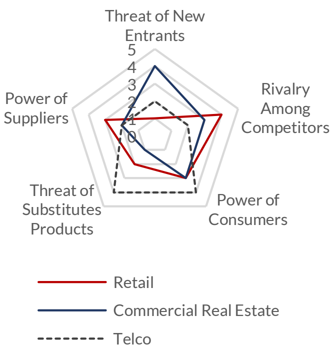
Industry Overview & Competitive Positioning

Source: Adapted from CPC Presentation

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.

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

STRENGHTS

- SON has a diversified portfolio with eight different BUs. under which many brands operate.
- Continente Loyalty Card is a key factor for customers to choose Continente against its peers;
- SON is in the forefront of the online sphere. being Continente the most visited website in Portugal;
- Mo and Worten are often located near Continente hypermarkets. providing them with a unique comparative advantage when compared to its peers;
- Sonae Sierra has a worldwide presence. being considered one of the commercial real estate key world players;
- NOS is one of the top players in the Telco market. with 32% market share in FY19.

WEAKNESSES

- SON lacks geographical distribution. With around 98% of total turnover coming from the Iberian Region;
- Sonae Fashion has a weak presence in the online sphere when compared to its peers;
- In Portuguese most densely populated cities. according to our survey consumers do not demonstrate a clear preference for Continente. with the brand being tied with major competitor and peer Jerónimo Martins' food retail brand. Pingo Doce.

OPPORTUNITIES

- The development of Dott marketplace can supply SON with a distinct and powerful weapon;
- SON can increase its market share in all retail segments through digital channels benefiting from the increasing digitalization of the Portuguese population in terms of shopping.
- NGB. namely Health&Beauty segment. can benefit from a growing Portuguese beauty industry (5.9% CAGR 2020-2025) as new generations enter the market;

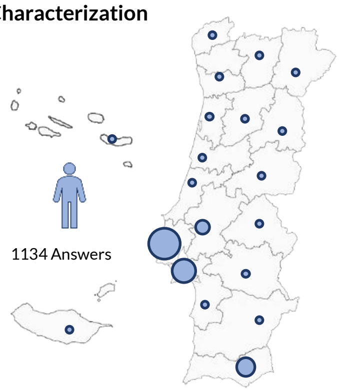
THREATS

- New ecommerce players (Amazon. Ebay and AliExpress) are penetrating the Portuguese market. possibly reducing SON's BU market share in the e-commerce space;
- The entrance of new Health&Beauty companies may threat the strong increase of NGB and consequently SON's growth;
- Portuguese people do not shop online because they prefer to shop in person (72% of inquired). The continued increase of new stores can damage the increase of on-line shopping;
- Latam activities in Sonae Sierra may be prejudicial due to the weakening of local currencies;
- The entrance of NOWO in the Telco's industry. which may shift the market strucutre

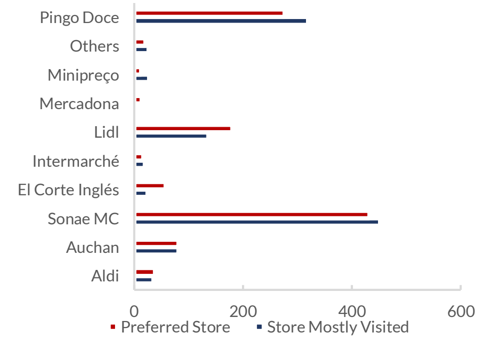
Appendix 12 | Survey Analysis

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:

