Católica Porto Investment Club

EQUITY RESEARCH

EQUITY RESEARCH NOS, SGPS S.A

fevereiro 2024

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BUSINESS DESCRIPTION

Company History and Business Description

NOS, SGPS S.A. is a Portuguese telecommunications and media company that provides several services such as mobile and fixed telephone, cable and satellite television and Internet. Additionally, it operates in the audiovisual sector, which includes video production and sale, cinema distribution and exhibition, and the acquisition and negotiation of pay TV and video-on-demand rights. Created in 2013, NOS was the result of the merger between ZON and Optimus. To give additional context, ZON resulted as the spin-off of the largest Pay TV player in Portugal from Portugal Telecom Group, and Optimus was the third mobile operator in the Portuguese market. With clear synergies created with this merger, the goal was to increase the market share of mobile services, while maintaining a strong position on Pay TV. In the telecommunications business, NOS offers 4 services: mobile and fixed from the last generation, interactive television content, other services such as IC, IoT, Cloud and other businesses, In terms of segmentation of the market, there are 4 chains, which are residential (B2C), personal (B2C), business (B2B) and wholesale (B2B). NOS also owns premium movie channels, TV Cine and for the joint venture, it has 25% of Sport TV television networks, 30% of ZAP and 50% of Dreamia. Also, in terms of media and entertainment, there is NOS Audiovisuals' which is a home-video and cinema film distributor, which is at the moment the largest cinema chain in Portugal.

Concerning NOS cinema, the company has become one of the first ones in Europe to be entirely digital and one the first worldwide to have resources of technologies such as IMAX, 4DX, XVision and ATMOS. It is relevant to mention that ZAP is the biggest television operator in Angola and Dreamia is a company that consists of television content such as Panda, Panda Kids, Biggs, Canal Hollywood, Home, and Kitchen which is a joint venture with AMC Networks International Southern Europe and has services in Portugal, Angola, Mozambique, and the Republic of Cape Verde.

BUSINESS DESCRIPTION

Company's Strategy

(Assume leadership) 5G leadership: NOS has a strong bet on the 5G network. The company will continue to reinforce their bet on the 5G network, improving its coverage and capacity. NOS is the company with the highest number of 5G stations in Portugal and covers 87% of the population. The company is a pioneer in the introduction of 5G use cases in Portugal, and it also invests in 5 startups whose business models are potentialized by 5G networks.

(Assume leadership) Digital emancipation: NOS wants to break the traditional channels of communication with costumers and companies and bet on a profound digital transformation that will allow the digital channels to have a more central figure (in the company's operations and commercial processes).

Competitive offer: guarantee that NOS products and services are adjusted to new market dynamics.

Close relationship: NOS is constantly deepening the relationship with its clients, betting on a closer and personalized management, whether it is on the products and services that it offers or the customer experience.

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Industry Overview & Competitive Positioning

The telecommunications market in Portugal is mature and has not been growing a lot throughout the last 5 years (1.7% CAGR 2018 - 2022). Furthermore, the market is competitive, as there are several providers offering similar prices and services, and consumers have low difficulties switching between those providers. However, some consider the telco market as an oligopoly, since prices increased more in the last few years in Portugal compared with the average increases in the European Union.

The Portuguese market made huge advancements in its telecommunications infrastructure and high-quality services provided. Here we pinpoint the growing 5G technology, and the high penetration rates of the different services (that also prove that the market is in a mature state).

In terms of services offered in the industry, this can be divided into two main segments: Fixed Services (which includes telephone, broadband and TV services); Mobile Services (includes mobile broadband and mobile telephone services). Moreover, providers offer these different services in bundles, creating a third segment. Inside these bundles there are double, triple, quadruple and quintuple play packages (2P/ 3P/ 4P/ 5P), depending on the services provided within them.

By analyzing **Table 1** we can reiterate different conclusions about Telco Revenues in the Portuguese market. In the first place, approximately half of the total revenues in 2022 (1.87 of 3.77 billion euros) comes from services provided in bundles: the amount of revenues from this segment has been growing at a healthy pace (4.2% CAGR), and there has been a shift from 2P to 3/4/5P packages. On the other hand, revenues directly attributed to fixed services have been decreasing a lot in the last few years, diminishing the overall percentage of this segment in terms of total revenue. This decrease is mainly due to the decrease in fixed voice (-11.2% CAGR) and TV (-1.3%), while fixed broadband increased revenues (2.1% CAGR) - demonstrating the overall trend in the market and the preference from some services to the detriment of others.

Given that mobile services and bundle revenues represent around 84% of total telco revenues, we will be focusing our attention in these two segments.

Telco Revenues - Portugal	2018	2022	CAGR
Mobile services revenues (directly attributed)	1 251 091	1 298 522	0.9%
Fixed Services Revenues (directly attributed)	541 958	461 347	-3.9%
Fixed Voice	213 783	133 001	-11.2%
TV	210 548	199 628	-1.3%
Fixed Broadband	114 286	124 170	2.1%
VoIP	3 342	4 547	8.0%
Revenues from services offered in bundles	1 582 495	1 867 347	4.2%
2P	108 698	87 424	-5.3%
3/4/5P	1 473 797	1 779 922	4.8%
Other revenues	164 322	152 530	-1.8%
Total	3 539 866	3 779 746	1.7%

Table 1 - Telco Revenues by segment - Portugal (thousands of euros). Source: ANACOM.

In the following graph, we can observe the weight that each of NOS' competitors has in the total revenues of the sector in Portugal, and how this share has been changing through the years. It is clear to see that not much has changed in terms of market shares, with MEO (Altice Portugal) remaining the major player in this industry, followed by NOS who has kept a similar weight in the past 5 years. Vodafone Portugal was the only player in the industry growing in Market Share, increasing it by 2,5% from 2018 to 2022.

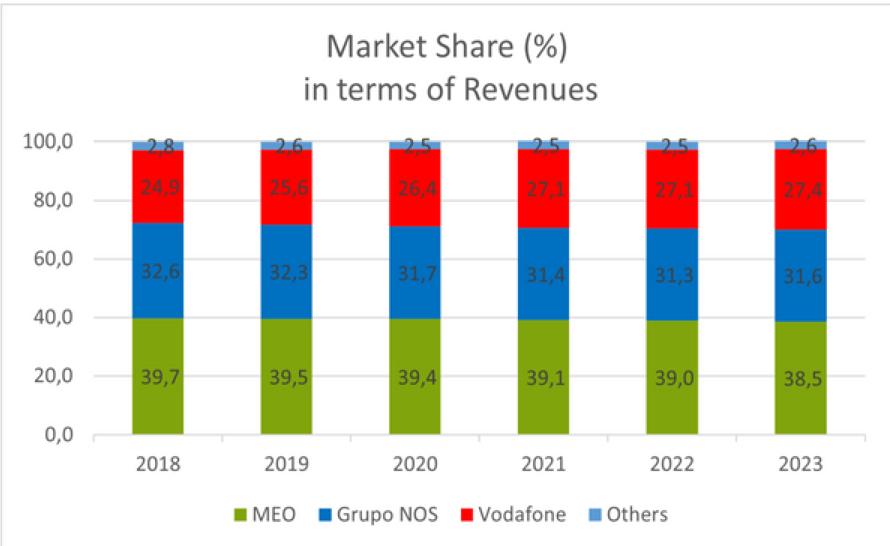


Figure 1 - Market share of Portuguese telecom sector players (% percentage of total revenue). Source: ANACOM.

BUSINESS DESCRIPTION

Porter's 5 forces

- **Threat of New Entrants - Low** | The telecom industry requires high levels of investments to enter the market. The market is mature and the companies competing in it have very stable market shares.

- **Rivalry Among Competitors - High** | As a consequence of very low market growth, competitors need to fight for higher market share; Exit barriers are high; There is a lack of product differentiation; and customers switching costs are very low.

