Lisbon School of Economics & Management
Universidade de Lisboa

MASTERS IN MANAGEMENT (MIM)

MASTERS FINAL WORK

PROJECT

VALUATION OF A TELECOM COMPANY AFTER THE ENTRY OF NEW COMPETITOR TO THE MARKET: THE CASE OF NOS

ANDRÉ DA PALMA MARQUES

FEBRUARY - 2025

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ANDRÉ DA PALMA MARQUES

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FEBRUARY - 2025

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Resumo

Este relatório apresenta uma análise de Equity Research da NOS S.G.P.S., S.A., uma empresa integrante do Euronext PSI, seguindo o formato recomendado pelo CFA Institute.

A avaliação resultou num preço-alvo de 3,74€ para o final de 2025, representando um potencial de valorização de 10% face ao preço de fecho de 3,40€ em 3 de fevereiro. Para determinar este valor, foi utilizada uma abordagem de Fluxos de Caixa Descontados (DCF), tendo o modelo de Free Cash Flow to the Firm (FCFF) sido escolhido como método principal de avaliação. Além disso, a análise foi complementada com o modelo de Free Cash Flow to Equity (FCFE), o Dividend Discount Model (DDM) e a Market-Based Valuation (MBV).

Embora não se prevejam riscos significativos que possam impedir a concretização deste preço-alvo, a regulamentação da ANACOM e a entrada da DIGI no mercado representam desafios potenciais.

Tendo em conta estes fatores, a recomendação final é MANTER (HOLD).

Classificação JEL: G10 ; G32; G34.

Palavras-Chave: Equity Research; Avaliação de Empresas; Fusões e Aquisições.

Abstract

This report presents an Equity Research analysis of NOS S.G.P.S., S.A., a constituent of the Euronext PSI, following the CFA Institute's recommended format.

The valuation resulted in a price target of €3,74 for year-end 2025, representing a 10% upside from the closing price of €3,40 on February 3rd. To determine this target, a Discounted Cash Flow (DCF) approach was employed, with the Free Cash Flow to the Firm (FCFF) model as the primary valuation method. Additionally, the analysis was complemented by the Free Cash Flow to Equity (FCFE) model, the Dividend Discount Model (DDM), and the Market-Based Valuation (MBV).

While no significant risks are expected to hinder the achievement of this price target, ANACOM regulations and the entry of DIGI into the market pose potential challenges.

Considering these factors, the final recommendation is HOLD.

JEL classification: G10 ; G32; G34.

Keywords: Equity Research; Valuation; Mergers & Acquisitions.

Abbreviations

A&C - Audiovisual & Cinemas
AI - Artificial Intelligence
ARPU - Average Revenue per User
CAC - Customer Attraction Cost
CAPEX - Capital Expenditure
CDP - Carbon Disclosure Program
DCF - Discounted Cash Flow
DDM - Dividend Discount Model
ESG - Environmental, Social and Governance
FCF - Free Cash Flow
FCFE - Free Cash Flow to Equity
FCFF - Free Cash Flow to Firm
GDP - Gross Domestic Product
GDPR - General Data Protection Regulation
ICT - Information and Communication Technology
IOT - Internet of Things
IT - Information Technology
MBV - Multiple Based Valuation
MVNO - Mobile Virtual Network Operator
OCC - Operations Cost Contribution
OCC - Operations Cost Contribution
OpenRAN - Open Radio Access Network
OTT - Over-The-Top
ROE - Return on Equity
SARD - Systematic Analysis of Relevant Data
SME - Small and Medium Enterprises
TCDF - Task Force on Climate related Financial Disclosures
WACC - Weighted Average Cost of Capital

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1. Introduction

Telecommunications have become an essential aspect of modern life, supporting both economic activities and social interactions. In Portugal, NOS, S.G.P.S., S.A. (NOS) is one of the key players in this rapidly evolving and highly competitive sector. As a provider of broadband, television, mobile, and business services, NOS holds a significant market position. However, the sector is currently undergoing significant changes, particularly with the entry of a new competitor, DIGI, which has adopted aggressive pricing strategies that pose a challenge to incumbent market leaders. These developments make NOS an interesting subject for an in-depth equity research analysis.

The aim of this thesis is to determine the fair value of shares of the NOS enterprise and provide an informed investment recommendation. Specifically, this analysis seeks to answer two key questions: What is the intrinsic value of NOS's stock, and how might the entry of DIGI into the market impact NOS's future growth, profitability, and stock price? By addressing these questions, I aim to offer insights into the company's long-term financial prospects and the potential risks associated with its market position.

My decision to analyze NOS stems from both personal and professional motivations. From a professional perspective, my background in finance and a deep interest in equity markets drive my desire to explore corporate valuation in practice. As a student in the Master's in Management program, specializing in Finance, I am highly motivated to undertake this research, which serves as an excellent opportunity to apply the theoretical knowledge gained throughout the Master's in Management program. On a personal level, I have long-standing connections to NOS, as my family member has worked directly with the company for over a decade.

This research follows the structure recommended by the university, ensuring a comprehensive and industry-standard approach to valuation. The analysis employs several established valuation models, including Free Cash Flow to the Firm (FCFF), Free Cash Flow to Equity (FCFE), Dividend Discount Model (DDM), and Relative Valuation (RV). These models are used to cross-check and validate the results, with FCFF serving as the primary method for determining the intrinsic value of NOS's stock.

The forecast period extends to 2030. This long-term outlook considers the potential market shifts and technological advancements that may influence NOS's future performance. The data for this study is primarily sourced from NOS's financial reports, Bloomberg, and other publicly available financial information. The employed comprehensive approach, resorting to several established valuation models, allows for a thorough understanding of the company's financial health and market position.

By offering a detailed and updated analysis of NOS's valuation, this Masters Final Work contributes to the academic literature on corporate finance and telecommunications industry analysis.

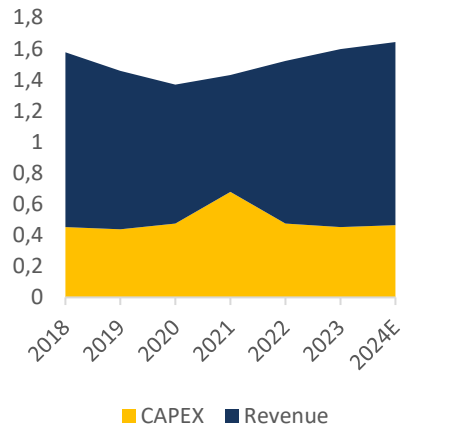
The rest of this document is organized as follows. Section 2 presents the business context of the project. Section 3 provides a literature review relevant to the topic. Section 4 outlines the methodology applied. Section 5 describes the project developed for the company, including research insights, ESG considerations, market and industry analysis, investment rationale, valuation models, financial analysis, and risk assessment. Section 6 concludes the work. Additional information can be found in the appendices, disclosures, and references.

2. Business Context

NOS, headquartered in Lisbon, Portugal, stands as a leading integrated Telecom and entertainment service provider. Established in 2013 through the strategic merger of ZON Multimedia and Optimus, NOS brought together two major players with complementary strengths (mobile and TV).

In recent years, NOS has prioritized the development of 5G technology as a cornerstone of its strategic initiatives. NOS's 5G rollout strategy reflects both quality and geographic coverage. It comes with a high cost though. The company has been through a period of intense CAPEX investments - Figure 1.

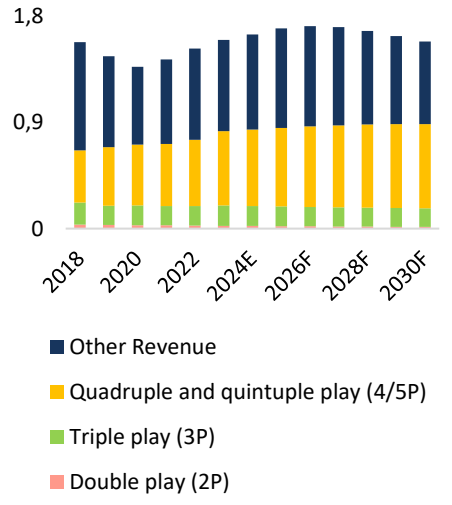
Figure 1. NOS´s CAPEX/Revenue (€billions)



Source: *NOS*

NOS's operations are structured around two principal segments: Telecom and Audiovisual & Cinemas (A&C). The Telecom segment serves as the company's backbone, offering a comprehensive suite of fixed and mobile services, broadband internet, pay-TV, and voice solutions. NOS caters to both B2B and B2C markets, with a strong emphasis on bundled service offerings that integrate services into cohesive packages. Among these, the "4P" (quad-play) and "5P" (quintuple-play) bundles have achieved significant market penetration, with approximately 93% of subscribers opting for converged services that combine two or more products - Figure 2.

Figure 2. NOS's Revenue Breakdown

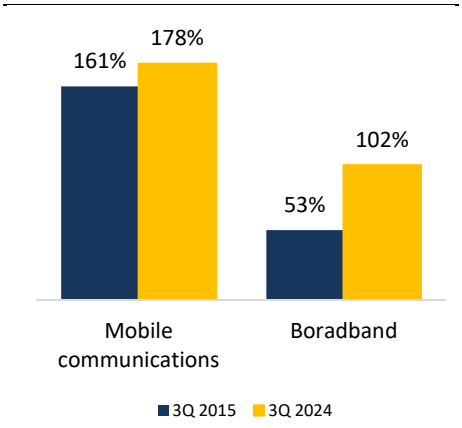


Source: *NOS*

The A&C segment encompasses NOS's cinema exhibition and audiovisual content distribution businesses. This includes a network of multiplex cinemas and exclusive distribution rights for both Portuguese and international films. Although the A&C segment accounts for a smaller portion of NOS's overall revenue—approximately 7%—it holds strategic importance as a vehicle for enhancing brand loyalty and customer engagement.
By maintaining robust operations in both sectors, NOS capitalizes on the synergies between its Telecom and entertainment products and services to deliver a more comprehensive and integrated customer experience.

NOS operates in a competitive yet oligopolistic Portuguese Telecom market, consistently ranking among the top three players alongside MEO and Vodafone. This dynamic market is characterized by high penetration rates, which measure the percentage of the population that subscribes to or uses telecom service. A high penetration rate indicates a mature market with widespread adoption and limited room for new customer growth. In some cases, penetration rates can exceed 100%, particularly in mobile communications, when the number of active SIM cards surpasses the total population due to users having multiple subscriptions, such as separate SIMs for personal and business use or multiple devices connected to different networks. As shown in Figure 3, penetration rates are particularly high in core services such as broadband and mobile communications, leading to intense competition for market share and customer retention. Despite these challenges, NOS has successfully leveraged its bundled service strategy, which integrates fixed, mobile, internet, and pay-TV offerings, to drive customer loyalty and reduce churn rates, a key metric that measures the percentage of customers who discontinue a service within a given period. Lower churn rates indicate higher customer retention, which is crucial in a highly competitive telecom market.

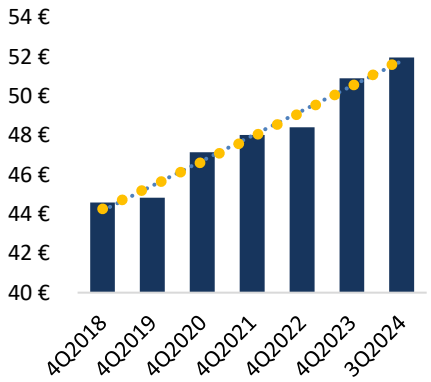
Figure 3. Penetration rate in Portugal



Source: *NOS*

The Portuguese telecom market is highly mature, with over 90% of households subscribing to pay-TV services and broadband internet reaching saturation in urban areas. To sustain growth in this saturated environment, NOS has focused on increasing average revenue per user (ARPU) by enhancing its value proposition - Figure 4.

Figure 4. NOS's ARPU Evolution



Source: *NOS*

Internationally, NOS has expanded its footprint through ZAP, its subsidiary operating in Angola, where it provides satellite TV and related services. This presence in a key African market allows NOS to tap into growth opportunities beyond Portugal. In 2023, ZAP's net profit was €1.506.000. Considering that ZAP is 100% owned by Finstar and that NOS owns 30% of Finstar, the net profit held by NOS was €451.800. However, the Angolan operation has faced challenges due to currency fluctuations and economic instability, which have historically affected profitability.

Despite its progress, NOS faces challenges in maintaining technological leadership within a highly competitive market. The Telecom sector requires continuous investment to stay at the forefront, with substantial capital expenditure demands for 5G and fiber infrastructure potentially straining financial resources. Additionally, while NOS has implemented some environmental initiatives, the company's ability to measure and transparently report their impact—particularly regarding Scope 3 emissions—will be critical for maintaining credibility (a more detailed discussion of ESG will follow later in the thesis).

By sustaining its focus on innovation and strengthening its commitment to environmental efforts, NOS has the potential to remain a key player and achieve sustainable growth. However, the company must address several vulnerabilities and challenges, including the entry of DIGI, a new competitor with an aggressive pricing strategy and significant plans for network expansion. DIGI's approach could intensify price competition in Portugal's telecom market and impact the market share of major players. Furthermore, the company may face a period of significant capital investment starting in 5 to 8 years, aimed at developing 6G technology and aligning national and international industry trends. Lastly, the growing importance of environmental considerations within the corporate context is becoming an increasingly critical success factor for companies.

3. Literature Review

The telecommunications sector has undergone significant changes in valuation practices, particularly after the collapse of the tech bubble in the early 2000s. This period marked a shift in how financial analysts approached telecom company valuations, especially in Europe. Prior to the bubble, market-based multiples, such as Price-to-Earnings (P/E) ratios, were widely used. However, in the aftermath of the crash, analysts began to focus more on fundamental valuation methods, especially Discounted Cash Flow (DCF) analysis. This transition, highlighted by Glaum and Friedrich (2006), reflected an increasing emphasis on intrinsic valuation based on cash flow generation and profitability, rather than speculative growth projections. As a result, when evaluating companies like NOS, adopting these more rigorous valuation techniques became crucial to navigating the volatile post-bubble market environment.

Moreover, the overoptimistic projections that contributed to the tech bubble's collapse were not limited to the U.S.; they were part of a global telecom boom. Litan and Noll (2004) explored how deregulation and technological advancements in the U.S. telecommunications market led to massive investments in network capacity, which ultimately outstripped demand. This overinvestment led to overcapacity and financial distress. The phenomenon of "irrational exuberance," as described by Shiller (2000), further exacerbated the problem, with analysts and investors disregarding traditional valuation metrics in favor of speculative projections. This disregard for fundamental analysis became a cautionary tale for future valuations in the sector, stressing the importance of grounded, realistic assessments.

In light of these historical lessons, the boom-and-bust cycle of the late 1990s and early 2000s remains highly relevant for contemporary valuation practices. As the telecommunications industry evolves, it is essential for analysts to focus on sustainable cash flows and realistic market forecasts when assessing companies like NOS. Such an approach helps prevent the missteps of the past, where irrational expectations led to overvaluations, and ensures that valuations are grounded in thorough and objective financial analysis.

In addition, selecting the appropriate number of comparable firms is crucial for deriving accurate multiples in the valuation process. Cooper and Lambertides (2023) examined how the number of comparables influences the accuracy of multiples-based valuations, finding that a small group of closely comparable firms can yield results as accurate as larger samples. For telecommunications companies like NOS, selecting firms with similar financial indicators, rather than a broad industry sample, ensures that the multiples used are relevant and reflective of the company’s specific market dynamics. Furthermore, Cooper and Lambertides (2023) emphasized the importance of matching the peers’ growth rates to those of the target firm. This is especially significant in an industry where growth can vary greatly across firms.

Taking these factors into account, for NOS, a strategic approach to selecting peers involves not only considering financial metrics but also qualitative factors such as technological capabilities and market position. Given the diverse growth patterns within the sector, focusing on firms that share similar characteristics can enhance the precision of valuation estimates. On a related note, cross-country comparisons in the telecommunications industry, as discussed by Schøler (2020), introduce additional complexities. Cultural differences, along with variations in accounting practices and economic conditions, must be considered when comparing firms across borders. Therefore, for NOS, which operates in

Portugal but also has a broader European market context, these cross-country factors are crucial for ensuring the robustness of any valuation model.

In parallel, the growing importance of Environmental, Social, and Governance (ESG) factors in valuation has also impacted the telecommunications sector. Khorin and Krikunov (2021) found a clear inverse relationship between ESG risk scores and valuation multiples, particularly within the telecom industry. Companies that effectively manage ESG risks—such as data privacy, network reliability, and energy efficiency—tend to achieve higher EV/EBITDA multiples. This highlights the increasing importance of incorporating ESG considerations into valuation models. For this reason, for NOS, addressing ESG risks could boost its market valuation, as investors increasingly prioritize sustainability and corporate responsibility.

Moreover, broad industry trends also support this view. The Boston Consulting Group (2017) demonstrated that companies excelling in material ESG factors tend to outperform their peers in terms of valuation and profit margins. In telecommunications, where issues such as energy consumption and data privacy are particularly salient, companies that proactively manage these aspects often experience financial benefits. For instance, Telefonica's efforts to reduce its carbon footprint have mitigated environmental risks and translated into cost savings and operational efficiencies, positively impacting its valuation multiples. Such examples illustrate how strategic ESG initiatives can translate into tangible financial value.

Furthermore, incorporating ESG factors into equity valuation is crucial for companies like NOS, which must increasingly focus on their environmental and social impact. As ESG concerns gain importance among investors, companies that integrate these factors into their business strategy may enjoy a valuation premium. Thus, for NOS, actively managing ESG risks, including improving energy efficiency and ensuring regulatory compliance, could enhance its attractiveness to investors, leading to more favorable valuations.

Turning to broader economic factors, macroeconomic variables such as interest rates, inflation, and GDP growth have always influenced valuation multiples, and their effects on the telecommunications sector are no exception. As Andersen (2023) notes, rising interest rates tend to lower the present value of future cash flows, making telecom stocks, which are generally capital-intensive, less attractive. Similarly, inflation can erode profit margins, leading to lower valuations, while robust GDP growth can signal a favorable environment for telecom companies, boosting their future earnings and valuation multiples. For NOS, understanding these macroeconomic dynamics is crucial for making informed decisions about capital expenditures and financial strategy, especially in times of economic uncertainty.