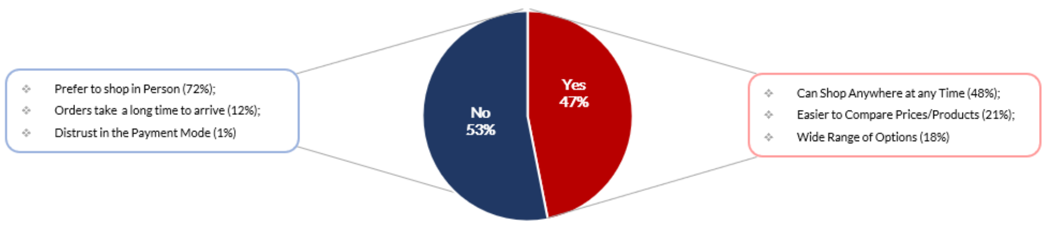
Sample Characterization



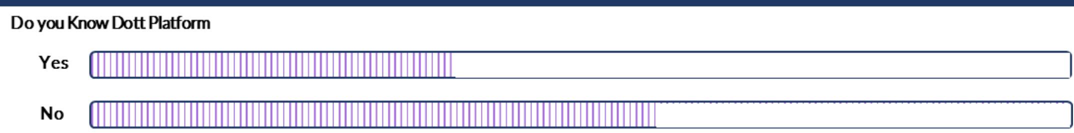
Food-Retail Analysis



On-line Analysis



Dott Platform Analysis



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 €
Bom Dia	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 €
Modelo	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
Bom dia										
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
Modelo										
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.

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%

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 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&iServices 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&iServices 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 fnac (Fnac Darty SA, Unieuro SpA and Dixons Carphone). In line with Worten's total turnover shy growth (0.17% FY19-FY27 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 where 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 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

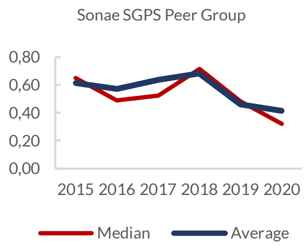
SON's dividend policy of a 5% YoY increase in dividends per share, allowed us to value it using a DDM. We executed a two-stage model where the terminal value was derived by the H-Model. With this methodology we assumed a constant high dividend growth rate that later gradually converges to our expected growth rate in perpetuity. Our assumption it 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.

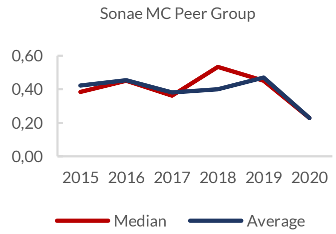
H-Model	
Dividend per share 2027	0.068
Cost of Equity TV	9.7%
H	2
gS	5.0%
gL	2.2%
Price per share	€1.24
PT (discount 20%)	€0.99

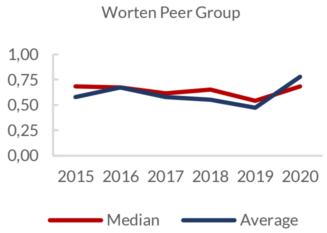
	2021	2022	2023	2024	2025	2026	2027
Dividend per share	0.051	0.054	0.056	0.059	0.062	0.065	0.068
YoY	5%	5%	5%	5%	5%	5%	5%
EPS	0.073	0.084	0.094	0.100	0.105	0.108	0.108
YoY	-0.55%	15.48%	11.46%	6.51%	4.72%	2.70%	0.45%
Payout Ratio	70%	63%	60%	59%	59%	60%	63%

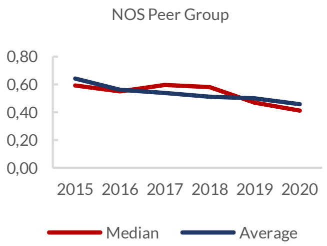
Appendix 20 | Unlevered Betas evolution

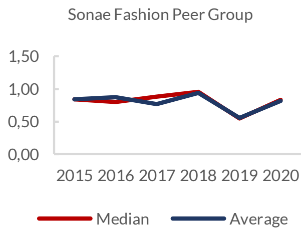
To understand if 2020's volatility tampered with the betas for that period, we decided to analyse their evolution, per segment, for the years of 2015-2020, using data from Refinitiv. What we found was that for some segments it impacted significantly, while for others it remained stable. The largest discrepancy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

$$CAPM = Re = RFR + \beta^*(MRP + CRP).$$

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%

NOS

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%

1. To calculate the risk-free rate (RFR) we used the normalized 10Y German Bond Yield, as of 20th December 2020.
2. 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.
3. 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).
4. 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.