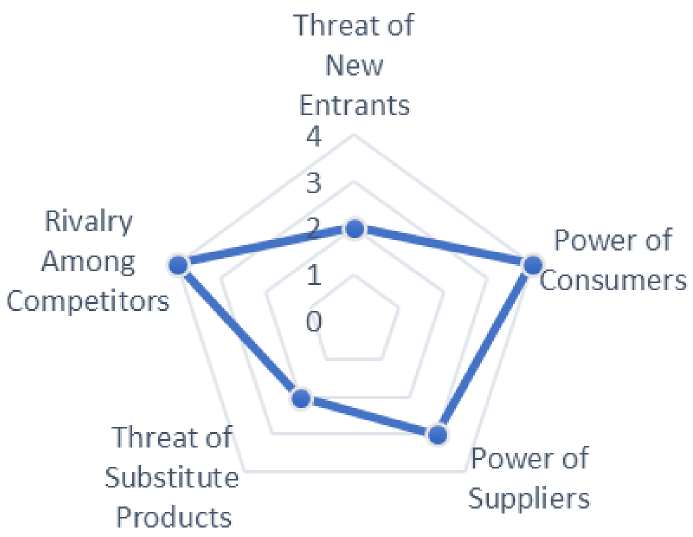


Figure 2 - Porter's 5 forces.

- **Power of Consumers - High** | Consumers are highly sensitive to increases in prices, and have low switching costs (telecom contracts usually only last from 1 to 2 years).

- **Threat of Substitute Products - Moderate** | The rise of OTT services provides to consumers alternative communication and entertainment platforms that do not rely on traditional telecom services. However, they require access to the Internet.

- **Power of Suppliers - Moderate** | Telecom providers depend on equipment suppliers and technology providers. While there are multiple suppliers in the global market, the scale is moderate as some telecom infrastructure components may have limited sources.

NOS competitive positioning

1. Quality of network

NOS main competitive advantage is the quality of its internet. NOS won the most spectrum in the 5G auction, achieving maximum possible frequencies to exploit the 5G opportunity and reinforcing 4G network nationwide. Alongside this, NOS won multiple internationally recognized prizes (by OPENSIGNAL, OOKLA and ANACOM) that prove that in fact, mobile and fixed internet provided by this company is the best in Portugal. At the moment, 5G network deployment already reached over 91% of the Portuguese population.

2. OTT ecosystem

The spread of NOS' app ecosystem allows lower churn rates, better user experience, better customer relationship and loyalty and more efficient operations for NOS.

3. WOO Through

WOO NOS can target a small niche of the market that dismisses the traditional telecom services (TV and Voice) and only wants high speed internet. This allows them to charge less to this specific segment and capture the part of the market that only wants this service, which is becoming more and more important.

Telecom sector future trends

1. OTT Services Growth

Content, applications, and services that are delivered over the internet, bypassing traditional distribution channels. This trend will be even more prominent going into the future, despite the fact that some OTT services now have high rates of market penetration. This trend will reduce the reliance on traditional telecom voice and messaging services (legacy telco disappearing), but will increase the consumption of fixed and mobile internet data.

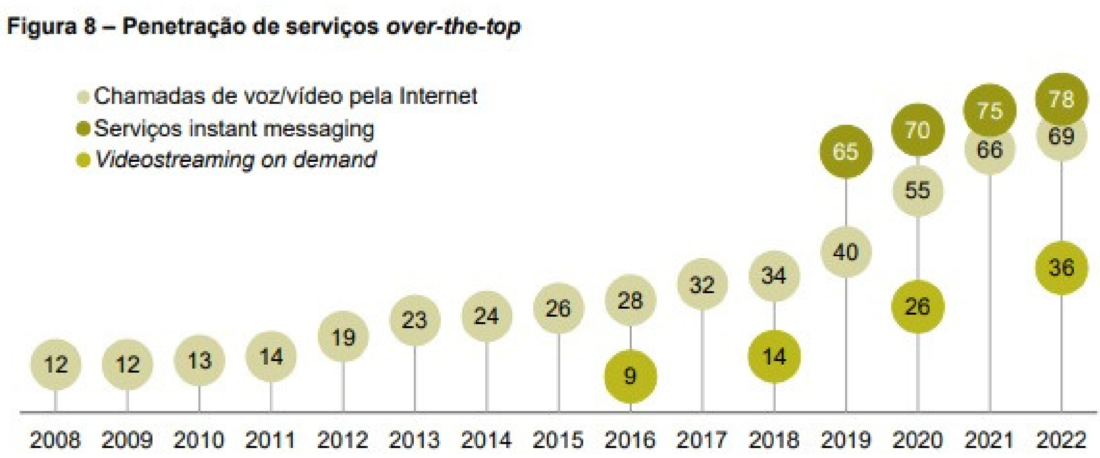


Figure 3 - OTT Services penetration: Voice, instant messaging and Video streaming on demand. Source: ANACOM.

2. Cloud expansion

Telecom operators are shifting their business models to integrate cloud services, often involving both offering cloud services to customers and using cloud services themselves to enhance efficiency and scalability.

3. Artificial Intelligence

Telecom providers are incorporating AI technology to optimize network operations, enhance customer experiences, and make the processes more efficient overall.

4. IoT

The telecom sector will provide a pivotal role in enabling and supporting IoT applications. This transformative trend will have a growing relevance in our everyday lives.

5. Upsell products and services

As the Portuguese telecom market becomes more mature each year, providers will try to find additional sources of new revenues that complement the traditional services. This trend can be reflected, for example, in the sale of products such as mobile phones and accessories, or providing services such as cloud storage, home security and automation, entertainment services and upgraded internet speeds.

BUSINESS DESCRIPTION

1- NOS's Dominance in the Internet Segment Amidst Rising Consumption Trends

NOS has emerged as a prominent player in the telecommunications landscape, particularly in the realm of internet services, garnering several awards for its fastest and reliable internet offerings in Portugal. The company's prowess in this sector is underlined by the consistently increasing demand for internet services, both in the mobile and fixed broadband domains, as illustrated in the exhibits. Furthermore, 5G leadership has been and will be one of the main goals NOS implemented, and will definitely guide the company’s strategy.

Figura 7 – Tráfego médio mensal de acesso à Internet por acesso/utilizador (GB)

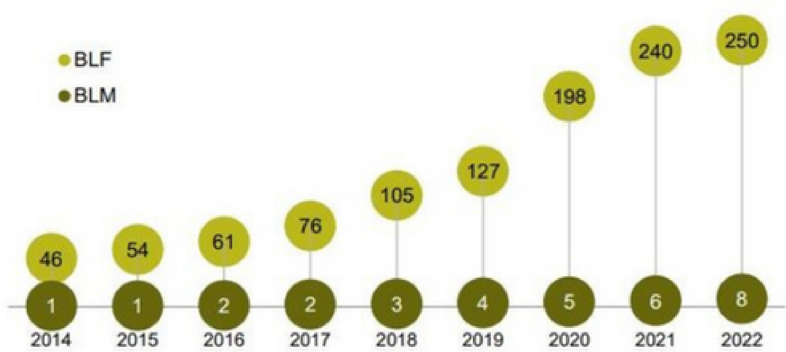
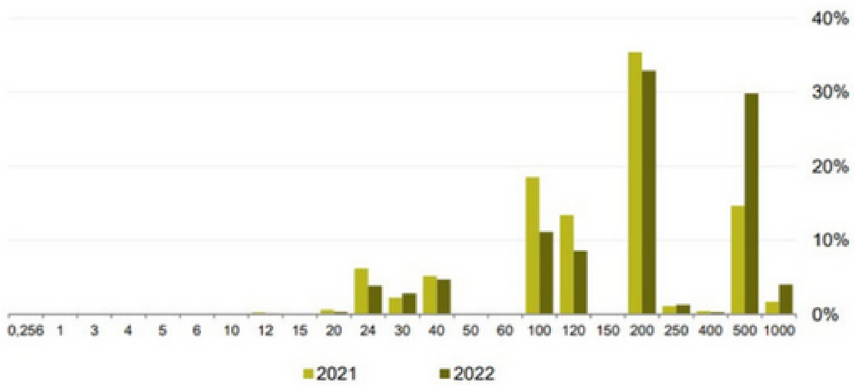


Figura 18 – Distribuição dos subscritores das ofertas de BLF por velocidade de *download*, em Mbps



According to data from ANACOM, the revenues attributed to fixed broadband are on an upward trajectory, growing at a steady rate of 2% per year. This data underscores the significance consumers attribute to fixed broadband services, emphasizing its integral role in the telecommunications landscape.