Additionally, Beccalli (2023) found that macroeconomic variables, including the term spread—which reflects expected economic growth—have a significant impact on the valuation multiples of telecommunications companies. During periods of economic expansion, telecom companies typically experience higher valuation multiples due to anticipated earnings growth. Conversely, economic slowdowns and increased uncertainty—such as those brought on by rising inflation or interest rates—can suppress valuation multiples.

As a result, the capital structure of telecommunications firms also plays a crucial role in shaping valuation multiples. Habibniya et al. (2022) highlighted the negative relationship between high debt levels and profitability in the U.S. telecom industry. Excessive leverage can erode profitability, negatively impacting key valuation metrics such as EV/EBITDA. For NOS, careful management of capital structure is essential, particularly in periods of economic stress when borrowing costs rise. Ensuring a balanced debt-to-equity ratio can help preserve profitability and maintain favorable valuation multiples.

Furthermore, for NOS, a comprehensive understanding of the evolution of valuation practices, the influence of macroeconomic variables, and the growing importance of ESG factors is crucial for maintaining a strong market position. By adapting to these factors, NOS can optimize its financial strategies and align its corporate practices with investor expectations, ultimately leading to a more sustainable performance.

Additionally, the regulatory environment also plays a crucial role in shaping the valuation outputs of telecommunications companies. Stringent regulations can increase operational costs and limit market opportunities, resulting in lower valuations. In contrast, regulatory reforms that encourage market competition or reduce barriers to entry can enhance market dynamics, leading to a more competitive landscape. The impact of regulatory changes is evident in studies emphasizing the importance of regulatory factors in telecom valuations. Glaum and Friedrich (2006b) noted that industry analysts consistently consider regulatory factors as key elements influencing telecom stock valuations. Bastianin et al., (2018) also found that regulatory reforms, such as market liberalization and privatization, can enhance operational efficiency and boost firm valuations. Hernández Trillo et al. (2024) examined the effects of telecom monopoly breakups in the U.S. and Mexico, revealing significant declines in market capitalization following regulatory-induced divestitures, underscoring the sensitivity of telecom valuations to regulatory actions.

Recent regulatory developments in Europe suggest a shift toward a more favorable regulatory environment for telecom companies. The UK's Competition and Markets Authority (CMA) approved Vodafone's merger with Three UK without significant asset sale conditions, signaling a regulatory approach that favors consolidation in the telecom sector. This is expected to help Vodafone reduce costs, improve returns on capital, and potentially enhance its expected performance. Similarly, the European Union's regulatory framework aligns with broader competitiveness goals, particularly through policies promoting 5G investments. These regulatory shifts suggest that telecom companies in Europe, including NOS, could experience improved market conditions that positively impact operations.

Finally, technological innovation is another pivotal factor influencing telecom companies. The adoption of advanced technologies, such as Artificial Intelligence (AI), Internet of Things (IoT), and digitalization, has enabled telecom firms to optimize operations, enhance services, and expand into new markets. Ericsson (2024) highlighted the potential of IoT applications, such as asset monitoring and remote control, in creating significant value across industries. Additionally, AI integration has transformed telecom operations, with the Boston Consulting Group (2025) noting that AI-driven strategies improve network management, decision-making, and customer experiences, contributing to higher profitability and stock price. Empirical studies confirm the link between innovation and enhanced firm performance. Joshi and Chauhan (2024) found that firms with higher research intensity tend to exhibit higher financial metrics, reflecting the positive market perception of their growth potential. Pugliese et al. (2017) further demonstrated that companies with well-diversified technology portfolios experience better labor productivity, which also serves as a proxy for higher financial performance and valuation metrics.

In practice, technological innovation has proven to be a key driver of telecom firm success. T-Mobile US, for instance, has benefitted from aggressive 5G deployment and investments in broadband services, resulting in increased free cash flow and a competitive edge over peers like AT&T and Verizon (Barron's, 2025). Similarly, European telecoms are increasingly focusing on technological advancements to enhance financial performance. The

Financial Times (2024) reports that Vodafone's merger with Three UK is expected to spur 5G infrastructure investments, improving returns on capital and boosting operating efficiency.

For NOS, navigating the regulatory and macroeconomic landscapes is crucial to sustaining and improving financial metrics and operations. Proactively engaging with regulators, aligning strategic investments with macroeconomic trends, and focusing on technological innovation will position NOS favorably in the market. Investments in 5G infrastructure, AI-driven customer service solutions, and IoT applications are key to enhancing operational efficiency, customer satisfaction, and profitability.

Capital structure, defined as the mix of debt and equity used to finance a firm's operations, has long been a central topic in financial theory. The literature offers multiple perspectives on how companies choose between internal financing, debt issuance, or equity issuance. These decisions impact not only the cost of capital but also a firm's market valuation, making this a critical subject in equity research.

Modigliani and Miller (1958) posited in their seminal work that, in perfect capital markets, capital structure is irrelevant to a firm's value. According to their argument, a firm's value depends solely on its ability to generate cash flows, regardless of how those cash flows are financed. This proposition assumes no taxes, bankruptcy costs, or information asymmetries.

However, by introducing corporate taxes in their 1963 model, Modigliani and Miller showed that debt could increase firm value due to the tax shield on interest payments, as interest is tax-deductible. This creates an incentive for firms to use leverage up to a certain point to enhance value.

The trade-off theory, developed by Kraus and Litzenberger (1973), builds on the idea that firms aim for an optimal capital structure, where the benefits of debt, mainly tax shields, are balanced against the costs of financial distress, such as bankruptcy risk and agency costs. According to this view, firms continually adjust their capital structure to reach this optimal point.

Myers (1984) and Graham (2000) further developed this theory by incorporating agency costs—that is, conflicts of interest between managers and shareholders or creditors. Jensen and Meckling (1976) introduced the concept of agency costs of debt and equity, suggesting that excessive debt can lead to suboptimal decisions like underinvestment or asset substitution.

The pecking order theory, proposed by Myers and Majluf (1984), argues that due to information asymmetry between managers and external investors, firms prefer a financing hierarchy: internal funds first, then debt, and equity as a last resort. Issuing equity is seen as a negative signal to the market (suggesting potential overvaluation), which may reduce stock prices.

Shyam-Sunder and Myers (1999) found empirical evidence supporting this theory, noting that many firms adjust their debt levels passively in response to internal cash flow fluctuations rather than actively targeting an optimal capital structure.

The market timing theory, introduced by Baker and Wurgler (2002), proposes that firms make financing decisions based on market conditions, issuing equity when stock prices are high and opting for debt when valuations are low. This opportunistic behavior suggests that historical market valuations leave a lasting imprint on a firm's capital structure.

Ross (1977) developed a signaling model where capital structure serves as a signal to investors. Higher leverage is perceived as a sign of managerial confidence in future profitability

since debt involves fixed obligations. However, the signal only holds if managers face consequences for misleading investors.

Heinkel (1982) and Leland and Pyle (1977) further argued that financing decisions could be used to convey private information. These theories are especially relevant in industries with high uncertainty or innovation, such as telecommunications.

From an agency theory perspective, capital structure can act as a governance mechanism. Jensen (1986) proposed the free cash flow hypothesis, which states that debt reduces excess cash available to managers, thus disciplining them to use resources more efficiently. However, high debt also increases financial risk.

Stulz (1990) and Harris & Raviv (1991) explored how financing choices affect corporate control, especially in cases where conflicts exist between controlling and minority shareholders.

More recent work by Frank and Goyal (2009) argues that no single theory fully explains capital structure decisions. Instead, firms respond to a variety of contextual factors, including industry norms, country-specific regulations, economic conditions, and firm characteristics like size, profitability, asset tangibility, and growth opportunities.

In the telecommunications sector, for instance, high capital expenditures, relatively stable cash flows, and regulatory oversight make debt a viable option. However, the need for strategic flexibility and technological innovation often encourages firms to retain earnings and maintain manageable leverage levels (Habibniya et al., 2022).

The literature reveals diverse approaches to explaining capital structure decisions. Some theories suggest the existence of an optimal structure (trade-off theory), while others highlight opportunistic behavior (market timing) or preferences shaped by information asymmetry (pecking order). A growing body of research now adopts contingency-based and empirical approaches, recognizing the complexity and heterogeneity of real-world conditions.

For firms like NOS, operating in a regulated, capital-intensive industry under significant technological and ESG pressures, capital structure decisions must be informed not only by classical models but also by contextual and forward-looking factors. As such, equity valuation models must integrate traditional capital structure theory with sector-specific dynamics, regulatory influences, and strategic innovation imperatives.

The valuation of companies remains one of the most fundamental yet complex areas of financial theory, blending foundational principles with evolving market practices. Among the most widely accepted valuation frameworks, the Discounted Cash Flow (DCF) method stands as a cornerstone, grounded in the theory that the value of a firm is equal to the present value of its expected future cash flows (Damodaran, 2012). Originating from the work of Williams (1938) in his theory of investment value, the DCF model embodies the neoclassical paradigm of intrinsic valuation. It assumes rational agents, efficient markets, and the time value of money—a concept formalized by Fisher (1930).

Within the DCF framework, the Weighted Average Cost of Capital (WACC) plays a central role as the discount rate applied to unlevered free cash flows. The WACC reflects the firm's cost of financing from both debt and equity sources, proportionally weighted. The theoretical underpinnings of WACC were laid by Modigliani and Miller (1958, 1963) in their capital structure irrelevance and tax-adjusted theories, respectively. While their initial propositions assumed a frictionless world, later refinements acknowledged taxes and bankruptcy costs, leading to WACC being used to capture the trade-off between the tax shield of debt and financial distress costs (Kraus & Litzenberger, 1973).

The WACC is calculated as:

WACC = (E / (D + E)) * Re + (D / (D + E)) * Rd * (1 - T) (1)

Where Re is the cost of equity (often derived from the Capital Asset Pricing Model – CAPM, as developed by Sharpe (1964), Lintner (1965), and Mossin (1966)), Rd is the cost of debt, T is the corporate tax rate, and D and E are the market values of debt and equity.

The CAPM itself, although widely adopted, has been subject to significant critique and extension. Fama and French (1993, 2015) expanded the CAPM into multi-factor models, identifying size and value factors (and later profitability and investment factors) that better explain cross-sectional returns. These models have significant implications for estimating the cost of equity, a critical component of WACC.

In the context of firm valuation, the selection of an appropriate discount rate is pivotal. Brealey, Myers, and Allen (2019) emphasize the importance of aligning the discount rate with the risk characteristics of the cash flows being discounted. This is particularly relevant for firms like NOS, operating in sectors characterized by regulatory risks, capital intensity, and technological evolution.

Aside from DCF, relative valuation or multiples-based valuation provides an alternative, market-oriented perspective. This method compares the target firm's valuation ratios—such as EV/EBITDA, P/E, and EV/Sales—with those of comparable firms. The theoretical justification for this approach lies in the Law of One Price, which suggests that similar assets should trade at similar prices. However, Liu, Nissim, and Thomas (2002) demonstrate that the effectiveness of different multiples varies by industry and market conditions. Penman (2010) warns that multiples are often misused when applied without a proper understanding of the underlying financial structures and accounting policies.

Moreover, Cooper and Lambertides (2023) investigate the impact of the number of comparables and selection methodology on valuation accuracy, arguing that smaller, more homogenous peer groups often yield more precise estimates. This is crucial in sectors like telecommunications, where firms differ widely in technological adoption, regulatory environments, and market maturity.

More recent studies have explored adjusted present value (APV) models, particularly in cases where capital structure changes are expected. The APV method, as proposed by Myers (1974), separates the value of a firm into its unlevered value and the net effect of financing (e.g., tax shields). This is particularly useful in leveraged buyouts or when a firm undergoes recapitalization.

Another emerging framework is the real options approach, which considers the value of managerial flexibility under uncertainty. Developed by Myers (1977) and later expanded by Trigeorgis (1996), this method recognizes that traditional DCF undervalues firms with high strategic optionality—such as those investing in 5G infrastructure or AI capabilities, both relevant to NOS.

A further refinement in valuation practices involves incorporating Environmental, Social, and Governance (ESG) factors. According to Khorin and Krikunov (2021) and Friede, Busch, and Bassen (2015), ESG performance is increasingly priced into valuation multiples and risk premia. As investors integrate sustainability into their decision-making, firms like NOS, operating in energy-intensive sectors, face increasing scrutiny that can materially affect valuation outcomes.

In the practical implementation of valuation models, analysts must also contend with market imperfections. Imperfect information (Healy & Palepu, 2001), managerial bias (Biddle, Hilary, & Verdi, 2009), and macroeconomic volatility (Beccalli, 2023) all complicate the application of theoretically sound models. The selection of terminal value growth rates, for

instance, is a critical judgment area, as Damodaran (2006) notes, often driving the bulk of a DCF-derived valuation.

Lastly, within regulated industries like telecommunications, the regulatory environment itself can influence both expected cash flows and risk profiles. Alexander, Mayer, and Weeds (1996) show that regulatory uncertainty impacts firm valuation, particularly when policies affect pricing structures, investment incentives, or market entry conditions.

In conclusion, firm valuation is not merely a technical exercise but one deeply rooted in financial theory and empirical understanding. A robust valuation of a company like NOS requires the integration of DCF and WACC models with peer-based analyses, real option perspectives, and ESG considerations. This multidimensional approach, grounded in both classical theory and contemporary research, is essential to delivering a credible and defensible equity research assessment.

Going deeper into cash flows, the accurate forecasting of cash flows is central to any valuation exercise, particularly in the context of Discounted Cash Flow (DCF) models, where the future performance of the firm is projected and discounted to present value. According to Penman (2010), cash flow estimation lies at the heart of intrinsic valuation and is a key determinant of firm value. However, forecasting cash flows is inherently uncertain, making the incorporation and modeling of risk a fundamental aspect of valuation theory and practice.

Forecasting models generally rely on a blend of quantitative financial analysis and qualitative strategic assessment. The foundational model for future cash flows estimation, as proposed by Williams (1938), centers on the present value of expected future cash flows. This model was later refined by Gordon (1962) into the Gordon Growth Model, assuming a perpetuity with constant growth. However, such simplifications are rarely applicable to firms in dynamic industries like telecommunications, which exhibit varying growth stages and macroeconomic sensitivities.

Forecasting approaches have evolved to integrate a firm's financial statement dynamics. The "pro forma" method, extensively discussed by Higgins (1977), involves projecting financial statements based on revenue growth, margins, and reinvestment rates. Kaplan and Ruback (1995) demonstrated that careful construction of forecasted free cash flows, especially when based on historical financial drivers and industry benchmarks, can significantly enhance valuation accuracy. Similarly, Koller, Goedhart, and Wessels (2020) emphasize the importance of consistency between income statement, balance sheet, and cash flow forecasts to ensure coherence in the DCF framework.

Recent literature has emphasized the role of strategic forecasting, which incorporates competitive dynamics, technological evolution, and managerial decision-making. Roztocki and Weistroffer (2011) highlight how technological disruptions in sectors like telecommunications impact capital expenditures, operating efficiency, and thus the cash flows of firms. Strategic scenarios are thus increasingly embedded in forecasting models (Bradley, Desai, & Kim, 1988; Trigeorgis, 1996).

Uncertainty in forecasting necessitates robust risk modeling. Two primary forms of risk impact DCF analysis: systematic risk, which relates to market-wide factors, and unsystematic risk, which pertains to firm-specific uncertainty. The Capital Asset Pricing Model (CAPM), developed by Sharpe (1964) and Lintner (1965), incorporates systematic risk into the discount rate via the beta coefficient, adjusting expected returns based on market volatility. Although widely used, CAPM has been criticized for its simplifying assumptions, such as market efficiency and a single risk factor (Fama & French, 1993, 2015; Carhart, 1997).

To address these limitations, multifactor models like the Fama-French three- and five-factor models, and the Arbitrage Pricing Theory (APT) proposed by Ross (1976), offer more nuanced frameworks that incorporate factors such as size, value, profitability, and investment patterns. These models allow practitioners to adjust for multiple dimensions of risk that affect the firm's cost of equity and ultimately, the DCF discount rate.

From a cash flow perspective, however, risk is more than a discount rate adjustment—it also affects the shape and certainty of the cash flow estimates themselves. The use of probabilistic modeling, including Monte Carlo simulations, has gained popularity in recent years. These simulations, as outlined by Hertz (1964) and expanded upon by Emery, Finnerty, and Stowe (2007), model a range of possible future outcomes for key variables (e.g., revenue growth, costs, capex) and generate a distribution of potential firm values. This approach enhances robustness, especially for firms operating in uncertain or rapidly changing environments like NOS.

Real options theory (Myers, 1977; Trigeorgis, 1996) introduces another critical dimension to modeling risk in cash flows. Traditional DCF methods often undervalue managerial flexibility in the face of uncertainty. Real options incorporate this flexibility by valuing choices to expand, defer, or abandon projects as contingent responses to evolving market conditions. In capital-intensive industries with high uncertainty, such as telecommunications, the value of these options can be substantial (Brennan & Schwartz, 1985; Amram & Kulatilaka, 1999).

Another stream of research has identified behavioral factors that distort cash flow forecasts. Optimism bias, managerial overconfidence, and confirmation bias often lead to inflated projections and underestimated risks (Ben-David, Graham, & Harvey, 2013). Analysts and managers frequently base forecasts on past trends without sufficiently accounting for structural shifts or competitive threats (Barberis & Thaler, 2003; Kahneman & Tversky, 1979).

To mitigate these biases, researchers advocate for scenario analysis and sensitivity testing, which provide structured frameworks for exploring how valuation outcomes shift under different assumptions. As suggested by Damodaran (2012), a robust valuation does not rely on a single "best guess" forecast but rather examines a range of outcomes and attaches probabilities to them. These methods increase transparency and help decision-makers better assess risk-reward trade-offs.

Forecasting cash flows also requires accounting for macroeconomic variables such as inflation, interest rates, GDP growth, and foreign exchange volatility. Andersen (2023) emphasizes that such factors can affect both the numerator (cash flows) and denominator (discount rate) of valuation models. In the telecom industry, regulatory risk, technological change, and competitive dynamics further complicate forecasts. Industry-specific studies (Beccalli, 2023; Khorin & Krikunov, 2021) highlight how sector regulation, ESG compliance, and technological adoption (e.g., 5G, IoT, AI) influence investment efficiency and operating margins.