<u>Stable Growth Model</u>

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%

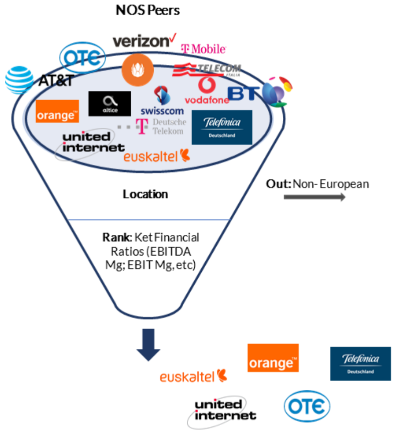
Worten & Sonae Fashion	2019-2027
Δ NWC	-25.28
CAPEX	409.19
D&A	365.10
EBIT	163.14
NOPLAT	128.88
Reinvestment Rate	14.60%
Tax Rate	21%
ROE	8.0%
g	1.2%

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

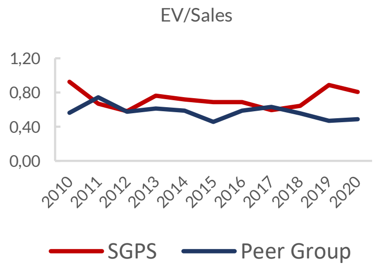
In order to value SON through multiples, we followed two different approaches. The first one was to find peers for SON as a whole, sharing similar conglomerate characteristics, and the second was to select peers for each individual segment to perform a SoP approach to Relative Valuation. For all peer 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.

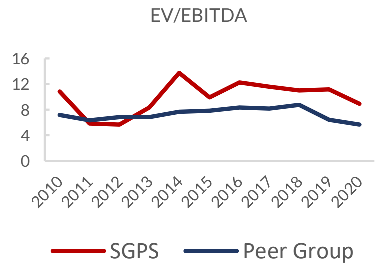


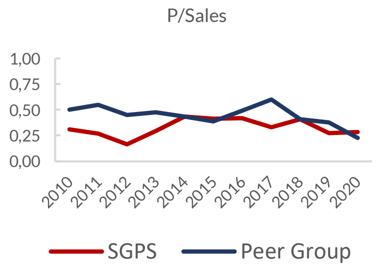
Appendix 25 | Multiples through Time

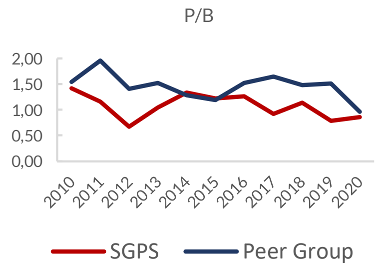
SGPS

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.