Various factors contribute to the escalating trend in internet consumption. The surge in remote work, escalating network demands, and anticipated future trends such as the proliferation of IoT (Internet of Things) and the expansion of cloud services all play pivotal roles. As a testament to its capabilities, NOS is poised to benefit from these trends, attracting consumers seeking robust and reliable internet services.

Furthermore, NOS's strategic move through WOO positions the company to capture a more targeted clientele— individuals who specifically desire internet services without the bundled offerings of fixed or mobile voice and TV. This approach allows NOS to cater to a segment of the market seeking specialized internet solutions, steering clear of the higher prices associated with comprehensive multiple-play bundles.

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Finally, we also expect that as Fixed Broadband becomes the most important service in terms of value proposition offered by telco providers in Portugal, that this will have a ripple effect through the other services provided by NOS within the telecommunication services, due to the fact that is more advantageous price wise for the end customer to have all the services integrated

2- NOS's Strategic Evolution in a Mature Telecom Market

Operating in Portugal's mature telecommunications market, NOS recognizes the need for continual
reinvention to ensure profitability and shareholder remuneration, especially as expansive revenue growth becomes less achievable. In response to these market dynamics, NOS is actively exploring innovative avenues to enhance efficiency and deliver value.
A notable example of NOS's commitment to innovation is its groundbreaking move in late 2023, becoming the first operator in Portugal to implement a virtual assistant powered by generative artificial intelligence (AI).
This strategic initiative allows NOS to provide 24 hour assistance, and effectively reduce costs associated with traditional call centers and customer support operations. Regarding digital adoption, NOS was able to reduce by 22% customer service interactions since 2019, increase by 8.4 times the amount of digital users since 2018 and have 77% of customers with digital invoice.
On the other hand, as inflation hits the telecom sector, NOS has been able to offset the increase in costs with the increase in revenues. In the last two years net profitability increased from 6.2% in 2020 to 10% in 2021 and 14.7% in 2022. We expect that in the future this positive trend will continue, as it is expected further cost increases in telecom services. Looking forward, NOS is poised to explore additional inventive measures to bolster profitability. These might include diversification into new services, strategic partnerships, or leveraging emerging technologies to enhance operational efficiency.

3- Complementary services and investment in technological disruption

Recognizing the evolving landscape of the telecommunications industry, NOS is strategically diversifying its offerings to tap into new sources of growth. The introduction of complementary services serves as a key component of NOS's expansion strategy. NOS is poised to unlock additional revenue streams through the introduction (and development) of complementary services. Some of these services have been implemented and are now in the initial stages of growth. For example, NOS already provides insurance services, security solutions and offers video streaming on demand (through UMA TV). The recent addition of Disney+ is just the beginning, with plans to incorporate other prominent video streaming platforms in the coming years. This diversification not only broadens NOS's service portfolio but also positions the company to capitalize on the increasing demand for bundled offerings.

Additionally, upselling opportunities, such as mobile phones, contribute to enhanced revenues and customer engagement. On the other hand NOS is actively investing in the technological disruptions shaping the future, expanding the company's portfolio. By channeling resources into companies harnessing 5G technology, NOS is at the forefront of exploring the vast potential of the 5G network. These strategic investments focus on practical use cases that extend beyond traditional telecommunications, paving the way for innovative applications in various industries. Furthermore, NOS is spearheading initiatives to build smart cities and foster the development of autonomous driving. These forward-thinking projects showcase NOS's commitment to shaping the future of technology and leveraging connectivity to enhance urban living and transportation systems.

BUSINESS DESCRIPTION

NOS business can be divided into two main segments: Telecommunications and A&C (Audiovisuals and Cinema). The Telco business provides services for television, internet and voice (fixed and mobile). In 2022, Telco held around 97% of the total revenues of the company (and 90% of the overall EBITDA), of which 70% were in relation to consumer revenues, 23% were in relation to business revenues and the other 7% with wholesale and other sources.

In terms of revenues development in the last years, we can see by Figure 12 that the consumer segment has been relatively stable in the last four to five years, growing only at 1,4% CAGR between 2018-2022, while the business segment has been the main driver of growth (4,1% CAGR in the same period). In 2022 the overall revenue of the telco business was around 1.46 billion euros.

Shifting the focus on the number of RGUs (Revenue Generating Units) i.e., subscribers of a given telecom service, we draw several conclusions illustrated by the two figures:

a) in 2022, more than half of all RGUs corresponded to mobile services (here are included both pre-paid and post-paid mobile plans);
b) Pay TV, Fixed Voice and Broadband have similar levels of RGUs;
c) between 2018 and 2022 mobile RGUs grew at 4,7% CAGR, thus driving the overall number of total RGUs; d) the other 3 services have seen little to no growth in the same period.

Concerning operating expenses over the period from 2018 to 2022, wages and support services remained relatively stable. However, during the same timeframe, the costs associated with products sold nearly doubled.

Notably, there was a significant increase in supplies and external services in 2021 and 2022. This spike can be attributed to the inclusion of expenses related to leasing ducts and poles in the income statement during these years.

The primary source of operating expenses for the company is direct costs, which constitute the largest portion. Among the significant components of direct costs are exhibition and traffic costs. Following in terms of magnitude are supplies and external services. Within the broader category of supplies and external services, maintenance and repair, leasing of ducts and poles, as well as electricity costs contribute to the overall expenses. In terms of distribution across the operating costs, the costs of products sold, wages, and support services hold comparable shares. This suggests a balanced allocation of resources among these key components within the overall structure of operating expenses.

Audiovisuals and Cinema

The Audiovisuals and Cinema segment provides video editing and sales services, distribution of films, operation of cinema and acquisition of the rights for television through subscription and VOD (video-on-demand). According to the most recent data, NOS sold more than six million movie tickets in the first nine months of 2023 across 214 movie theaters. From last year's report, this segment held around 6% of revenues (90 million euros), and an EBITDA of 45 million euros.

Key Performance Indicators

1) RGUs: overall and growth

The main indicator of performance and growth is the overall number of RGUs. As we stated in the previous point, the total number of RGUs sits around 10 million subscribers and the main source of growth has been the number of mobile RGUs. Dividing the analysis by the business and consumer segments, we can see that the growth rates in these two segments have been very similar.

2) Average Revenue Per User (ARPU): total revenue divided by the number of RGUs

Dividing the total Telco revenues by the number of RGUs (divided by consumer and business segments) we get the ARPU - Average Revenue Per User. By looking at the figure, we conclude that the ARPU in the consumer segment is much lower than the ARPU in the business segment (around 120€ vs 200€) and has been decreasing since 2018. On the other hand, the ARPU in the business segment is increasing.

3) Convergent and integrated customers

We also consider the number of convergent and integrated customers as a key performance indicator of companies in the telco industry. More convergent and integrated customers translates into 1) more revenue generation through the subscription of multiple services; 2) lower churn rates - integrated services usually mean higher customer loyalty and more inertia to switch providers; 3) probably higher margins: instead of managing separate customer bases for different services the company can streamline operations (reduces the need for duplicate infrastructure, customer support teams or marketing efforts), reduce customer acquisition costs and offer a more competitive bundle.