In line with the growing relevance of ESG factors in investment decision-making, recent models increasingly incorporate ESG risks into cash flow forecasts. Friede, Busch, and Bassen (2015) found strong empirical links between ESG performance and financial outcomes. In telecommunications, factors such as data privacy, energy efficiency, and regulatory compliance directly affect cash flows and risk profiles. Adjusting forecasts to reflect these considerations is now viewed as a best practice in equity research (Khorin & Krikunov, 2021; Boston Consulting Group, 2017).

The valuation of publicly traded firms, including telecommunications companies like NOS, cannot be fully understood without addressing foundational debates around market efficiency and investor behavior. Two predominant and contrasting theoretical frameworks underpin the literature in this area: the Efficient Market Hypothesis (EMH) and Behavioral Finance. Each offers critical perspectives on how information is processed in financial markets and its implications for equity valuation.

The Efficient Market Hypothesis, famously formalized by Eugene Fama (1970), posits that financial markets are "informationally efficient," meaning that asset prices fully and instantaneously reflect all available information. Fama distinguished between three forms of efficiency:

- Weak-form efficiency, where prices reflect all historical price information;
- Semi-strong form efficiency, where prices reflect all publicly available information;
- Strong-form efficiency, where prices reflect all information, public and private.

According to EMH, consistent abnormal returns are unattainable through either fundamental or technical analysis, as prices always incorporate relevant data. This has direct implications for valuation practices: in an efficient market, the market price of NOS's stock would be an unbiased estimate of its intrinsic value, rendering detailed equity research potentially redundant.

However, a significant body of empirical research has challenged the assumptions of EMH. For instance, Grossman and Stiglitz (1980) famously argued that if markets were perfectly efficient, there would be no incentive for investors to gather costly information—an inherent contradiction. Shleifer (2000) and De Bondt and Thaler (1985) documented numerous market anomalies and systematic mispricings, particularly overreaction and underreaction phenomena, which contradict EMH predictions.

In the context of NOS, a relatively mid-sized telecom firm in the European market, semi-strong efficiency may be more plausible than strong-form efficiency. The dissemination of firm-specific news—especially regarding ESG initiatives, regulatory changes, and technological investments—can cause short-term pricing inefficiencies that create opportunities for informed investors. Furthermore, the less extensive analyst coverage compared to larger firms may reduce the informational efficiency of NOS's stock, enabling equity researchers to uncover pricing gaps through rigorous fundamental analysis.

In response to the limitations of EMH, the field of Behavioral Finance emerged, integrating insights from psychology into economic and financial theory. Scholars such as Kahneman and Tversky (1979) introduced Prospect Theory, highlighting that investors do not act as perfectly rational agents but are subject to cognitive biases, including loss aversion, overconfidence, anchoring, and representativeness. These biases can cause persistent deviations from fundamental values.

Barberis and Thaler (2003) extended these ideas into financial markets, arguing that investor psychology contributes to asset mispricing and speculative bubbles. For example, during the dot-com boom and its subsequent collapse, telecom stocks—NOS's sector—were subject to widespread overvaluation due to herd behavior and optimism bias. Similar dynamics were observed in the European telecom market, where firms were valued based on future growth projections rather than cash flow fundamentals (Litan & Noll, 2004).

Shiller (2000) introduced the concept of "irrational exuberance" to explain these asset price bubbles, arguing that psychological factors, amplified by media and social contagion, can lead to market-wide mispricings. This aligns with Daniel, Hirshleifer, and Subrahmanyam (1998), who proposed that overconfidence and biased self-attribution lead to predictable

investor behavior patterns, such as underreaction to earnings announcements. In practical terms, these theories provide critical justification for the equity research on NOS. In an environment where irrational investor behavior may distort prices—especially in a relatively illiquid and regulated sector like telecommunications—fundamental analysis can uncover mispriced assets. A case in point is how investor sentiment towards ESG factors may lead to over- or under-pricing, despite inconsistent short-term financial performance (Friede, Busch, & Bassen, 2015).

An emerging compromise between EMH and behavioral theories is the Adaptive Market Hypothesis (AMH), introduced by Andrew Lo (2004). AMH proposes that market efficiency is not static but evolves based on environmental conditions and the learning behavior of market participants. This framework accepts that market participants are boundedly rational and can adapt through trial-and-error.

In the case of NOS, the AMH implies that market reactions to earnings, ESG disclosures, or regulatory news may be inconsistent and path-dependent, reflecting a mix of rational analysis and psychological biases. This perspective supports a more dynamic approach to equity valuation that considers not only fundamentals but also timing and market sentiment.

Given the increasing role of retail investors, algorithmic trading, and information asymmetry in European equity markets, NOS's stock may not always reflect its intrinsic value, especially in the short term. The behavioral approach supports the value of discretionary, analyst-driven valuations like this thesis, which integrate both quantitative (DCF, comparables, WACC) and qualitative factors (ESG, regulation, strategy).

Moreover, in a sector characterized by regulatory uncertainty and rapid technological disruption, investor reactions to news events may deviate from rational expectations, leading to temporary dislocations that valuation models can exploit. The implications are clear: while EMH provides a theoretical ceiling on market predictability, behavioral insights open opportunities for analysts to generate alpha through research.

4. Methodology

This Masters Final Work adopts a comprehensive valuation methodology aimed at estimating the fair value of NOS, S.G.P.S., S.A. Valuation is a critical process in financial analysis, used to determine the fair market value of a company or asset. In the telecommunications sector, valuation plays an especially pivotal role due to the industry's capital intensity, regulatory exposure, rapid technological change, and evolving investor expectations. Historically, the valuation of telecom companies has oscillated between market sentiment-driven multiples and intrinsic approaches grounded in fundamentals. After the collapse of the tech bubble in the early 2000s, a paradigm shift occurred in valuation methodology, as evidenced by Glaum and Friedrich (2006a,b), who observed an industry-wide transition toward Discounted Cash Flow (DCF) techniques over speculative market multiples. This shift was particularly significant in Europe, where telecom companies like NOS, S.G.P.S., S.A. operate in a regulated yet innovation-driven environment.

In this work, a multi-model valuation framework is adopted to provide a robust and comprehensive assessment of NOS's equity value. The central methodology relies on the Free Cash Flow to the Firm (FCFF) model, also Free Cash Flow to Equity (FCFE), Dividend Discount Model (DDM), and relative valuation using market multiples were applied to have a better understanding of the firm's stock price value. This approach addresses the limitations of any single valuation technique and aligns with the best practices documented in both academic literature and industry practice post-tech bubble, where analysts emphasized realism and financial prudence overgrowth exuberance (Litan and Noll, 2004; Shiller, 2000).

The cost of equity is central to any DCF-based valuation. It is calculated using the Capital Asset Pricing Model (CAPM), a widely accepted framework in finance that incorporates systematic risk. The formula is as follows:

$$Re = Rf + \beta (Rm - Rf) \qquad (2)$$

- Re = Cost of equity
- Rf = Risk-free rate
- Rm = Expected market return
- β = Beta, a measure of the firm's sensitivity to market movements

The beta used in the CAPM is estimated by regressing the company's historical stock returns against a relevant market index. However, considering Cooper and Lambertides (2023), careful peer selection is critical, as beta may be distorted in cross-country comparisons or during volatile periods. For NOS, sector-specific unlevered betas from comparable European telecom firms are utilized, then re-levered based on NOS's capital structure, as given by:

$$\beta L = \beta U (1 + (1 - T) * D/E) \qquad (3)$$

- βL = Levered beta
- βU = Unlevered beta
- T = Corporate tax rate
- D/E = Debt-to-equity ratio

Once the cost of equity is determined, the Weighted Average Cost of Capital (WACC) is computed using the formula (1).

The WACC is then used as the discount rate in the FCFF valuation model. Given the capital-intensive nature of telecom companies and their tendency to operate under significant leverage (Habibniya et al., 2022), calculating WACC with precision is essential. Misestimating the cost of capital can significantly distort the firm's terminal value—where most of the DCF valuation weight lies.

The FCFF method is structured as follows:

$$\text{Firm Value} = \Sigma \left(FCFF_t / (1 + WACC)^t\right) + TV_n / (1 + WACC)^n \quad (4)$$

$$TV_n = FCFF_{n+1} / (WACC - g)$$

- $FCFF_t$ = Free cash flow to the firm in year t
- g = Perpetual growth rate
- TV_n = Terminal value at the end of the forecast period

FCFF is derived from EBIT, adjusted for taxes, capital expenditures, depreciation, and working capital changes. Forecasts are generated from historical financial statements, market expectations, and company-specific developments, including NOS's planned CAPEX expansion and 5G infrastructure investments—strategic decisions that enhance future cash generation capacity (Ericsson, 2024; Financial Times, 2024).

To validate the DCF results, auxiliary models are used. Namely,

Free Cash Flow to Equity (FCFE):

$$FCFE = \text{Net Income} + \text{Depreciation} - \text{CapEx} - \Delta WC + \text{Net Borrowing} \quad (5)$$

This model directly reflects the cash flows available to shareholders, making it especially relevant in scenarios with changing capital structure.

Dividend Discount Model (DDM):

$$P = D1 / (Re - g) \quad (6)$$

By extrapolating dividends as a stable proportion of net income—grounded in historical payout behavior—while also considering strategic CAPEX requirements and financial sustainability.

In the case of NOS, this method aligns well with its historically stable dividend payout behavior. The company has demonstrated a commitment to consistent shareholder returns while maintaining a manageable leverage profile and continuing to invest in infrastructure (notably 5G and fiber optics). Consequently, the forecasted dividends were derived by

applying a smoothed payout ratio to projected net income figures, accounting for reinvestment needs as inferred from CAPEX projections and debt dynamics.

Although limited by NOS's dividend policy and payout predictability, DDM provides an alternative equity-centric perspective. It is also useful for scenario analysis under high-dividend assumptions.

Relative Valuation

Market multiples complement intrinsic valuation by benchmarking NOS against industry peers. Given the cautions raised by Cooper and Lambertides (2023) and Schøler (2020), careful peer selection is essential. Multiples such as EV/EBITDA, P/E, and EV/Sales are computed from a tailored peer group comprising European telecoms with similar revenue profiles, growth trajectories, and regulatory exposure. These comparables are normalized to account for cross-country disparities in accounting, taxation, and economic context.

Moreover, ESG performance has emerged as a critical factor in determining valuation multiples. According to Khorin and Krikunov (2021) and BCG (2017), firms with strong ESG practices tend to command valuation premiums, particularly in sectors like telecommunications where data privacy, energy efficiency, and digital inclusion are high-priority concerns. For NOS, which has made strides in green initiatives and digital responsibility, this ESG alignment may justify a higher multiple range.

Telecom valuations are also deeply affected by macroeconomic dynamics. As Andersen (2023) notes, rising interest rates reduce the present value of future cash flows, disproportionately affecting telecom firms due to their high infrastructure investment needs and long asset lives. Inflation, similarly, erodes purchasing power and can squeeze operating margins, particularly when pricing power is limited by regulatory constraints. On the other hand, strong GDP growth typically signals expanding telecom demand, greater customer affordability, and stronger earnings potential.

Beccalli (2023) further elaborates on how term spreads—a proxy for expected economic growth—affect valuation multiples. In periods of economic optimism, spreads widen, and investors anticipate higher future earnings, driving up valuation multiples. In downturns, contractions in the term spread signal caution, and telecom stocks may suffer from compressed multiples. For NOS, actively monitoring these macroeconomic indicators is essential for strategic planning, particularly when making decisions about capital expenditures, pricing strategies, or debt issuance.

Capital structure decisions also intersect with macroeconomic conditions. Habibniya et al. (2022) reveal a strong inverse relationship between leverage and profitability in the telecom sector, especially during periods of economic stress. High debt burdens increase vulnerability to interest rate shocks and reduce financial flexibility. Therefore, maintaining an optimal debt-to-equity ratio is critical for NOS in preserving profitability and valuation resilience.

The regulatory environment plays a central role in telecom valuation. The sector is often subject to price controls, licensing requirements, and competition mandates, all of which directly impact firm performance and investment returns. Glaum and Friedrich (2006b) highlight that analysts consistently incorporate regulatory outlooks into their valuation assessments, recognizing that regulatory shifts can materially affect cash flows and growth opportunities.

Empirical studies support this. Bastianin et al. (2018) show that liberalization and privatization reforms often enhance operational efficiency and firm valuations. Conversely, Hernández Trillo et al. (2024) found that forced divestitures and monopoly breakups can lead

to declines in market capitalization, reflecting the costs of lost economies of scale and competitive disadvantage.

In the European context, regulatory trends appear to be shifting toward favoring market consolidation and investment incentives. The approval of the Vodafone–Three UK merger by the UK's Competition and Markets Authority (CMA), without significant divestment conditions, signals a more supportive regulatory climate for consolidation (Financial Times, 2024). This trend is consistent with the EU's broader goals of promoting 5G infrastructure and digital competitiveness. For NOS, operating in this evolving regulatory framework could unlock new opportunities for expansion, cost optimization, and capital efficiency.

Finally, technological advancement represents a critical value driver in the telecom industry. Innovations such as 5G, AI, and IoT offer new revenue streams, improved cost structures, and enhanced customer experiences. Ericsson (2024) highlights the transformative potential of IoT in sectors ranging from logistics to healthcare, enabling telecom companies to monetize connectivity beyond traditional voice and data.

Similarly, AI is being increasingly used for network optimization, customer service automation, and predictive maintenance. According to the Boston Consulting Group (2025), firms that implement AI strategies report improved operational performance, enhanced decision-making, and stronger customer engagement—all of which contribute to higher profitability and market valuation.

Academic research supports this link between innovation and financial performance. Joshi and Chauhan (2024) show that firms with higher R&D intensity outperform peers in valuation metrics, while Pugliese et al. (2017) connect technology diversification to labor productivity and valuation enhancement. For NOS, continued investment in 5G, digital platforms, and AI-based services represents a strategic imperative, not merely for growth but for valuation sustainability.

T-Mobile US's success with 5G deployment and broadband investment exemplifies how technology can shift competitive dynamics and drive free cash flow generation (Barron's, 2025). NOS can leverage similar strategies, particularly as it navigates competitive pressures from low-cost entrants and aligns with EU digital infrastructure goals.

The financial and market data employed throughout this valuation were obtained from a combination of reputable and industry-standard sources to ensure accuracy, relevance, and reliability. Key inputs—including historical financials, analyst forecasts, peer multiples, and macroeconomic indicators—were extracted from Bloomberg and Refinitiv, which offer robust and comprehensive data on public companies and industry benchmarks. In addition, NOS's investor relations materials, including annual reports, quarterly earnings presentations, and strategic updates, provided essential insights into the company's operational outlook, CAPEX plans, and dividend policy. Complementary information and context—particularly regarding sector trends, technological developments, and regulatory shifts—were drawn from industry publications, such as Financial Times, Ericsson industry outlooks, Boston Consulting Group (BCG) reports, and relevant academic literature. This multi-source approach enabled a well-rounded and empirically grounded valuation framework.

5. Project for the Company

5.1 Research Snapshot

NOS faces mounting competitive pressures following the recent aggressive entry of a telecommunications (telecom) services provider DIGI into the Portuguese telecom market. While the company benefits from industry-leading profitability metrics, its growth prospects remain constrained in a saturated market with the rising price competition. Nonetheless, the company keeps a pivotal role in the Portuguese telecom market due to its strong operating profitability. Even when considering the shrinking profitability metrics, NOS - Table 1 - maintains comfortably above peers' average margins. Despite competitive headwinds, NOS retains a strong profitability profile. However, the entry of DIGI increases uncertainty, justifying a hold rating as the company navigates pricing pressures and market share risks.

Table 1 – *Company Details*

Market Cap (M€)	1.798
Free Float	31,56%
# Shares Outstanding (#M)	515
Industry	Telecom Services
52w High (€)	3,72
52w Low (€)	3,13
Ticker	NOS.LS

Source: *Yahoo Finance*

Profitability remains a key strength for the company, as evidenced by its gross profit margins. The gross profit margin is expected to hover around 70% before settling at 68,7% in 2030F - Table 2. Though the competitive pressures from DIGI and the previous competitors are expected to take their toll on NOS's margins EBITDA and EBIT margins will outperform peers' margins evolution. EBITDA margins, once at 49,4% in 2022 is expected to steadily decline to 40,4% by 2030F reflecting both price competition and higher operational costs. Costs to attract customers will also play a role in this, as the CAC (Customer Attraction Cost) will also increase. As the battle for market share will intensify, EBIT margins, similarly to EBIT are expected to decline from 17,8% in 2020 to 15,9% in 2030F. The decrease in both margins mentioned above is the reflection of the company's struggle to maintain pricing power and market share in the attempt to keep low churn levels and high ARPU levels. Net profit margins, at 14,8% in 2022 are anticipated to drop to 9,3% by 2030F. The evolution of this metric signals the growing cost burden and the above-mentioned potential pricing adjustments needed to retain customers in a saturated market.

By acquiring a Portuguese telecom company NOWO and building its own 5G and fibber network, DIGI has positioned itself rapidly as a low-price strategy player in the market by intensifying price competition and bringing to the table prices below the ones practiced by the existing market players. Furthermore, DIGI's expansion takes its toll on the existing players as the customers seeking lower-cost alternatives might migrate toward the new entrant.

Given the historical behavior of NOS towards shareholder remuneration, it is expected that in future years it will still maintain high payout ratios. In some cases, in the past the payout ratio has exceeded 100% with the company being required to raise money from debt issuances to afford the pretended dividends distribution. However, with declining net profit

margins (from 14.8% in 2022 to an expected 9.3% in 2030F) and a lower return on equity (ROE) trajectory (from 21.3% in 2022 to 16.1% in 2030F) - Table 2, there could be pressure on dividend sustainability in the long term. While the company is expected to continue distributing dividends, payout ratios may need to be adjusted to accommodate competitive pressures and potential capital expenditures needed to defend market share. Investors should closely monitor NOS's ability to balance dividends with reinvestment needs as the industry landscape evolves, especially from 2030 onwards. These concerns were incorporated in the Dividend Discount Model (DDM) – Check DDM Valuation in Valuation Chapter for further details.