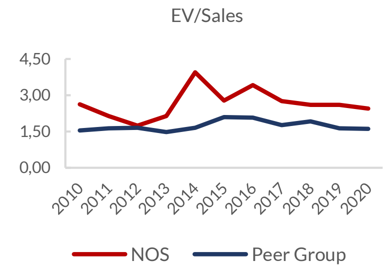


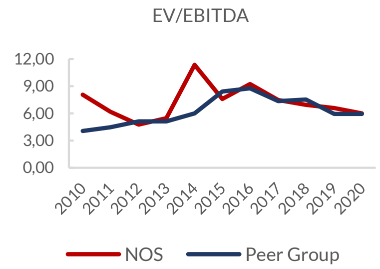


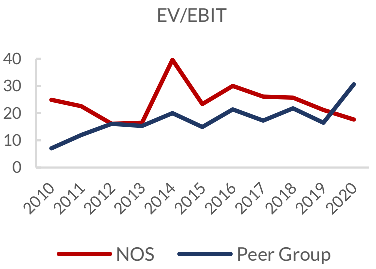


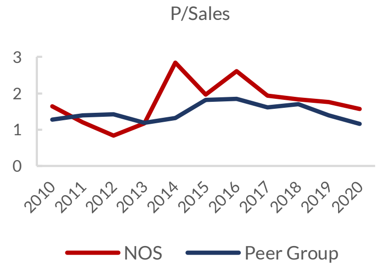
NOS

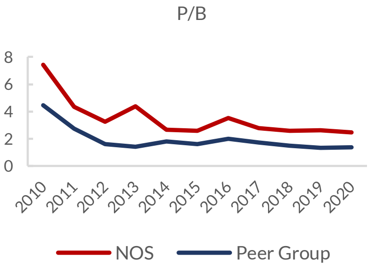
Looking at NOS, we can observe that for most multiples, the company has been trading at a premium, much like Sonae, mainly due to the higher expectations for growth that the market perceives. Even though NOS is expected to lose market share in the future, due to the ongoing 5G auction, markets are still 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 possible 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)

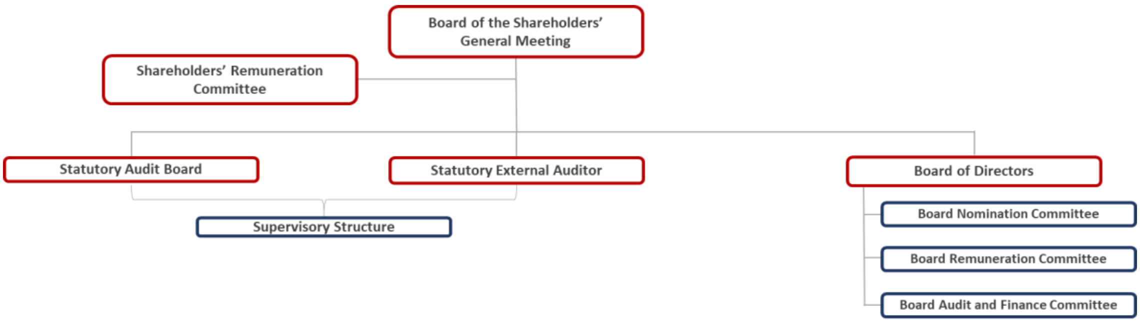
Sonae MC, *Worten* and Sonae Fashion's exposure to interest rate is due to long term loans bearing interest at Euribor. In the case of Sierra, the exposure is very low because its operating cash-flows are independent of changes in interest rates, and its loans depends on rates in euros, which haven't 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



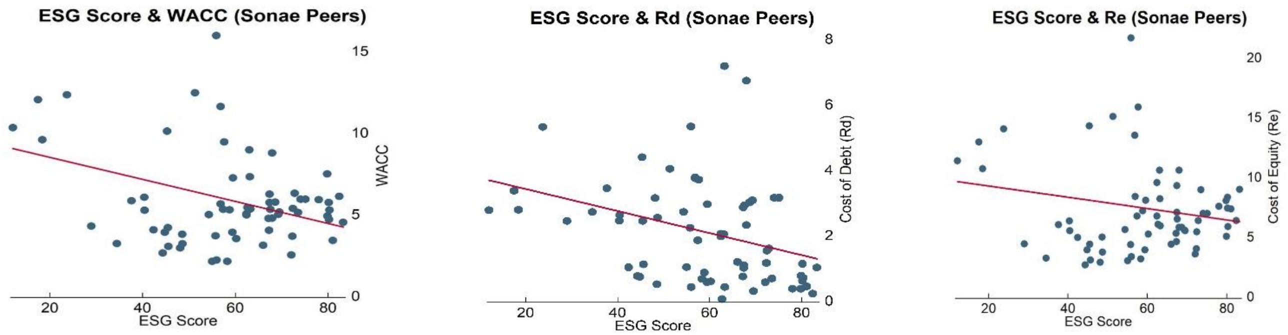
Appendix 29 | Non-Executive Directors

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 Haspeslagh	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 Debt. 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.