Forecast Assumptions

In Table 2, Table 3 and Table 4 we show the group's assumptions to forecast NOS' financial statements. In terms of revenues, we considered that NOS growth in the next 2 years will be driven mainly due to increase in prices. We also consider that NOS, with the introduction of a new player in the Portuguese market in 2024, will lose market share until 2027, the same phenomenon that has been happening since 2018. Therefore, the group believes that the Portuguese telecom market will present higher growth rates than the company. In terms of income statement items, the assumption is that NOS will become more efficient, and therefore will present higher operating margins. As mentioned in the industry chapter, NOS will be more and more efficient due to various innovations introduced within the company's operations. This will be reflected mostly in terms of general expenses (which include marketing and advertising, support services, supplies and external services and restructuring costs) that will have a lower weight as a percentage of revenues into the future. Regarding the forecast of NOS balance sheet, the main consideration we took into account was that peak CAPEX has passed in the last few years, and the overall industry is now in a down cycle investment wise. For this reason, we assumed that capital expenditures would be around 400 to 500 million (corresponding to maintenance CAPEX), and that depreciations and amortizations would follow the same figures.

Valuation

After conducting a thorough analysis, our recommended investment action for NOS is a "Buy." Utilizing a Discounted Cash Flow (DCF) approach, we identified a promising upside of 12% compared to the closing price on January 8th, 2024, which was 3.312€. Furthermore, our validation through relative valuation metrics, including P/E ratio and EV/EBITDA multiples, also supports a positive outlook, affirming the attractiveness of NOS' stock for potential investors.

DCF model

The target capital structure we used to calculate the WACC was 69% equity and 31% debt. These values were calculated based on professor Damodaran data for Telecom services companies, and also the average of the capital structure of NOS peers. Despite the fact that NOS' capital structure in the past had higher leverage levels than the ones we used, the group believes that rising interest rates and, therefore, higher debt costs, will disincentivize NOS of contracting the leverage levels that it did in the past.

To calculate the cost of debt, the group started by considering a risk-free rate of 2%, corresponding to the 10 year German bond yield. To calculate the spread that reflected the intrinsic risk of NOS' operations, we calculated a synthetic rating based on the assumptions used to build the DCF model. Through this synthetic rating we consulted the spread paid for similar firms with this level of risk, resulting in values around 2% to 3%. On the other hand, the cost of equity was calculated considering professor Damodaran data for equity and country risk premium and the beta of the telecom services industry at a global level. The cost of equity from our computation was 8.55%, and the WACC 7.17%.

Relative valuation

Besides the DCF valuation, the group also performed a relative valuation. Since we're valuing a public company, the method that made more sense in this case was to use the trading comparables, based on other publicly listed firms. To select the peers to perform the trading comparables analysis we selected the following criteria: (1) Geography: European firms that focus their business also in Europe; (2) Revenues: we picked peers that have similar levels of revenues in terms of absolute values but also in terms of growth in the past 5 years; (3) Industry: we selected companies that operate in the telecom services industry. Since the selected industry comprises very heterogeneous services, we also took into consideration the type of services that were provided by these companies (focusing on solutions related to voice, internet and TV); (4) Similar market cap; (5) Similar multiples: we selected companies that presented similar multiples, with careful consideration especially considering profitability levels. With this in mind, the companies selected were Orange Belgium SA, Tele2 AB, Freenet AG and Vodafone Group PLC. More information about the multiples and other ratios can be found in the exhibits. To come up with the valuation, we selected 5 different multiples: P/E ratio; EV/EBITDA; PBV; EV/Sales and DY. The results suggest that NOS' stock seems to be correctly priced when considering PBV, EV/Sales and DY. However, the P/E ratio and EV/EBITDA multiples suggest an extremely high upside, meaning that NOS' stock is being priced at much cheaper levels than its peers.

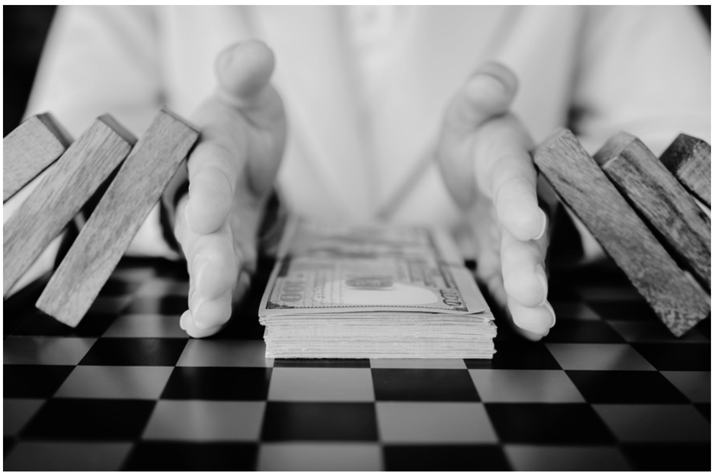
INVESTMENT RISKS

Operational and Strategic Risks

Operational and strategic challenges stem from a mature and slow-growing Portuguese telecommunications market, where NOS grapples with fierce competition and changing revenue dynamics. The highly competitive landscape intensifies challenges, making it crucial for NOS to consistently improve services and address concerns promptly to safeguard its market position. Risks of suboptimal communication services, network coverage, execution speed, and equipment suitability, emphasize the imperative for NOS to uphold and enhance service quality to sustain a competitive edge. Additionally, NOS acknowledges risks in ensuring optimal communication services, facing potential difficulties in sustaining revenues from fixed services, and adapting to the digital transformation of business processes. In the digital age, NOS SGPS encounters a critical intersection of cybersecurity and privacy challenges. Non-compliance with data protection rules poses a strategic risk, where potential security vulnerabilities expose critical resources to cyber threats. Furthermore, the shortage of technological/digital profiles in the labor market, driven by globalization and increased demand, compounds the risk of effective talent management.

Financial Risks

Financial risks for NOS SGPS involve interest rate uncertainties and liquidity challenges. The economic environment, coupled with uncertainty regarding interest rates, introduces uncertainty in financial markets, posing the risk of escalated costs for accessing financing. Events disrupting anticipated cash flows or altering their timing could lead to difficulties in meeting financial or operational obligations promptly, potentially necessitating the acquisition of new loans. Furthermore, credit and collections face risks, including reduced customer receipts due to ineffective collection practices or changes in legislation affecting debt recovery for essential services. The evolving tax legislation and potential variations in interpretations of tax and parafiscal regulations add another layer of financial risk that demands vigilant monitoring.



INVESTMENT RISKS

Sustainability Risks

NOS SGPS faces a spectrum of social responsibility risks that could impact its overall sustainability and affect investor sentiment. Potential lapses in adopting sustainable practices for products and services, coupled with occasional communication failures, pose risks to the perception of NOS as a socially responsible entity. Nowadays, this can heavily influence customer trust, potentially affecting market share and long-term revenue streams. Environmental impacts associated with NOS's activities, including resource consumption and waste production, raise concerns about the company's ecological footprint. In an era where environmental consciousness influences consumer choices, failure to address these impacts may result in adverse market reactions and impact the company's position relative to competitors. For investors, social responsibility risks are increasingly more taken into account in an investment thesis, as they can affect the company's brand image, customer loyalty, and regulatory compliance. Addressing and mitigating these risks are essential for meeting ethical standards but also crucial for maintaining a competitive edge in an industry increasingly influenced by socially conscious consumers.

ENVIRONMENTAL, SOCIAL, GOVERNANCE

In relation to the ESG Score, the company has a score B (60.49) , which indicates that the company has a good performance and also above-average in the industry. According to Moody's Solutions, the company has increased its ranking from the previous years, becoming the 4th European company with the best qualification in the telecommunication sector. Also, NOS has a Sustainability strategy plan from 2021 to 2025 which consists of 4 pillars, "On behalf of the Planet", "For a Digital Future", "More for our People", and "Ethical and Responsible Management". Also, the strategic plan takes into consideration 11 objectives from SDG from the United Nations.