Table 2 – *Key Financial Ratios*

Liquidity Ratios	2022	2024E	2027F	2030F
Current Ratio	52,5%	72,4%	69,7%	69,6%
Profitability Ratios	**2022**	**2024E**	**2027F**	**2030F**
Gross Profit Margin	69,2%	69,4%	70,4%	68,7%
EBITDA Margin	49,4%	44,0%	41,9%	40,4%
EBIT Margin	17,8%	15,7%	16,5%	15,9%
Net Profit Margin	14,8%	9,1%	9,9%	9,3%
ROA	6,5%	4,2%	4,7%	4,2%
ROIC	8,8%	7,4%	8,1%	7,2%
ROCE	11,1%	9,7%	10,7%	9,4%
ROE	21,3%	16,2%	18,3%	16,1%

Source: *NOS, Author´s analysis*

Using a Discounted Cash Flow (DCF) model, a 3,74€ price target was derived for 2025YE, implying a 10% upside from the current share price of 3,40€ - Figure 5 .The DCF valuation reflects NOS's strong profitability but also accounts for the competitive risks posed by DIGI's market entry. While NOS remains an attractive player due to its high margins and strong infrastructure, the lack of significant growth catalysts and increasing competitive threats leads to a HOLD recommendation with Medium Risk. Investors should monitor DIGI's market expansion and NOS's ability to defend its market share in the coming years.

Figure 5. Share Price Chart (€), 2017-2025

Source: *Yahoo Finance API, Author´s Analysis*

5.2 Management & ESG

ESG (Environmental, Social, and Governance) has become a critical factor in assessing corporate responsibility and long-term value. For NOS, sustainability is not just a regulatory necessity but also a strategic tool to manage risks and capitalize on emerging opportunities.

According to Refinitiv's analysis of NOS's ESG performance, the company has shown a gradual improvement, with its score rising from 61,16 in 2022 to 64,45 in 2023, reflecting progress across all key categories. The numerical scale is from 0 to 100, where 100 is the best result. The 64,45 score corresponds to an ESG score of B - Table *3*. The alphabetical scale ranges from D- to A+, where A+ is the best score and is obtained by converting the numerical scale. Over the last five years, the company has maintained an average ESG score of 61,28, with the Environmental pillar performing the strongest and Governance remaining its weakest area. While these improvements are encouraging, inconsistencies in areas such as resource management and shareholder relations highlight the need for a more robust and transparent approach.

Table 3 – ESG Scores

Pillar	FY2023
ESG Combined Score	B
ESG Score	B
Environmental Score	A-
Scoial Score	B+
Governance Score	C
ESG Controversies Score	A+

Source: *Refinitiv*

To properly assess NOS's performance in ESG concerns, an analysis was made between NOS and 4 of its peers, selected on the basis that they belong to the telecom industry and have similar market capitalization. The ESG score of the 5 companies varies between 9,18 and 68,78, with NOS coming in second with a score of 64,45, as mentioned above. Regarding the environmental pillar, NOS has the highest score (77,51), while the peer with the second-best record have a score of 74,30 and the worst record among the peers is 0. Regarding the social pillar, NOS has the second highest record behind a peer with a score of 81.57, while NOS has a score of 70,87, much higher than the other peers, and the one with the worst record has a score of 7,27. Finally, regarding the governance pillar, NOS shows that it has a lot of space for improvement, and although it has the third best score of 41,56 out of the five peers, it is below average and a long way from the peer with the best score (81,93) - Appendix 10.

To address sustainability challenges, NOS has structured its 2021-2025 Sustainability Strategy around four key pillars: "Planet Advocacy," "Digital Advancement," "Employee Enrichment," and "Ethical Management." These pillars align sustainability risks and opportunities with the company's business objectives, guiding efforts to enhance its environmental impact, social responsibility, and corporate governance practices.

Despite a positive trajectory, NOS must continue refining its ESG strategy to strengthen its governance framework and ensure long-term resilience in an increasingly sustainability-driven market.

5.2.1 Environment

NOS aims to minimize its environmental impact while helping its customers do the same. To achieve this, the company focuses on four key areas: Carbon Neutrality, Climate Change Adaptation, Circular Economy, and Managing other Environmental Impacts.

The Environmental Pillar Score is 77,51, corresponding to a score of A-.

NOS has set a goal to achieve carbon neutrality by 2040, with ambitious targets to reduce energy consumption and emissions. The company already uses certified renewable electricity and has secured a long-term agreement with EDP for 62 GWh of clean energy per year. By 2023, 40% of its energy needs were covered by renewable sources, including the operation of its 5G network.

Improving energy efficiency is a priority. Since 2015, NOS has invested in network modernization, advanced data center technologies, and sustainable cooling and lighting systems, leading to an 80% reduction in energy consumption per unit of data traffic. The company is also transitioning to a low-carbon fleet and compensating for unavoidable emissions through a national reforestation project.

NOS is reinforcing the resilience of its infrastructure to withstand climate-related risks. It regularly tests risk scenarios and enhances contingency plans in cooperation with the Portuguese Institute for Sea and Atmosphere (IPMA). Additionally, the company evaluates climate risks and opportunities through the Climate Change Carbon Disclosure Program (CDP), aligned with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

In a fast-evolving technology sector where electronic waste is a growing concern, NOS is committed to extending the lifespan of its products. It was the first Telecom operator in Portugal to offer refurbished smartphones with a warranty, reducing electronic waste (e-waste). Its latest TV boxes and self-installation kits are designed with less plastic and more sustainable materials to promote reuse.

NOS also prioritizes equipment recovery and reuse, minimizing raw material consumption. The company is digitalizing processes—such as electronic invoicing and eSIM technology—to cut down on paper and plastic waste.

Beyond reducing carbon emissions and waste, NOS takes steps to manage its broader environmental footprint. The company operates under an ISO 14001-certified Environmental Management System, covering most of its operations. It monitors electromagnetic fields to ensure compliance with international safety standards and promotes water conservation, using rainwater collection systems in its Lisbon headquarters for irrigation and fire prevention.

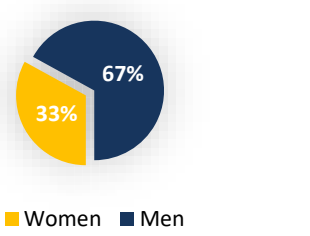
5.2.2 Social

NOS demonstrates a strong commitment to social responsibility, achieving a B+ rating with a score of 70,87 in 2023. The company has made notable progress in workforce well-being and community engagement, with its community score rising from 74.88 in 2022 to 94.47 in 2023. This reflects NOS's active role in social initiatives, digital inclusion, and support programs that positively impact society. Additionally, the company maintains high standards in product responsibility, scoring 84,83 in 2023, ensuring that its services prioritize customer satisfaction, data privacy, and ethical product practices.

However, there are areas that require improvement. Despite 41% of NOS employees being women, only 33% hold director positions and are in management roles, highlighting the need for further efforts to promote gender equality in leadership. Additionally, the human rights score declined to 34.20 in 2023, signaling a need for stronger policies on fair labor

practices, diversity, and inclusion - Figure 6. Moreover, pressures to maintain margins might lead to layoffs and headcount reductions.

Figure 6. Gender distribution of management positions



Source: *NOS*

5.2.3 Management and Corporate Governance

NOS's corporate governance structure is built on a unified Board of Directors, which oversees strategic decision-making and ensures compliance with ethical and regulatory standards. The board consists of seven executive and eight non-executive directors, maintaining a balance between leadership and independent oversight. With 33% female representation, NOS is making strides in diversity but still has room for improvement. Chairman Ângelo Paupério, a seasoned executive, has been pivotal in stabilizing the company following past governance challenges, particularly in the aftermath of the Isabel dos Santos controversy. CEO Miguel Almeida, in office since NOS's inception, has driven strategic initiatives like 5G deployment and digital expansion, solidifying NOS's position in the Telecom sector. Executive compensation includes fixed and performance-based incentives, ensuring alignment with both individual and corporate performance, though increasing remuneration levels in recent years have raised concerns regarding governance practices.

The Isabel dos Santos controversy had significant implications for NOS's governance. Following the Luanda Leaks scandal in 2020, several board members linked to dos Santos resigned, and in 2023, she was convicted of financial misconduct. This raised corporate governance and shareholder stability concerns, as her indirect stake in NOS via ZOPT SGPS led to regulatory scrutiny and reputational damage. While NOS has taken measures to distance itself from these controversies by reinforcing transparency and risk management, the situation underscored the challenges of concentrated ownership. Major shareholders include SONAECOM SGPS, S.A (37.37%), ZOPT SGPS, S.A (26,07%) and Mubadala Investment Company, PJSC (5%), with 31,56% of shares publicly traded. While NOS follows best practices in transparency, minority shareholder rights and governance vigilance remain key areas for ongoing improvement to ensure long-term stability and investor confidence.

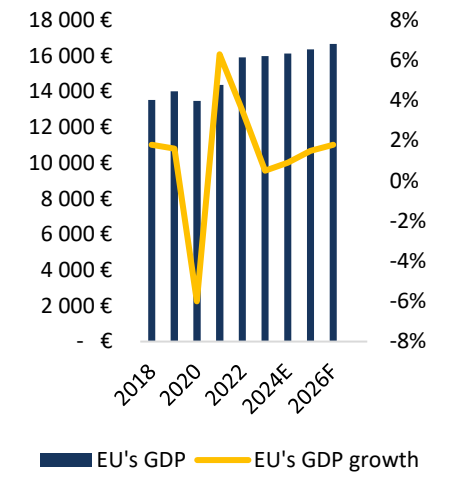
5.3 Industry Overview & Competitive Positioning

5.3.1 Macroeconomic Overview

The macroeconomic environment in Europe and Portugal as we move into 2025 shows a cautious but steady recovery, influenced by inflationary pressures, geopolitical concerns, and the pandemic's aftereffects. Banco de Portugal projects that Portugal's GDP will expand by 2,2% in 2025 after having grown by 1,7% in 2024. The next few years are expected to see a minor slowdown in this trend, with growth estimates for 2026 and 2027 being 2,2% and 1.7%,

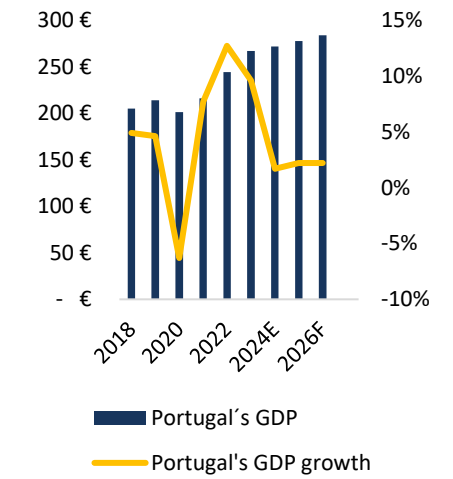
respectively - Figure 7.In contrast, the European Union is expected to grow more moderately, with GDP expected to rise 1,5% in 2025 following a 0,9% expansion in 2024, and a forecast of 1,8% growth in 2026, the European Union's growth is anticipated to stay modest through the medium term – Figure 8

Figure 8. European GDP (€billions)



Source: *NOS*

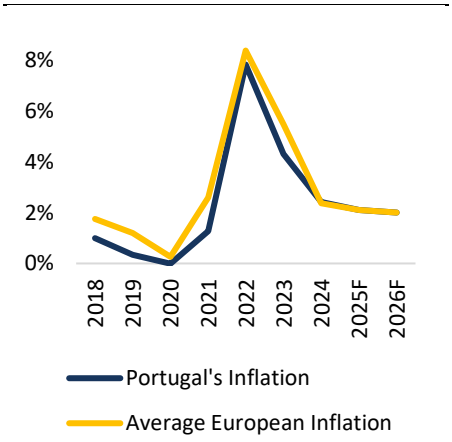
Figure 7. Portuguese GDP (€billions)



Source: *NOS*

According to the Harmonized Index of Consumer Prices (HICP), Portugal's inflation rate is expected to drop to 2,1% in 2025 after hitting 2,42% in 2024. In 2026 and 2027, the inflation rate is anticipated to level off at about 2,0%. Nonetheless, Portugal's annual inflation rate as of December 2024 was 3,1%, higher above the Eurozone average of 2,4%, underscoring ongoing inflationary pressures in the country's economy. Notably, inflation in Portugal saw a sharp increase in 2022, reaching 7,83%, a significant jump compared to 1,27% in 2021. This surge was largely driven by the geopolitical tensions arising from the Russia-Ukraine military conflict, which disrupted global supply chains, led to soaring energy prices, and intensified food supply constraints, all contributing to a sharp rise in consumer prices. With a minor drop to 2,0% in 2026 and 2027, average inflation in Europe is predicted to reduce to 2,1% in 2025 from 2,4% in 2024 – Figure 9.

Figure 9. Inflation



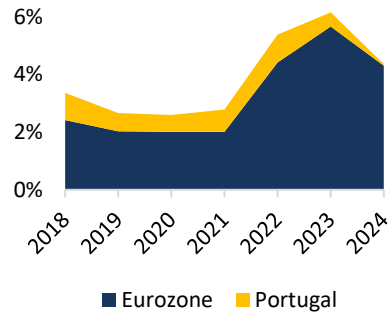
Source: *BdP (Banco de Portugal)*

The aging demographic trend in Portugal continues to accelerate, presenting significant socio-economic challenges in the coming years. In 2023, the aging index reached

188,1 elderly individuals per 100 young people, up from 184,4 in 2022 and from 181,3 in 2021, highlighting the country's rapidly shifting population structure. The median age rose to 47,1 years, an increase from 46,9 years in 2022, making Portugal one of the fastest-aging nations in the European Union. Over the past decade, the country has experienced an average age increase of 4,4 years, the sharpest rise among EU member states. Currently, more than 2,5 million people in Portugal are aged 65 or older, with the elderly population growing at an annual rate of over 2% since 2019. This demographic shift has direct implications for economic growth, labor market dynamics, and public finances, particularly in sectors like healthcare, pensions, and social security, further influencing the overall macroeconomic landscape.

Portugal's economy is recovering, but some challenges remain. GDP is expected to grow by 2,2% in 2025, which is faster than the Eurozone average, though at a steady and moderate pace. Inflation, which spiked to 7,8% in 2022 due to the energy crisis and supply chain disruptions, is now stabilizing, with a forecast of 2,1% in 2025. At the same time, interest rates, which rose sharply from 2022 onward to control inflation, are finally coming down—helping to boost consumer spending and investment. For industries like telecom that rely on heavy infrastructure investments, financing conditions are becoming more attractive again after a difficult period in 2022 and 2023, when borrowing costs soared – Figure 10. However, despite this improvement, businesses still need to be cautious. Global geopolitical instability remains a key risk, as it can impact financial markets, raw material costs, and investor confidence.

Figure 10. Interest Rate on Loans for Non-Financial Companies



Source: *BdP (Banco de Portugal)*

5.3.2 Technological Integration in the Economy

Portugal is working to align its national digital transformation strategy with the European Union's Digital Compass 2030, which focuses on three key areas: ensuring universal connectivity by expanding high-speed internet access across both urban and rural regions, enhancing digital skills to enable a more tech-savvy workforce, and incorporating sustainability into digital infrastructure projects. These goals create valuable opportunities for telecom operators to engage in public-private partnerships with the government. Companies like NOS, along with its competitors, are in a strong position to play a significant role by

providing 5G solutions for smart cities, building sustainable Information and Communication Technology (ICT) infrastructure, and promoting initiatives aimed at increasing digital literacy.

However, it is important to consider several broader market factors. One of the main risks is the potential impact of geopolitical tensions, which could disrupt global supply chains and delay crucial infrastructure projects due to the industry's reliance on international equipment suppliers.

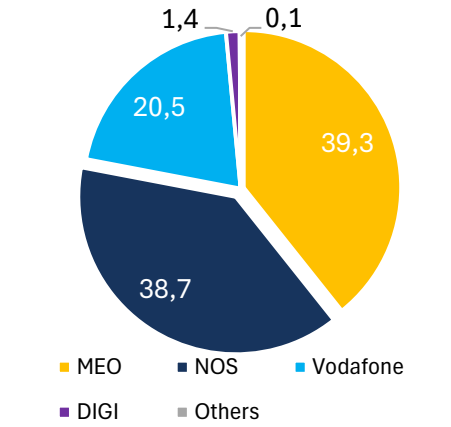
In addition, the competitive landscape is evolving rapidly, posing further challenges. While Portugal's macroeconomic stability creates a favorable investment climate, the arrival of low-cost competitors such as DIGI is placing pressure on pricing structures and potentially narrowing margins across the industry. As a result, telecom operators must carefully manage their investments in infrastructure while balancing pricing strategies to maintain profitability amid these competitive and market dynamics.

5.3.3 Portuguese Telecom Industry and Market Overview

The Portuguese Telecom market follows global trends but is also shaped by unique local factors. It is a mature market characterized by widespread service adoption, strong competition among key players, and shifting consumer expectations. Despite its strengths, the industry faces challenges that require constant adaptation and strategic focus.

The market is largely dominated by three main operators: MEO, NOS, and Vodafone Portugal - Figure 11. MEO, owned by Altice Portugal, holds the leading position, benefiting from an extensive infrastructure that ensures a strong presence across both urban and rural areas. NOS, on the other hand, has gained recognition for its innovative approach, particularly in bundled services and early advancements in 5G technology. By offering packages like quad-play and quintuple-play, NOS has captured a significant portion of the market. Vodafone Portugal, the third major player, emphasizes mobile services and international connectivity. While it competes in the fixed broadband segment, its network is not as expansive as those of MEO and NOS. The competitive landscape has been further challenged by the entry of low-cost providers like Digi, which threaten to disrupt pricing strategies and tighten profit margins.