Regression	t-stat	P-value	R^2
ESG Score & Cost of Debt	-4.28	0.0000	0.18
ESG Score & WACC	-4.56	0.0000	0,16
ESG Score & Cost of Equity	-2.40	0.019	0.06

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 | Stock Selection Process Rank's

Food Retail (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Ahold Delhaize	4,00	4,00	4,00	4,00	0,00	2,00
Lenta	6,00	N/A	6,00	5,00	2,00	3,88
Carrefour	5,00	5,00	5,00	6,00	0,00	2,63
Jerónimo Martins	1,00	1,00	1,00	1,00	0,00	0,50
X5 Retail Group	3,00	2,00	2,00	2,00	0,00	1,13
Sonae	2,00	3,00	3,00	3,00	0,00	1,38

Telecommunications (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Hellenic telecom Org	1,00	1,00	1,00	1,00	0,00	0,50
Euskaltel	3,00	3,00	3,00	3,00	1,00	2,00
Orange Polska	2,00	2,00	2,00	2,00	0,00	1,00
Telefonica	6,00	6,00	6,00	5,00	0,00	2,88
United Internet	5,00	5,00	4,00	6,00	0,00	2,50
NOS	4,00	4,00	5,00	4,00	0,00	2,13

Financial Services (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Ferratum Oyj	3,00	3,00	3,00	3,00	2,00	2,50
Morses Club PLC	4,00	4,00	4,00	4,00	0,00	2,00
Resurs Holding AB	1,00	2,00	2,00	2,00	0,00	0,88
Gruppo MutuiOnline SpA	2,00	1,00	1,00	1,00	2,00	1,63

Electornics (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Fnac Darty	4,00	4,00	4,00	4,00	0,00	2,00
Unieuro	2,00	2,00	2,00	2,00	1,00	1,50
Dixons Carphone	3,00	3,00	3,00	3,00	0,00	1,50
Groupe LDLC	1,00	1,00	1,00	1,00	2,00	1,50

ISRG (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Intersport Polska SA	2,00	1,00	2,00	2,00	2,00	1,88
Frasers Group PLC	1,00	2,00	1,00	1,00	0,00	0,63
XXL ASA	3,00	3,00	3,00	3,00	0,00	1,50

Fashion (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Apranga APB	1,00	1,00	1,00	1,00	2,00	1,50
French Connection Group PLC	3,00	3,00	3,00	3,00	0,00	1,50
Superdry PLC	2,00	2,00	2,00	2,00	0,00	1,00

Commercial Real Estate (2019)	Sharpe Ratio	Treynor Ratio	Information Ratio	Jensen's Alpha	Liquidity	Total Score
Immofinanz AG	2,00	2,00	2,00	2,00	0,00	1,00
Citycon Oyj	1,00	1,00	1,00	1,00	1,00	1,00
Plaza Centres PLC	3,00	3,00	3,00	3,00	2,00	2,50

	Weights
Sharpe Ratio	12,5%
Treynor Ratio	12,5%
Information Ratio	12,5%
Jensen's Alpha	12,5%
Liquidity	50,0%
Total Score	100,0%

Appendix 35 | Fama-French 5 Factors Model OLS Regression Results

NP - Regression with all variables (factors)