For a digital future, NOS has the ideal until 2025, to increase the number of population with access to 4G/5G, and also reach more individuals through the creation of programs that promote digital literacy and digital skills. The third pillar concerns the employees that are incorporated in the company, the main goal is to improve the levels of satisfaction, in terms of performance and increase the number of females in management positions, such as manager or above. For the last pillar, it's a positive performance from the employees between 2022 and 2025 and the same for the environment and social in relation to the suppliers.

Governance

Board Structure and Model - The company has a one-tier governance model, allowing an easier flow of information, and proper and transparent dialogue between the company and its components. The shareholder with the highest percentage is Sonaecom holding 37.37%, followed by ZOPT which is a company related to Mrs. Isabel dos Santos who at the moment has its assets frozen due to an ongoing court issue, and therefore does not receive any dividends from NOS. It is also relevant to mention that at the General Meeting in 28 September 2022, ZOPT is now wholly owned by Unitel International Holdings, BV and Kento Holding Limited which are companies controlled by Isabel dos Santos. So this means, 35.855% belongs to Sonae.

Also, the company has created several committees to ensure sustainable value to its shareholders, including the Corporate Governance and Sustainability Committee, Ethics Committee, and Audit and Finance Committee. According to the Portuguese Law on Gender Equality in Boards, the BoD has 33% female representatives, with the minimum required. Board of Directors - Consists of 23 members (Chairman: Ângelo Gabriel Ribeirinho dos Santos Paupério), elected for a 3-year term. Currently, apart from the diversity of skills, variety of academic qualifications and professional experience, members of the Board of Directors and the Statutory Independent Audit Board possess adequate diversity in terms of age and gender. In fact, apart from the fact that the percentage of female 4 352 members is 33% and 50%, respectively, in both bodies – in compliance with the provisions of law –, the members of these bodies are between 34 and 63 years of age.

Industry Overview & Competitive Positioning

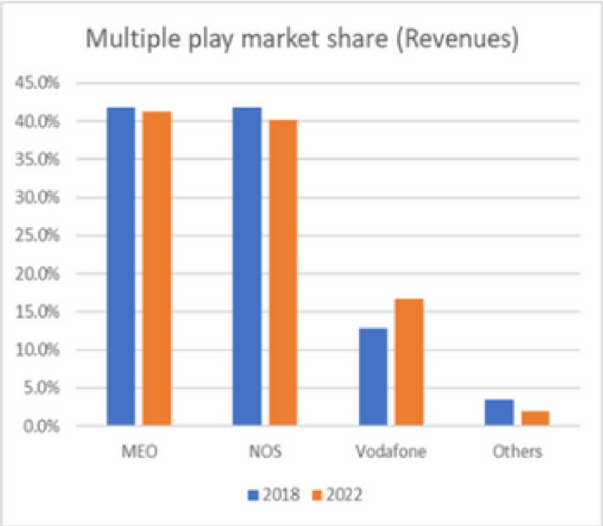


Figure 6 - Multiple play market share (% of revenues) 2018 vs 2022. Source: ANACOM.

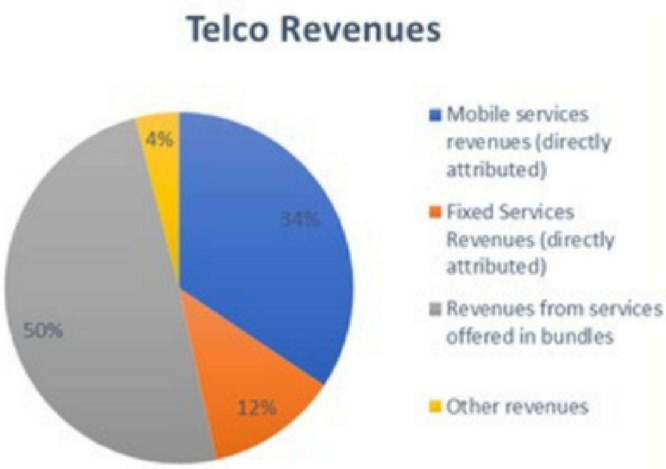


Figure 7 - Telecom revenues by segment – Portugal 2022. Source: ANACOM.

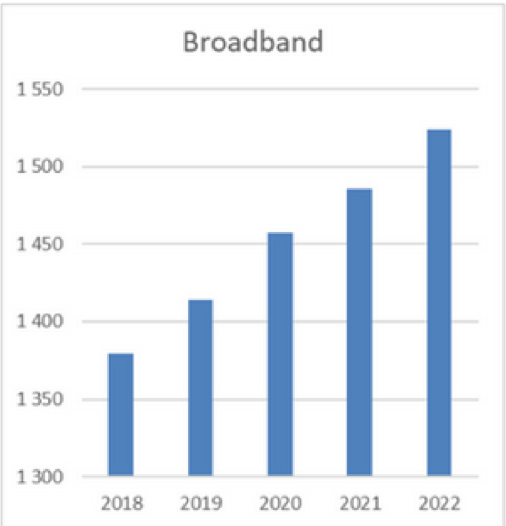


Figure 8 - NOS Fixed broadband RGU's.

Figure 9 - Percentage of Internet users with IoT equipment (personal use and domestic use). Source: ANACOM.

Investment Summary

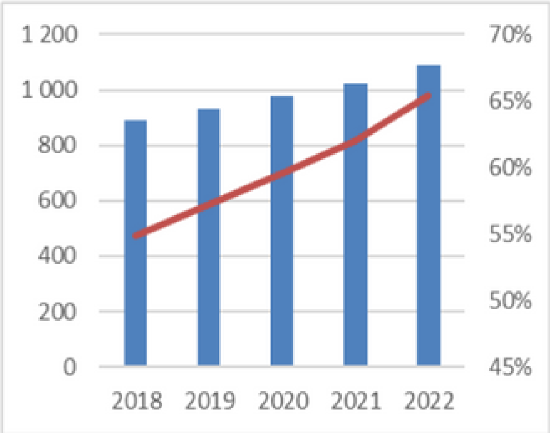


Figure 10 - Convergent and integrated customers (thousands and in % of total customers).

Financial Analysis

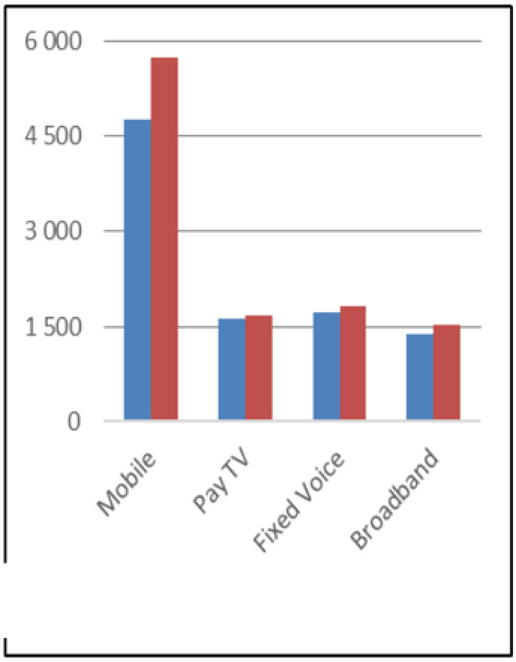


Figure 11 - NOS RGUs per segment. Source: NOS' fillings.

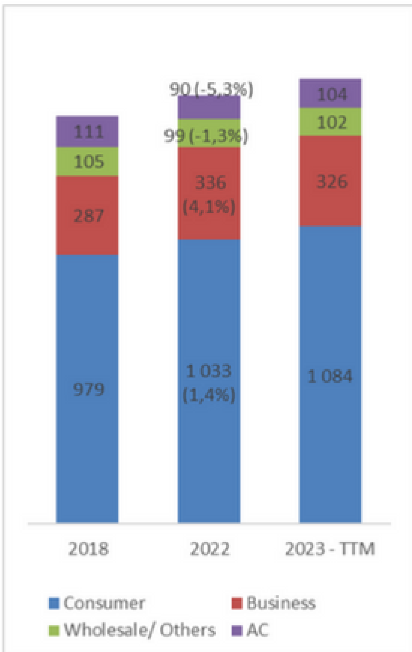


Figure 12 - NOS' revenues per segment and CAGR (2018 - 2022). Source: NOS' fillings.