Figure 11. Multiple Play Revenue Share (%)



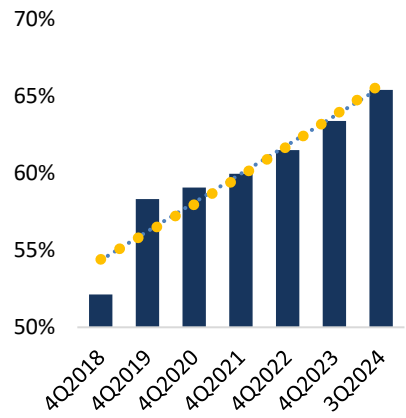
Source: *ANACOM*

Portugal has established itself as a leader in fiber-to-the-home (FTTH) technology, with over 92.5% of households having access to high-speed broadband. This achievement reflects years of significant investment by Telecom operators. The rollout of 5G networks has also

been a priority, with coverage extending beyond urban areas to more remote regions. This expansion has enabled innovations such as smart cities, Internet of Things (IoT) applications, and enhanced remote work capabilities. However, maintaining high-quality service in rural areas remains a challenge due to the higher costs associated with low-density populations. Looking ahead, the industry must also prepare for the next wave of technological advancements, including the development of 6G and new virtualization techniques, which will require substantial research and development efforts.

Consumer preferences in Portugal have shifted significantly toward bundled services. Packages like quad-play and quintuple-play have become highly popular - Figure 12 - due to their convenience and cost-effectiveness. In response, operators have diversified their offerings to include additional features such as streaming platforms integrated with pay-TV services, smart home solutions, and gaming packages aimed at younger audiences. While these strategies help retain customers and reduce churn, the challenge lies in standing out in a market that is already saturated with similar offerings.

Figure 12. 4P&5P / Multiple Play Ratio



Source: *NOS*

The revenue structure of the Telecom industry in Portugal is also evolving. Traditional voice services are steadily declining as more consumers turn to mobile data and internet-based communication platforms. Data usage, driven by trends like video streaming, IoT adoption, and remote work, has become a key source of revenue. At the same time, partnerships with content providers and investments in proprietary platforms, such as NOS Play, are contributing to new income streams. To sustain growth, operators must continue expanding their high-speed networks, forge partnerships with app and content developers, and explore enterprise solutions like cloud computing and cybersecurity services.

Despite its strong foundations, the Portuguese Telecom industry faces several challenges. Market saturation in services like broadband and pay-TV limits opportunities for growth in traditional areas, pushing operators to innovate in emerging sectors such as IoT and cloud services. Pricing pressures are another major concern, particularly with the entry of low-cost competitors like DIGI, which has introduced aggressive pricing models. Furthermore, rural connectivity remains an issue, as extending services to underserved regions is costly and operationally complex. The industry also operates under a strict regulatory framework that,

while promoting competition and consumer protection, can limit strategic flexibility for operators.

At the European level, the Telecom sector operates under policies designed to encourage competition and digital innovation. However, these operators face growing pressure to remain profitable amidst declining revenues from traditional services and the constant need for investment in new technologies. One notable trend is the vertical separation, or decoupling, of Telecom value chains, which have become increasingly common. While this approach allows companies to adopt more efficient business models and unlock value, it also exposes them to greater competition, including non-European players.

Portugal has demonstrated remarkable adoption of advanced telecom technology, with residential penetration of bundled services reaching 93.5% of households by the end of 2023, up 1,9 percentage points from 2022. The number of bundled service subscribers has grown steadily, rising from 3,2 million in 2018 to 4,7 million in 2024.

Mobile service penetration rate has also seen a strong increase, climbing from 161,9% in 2015 to 178,4% in 2024. Meanwhile, fixed-line penetration has grown from 45,2% in 2015 to 51,9% in 2024, showing that while the segment remains stable, it is gradually expanding. Notably, mobile broadband penetration has surged, increasing from 53,3% in 2015 to 101,7% in 2024, reflecting the increasing reliance on mobile connectivity. These figures highlight the market's maturity but also underscore the limited room for further growth in traditional segments.

5.3.4 Supply Drivers

The supply side of the Telecom industry is shaped by infrastructure investments, technological advancements, and regulatory policies. In Portugal, these factors play a key role in how Telecom operators expand their networks, adopt new technologies, and navigate industry regulations. Ultimately, these elements influence their ability to meet consumer, and business demands while staying competitive in a fast-evolving market.

Portuguese Telecom operators have invested billions in expanding Fiber-to-the-Home (FTTH) and 5G networks, creating a strong digital backbone to support emerging technologies like Internet of Things (IoT) devices, smart cities, and advanced digital services. Portugal ranks among Europe's leaders in broadband penetration, with 5.4 million households now connected to FTTH. This extensive fiber network provides the foundation for ultra-fast, reliable internet, essential for modern services such as remote work, high-definition streaming, and cloud computing.

Meanwhile, investments in 5G have been a game-changer for connectivity, allowing for higher speeds, lower latency, and greater network capacity. Coverage now extends beyond major cities into rural areas, helping to bridge the digital divide and positioning Portugal as a testbed for next-generation applications such as smart infrastructure, Artificial Intelligence (AI)-powered automation, and industrial IoT solutions.

However, sustained investment will be necessary to optimize network performance and unlock the full potential of 5G-enabled services. As demand for data continues to rise, operators like NOS must stay ahead by investing in next-generation technologies. The shift toward 6G, edge computing, and quantum communication will define the future of telecom infrastructure. While these advancements are still in early stages, early adoption and strategic R&D efforts will be key differentiators in long-term competitiveness.

The allocation and management of radio spectrum in Portugal are primarily governed by ANACOM, the national regulatory authority. ANACOM's role extends beyond simply

managing spectrum auctions; it is instrumental in creating a competitive and sustainable telecom market. Through the strategic allocation of spectrum, ANACOM ensures that telecom operators have fair access to the frequencies they need to offer high-quality services.

Recent spectrum auctions, particularly for 5G, have underscored the growing competition among telecom companies, pushing them to invest in advanced infrastructure to meet rising consumer demands. While the high costs associated with spectrum licenses can strain financial resources, ANACOM's regulatory framework aims to balance competition and profitability by setting clear performance metrics and objectives for operators.

Furthermore, ANACOM encourages operators to invest in next-generation technologies, such as 5G and beyond, by incentivizing innovation and long-term industry investment. By fostering a regulatory environment that supports infrastructure development, ANACOM not only promotes competition but also ensures that Portugal remains a leader in digital connectivity.

Through these strategic initiatives, ANACOM plays a crucial role in shaping the future of telecom infrastructure, driving both industry growth, fair competition, and technological advancement.

Technological advancements are driving a significant transformation in the telecom industry, enabling operators to provide smarter, more efficient, and more customer-centric services.

Artificial Intelligence (AI) is revolutionizing network operations, from optimizing network performance to enhancing customer service through AI-driven chatbots. AI also plays a crucial role in predictive analytics, allowing operators to detect and resolve issues proactively. Machine learning algorithms help predict network congestion, automate routine tasks, and provide more personalized experiences for customers, ultimately improving both operational efficiency and customer satisfaction.

Another game-changing technology is Edge Computing, which brings data processing closer to the end-user. This reduces latency and enables real-time applications, which is particularly important for high-bandwidth, low-latency services. With edge computing, telecom companies can support emerging applications like autonomous vehicles, industrial IoT, and smart city infrastructure, all of which rely on immediate data processing. The European edge computing market was valued at €3,29 billion in 2023 and is projected to grow at a CAGR of 35,4% between 2024 and 2030, reaching nearly €30 billion by the end of the decade. This rapid expansion underscores the increasing demand for low-latency, high-performance computing solutions across industries.

The adoption of Cloud Solutions has been another crucial development for telecom operators. Cloud platforms provide scalability, flexibility, and cost-efficiency, allowing operators to expand their service offerings without the need for massive upfront investments in physical infrastructure. Cloud computing also facilitates advanced analytics and enhances customer service by ensuring that telecom companies can deliver seamless services even during periods of high demand. In Portugal, the cloud market grew by 20,3% in 2023, reaching €640 million, and is projected to hit €1 billion by 2026, reflecting sustained momentum in cloud adoption.

As digital services become increasingly integral to daily life, Cybersecurity Innovations have also become paramount. With the rise of cyber threats, investing in advanced cybersecurity technologies such as encryption, firewall upgrades, and AI-driven threat detection has become essential for safeguarding customer data and complying with stringent regulatory standards. These innovations ensure that telecom operators can maintain trust

with their customers and prevent service disruptions. In Portugal, the cybersecurity solutions market is expected to grow by more than 15% in 2024, reaching €250 million.

Looking towards the future, the telecom industry is already researching and developing 6G, a next-generation technology that promises even faster speeds, ultra-low latency, and significantly increased capacity. While 6G is still in its early stages, it is expected to unlock entirely new use cases, such as advanced AI applications, holographic communication, and telemedicine, further advancing the potential of telecom. As the industry progresses towards this ambitious goal, early investments in 6G research and development will be critical for operators to maintain their competitive edge in the coming years.

5.3.5 Demand Drivers

The demand for telecom services in Portugal is shaped by a mix of evolving digital consumption, business requirements, emerging segments, and broader socioeconomic trends. As these factors continue to evolve, they drive growth in the sector, compelling operators like NOS to adjust their strategies and offerings to meet the diverse and dynamic needs of both individuals and businesses.

The rise of digital consumption is a key driver of demand for telecom services in Portugal. The shift toward digital platforms, enhanced by improved internet speeds and increased data accessibility, is fundamentally transforming consumer habits. Streaming services like Netflix and Amazon Prime have become central to daily entertainment, driving significant increases in data consumption. Telecom providers are responding to this surge by bundling streaming services with their internet and pay-TV offerings, thereby enhancing the overall customer value proposition.

Remote work, accelerated by the COVID-19 pandemic, has further fueled demand for high-speed, reliable broadband. As hybrid work environments become the norm, telecom operators are introducing tailored solutions such as unlimited data plans and business-grade home internet packages designed to meet the needs of remote workers. This demand for robust connectivity is expected to remain high, given the ongoing trend toward flexible working arrangements.

In addition, the expansion of e-commerce is placing further strain on networks as both consumers and businesses require stable internet connections for online shopping and digital transactions. The increased reliance on digital services means that telecom providers must continuously invest in infrastructure to ensure they can meet the growing demands of both individual consumers and businesses.

Despite the growth in digital consumption, challenges such as network congestion and the need to provide affordable high-speed internet in underserved regions remain important concerns. These challenges require continuous investment and innovation to ensure that telecom providers can maintain the quality of service while meeting the rising demand for data.

In Portugal, businesses are increasingly adopting digital communication and technological solutions to enhance operational efficiency and remain competitive in an ever-evolving market. This shift creates growing demand for advanced, tailored telecom services that meet the specific needs of enterprises.

One of the most significant trends driving demand is the widespread adoption of cloud services. As companies continue to move their operations to the cloud, they require reliable, high-performance networks that ensure seamless access to data, applications, and services. Telecom operators can capitalize on this demand by providing secure, scalable cloud

infrastructure solutions that support businesses' digital transformation efforts. The growing reliance on cloud-based platforms for storage, collaboration, and real-time data analytics presents an opportunity for telecom companies to offer specialized enterprise solutions.

Additionally, the integration of unified communications platforms is becoming essential for modern businesses. Companies are investing in solutions that combine voice, video, instant messaging, and email into a single platform to streamline communication and enhance collaboration. Telecom providers are integral to this transformation, offering businesses flexible, high-quality communication tools that enable more efficient interactions across teams and clients, especially for SMEs that may lack the internal resources to build such infrastructure.

Beyond communication, businesses are increasingly focusing on cybersecurity and data protection. As digital services expand, companies face heightened risks of cyber threats and data breaches. Telecom operators are well-positioned to provide secure, enterprise-grade connectivity solutions, including encryption, firewall protection, and advanced security protocols. By offering integrated cybersecurity services, telecom companies can help businesses protect their data and ensure compliance with regulatory standards, such as the General Data Protection Regulation (GDPR).

Lastly, enterprise IoT solutions are rapidly gaining traction as businesses seek to improve efficiency through connected devices. From smart office management systems to logistics and supply chain optimization, businesses require telecom operators that can deliver high-performance IoT infrastructure capable of supporting a wide array of devices and applications. Telecom companies that invest in robust IoT platforms and ensure reliable, low-latency connectivity will be key players in driving this next wave of innovation for businesses.

Socioeconomic trends in Portugal are shaping the telecom market in significant ways, presenting both opportunities and challenges for operators. These shifts, driven by demographic changes, evolving consumer preferences, and urbanization, create a dynamic environment that requires operators to stay adaptable and responsive.

One of the most impactful changes is Portugal’s aging population. As the demographic continues to age, there is a growing need for services that enhance the quality of life for older consumers. Telemedicine and connected healthcare solutions are becoming essential, particularly in rural areas where access to physical healthcare facilities can be limited. For telecom providers, this represents a significant opportunity to offer reliable, high-speed internet services that enable telehealth applications, remote consultations, and digital caregiving solutions. By addressing the needs of this aging demographic, operators can create tailored solutions that foster inclusivity and expand their customer base in a rapidly growing segment.

On the other hand, younger demographics, especially millennials and Gen Z, are driving the demand for mobile-first services. These consumers prioritize data-intensive services such as app-based entertainment, streaming, social media, and online gaming. Telecom operators have a unique opportunity to capture this market by offering affordable, flexible mobile plans and bundles that cater to their data needs. As younger consumers are also more focused on sustainability, offering green, eco-friendly telecom services could resonate with this group, further strengthening customer loyalty.

The trend of urbanization is another key driver. As more people migrate to urban centers for better job prospects and improved living standards, the demand for high-speed, reliable connectivity has surged. Cities, which are becoming increasingly connected through smart technologies, require telecom services that can support IoT devices, smart

infrastructure, and high-bandwidth applications. At the same time, rural areas continue to present an opportunity for telecom companies to expand their reach and improve service accessibility. For operators, there's a balance to be struck between upgrading urban networks to meet the demands of smart cities and investing in rural infrastructure to bridge the digital divide.

Additionally, economic pressures, such as inflation and uncertain market conditions, have made consumers more price-sensitive, and businesses more cautious in their spending. This has led to an increased demand for flexible pricing plans, value-for-money packages, and services that offer clear cost-benefit advantages. Operators need to innovate and adapt to these economic constraints, offering customers greater affordability and transparency, while also finding ways to ensure the sustainability of their business models. For businesses, the challenge is ensuring that telecom offerings can still support digital transformation and competitive advantage, despite tighter budgets.

5.3.6 PESTEL Analysis

The Portuguese telecom market is influenced by a variety of external factors that shape its competitive landscape. A PESTEL analysis—examining Political, Economic, Social, Technological, Environmental, and Legal factors—helps in understanding the opportunities and challenges NOS faces in this dynamic sector.

Government policies and regulations play a crucial role in shaping the telecom industry. In Portugal, ANACOM enforces rules that promote competition, protect consumers, and ensure fair spectrum allocation. While these policies foster a competitive environment, they can also introduce regulatory uncertainty, particularly around pricing regulations and infrastructure-sharing mandates. Additionally, European Union digital policies, such as the Digital Markets Act, could impact NOS's market strategy by setting stricter requirements on data privacy, competition, and service interoperability. On a broader scale, geopolitical instability—such as EU-China tensions—could affect equipment sourcing, particularly with restrictions on certain telecom suppliers like Huawei.

Macroeconomic conditions have a direct impact on both consumer spending and corporate investments in telecom services. While Portugal's GDP growth remains moderate, high inflation in recent years has pressured household disposable income, making consumers even more price sensitive. This could lead to higher churn rates or a shift toward lower-cost mobile and broadband plans. However, the European recovery funds aimed at digital transformation could boost investment in telecom infrastructure, particularly in rural areas. Additionally, declining ECB interest rates could ease financing conditions for network expansion, supporting NOS's capital expenditure plans.

Changing demographic and lifestyle trends are influencing telecom consumption patterns. Portugal's aging population presents an opportunity for telemedicine and connected health solutions, particularly in rural areas with limited access to healthcare. Conversely, younger demographics are fueling demand for mobile-first services, streaming content, and gaming, pushing operators to provide data-rich mobile plans and app-centric experiences. Meanwhile, urbanization trends continue to drive demand for high-speed internet in densely populated areas, while digital inclusion efforts remain critical for bridging the connectivity gap in rural regions. As consumers become increasingly digitally dependent, telecom providers must ensure network reliability and service differentiation to maintain customer loyalty. However, the highly saturated market represents a challenge for further growth.

The pace of innovation in telecom presents both opportunities and challenges. The ongoing 5G rollout is enabling faster connectivity, IoT applications, and smart city solutions, positioning NOS as a key enabler of digital transformation. However, 5G has not yet enabled monetization opportunities since price have not increased from the shift from 4G to 5G.

Sustainability is becoming an important factor in the telecom sector, with growing pressure to reduce carbon footprints. Telecom operators, including NOS, are investing in energy-efficient networks, sustainable data centers, and renewable energy sources to lower emissions. Regulations at both the national and EU levels are encouraging greener practices, and operators that take a proactive stance on environmental responsibility could gain a competitive advantage. Green bonds have emerged as a key financing tool for telecom operators looking to invest in sustainable infrastructure, but their pricing advantage—known as the "greenium"—has significantly diminished. Previously, companies issuing green bonds benefited from a 15-20 basis point discount compared to traditional bonds, reflecting strong investor demand for sustainable assets. However, as the market has matured and the supply of green debt has expanded, this discount has compressed to low single digits or even zero. Additionally, the circular economy trend—focused on recycling network equipment and reducing electronic waste—presents an opportunity for cost savings and brand differentiation.

The regulatory landscape remains a key consideration for NOS, shaping both its operational strategies and competitive positioning. General Data Protection Regulation (GDPR) compliance imposes stringent data privacy requirements, increasing operational complexity and potential penalties for non-compliance. Competition laws restrict market dominance strategies, ensuring fair pricing but also limiting consolidation opportunities. Moreover, spectrum allocation rules and net neutrality regulations impact NOS's ability to monetize premium internet services, reinforcing the need for strategic adaptation to evolving legal frameworks. Additionally, emerging AI and cybersecurity regulations could introduce new compliance requirements, influencing future service offerings.