OLS Regression Results

Dep. Variable	NP-RF	R-squared :	0,512
Model	OLS	Adj R-Square :	0,106
Method	Least Squares	F-statistic :	2,97
No. Observations	12	Prob(F-statistic) :	0,109
Df Residuals	6	Log-Likelihood	23,48
Df Model	5	AIC	-34,96
Covariance Type	HC0	BIC	-32,05

	coef	std err	z	P<|z|	[0,025	0,975]
const	0,0101	0,006	1,623	0,104	-0,002	0,022
Mkt-Rf	0,9452	0,275	3,438	0,001	0,406	1,484
SMB	-0,258	0,398	-0,647	0,518	-1,039	0,523
HML	0,046	0,934	0,049	0,961	-1,784	1,876
RMW	0,4691	1,061	0,442	0,658	-1,61	2,548
CMA	-0,159	1,948	-0,081	0,935	-3,977	3,660

Omnibus :	7,403	Durbin-Watson :	1,187
Prob(Omnibus) :	0,025	Jarque-Bera (JB) :	3,306
Skew :	1,082	Prob(JB) :	0,191
Kurtosis :	4,391	Cond. No.	257

NP - Regression only with statistically significant variables (factors)

OLS Regression Results

Dep. Variable	NP-RF	R-squared (uncentered) :	0,594
Model	OLS	Adj R-Square (uncentered) :	0,557
Method	Least Squares	F-statistic :	9,076
No. Observations	12	Prob(F-statistic) :	0,0118
Df Residuals	11	Log-Likelihood	22,821
Df Model	1	AIC	-43,64
Covariance Type	HC0	BIC	-43,16

	coef	std err	z	P<|z|	[0,025	0,975]
Mkt-Rf	1,157	0,384	3,013	0,003	0,404	1,910

Omnibus :	3,586	Durbin-Watson :	1,077
Prob(Omnibus) :	0,166	Jarque-Bera (JB) :	1,349
Skew :	0,789	Prob(JB) :	0,509
Kurtosis :	3,457	Cond. No.	1

SON - Regression with all variables (factors)

OLS Regression Results

Dep. Variable	SON-RF	R-squared :	0,586
Model	OLS	Adj R-Square :	0,241
Method	Least Squares	F-statistic :	5,323
No. Observations	12	Prob(F-statistic) :	0,0327
Df Residuals	6	Log-Likelihood	24,022
Df Model	5	AIC	-36,04
Covariance Type	HC0	BIC	-33,13

	coef	std err	z	P<|z|	[0,025	0,975]
const	0,0034	0,006	0,574	0,566	-0,008	0,015
Mkt-Rf	0,6753	0,415	1,627	0,104	-0,014	1,489
SMB	-1,171	0,591	-0,289	0,773	-1,33	0,988
HML	1,9182	0,901	2,13	0,033	0,153	3,683
RMW	-0,878	1,534	-0,573	0,567	-3,885	2,128
CMA	-4,418	1,820	-2,428	0,015	-7,986	-0,851

Omnibus :	0,443	Durbin-Watson :	1,441
Prob(Omnibus) :	0,801	Jarque-Bera (JB) :	0,521
Skew :	0,303	Prob(JB) :	0,771
Kurtosis :	2,178	Cond. No.	257

SON - Regression only with statistically significant variables (factors)

OLS Regression Results

Dep. Variable	SON-RF	R-squared (uncentered) :	0,43
Model	OLS	Adj R-Square (uncentered) :	0,316
Method	Least Squares	F-statistic :	5,923
No. Observations	12	Prob(F-statistic) :	0,0201
Df Residuals	10	Log-Likelihood	21,796
Df Model	2	AIC	-39,59
Covariance Type	HC0	BIC	-38,62

	coef	std err	z	P<|z|	[0,025	0,975]
HML	2,3669	0,744	3,183	0,001	0,909	3,824
CMA	-5,354	1,723	-3,108	0,002	-8,730	-1,977

Omnibus :	2,088	Durbin-Watson :	1,625
Prob(Omnibus) :	0,352	Jarque-Bera (JB) :	1,509
Skew :	0,766	Prob(JB) :	0,47
Kurtosis :	2,182	Cond. No.	3,01

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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.