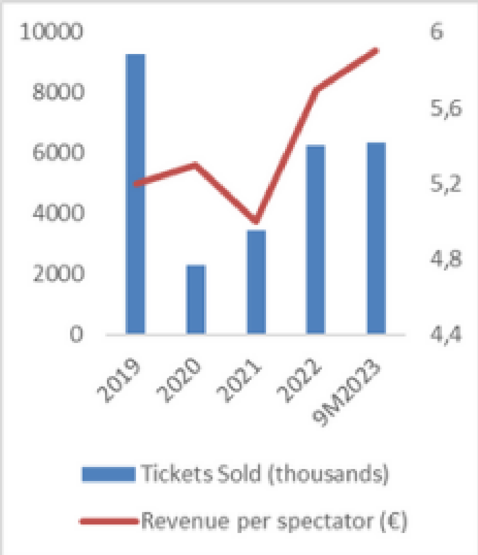


Figure 13 - Number of tickets sold (thousands) and revenue per spectator (euros). Source: NOS' fillings.

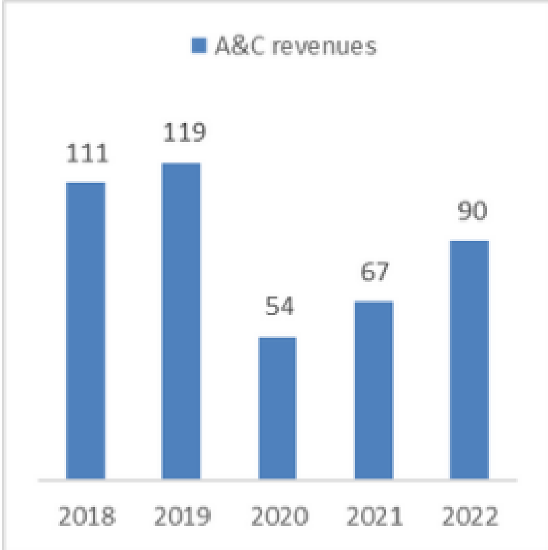


Figure 14 - A&C Revenues 2018 - 2022. Source: NOS' fillings.

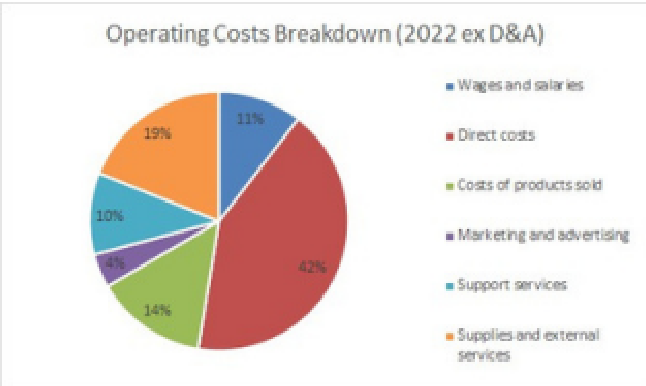


Figure 15 - Operating costs breakdown excluding D&A (2022). Source: NOS' fillings.

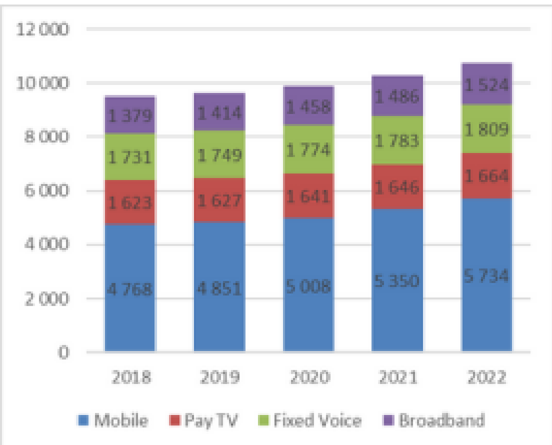


Figure 16 - NOS RGUs per segment. Source: NOS' fillings.

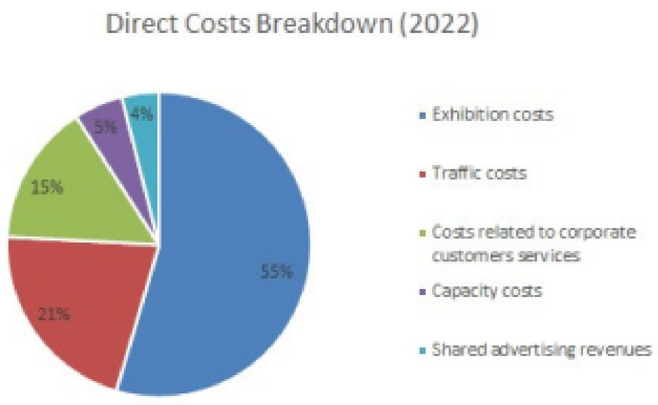


Figure 17 - Direct costs breakdown (2022). Source: NOS' fillings.

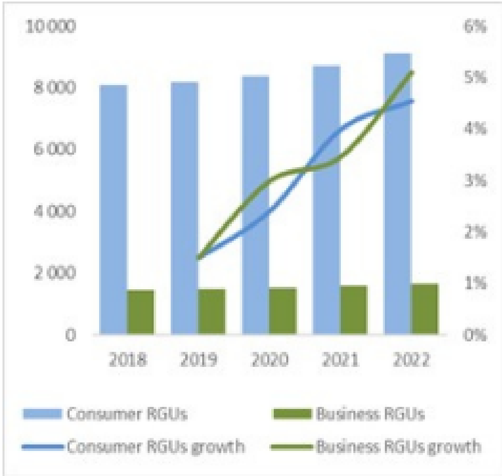


Figure 18 - NOS RGUs (Consumer vs Business) and respective growth rates. Source: NOS' fillings.

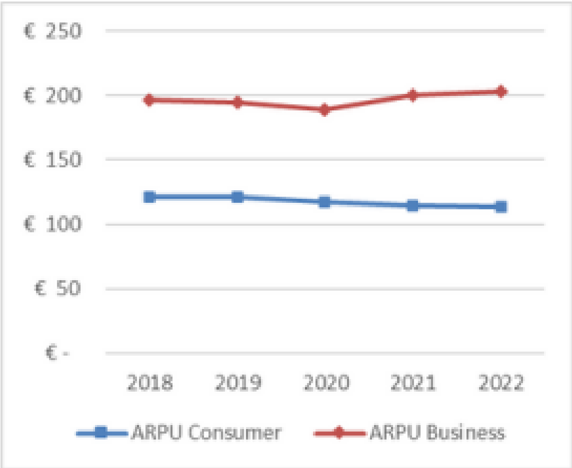


Figure 19 - Average revenue per user (Consumer vs Business segment; euros). Source: NOS' fillings.

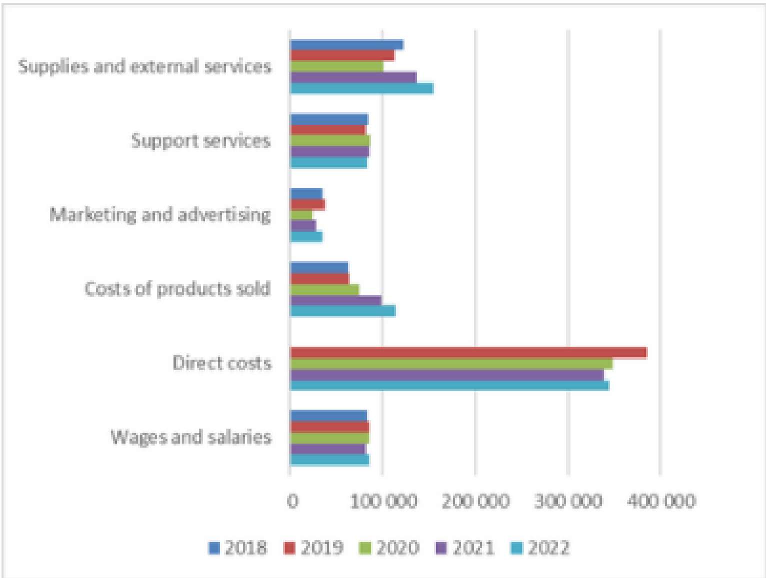


Figure 20 - Average revenue per user (Consumer vs Business segment; euros). Source: NOS' fillings.