At the national level, ANACOM, Portugal's telecom regulator, plays a crucial role in shaping market dynamics. One of its most notable recent decisions was facilitating the entry of DIGI, intensifying competition in the sector. Furthermore, on September 2022 MEO has been mandated to open its network of ducts and poles to other telecom operators, i.e., to publish the Reference Offer of Access to Conduits (ORAC) and Poles (ORAP), a move designed to reduce 5G deployment costs and expand service availability. Additionally, a wholesale network (FastFiber) owned 50% by MEO, is opening its fiber infrastructure to all players — increasing access and competition.

Consumer protection and transparency have also been reinforced. ANACOM now prohibits operators from marketing services as "unlimited" unless they are truly free of restrictions, ensuring that customers are not misled by hidden data caps or usage limits. These measures add to NOS's compliance obligations but also enhance consumer trust, reinforcing the importance of clear and transparent service offerings in an increasingly competitive market.

5.3.7 SWOT Analysis

SWOT analysis is a strategic tool that helps organizations assess their strengths, weaknesses, opportunities, and threats, providing a clear framework for decision-making and competitive positioning. One of its key advantages is that it enables businesses to

leverage their strengths and mitigate weaknesses while identifying external opportunities for growth and potential threats that could impact performance.

As shown in Table *4*, SWOT analysis provides a structured overview of NOS's internal capabilities and external market conditions, helping the company refine its strategy. By systematically analyzing these factors, NOS can enhance its competitive advantage, improve resource allocation, and proactively address challenges in the evolving telecom market.

Table 4 – SWOT Analysis

Strengths
Important player in bundled services
Robust infrastructure
High national coverage
Brand recognition
Weaknesses
Overreliance on the Portuguese market
Limited expansion available
Customer churn and price sensitivity
Regulatory constraints
Opportunities
Improved customer experience
Cloud computing and Cybersecurity
Sustainability initiatives
Threats
Intensifying price competition
Economic uncertainty and inflation
Cybersecurity risks

Source: *Author Analysis*

One of NOS's greatest strengths lies in its market leadership in bundled services and pay-TV, which allows the company to lock in customers through attractive quad-play and quintuple-play offerings. This approach not only enhances customer retention but also maximizes ARPU, a key metric in this industry. Additionally, NOS boasts one of the most extensive fiber and 5G infrastructures in Portugal, with 5.4 million homes connected to FTTH and significant investment in next-generation mobile networks. This positions the company to meet rising demand for high-speed connectivity, IoT solutions, and enterprise digitalization. Another key advantage is brand equity and customer loyalty—NOS is widely recognized for quality service and innovation, helping it maintain a solid customer base despite increasing competition. Furthermore, the company has diversified its business beyond traditional telecom services, expanding into enterprise solutions, cybersecurity, and cloud computing, providing a hedge against potential declines in consumer telecom revenues. Its commitment to sustainability and ESG initiatives, including carbon reduction and e-waste management, strengthens its reputation among environmentally conscious consumers and investors, creating potential differentiation in a market where green initiatives are becoming increasingly relevant.

However, NOS faces notable internal weaknesses that could limit long-term growth. Its overreliance on the Portuguese market leaves the company highly exposed to local economic fluctuations, regulatory shifts, and market saturation. Unlike competitors with international operations, NOS lacks the ability to offset domestic downturns with revenue streams from other regions. Additionally, the company carries higher operational costs

compared to leaner competitors like DIGI, which operate with low-cost structures and aggressive pricing strategies. This makes it difficult for NOS to compete solely on price without eroding profitability. Another concern is increasing customer churn and price sensitivity, as Portuguese consumers become more budget-conscious and willing to switch providers for better deals. At the same time, regulatory complexity and compliance burdens—such as EU and ANACOM regulations on pricing, consumer rights, and rural coverage obligations—add significant operational constraints that limit the company's agility in responding to market changes.

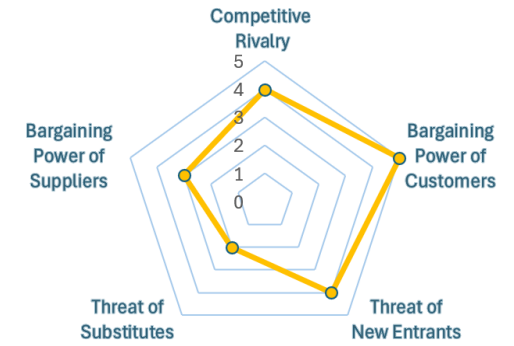
Despite these challenges, NOS has multiple growth opportunities that can help counteract competitive pressures. Businesses are increasingly looking for private networks, automation solutions, and advanced connectivity, areas where NOS can position itself as a leader. Additionally, the company can leverage its cloud computing and cybersecurity expertise to meet growing demand from enterprises undergoing digital transformation. Another strategic opportunity lies in content partnerships with streaming platforms like Netflix and Disney+, which can help NOS differentiate its offerings and enhance customer engagement. Meanwhile, the company's sustainability initiatives align with shifting consumer and investor priorities, providing a potential market advantage.

However, several external threats could impact NOS's ability to sustain its competitive edge. One of the most pressing concerns is intensifying price competition, particularly from low-cost entrants like DIGI, which have disrupted the market by offering aggressively priced plans that appeal to budget-conscious consumers. This dynamic pressures NOS to either lower prices (hurting margins) or differentiate through premium service offerings, a delicate balance to maintain. Economic uncertainty and inflationary pressures also pose risks, as reduced consumer spending power could lead to weaker demand for premium telecom services. Moreover, the expansion of digital services also increases exposure to cybersecurity risks, with potential data breaches and cyberattacks posing threats to customer trust and regulatory compliance. Similarly to DIGI, if successful, other operators might look at the Portuguese market and pose an additional challenge for the company.

5.3.8 Porter's Five Forces Analysis: Nos in the Portuguese Telecom Market

Porter's Five Forces framework provides a structured approach to assessing the competitive pressures shaping NOS's market position. As an investor evaluating NOS, it is essential to understand the dynamics of competition, bargaining power, and potential disruptions that could influence profitability and long-term strategic positioning. The spider chart in Figure 13, presents the results of the Porter´s five forces analysis, discussed below in more detail.

Figure 13. Porter's five forces



Source: *Author's analysis*

The Portuguese telecom market is highly competitive, with NOS facing intense pressure from rivals such as MEO, Vodafone, and new entrant DIGI. The industry is characterized by slow organic growth and a high degree of market saturation, particularly in broadband and mobile communications, making customer retention a critical factor. Operators engage in promotional campaigns and bundling tactics to gain or defend market share.

The competitive landscape in the Portuguese telecom market has long been characterized by a relative price alignment among the three dominant players—NOS, MEO, and Vodafone. Over the years, these operators have maintained similar pricing structures, creating a stable but high-cost environment for consumers. In fact, in 2023, telecom prices in Portugal were 10,9% above the EU average, highlighting the premium that Portuguese customers continue to pay compared to other European markets.

Additionally, price sensitivity among consumers is rising, with many customers prioritizing affordability over premium service features. The emergence of low-cost competitors like DIGI, which offers disruptive pricing on mobile and broadband plans, has forced incumbents to either match prices (squeezing margins) or differentiate through service quality, innovation, and content partnerships. NOS's strong brand recognition and superior network infrastructure provide some protection, but competitive intensity remains a significant challenge to profitability and ARPU growth.

The high capital requirements associated with building and maintaining a fiber-optic and mobile network create a significant entry barrier in the Portuguese telecom sector. New players must invest heavily in spectrum licenses, infrastructure, and customer acquisition before achieving scale, limiting the likelihood of widespread market entry. Additionally, strict regulatory oversight by ANACOM and EU policies creates compliance burdens that further deter potential newcomers.

However, DIGI's recent market entry proves that new competitors can disrupt the status quo if they adopt a lean, asset-light model and aggressively undercut pricing. Furthermore, advancements in alternative broadband technologies, such as satellite internet (e.g., Starlink) and OpenRAN networks, could lower entry barriers in the future, challenging traditional telecom operators like NOS.

NOS depends on network equipment providers, content distributors, and software vendors to deliver high-quality services. The market for telecom infrastructure is highly concentrated, with major suppliers such as Huawei, Nokia, and Ericsson exerting strong influence over pricing and technology roadmaps. The shift to 5G networks, cloud computing, and AI-driven telecom services further increases dependence on specialized vendors, limiting NOS's negotiating leverage.

Additionally, content licensing costs for pay-TV and streaming bundles represent another area where suppliers hold power. As consumer habits shift toward OTT services like Netflix and Disney+, NOS must negotiate competitive deals to remain relevant. If major content providers opt to bypass telecom operators and go direct-to-consumer, NOS could face difficulties in maintaining differentiation through content.

Portuguese consumers have a wide array of choices, giving them significant bargaining power. The ease of switching providers (often incentivized by aggressive promotional offers) makes customer retention challenging. Price sensitivity is a key issue, particularly as economic uncertainty and inflationary pressures drive many consumers to seek lower-cost alternatives. Enterprise customers also exert strong bargaining power, demanding customized solutions, lower prices, and better service-level agreements (SLAs). While NOS can differentiate through

premium service offerings, security solutions, and enterprise IoT applications, it must continuously innovate to justify its pricing and value proposition.

The risk of substitution varies by service category. In broadband and mobile services, there are limited direct substitutes, meaning customers must generally choose between telecom operators. However, alternative fixed wireless and satellite broadband options (such as 5G home internet, Starlink, and Wi-Fi mesh networks) could emerge as competitive alternatives, especially in underserved areas.

In pay-TV and entertainment, cord-cutting trends pose a serious risk. Consumers are increasingly replacing traditional pay-TV packages with Over-The-Top (OTT) platforms like Netflix, YouTube, and Amazon Prime Video, reducing demand for traditional triple-play and quad-play bundles. This forces NOS to adapt its content strategy and integrate streaming services to remain competitive.

5.3.9 DIGI's Entrance in Spain VS DIGI's in Portugal

DIGI has strategically expanded into both Spanish and Portuguese markets, employing tailored approaches to establish its presence and compete with existing operators. DIGI commenced its operations in Spain by offering competitively priced services, focusing on affordability to attract a broad customer base. This strategy proved effective, as evidenced by the company's substantial growth: by November 2024, Digi approached 8 million customers in Spain, marking a 22.8% increase in revenue during the first nine months of the year, totaling €571,7 million. The Spanish market contributed to 40.5% of DIGI COMMUNICATIONS' overall revenue, highlighting the significance of its operations in the country. To support this rapid expansion, DIGI invested heavily in infrastructure, particularly in the development of its fiber-optic network. This aggressive growth strategy led to an increase in debt by 35.2% over 18 months, reaching €1,517 billion. Despite the rising debt, the company's leverage ratio remained manageable at 2.3x EBITDA.

In Portugal, DIGI's approach involved strategic acquisitions and infrastructure development: In August 2024, DIGI acquired NOWO, the country's fourth-largest telecom operator – yet with a small market share - for €150 million. This acquisition provided DIGI with approximately 270.000 existing mobile clients coupled with 130,000 fixed telecom clients, and existing 5G spectrum licenses, facilitating a swift market entry by acquiring negotiating power with content providers thus becoming a full player in the TV distribution market.

Besides it, DIGI began constructing its own 5G and fixed fiber telecom networks, aiming to offer high-speed internet services across the country. The company expressed intentions to launch services in most Portuguese cities, even without national roaming agreements, indicating a commitment to extensive coverage. ANACOM has supported and in some ways facilitated DIGI's market entry, emphasizing the importance of increased competition and cautioning incumbent operators against obstructing this process by waving some of the existing barriers to enter the market.

One crucial distinction between DIGI's entries into Spain and Portugal is the level of market penetration at the time of its arrival. When DIGI entered Spain, broadband and mobile services still had room for growth, particularly in terms of fiber-optic penetration. Many customers were looking for more affordable and flexible service providers, which allowed DIGI to rapidly capture market share with competitive pricing.

By the time DIGI entered Portugal, the market was already highly saturated, with established players like MEO, Vodafone, and NOS controlling most fixed and mobile services. Service penetration rates were among the highest in Europe, meaning DIGI had to compete

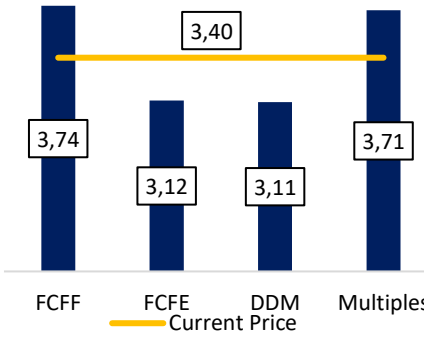
more aggressively and differentiate itself not just on price but also on service quality and infrastructure investments. Plan that the company actually put up to action by bringing cheaper services to customers.

While NOS has an established customer base and extensive infrastructure, DIGI's acquisition of NOWO provides an immediate, albeit smaller, market share and existing infrastructure to build upon. DIGI's commitment to developing its own network infrastructure in Portugal, without reliance on national roaming agreements, demonstrates an aggressive expansion strategy that could challenge NOS's market position.

5.4 Investment Summary

A HOLD recommendation is issued for NOS S.G.P.S., S.A with a 2025YE price target of 3,74€ using a DCF model (FCFF), as shown in formula (4) - Figure 14, implying a 10% upside potential from February 3, 2025, closing price of 3,40€, with medium risk. In a difficult market environment, NOS is now facing competition from a new incomer into the Portuguese Telecom market landscape. The arrival of DIGI in late 2024, announcing significantly cheaper subscriptions on its products raises concerns on the existing players in the market.

Figure 14. Valuation Summary (€)

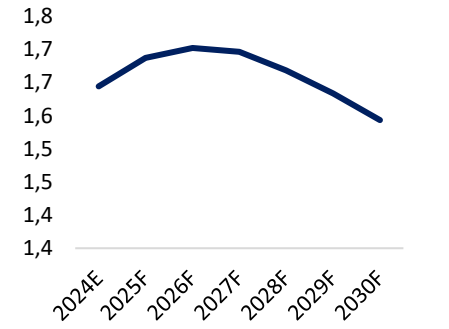


Source: *Author analysis*

5.4.1 Investment Pillar 1 – Growth is a concern

NOS faces limited growth prospects as DIGI's entry into the Portuguese Telecom market intensifies competition. DIGI's aggressive pricing and network expansion strategy are expected to challenge NOS's market share, particularly in mobile and broadband segments. As a result, NOS may struggle to maintain its revenue growth - Figure 15- as well as its margins - Figure 17, with potential pressure on margins due to competitive pricing dynamics. While NOS continues to invest in infrastructure and service differentiation, the increased competition could slow its overall expansion in the coming years.

Figure 15. Operating Revenues (€billions)



Source: *Author's forecast*

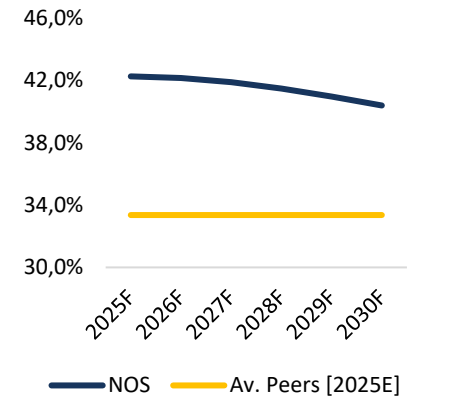
5.4.2 Investment Pillar 2 – DIGI's Entrance Raises Uncertainty in the Market

DIGI's aggressive entry into the Portuguese market poses a significant challenge to NOS, particularly through its competitive pricing strategy and infrastructure expansion. By acquiring NOWO and building its own 5G and fiber network, DIGI has rapidly positioned itself as a disruptive force, intensifying price competition in an already saturated market. This pressure limits NOS's ability to implement inflation-linked price increases, increasing churn risk among price-sensitive consumers. While NOS benefits from an established customer base and superior infrastructure, its market share is at risk as DIGI continues to attract budget-conscious subscribers.

5.4.3 Investment Pillar 3 – Mouth-watering Margins

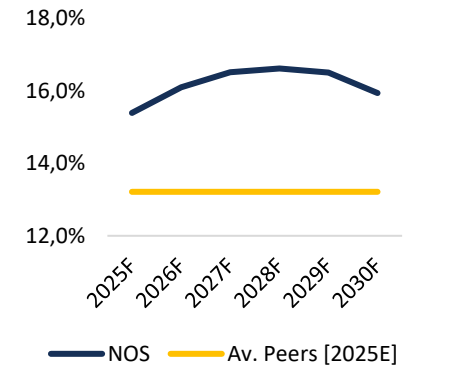
NOS continues to stand out among peers due to its strong operating profitability, maintaining EBITDA and EBIT margins above industry averages. Despite a decline in EBITDA margin from 49,4% in 2022 to 44% in 2024, NOS remains well ahead of competitors (34%) and is expected to stabilize around 40% by 2030 - Figure 17. This resilience reflects the company's efficient cost structure, infrastructure investments, and ability to sustain profitability despite increasing competitive pressures from DIGI and the other players. Looking into the EBIT Margin, despite the forecast indicating its start of descent from 2028, it is expected to stabilize comfortably above the average of its peers - Figure 16.

Figure 17. EBITDA Margin vs Peers



Source: *Author's forecast*

Figure 16. EBIT Margin vs Peers



Source: *Author's forecast*

5.5 Valuation

For full financial statements and operational data forecasts please refer to Appendix 5 and Appendix 6. Common-size financial statements and the rationale behind important assumptions on relevant variables can also be found in Appendix 7.

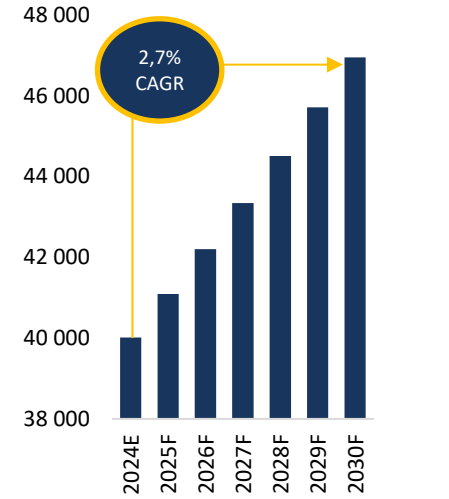
5.5.1 Free Cash Flow to the Firm

FCFF was employed to value the firm given the high relevance Telecom has in the company's operation. The forecasted period comprises 2024E-2030F. This methodology, as

shown in formula (4), yielded a 2025YE price target of 3,74€ per share representing a potential upside of 10% compared to closing price of 3,40€/share on February 3, 2025.