Valuation

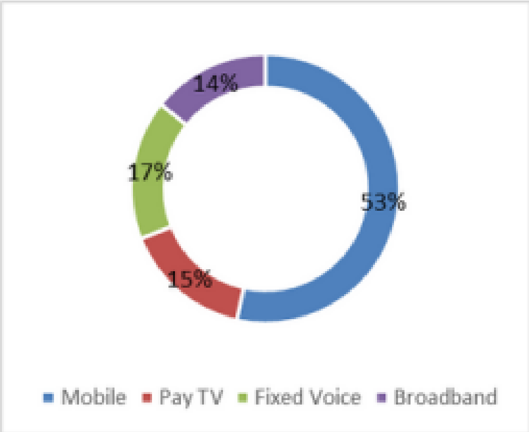


Figure 21 - NOS' RGU's by segment (2022).

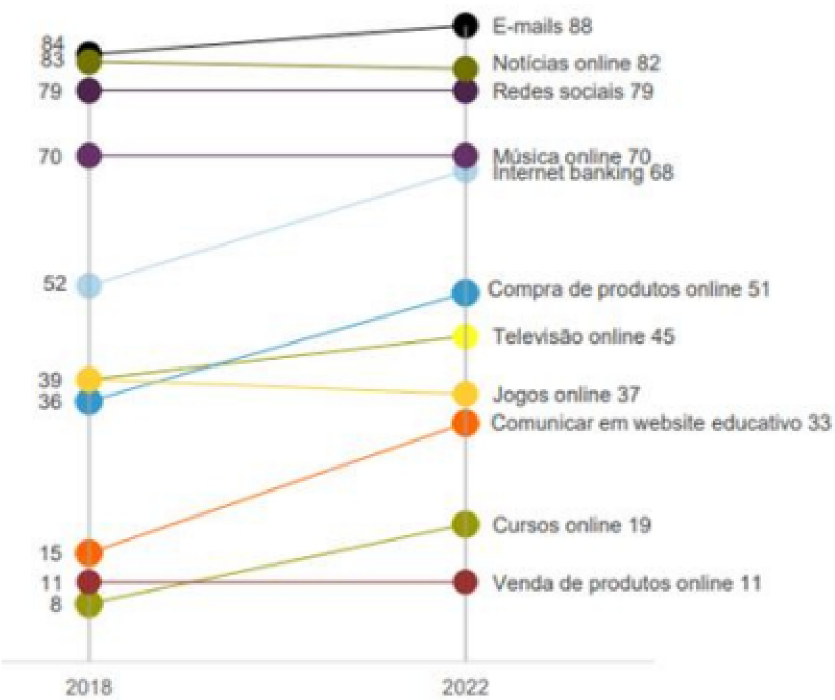


Figure 22 - Percentage of utilization of OTT services by Internet users. Source: ANACOM.

Table 2 - NOS' revenue forecast.

Item	2023	2024	2025	2026	2027
Turnover growth rate	4.40%	3.00%	1.80%	1.20%	0.50%
Turnover forecast NOS SGPS	1 588	1 636	1 665	1 685	1 693
NOS estimated market share	31.4%	31.3%	31.2%	31.2%	31.1%

Table 3 - Income Statement: historical vs forecast as a percentage of total revenue.

Item	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of goods sold	31.1%	30.8%	30.9%	30.6%	30.2%	30.5%	31.0%	31.0%	31.0%	31.0%
Gross Margin	**68.9%**	**69.2%**	**69.1%**	**69.4%**	**69.8%**	**69.5%**	**69.0%**	**69.0%**	**69.0%**	**69.0%**
Other operating revenues	2.9%	2.9%	2.3%	2.7%	2.5%	2.6%	2.6%	2.6%	2.6%	2.6%
General expenses	18.9%	17.7%	16.7%	18.8%	19.2%	19.0%	18.5%	18.5%	18.0%	17.8%
Personnel expenses	5.7%	5.8%	6.2%	5.7%	5.6%	5.5%	5.5%	5.5%	5.5%	5.5%
Other operating expenses	2.3%	2.9%	2.3%	2.7%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
EBITDA	**44.8%**	**45.6%**	**46.1%**	**44.8%**	**44.9%**	**45.1%**	**45.1%**	**45.1%**	**45.6%**	**45.8%**
Amortisation, depreciation and impairments	29.3%	28.9%	30.0%	29.3%	31.6%	31.0%	31.0%	31.0%	31.0%	31.0%
Operating Income	**15.5%**	**16.8%**	**16.2%**	**15.5%**	**13.3%**	**14.1%**	**14.1%**	**14.1%**	**14.6%**	**14.8%**

Table 4 - Adjusted Assets - forecast and historical by growth rate.

Adjusted Assets	**2022**	**Average (4 yrs)**	**2023**	**2024**	**2025**	**2026**	**2027**
Intangible assets (growth rates)	0.4%	4.6%	0.5%	0.5%	0.5%	0.0%	0.0%
Intangible assets	1 210	-	1 216	1 222	1 228	1 228	1 228
Tangible assets (growth rates)	10.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Tangible assets	1 405	-	1 405	1 405	1 405	1 405	1 405
Tangible assets (weight in turnover)	92.4%	88.8%	88.5%	85.9%	84.4%	83.4%	83.0%
Financial assets (growth rates)	113.3%	37.7%	1.0%	1.0%	1.0%	1.0%	1.0%
Financial assets	6		6	6	6	6	6
Other non-current assets (growth rates)	14.0%	4.5%	1.0%	1.0%	1.0%	1.0%	1.0%
Other non-current assets	305		309	312	315	318	321
Non-current liabilities (other than debt) - growth rates	34.7%	6.1%	1.0%	1.0%	1.0%	1.0%	1.0%
Non-current liabilities (other than debt)	176		178	180	182	184	185
Inventories	4.4%	3.1%	3.8%	3.8%	3.8%	3.8%	3.8%
Accounts receivable	26.5%	29.2%	27.8%	27.8%	27.8%	27.8%	27.8%
Other receivables	3.4%	3.0%	3.2%	3.2%	3.2%	3.2%	3.2%
Accounts payable	32.3%	32.8%	32.5%	32.5%	32.5%	32.5%	32.5%
Other payables	6.0%	5.3%	5.7%	5.7%	5.7%	5.7%	5.7%
Cash and cash equivalents	1.0%	2.8%	1.9%	1.9%	1.9%	1.9%	1.9%
Assets classified as held for sale	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 5 - Historical and Pro-forma P&L statement.

Item	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Revenue	1 441	1 458	1 368	1 430	1 521	1 588	1 636	1 665	1 685	1 693
Cost of goods sold	449	449	423	438	460	484	507	516	522	525
Gross Margin	**992**	**1 009**	**945**	**992**	**1 061**	**1 104**	**1 129**	**1 149**	**1 163**	**1 168**
Other operating revenues	41	42	32	38	38	41	42	43	43	43
General expenses	273	259	228	269	293	302	303	308	303	301
Personnel expenses	83	85	85	82	86	87	90	92	93	93
Other operating expenses	33	42	32	38	38	40	41	42	42	42
EBITDA	**645**	**666**	**631**	**641**	**683**	**716**	**737**	**750**	**768**	**775**
Amortisation, depreciation and impairments	421	421	410	419	481	492	507	516	522	525
Operating Income	**223**	**244**	**221**	**222**	**202**	**224**	**230**	**234**	**245**	**250**
Non-operating (non-recurrent) Income	**-24**	**-44**	**-84**	**-33**	**68**	**22**	**23**	**23**	**23**	**23**
EBIT	**200**	**201**	**137**	**189**	**270**	**246**	**253**	**257**	**269**	**273**
Interest expenses	37	26	36	33	13	79	89	87	85	83
Profit Before Income Tax	**163**	**175**	**102**	**156**	**257**	**166**	**164**	**170**	**183**	**191**
Income tax expense	27	33	16	12	33	24	24	25	27	28
Net Income	**136**	**142**	**85**	**144**	**224**	**142**	**140**	**145**	**156**	**162**

Table 6 - Historical and Pro-forma balance sheet.