The entrance of DIGI into the Portuguese market has intensified competition. With a projected CAGR of -0.63% from 2024 to 2030, NOS's Operating Revenue - Figure 15- is anticipated to decline, reflecting the pressure exerted by DIGIs aggressive pricing strategy. Additionally, the cost of attracting and retaining customers is expected to rise, as evidenced by an estimated 2.7% CAGR in Marketing and Advertising - Figure 18 - expenses over the same period.

Figure 18. Marketing & Advertising expenses (€thousands)



Source: *Author's forecast*

In the initial years forecasted, NOS is likely to maintain its pricing levels, leveraging its brand strength and infrastructure. However, there is significant uncertainty regarding its ability to sustain price growth in the long run, given DIGI's market entry with lower-cost offerings, which could erode NOS's pricing power and force strategic adjustments.

The FCFF valuation is mainly driven by the following:

1. Portuguese Competitive Landscape Changes | DIGI's Entrance
1.1 Impact on Prices
1.2 Impact on Market Share
2. WACC Assumptions, calculated using formulas (1), (2), and (3)
3. Growth
3.1 Market Share Decline Does Not Necessarily Equate to Revenue Decline
3.2 Price Decline Until 2030: A Temporary Phenomenon
3.3 6G Deployment: A Game Changer for Growth
3.4 Long-Term GDP Growth Correlation
4. CAPEX Stabilization

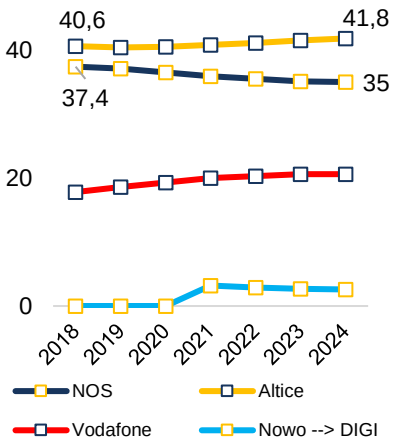
As mentioned above, the aggressive entrance of DIGI's into the Portuguese Telecom Sector with highly competitive prices and no-loyalty plans is expected to have repercussions on the existing players ability of charging their subscribers for a determined price. Market share represents a concern as well. Low churn rates are a cornerstone in Telecom industry. Despite the loyalty period of 2 years in Portugal, churn rates are at high levels in this industry. With more than 50% of the subscriber base being prone to switch to other operators, whereas, on an EU average, low churn rates play a pivotal role in the healthiness of a company operating

in this sector. Subscribers are generally very sensitive to changes in prices and benefits of their providers and so the shifts between providers are common.

Portuguese telecom companies typically adjust their pricing structures in accordance with inflation, a practice often stipulated within contractual agreements with their clients. However, as mentioned by its CEO, NOS is not expected to alter its prices in 2025. This decision is expected slightly impact margins and so the expectations for 2026 and 2027 are to increase prices in response to the shrink in margins. Furthermore, in subsequent years, it is expected that prices will have to behave in the same way as in 2025 due to competitive pressures and even experience a downward adjustment next ones. For further details on price evolution of each service provided by NOS please refer to – Appendix 8.

Market share can be conceptualized as an inverse function of the pricing strategies employed by a telecom operator, though it is also influenced by several other factors, including service quality, network coverage, and competitive dynamics. In recent years, NOS has experienced a decrease in market share, as evidenced by its subscriber base evolution - Figure 11.The Portuguese telecom market is highly saturated, limiting the potential for further expansion through organic subscriber acquisition. Additionally, NOS's pricing strategy, which is relatively high compared to certain competitors, poses a significant barrier to continued market share growth. As a result, the company may face increasing difficulties in expanding its customer base, particularly in the face of competition from lower-cost operators such as DIGI, which continue to attract price-sensitive consumers.

Figure 19. Multiple Play Market Share Evolution (%)



Source: *Author's forecast*

The financial leverage of a company plays a crucial role in determining its cost of capital, as it directly influences both the cost of debt and the cost of equity. In the case of the analyzed company, historical leverage ratios suggest a consistent reliance on debt financing. Given this observed pattern and the company's past behavior concerning debt management, it is reasonable to assume stabilization of debt at approximately 66% of the company's total capital structure. This assumption comes with significant implications for WACC, as a higher proportion of debt financing reduces the overall cost of capital due to the typically lower cost of debt relative to equity and bringing to the equation Tax Shield Benefits given that interest payments on debt are tax-deductible, effectively reducing the after-tax cost of debt and further lowering WACC – formula (1), (2), and (3).

At first glance, forecasting a 1,5% perpetual growth rate for NOS may seem counterintuitive given the expectation that the company will lose market share and face price declines until 2030. However, a deeper analysis of industry dynamics, technological advancements, and NOS's capacity for adaptation supports this assumption as reasonable.

While NOS is expected to experience a decline in market share due to increased competition — particularly from DIGI — this does not mean that overall industry revenues will shrink at the same rate. Telecom is an essential service, and despite price pressures, demand for data and connectivity continues to expand due to digitalization trends, remote work, streaming, and IoT. Even with a smaller share of the market, NOS can still grow in absolute revenue terms if it successfully monetizes new services and optimizes its cost structure.

The anticipated negative price evolution until 2030 is primarily driven by the impact of price declines which is not perpetual. Historically, the telecom industry has seen periods of intense price competition, followed by market stabilization, where companies differentiate themselves through quality and bundled service offerings rather than pure price competition. After 2030, once weaker competitors exit or consolidate, NOS may regain pricing power, supporting long-term revenue stability.

One of the strongest justifications for the 1,5% growth assumption is the introduction of 6G technology, which is expected to be commercially deployed in the early 2030s. Given NOS's historical adaptability to technological shifts (e.g., transitioning from 3G to 4G and later 5G), it is reasonable to assume that the company will effectively integrate 6G into its business model, creating new value-added services and maintaining revenue growth even if its traditional business segments decline.

The perpetual growth rate is typically aligned with a company's long-term potential relative to GDP growth. Given Portugal's expected long-term real GDP growth of approximately 1-1,5%, a 1,5% growth assumption for NOS aligns with the broader economic expansion, factoring in population growth, digital transformation, and increasing data consumption. Technological advancements, particularly the future rollout of 6G, present an investment opportunity that could enhance NOS's efficiency, open new revenue streams, and improve customer retention. Considering these elements, a 1.5% perpetual growth rate appears reasonable, balancing Portugal's economic outlook with NOS's industry dynamics and potential for future innovations.

As NOS moves beyond the peak investment cycle associated with fiber and 5G rollout, Capex requirements are likely to normalize, leading to improved cash generation. This reduction in capital intensity will allow for greater flexibility in capital allocation, including potential shareholder distributions as shown in the past. The forecast assumes that Capex will be sufficient to cover depreciation, ensuring the sustainability of the company's asset base.

However, as time progresses, Capex levels are expected to stabilize beyond **2027**, reflecting a more mature stage of infrastructure development where major network investments have already been completed. This stability in Capex reinforces NOS's ability to maintain solid free cash flow generation, supporting both its dividend policy and potential strategic investments. Despite the possibility of a continued decrease in Capex after 2027 it is unconceivable to ignore the incoming necessities for 6G investments so from 2027 onwards the gap between Capex and Depreciation starts to augment as 6G requirements are going to take their toll on Capex.

5.5.2 Free Cash Flow to Equity

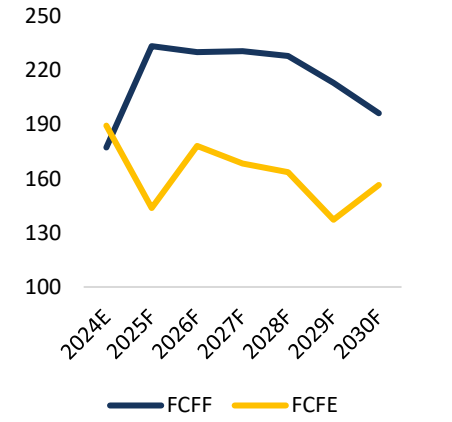
Using this methodology, the forecasted Free Cash Flow to Equity (FCFE) values for the period 2024E-2030F were discounted at the Cost of Equity to determine the Equity Value of NOS. The result yielded a 2025YE price target of 3,12€ per share, implying a potential downside of 8% from the closing price of 3,40€ per share on February 3rd.

The FCFE, calculated as shown in formula (5), represents a measure of cash flow available to the company's equity shareholders after taking into account all expenses, reinvestments and debt-related obligations.

While the FCFF valuation, based on formula (4), yielded a price target of 3,74€ per share, implying a 10% potential upside, the FCFE valuation resulted in a price target of 3,12€ per share, reflecting an 8% downside. The discrepancy between the two valuation methods stems from several key factors such as the fact that FCFF considers the firm, discounting unlevered cash flows at the Weighted Average Cost of Capital (WACC, calculated via formulas (1), (2), and (3)). Since NOS maintains a 66% debt-to-capital ratio, the impact of financing decisions is absorbed within WACC. FCFE reflects only the cash flows available to equity holders after debt-related obligations. Given NOS's high debt levels, increased interest expenses and debt amortization reduce the cash available to shareholders, leading to a lower price target. Also, the FCFF model does not directly capture interest payments, while FCFE deducts them, further weighing on the valuation. NOS is in a capital-intensive phase with 5G and fiber network expansion, requiring significant ongoing CAPEX.

While FCFF includes CAPEX as part of firm-wide cash flows, the FCFE approach shows that high investment needs leave little residual cash for equity holders, reducing the valuation outcome. Both FCFF and FCFE can be found in Figure 20.

Figure 20. Free Cash Flows (€millions)



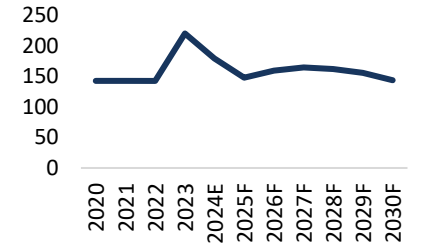
Source: *Author's calculation*

5.5.3 Dividend Discount Model

Using this methodology, the forecasted Dividend Discount Model (DDM – shown in formula (6)) values for the period 2024E-2030F were discounted at the Cost of Equity, calculated using the formula (2), to determine the Equity Value of NOS. The result yielded a 2025YE price target of 3,11€ per share, implying a potential downside of 9% from the closing price of 3,40€ per share on February 3rd.

For the past years the company has consistently shown that it is prone to pay high dividends to its investors - Figure 21. The model was built using an advanced growth assumption structure, incorporating Hamada's equation for the cost of equity, a two-stage growth framework with short-term and long-term rates, and a gradual transition between the two. A short-term growth rate of 6% was assumed, reflecting the company's historical ability to increase dividends. A long-term growth rate of 2% was applied, representing a more sustainable level aligned with macroeconomic factors such as inflation and industry growth trends.

Figure 21. Dividends (€thousands)



Source: *Author´s research*

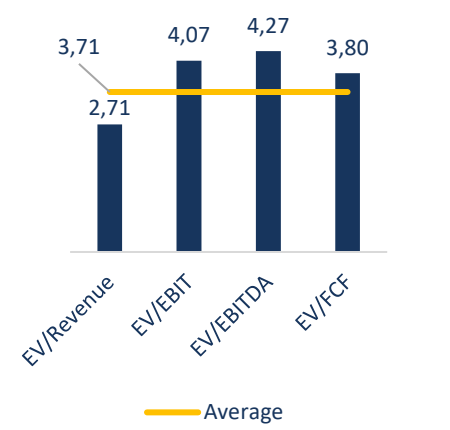
The growth decay follows a half-life transition of 5 years, meaning the growth rate gradually declines toward its long-term level rather than experiencing a sudden drop. It was considered the company's practice of distributing dividends above net income by borrowing, ensuring the model reflects its current financial structure. However, it must be recognized that this approach is not sustainable long-term, future assumptions were adjusted accordingly. The 97% payout ratio is high but aligns with the company's actual policy. Despite concerns regarding the high payout ratio, lowering it would misrepresent the company's financial approach.

5.5.4 Multiples Based Valuation

To complement the above models, a Multiple Based Valuation (MBV) was used to reach a 2025YE price target for the company. The four multiples assessed Figure 22– yield an average price target of 3,71€ representing a potential upside of 9%.

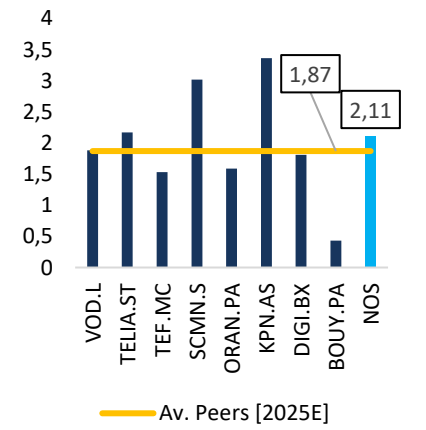
The EV/Revenue multiple - Figure 23- suggests that the company is valued at a higher price than it should be now. This valuation method is commonly used for high-growth companies or firms in capital-intensive industries like Telecom, where profits can be influenced by depreciation and financing costs.

Figure 22. Multiples Based Valuation (€)



Source: *Refinitiv, Author's calculation*

Figure 23. EV/Revenue



Source: *Author's calculation & Refinitiv*

Despite the low EV/Revenue price target, both EV/EBIT - Figure 22- and EV/EBITDA are above the current share price. For EV/EBIT, the higher valuation relative to EV/Revenue suggests that NOS is more efficient than its peers in converting revenue into operating profit. Following this, as EBITDA excludes non-cash charges like depreciation and amortization, it makes a strong measure of a company's operating performance, especially in capital-intensive industries like Telecom.

With a price target of 4.27€, EV/EBITDA multiple - Figure 22- suggests that NOS's share price should be higher, indicating that the market may be undervaluing its profitability before non-cash expenses. This also aligns with the strong cash flow generation typical of Telecom companies, reinforcing the case for undervaluation.

Free Cash Flow (FCF) represents the company's true cash-generating ability, making it a crucial metric for long-term valuation. With a price target of 3.80€, the EV/FCF Multiple suggests that NOS is generating healthy free cash flow relative to its enterprise value.
The fact that EV/FCF yields a higher price than EV/Revenue suggests that NOS has strong cost controls and cash flow efficiency compared to its peers.

5.5.5 Peers Selection

To establish a relevant peer group for NOS, a systematic selection process based on SARD (Systematic Analysis of Relevant Data) was applied coupled with specific exclusion criteria. The exclusions were as follows:

- Infrastructure Development Business Exclusion - Companies primarily engaged in infrastructure development rather than direct telecom services were excluded.
- Financial Data Missing Exclusions - Entities with incomplete or unavailable financial data were removed from consideration.
- Public Ownership Exclusion - Companies with significant government ownership that could impact competitive dynamics were excluded.

5.6 Financial Analysis

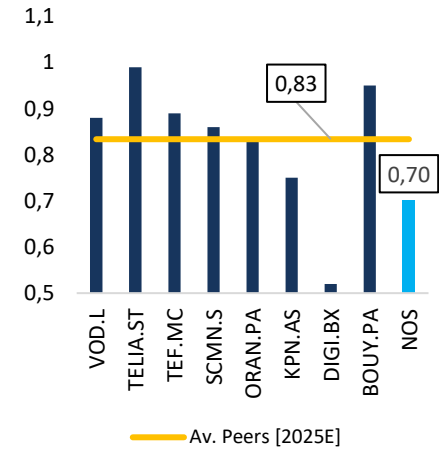
Analyzing NOS's financial performance involves assessing its profitability, liquidity, solvency, and operational efficiency through key financial metrics. Revenue growth and profitability ratios, such as EBIT margin, EBITDA margin, and net profit margin, provide insight into the company's ability to generate earnings and capitalize on them. Additionally, evaluating return-based indicators, including Return on Assets (ROA), Return on Equity (ROE), Return on Invested Capital (ROIC), and Return on Capital Employed (ROCE) - **Figure 24**, offers a comprehensive view of how effectively NOS utilizes its resources to generate returns. Debt ratios further contribute to understanding the company's financial stability.

5.6.1 Liquidity

The company shows a decreasing Current Ratio (70,1% in 2025YE compared to 84,4% in 2020YE) reflecting the company's reduction in the capability of meeting short-term obligations using current assets – **Figure 24**.This evolution represents a significant reduction in the company's liquidity position over the past few years. When compared to its peers, which have an average current ratio of 83.3% in 2025YE. At first sight, NOS appears to be operating with relatively lower liquidity. The decrease in liquidity indicates that NOS has optimized its working capital, reducing excess inventory and accounts receivable. This represents a sign of increased operational efficiency. Compared to its peers, NOS lower current ratio also indicates that it is more capital-efficient, focusing its available resources on investments or growth

initiatives rather than holding a larger cash cushion. This is a good indicator of the company's ability as the company operates in a sector where agility and reinvestment into the business are key. The fact that peers have a current ratio of 83.3% in 2025YE indicates that they may be maintaining more liquidity, possibly as a buffer against economic uncertainties. While NOS's lower ratio points to efficient asset utilization as it also means that the company is leaner in terms of liquidity reserves.

Figure 24. Current Ratio



Source: *Author's forecast & Refinitiv*

5.6.2 Profitability

For NOS, operating profitability is the name of the game. EBITDA and EBIT margins represent a huge focus for the company and numbers reflect it - **Figure 17**Despite the decreasing EBITDA margin (42% in 2025YE compared to 49,4% in 2022YE) with a CAGR of -5,27% the company is still comfortably above the average of its peers (34%). Despite the steep descent in the last 2 years the company is also still very high compared to previous years (39,5% in 2018). Given the evolution of the revenues and the cost structure of the company, so high margins are not easy to maintain and so for the forecasted years it is expected that the company will ultimately stabilize around 40%, hitting 40,4% in 2030F. Looking at EBIT, it shows the same pattern as EBITDA. A firm with higher margins that has a better business model, stronger pricing power and more efficient operations than its peers.