Item	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Assets										
Financial Assets	25	1	1	3	6	6	6	6	6	6
Tangible Assets (Property, plant & equipment)	1 227	1 253	1 252	1 277	1 405	1 405	1 405	1 405	1 405	1 405
Intangible assets	1 019	1 014	1 041	1 205	1 210	1 216	1 222	1 228	1 228	1 228
Other non-current assets	257	266	263	268	305	309	312	315	318	321
Non-current liabilities (other than debt)	150	116	124	131	176	178	180	182	184	185
Net Fixed Assets	**2 379**	**2 418**	**2 434**	**2 622**	**2 749**	**2 757**	**2 764**	**2 772**	**2 773**	**2 774**
Inventories	39	34	44	44	67	60	62	63	64	64
Accounts receivable	450	463	384	407	403	442	455	464	469	471
Other receivables	39	44	34	45	52	51	52	53	54	54
Accounts payable	474	488	438	472	492	517	532	542	548	551
Other payables	71	68	81	71	92	90	93	94	96	96
Cash and cash equivalents	2	13	153	11	15	30	31	32	32	32
Working Capital, Cash, and Cash Equivalents	**-16**	**-2**	**96**	**-37**	**-46**	**-24**	**-24**	**-25**	**-25**	**-25**
Assets classified as held for sale	1	0	0	0	0	0	0	0	0	0
Adjusted Assets	**2 364**	**2 416**	**2 530**	**2 585**	**2 703**	**2 877**	**2 888**	**2 898**	**2 901**	**2 903**
Equity and Debt										
Share capital	847	845	845	847	843	843	843	843	843	843
Reserves	60	16	12	-36	-23	45	87	129	173	220
Net income	139	145	93	145	226	142	140	145	156	162
Total Equity	**1 046**	**1 005**	**950**	**957**	**1 046**	**1 030**	**1 071**	**1 118**	**1 173**	**1 226**
Minority interests	7	7	7	6	6	7	7	7	7	7
Long-term debt	1 014	1 217	1 364	1 276	1 210	1 354	1 332	1 305	1 267	1 229
Short-term debt	296	187	210	346	441	493	485	475	461	448
Total Debt	**1 310**	**1 404**	**1 573**	**1 622**	**1 651**	**1 847**	**1 817**	**1 780**	**1 728**	**1 677**
Invested Capital	**2 356**	**2 409**	**2 523**	**2 579**	**2 697**	**2 877**	**2 888**	**2 898**	**2 901**	**2 903**

Table 7 - Cost of equity computation.

Cost of equity	NOS
Unlevered beta	0.40
nlevered beta (industry average)	0.52
Unlevered beta	**0.44**
Target capital structure (leverage level)	**44.9%**
Levered beta	0.61
Risk-free rate - 10 yrs	2.00%
Market risk premium	10.80%
Cost of equity	**8.55%**

Table 8 - WACC computation.

WACC	Weight	Rate	Total
Equity	69.0%	8.55%	5.90%
Debt	31.0%	4.09%	1.27%
Total	-		**7.17%**

Table 9 - Free Cash Flow map - forecast period.

Item	2023	2024	2025	2026	2027
Operating Income (EBIT)	224	230	234	245	250
Tax on EBIT	33	34	34	36	37
Amortisation, depreciation and impaiments	492	507	516	522	525
Gross Cash Flow	**683**	**703**	**716**	**732**	**738**
Change in inventories	-7	2	1	1	0
Change in accounts receivable	38	15	9	6	3
Change in accouts payable	23	18	11	8	3
Change in cash and cash equivalents	15	1	1	0	0
Change in Working Capital and Cash	**22**	**-1**	**0**	**0**	**0**
CAPEX	498	513	522	522	525
FREE CASH FLOW	**162**	**191**	**194**	**209**	**213**

Table 10 - Free Cash flow computation - second phase.

Item	2028	2029	2030	2031	2032
Free Cash Flow 1st phase last year	213				
Free Cash Flow growth rate	5.95%	4.86%	3.77%	2.68%	1.59%
FREE CASH FLOW	**226**	**237**	**246**	**252**	**256**

Table 11 - DCF Model - Residual value computation.

Present value of FCF (2nd phase)	**700**
Free Cash Flow 2nd phase last year	258
WACC	7.2%
Perpetual growth rate (after last year 2nd phase)	0.5%
Continuing value	**3 864**
Discount factor	50.0%
Present value of continuing value	**1 933**

Table 12 - EV, value per share and upside, NOS stock.

Enterprise value	**3 568**
Debt value	**1 651**
Minority interests	6
Equity value (group)	**1 911**
Equity value per share	**3.71**
Current value per share (January 08, 2024)	**3.31**
Upside/downside	**12.0%**

Table 13 - NOS' Peers - main data and ratios.

Item	NOS	Vodafone Group PLC	Orange Belgium SA	Tele2 AB	freenet AG
Size					
Revenue (Turnover)	1 521	45 706	1 391	2 529	2 557
Invested Capital	2 703	129 789	1 178	5 052	2 403
EBITDA	683	27 914	430	1 012	500
Net Income	225	11 568	58	502	79
Growth					
Revenue (5 yr average)	-0.7%	0.9%	1.7%	5.2%	-2.5%
Return on Capital					
Operating return (EBITDA)	44.9%	61.1%	30.9%	40.0%	19.5%
Asset turnover	56.3%	**35.2%**	118.1%	50.1%	106.4%
Return on Assets (EBITDA)	25.3%	21.5%	36.5%	20.0%	20.8%

Table 14 - NOS' peers multiples.

Multiples	NOS	Vodafone Group PLC	Orange Belgium SA	Tele2 AB	freenet AG
PER	7.2	2.2	17.8	11.9	30.6
EV/EBITDA	4.8	3.3	3.5	8.8	6.7
PBV	1.5	0.4	1.5	2.8	1.6
EV/SALES	2.2	2.0	1.1	3.5	1.3
Dividend yield	8.3%	9.2%	0.0%	7.1%	0.0%

Table 15 - Trading comparables valuation - PER, EV/EBITDA, PBV, EV/SALES and DY.

Item					
	PER	EV/EBITDA	PBV	EV/SALES	DIV.YIELD
Average of benchmark assets	**12.3**	**5.4**	**1.6**	**2.0**	**7.90%**
Values for NOS @ December 31st, 2022					
Net income	**226**				
EBITDA		**683**			
Equity (Book value)			**1 046**		
Revenues				**1 521**	
Dividends					**142**
Value of operations	4 283	**3 706**	3 159	**3 069**	3 309
Value of non-operating assets and liabilities	150	150	150	150	150
Enterprise value	4 434	3 856	3 309	3 219	3 459
Debt value	1 651	1 651	1 651	1 651	1 651
Minority interests	6	6	6	6	6
Equity value (group)	**2 776**	2 199	**1 652**	1 562	**1 802**
Number of shares (millions)	515	515	515	515	515
Market capitalization (€ in millions)	1 706	1 706	1 706	1 706	1 706
Deviation vis-a-vis multiple model (€ in millions)	**-1 070**	**-493**	**54**	**145**	**-96**
Upside/downside	**63%**	**29%**	**-3%**	**-8%**	**6%**

BIBLIOGRAPHY

- Nos Reports
- Eikon

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