5.6.3 Efficiency

Nos has experienced a negative operating cycle throughout the years, meaning that the company is able to generate cash before having to pay its suppliers. This is an indicator of good working capital management as the company is effectively managing its receivables, payables and inventory turnover. The company's Operations Cost Contribution (OCC) has decreased from -6,9 days in 2018 to -37,2 days in 2020 showing the focus on improving cash flow management. Between 2021 and 2023 the trend reversed slightly with an increase to -15,3 days. For the period 2024E-2030F the OCC is expected to stabilize around -21 days reflecting NOS's consistent cash cycle.

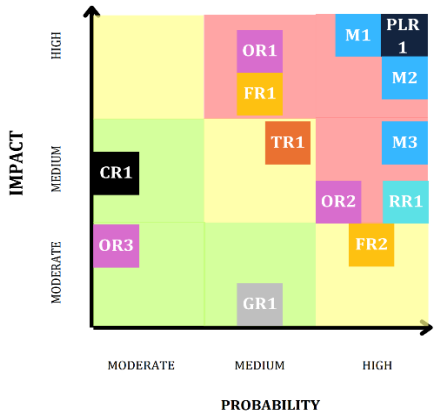
5.6.4 Dividends

With a payout ratio of 97%, NOS SGPS has historically maintained a very high dividend distribution, signaling the company's confidence in its ability to generate sufficient profits to support these payments. With such a high payout ratio, while attractive to investors seeking consistent returns it could potentially raise concerns about the sustainability of dividends in the long run, especially if the company faces a downturn in profits or experiences cash flow difficulties. The historical consistency of these dividend payments suggests that NOS has prioritized shareholder returns as part of its financial strategy, even during periods when profits may have been relatively lower. The steady reduction in dividend payouts over the years, from 179M€ in 2024YE to 143M€ in 2030YE reflects the company's available income to distribute evolution.

5.7 Investment Risks

NOS, like other companies, faces several risks with considerable impact on its day-to-day operations and ultimately its core business. To measure these risks an [Impact x Probability] risk matrix can be found in **Figure 25**. Beside the risks presented below, which are the ones identified with [High x High], other investment risks are disclosed in Appendix 11.

Figure 25. Risk Matrix



Source: *Refinitiv, Author's calculation*

5.7.1 Regulatory Changes – Political, Regulatory and Legal Risk (PLR1)

In recent years, ANACOM has implemented policies aimed at fostering competition by facilitating the entry of new operators into the market. For instance, during the 5G spectrum auction, ANACOM reserved specific frequency bands for new entrants and imposed obligations on existing operators to provide network access to mobile virtual network operators (MVNOs) and national roaming agreements. These measures were designed to lower entry barriers and promote a more competitive environment. In addition, the regulator has eased the requirements of competition when looking into the purchase of NOWO by another operator. For instance, in August 2024, DIGI acquired NOWO, for €150 million. That is why Political, Regulatory and Legal (PRL) is in the top right-hand corner of the risk matrix in **Figure 25.**

NOS can leverage legal avenues to contest ANACOM's policies that disproportionately favor new entrants at the expense of established operators. This includes challenging the imposed obligations, such as the requirement to provide network access to MVNOs and

national roaming agreements, which could undermine NOS's competitive advantage. A precedent exists where ANACOM's decisions have faced legal scrutiny, and while NOS has had mixed results in court, persistent litigation could lead to regulatory adjustments. Given that Miguel Almeida, NOS's CEO, has been a vocal critic of ANACOM, legal action could be an extension of his strong opposition to what he perceives as an unfair regulatory framework.

5.7.2 Competition – Market Risk (M1)

Vodafone and MEO are in constant seek to expand their market presence. As of Q3 2024, Vodafone Portugal holds approximately 29% of the mobile market share, while MEO leads with 42%, leaving NOS with around 26%. Additionally, the acquisition of NOWO by DIGI introduces a new competitor with ambitious expansion plans, further intensifying market pressure. With Vodafone committing €500 million in network upgrades through 2026 and MEO expanding its fiber coverage to over 6 million households the competition is to be taken seriously as these investments directly challenge NOS's ability to maintain and grow its customer base, particularly in urban areas where high-speed connectivity is a key differentiator.

To counter the aggressive competition from Vodafone, MEO, and new market entrants like DIGI, NOS can focus on a multi-pronged strategy centered on service expansion, customer experience enhancement, and diversification into IT/IoT solutions for SMEs.

5.7.3 New Entrants – Market Risk (M2)

Closely linked to the previously identified risks (**PLR1** and **M1**) is the potential entry of additional competitors into the Portuguese market. The recent entry of **DIGI**, facilitated by ANACOM's regulatory decisions, demonstrates that new players can successfully establish a presence. Given this precedent, it is reasonable to consider that other international Telecom operators may assess the Portuguese market as an attractive opportunity for expansion. Should this occur, it could further intensify competition, exerting additional pressure on existing market players.

As part of its mitigation strategy, NOS launched "WOO" (as did MEO and Vodafone with "UZO" and "Amigo" respectively), a budget-friendly package introduced in 2020, aimed at retaining price-sensitive customers. This offering provides cost-effective mobile and broadband plans, positioning NOS competitively against low-cost alternatives introduced by new market entrants like DIGI. By maintaining an affordable yet high-quality service, NOS can mitigate customer churn and sustain its market share amid increasing price competition.

5.7.4 Monte Carlo Simulation

To assess the valuation's strength some variables were put to the test in a Monte Carlo simulation. Despite the uncertainties and risks associated with the company and its prospects, its key variables are relatively stable. Results can be found in Appendix 12. Table *6* & Table *7* show the results and statistics of the tests. The results indicate stable valuation estimate. The base case valuation is 3,73€, which is very close to both the mean (3,75€) and median 3,73€. This suggests that most outcomes are centered around this value. The standard deviation (0,33) and variance (0,11) indicate that the valuation does not fluctuate wildly, meaning there is a reasonable level of uncertainty but no extreme volatility. The coefficient of variation (0,09) shows that the forecast is relatively stable, with limited variability around the mean. The skewness (0,39) suggests that the distribution is slightly tilted to the right, meaning there is a

higher chance of a positive surprise than a major downside risk and Kurtosis (3,31) suggests the distribution has slightly fatter tails, meaning occasional large price movements are possible. In share price terms:

The lowest simulated valuation is 2,66€, while the highest is 5,67€, giving a total range of 3,01€. In 80% of cases, the valuation is expected to stay between 3,34€ (10th percentile) and 4,19€ (90th percentile). Half of the forecasted values fall between 3.47€ and 3.91€, meaning this is the most likely range. There is a 90% chance the valuation stays between 3€ and 4.19€, meaning major losses below 3€ or big gains above 4.19€ are unlikely.

Additionally, bull and bear case scenarios were applied by stressing g – the terminal growth rate – initially defined at 1.5% and wacc – Table *5*. By increasing the terminal value g and decreasing the wacc an increase in the Price Target is achieved reflecting the company's better cash flow generation and the lower investor requirements given the capital structure of the company.

Table 5 – Bull and Bear Scenarios

Variables	Bear	Base	Bull
TV - Wacc	7,40%	7,15%	6,90%
TV - G	1,25%	1,50%	1,75%
Price Target	3,28€	3,74€	4,20€
Delta	-12,3%	-	12,3%

Source: *Author Analysis*

Table 7 – Monte Carlo Percentiles

Percentiles	Forecast values
0%	3
10%	3,34
20%	3,47
30%	3,57
40%	3,65
50%	3,73
60%	3,82
70%	3,91
80%	4,02
90%	4,19
100%	5,67

Source: *Author Analysis*

Table 6 – Monte Carlo Statistics

Statistics	Forecast values
Trials	100.000
Base Case	3,73
Mean	3,75
Median	3,73
Mode	---
Standard Deviation	0,33
Variance	0,11
Skewness	0,39
Kurtosis	3,31
Coeff. of Variation	0,09
Minimum	2,66
Maximum	5,67
Range Width	3,01

Source: *Author´s analysis*

6. Conclusions

NOS, S.G.P.S., S.A. stands as one of the most prominent players in the Portuguese telecommunications industry. Backed by a long-standing presence in the market, robust infrastructure, and historically strong profitability metrics, the company has managed to preserve a leading position amid both technological transformation and moderate regulatory pressures. However, this stability is now being tested by an evolving competitive landscape, most notably shaped by the disruptive entry of DIGI. This development introduces a significant structural challenge to NOS's traditional business model, particularly about pricing strategy, customer retention, and long-term profitability.

DIGI's aggressive market entry strategy—anchored in offering services at substantially lower prices—has already triggered observable signs of market tension. Its cost-leadership approach poses a direct threat to established players like NOS, which rely heavily on a value-added service offering, established brand equity, and infrastructure advantages. In response to this intensifying competition, pricing power across the industry is expected to decline, resulting in reduced average revenue per user (ARPU) and increased customer churn rates. This pricing pressure is projected to erode NOS's EBITDA and EBIT margins over the next few years, ultimately leading to a contraction in net profit margins unless mitigated by strategic or operational countermeasures.

Despite these adverse market dynamics, NOS retains several competitive advantages that support a more tempered view of its future. The company's relatively efficient cost structure, solid historical track record of financial management, and strong operational margins offer a level of resilience that should not be underestimated. While a decline in margins is forecasted, NOS is still expected to outperform many of its European peers on key financial indicators such as operating margin and return on invested capital (ROIC). This suggests that the company, although affected by external pressures, remains strategically positioned to adapt to a changing environment.

From an investor perspective, one of NOS's key appeals lies in its consistent dividend distribution policy. Over the years, the company has established a reputation for rewarding shareholders through regular dividends, reflecting both financial stability and investor-focused governance. However, the future sustainability of these shareholder returns must be scrutinized. As competition compresses margins and capital requirements increase—particularly with ongoing investments in 5G rollout, fiber optics expansion, and digital services—NOS may face a fundamental trade-off between reinvestment and dividend continuity. While the current valuation models assume a continuation of dividend payouts aligned with historical patterns, deviations from this assumption could materially impact equity valuation.

The valuation of NOS conducted in this thesis utilized a multi-model approach to ensure analytical robustness and minimize model-specific biases. The Free Cash Flow to the Firm (FCFF) method served as the core intrinsic valuation technique, underpinned by detailed financial forecasts and a carefully constructed Weighted Average Cost of Capital (WACC). This was supported by the Free Cash Flow to Equity (FCFE) model, the Dividend Discount Model (DDM), and a relative valuation based on selected market multiples. Together, these models converge toward a target price of €3.74 per share for 2025, which reflects the intersection of NOS's operational strength and the elevated risk context.

The HOLD recommendation issued in this thesis is grounded in both quantitative analysis and strategic assessment. On one hand, NOS offers operational excellence, a track

record of profitability, and a relatively attractive dividend yield. On the other, rising competitive pressures, declining margins, and uncertainties surrounding capital allocation and market share retention create substantial downside risks. The €3.74 target price represents a fair market valuation that incorporates both upside potential—linked to NOS's digital transformation initiatives and infrastructure investments—and downside risks stemming from pricing erosion and possible dilution in shareholder returns.

Beyond the base-case valuation, this work also highlights several forward-looking considerations that merit ongoing attention. First, the competitive impact of DIGI should be monitored in a systematic and data-driven manner. Key indicators such as subscriber growth, customer churn rates, ARPU trends, and changes in customer acquisition costs will provide meaningful insight into the evolving dynamics of market share distribution. Should DIGI's growth accelerate beyond expectations, it may necessitate further downward revisions to profitability forecasts and capital returns.

Second, the macroeconomic landscape presents an added layer of complexity. Rising interest rates increase the cost of debt and reduce the present value of future cash flows—a particularly relevant issue for capital-intensive sectors like telecommunications. Simultaneously, persistent inflation may exert pressure on operating costs while limiting the extent to which these costs can be passed on to consumers. These macro trends are especially relevant when recalibrating the cost of capital, as misestimating WACC could significantly skew the firm's terminal value in discounted cash flow models.

Third, ESG (Environmental, Social, and Governance) performance is becoming an increasingly important driver of valuation multiples. Investors are more frequently integrating ESG factors into their assessments of long-term risk and return. NOS's active efforts in promoting digital inclusion, data privacy, and environmental sustainability could serve as differentiators in attracting ESG-conscious investors, potentially justifying valuation premiums relative to less proactive peers. However, sustained and transparent reporting on ESG outcomes will be critical in validating such positioning.

Fourth, technological advancement continues to serve as a key lever of long-term value creation. The deployment of 5G, integration of artificial intelligence (AI) in network optimization, and expansion into Internet of Things (IoT) services represent strategic imperatives rather than optional investments. NOS's ability to monetize these technological shifts, both through operational efficiency gains and new revenue streams, will heavily influence future cash flow projections.

Finally, regulatory developments at the national and EU level warrant close monitoring. Shifts in competition policy, spectrum allocation, and infrastructure investment incentives can have material impacts on firm performance. The recent approval of the Vodafone–Three UK merger, without substantial divestiture requirements, may signal a broader shift toward pro-consolidation policies within the EU. For NOS, this could open avenues for strategic alliances or acquisitions, thereby improving economies of scale and cost structures in the medium term.

In conclusion, NOS faces a complex and evolving strategic landscape. While the company remains fundamentally strong, recent market disruptions necessitate a cautious investment stance. The HOLD recommendation reflects a balanced view that considers NOS's operational resilience, solid capital base, and strategic initiatives, alongside intensifying competitive risks and macroeconomic uncertainty. As such, the investment thesis for NOS should be revisited periodically, particularly as new data emerges on competitive dynamics, macroeconomic shifts, and strategic execution. Continuous monitoring and scenario analysis

will be essential in determining whether NOS's valuation outlook warrants future upgrade or downgrade in investor recommendation.

Appendices

Appendix 1: Statement of Financial Position

Assets	2024E	2025F	2026F	2027F	2028F	2029F	2030F
Non-current assets							
Tangible assets	1 093 485	1 093 388	1 093 349	1 095 218	1 097 012	1 102 285	1 109 175
Investment property	349	349	349	349	349	349	350
Intangible assets	1 207 896	1 207 847	1 207 828	1 208 769	1 209 673	1 212 328	1 215 799
Contract costs	158 352	158 299	158 278	159 298	160 278	163 158	166 922
Rights of use	307 061	307 033	307 022	307 561	308 078	309 597	311 583
Investments in jointly controlled companies and associated companies	29 440	29 440	29 440	29 440	29 440	29 440	29 440
Accounts receivable - other	6 309	4 628	8 575	4 658	9 372	4 452	8 868
Tax receivable	50	54	52	54	51	52	48
Other financial assets non-current	6 952	2 393	9 246	9 409	9 026	8 992	8 541
Deferred income tax assets	86 871	76 866	97 542	99 363	95 226	94 969	75 111
Derivative financial instruments	5 583	5 583	5 583	5 583	5 583	5 583	5 583
Total Non-current assets	**2 902 347**	**2 885 880**	**2 917 265**	**2 919 703**	**2 924 088**	**2 931 206**	**2 931 422**
Current assets							
Inventories	51 868	51 349	50 836	50 327	49 824	49 326	48 832
Accounts receivable - trade	382 468	394 455	398 631	397 008	389 168	379 450	368 265
Contract assets	63 462	65 451	66 143	65 874	64 573	62 961	61 105
Accounts receivable - other	20 247	20 882	21 103	21 017	20 602	20 087	19 495
Tax receivable	34 988	16 249	34 045	22 736	27 308	16 757	15 707
Prepaid expenses	64 403	68 501	69 360	69 384	68 507	67 362	66 009
Cash and cash equivalents	15 516	8 281	23 988	25 097	24 095	3 141	13 977
Total Current assets	**632 950**	**625 166**	**664 106**	**651 444**	**644 077**	**599 082**	**593 390**
Total Assets	**3 535 298**	**3 511 046**	**3 581 370**	**3 571 147**	**3 568 164**	**3 530 289**	**3 524 812**

-

Shareholders' Equity	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Share capital	855 168	855 168	855 168	855 168	855 168	855 168	855 168
Capital issued premium	4 202	4 202	4 202	4 202	4 202	4 202	4 202
Own shares	-15 059	-15 059	-15 059	-15 059	-15 059	-15 059	-15 059
Legal reserve	4 374	4 374	4 374	4 374	4 374	4 374	4 374
Other reserves and accumulated earnings	-80 570	-109 729	-105 159	-100 228	-95 142	-90 133	-85 317
Net Income	149 841	152 328	164 347	169 534	166 971	160 530	147 846
Equity before NCI	**917 956**	**891 284**	**907 873**	**917 991**	**920 513**	**919 081**	**911 214**
Noncontrolling interests	6 585	6 585	6 585	6 585	6 585	6 585	6 585
Total equity	**924 541**	**897 869**	**914 458**	**924 576**	**927 098**	**925 666**	**917 799**

Liabilities	2024E	2025F	2026F	2027F	2028F	2029F	2030F
Non-Current Liabilities							
Borrowings	1 560 883	1 539 903	1 549 663	1 550 352	1 548 693	1 537 119	1 555 074
Provisions	82 590	96 963	87 989	87 590	87 163	83 274	93 101
Accounts payable - other	46 784	49 761	50 385	50 403	49 765	48 933	47 951
Derivative financial instruments	1 036	1 036	1 036	1 036	1 036	1 036	1 036
Deferred income tax liabilities	45 471	33 781	26 642	22 826	34 421	48 478	56 694
Total Non-Current Liabilities	**1 736 764**	**1 721 443**	**1 715 714**	**1 712 207**	**1 721 078**	**1 718 840**	**1 753 856**
Current Liabilities							
Borrowings	250 312	245 970	247 990	248 132	247 789	245 393	249 110
Accounts payable - trade	279 140	296 905	300 626	300 733	296 929	291 965	286 102
Accounts payable - other	46 784	49 761	50 385	50 403	49 765	48 933	47 951
Tax payable	56 336	43 625	93 606	76 597	70 562	49 137	25 030
Accrued expenses	201 250	214 057	216 740	216 817	214 074	210 496	206 269
Deferred income	39 730	40 975	41 409	41 240	40 426	39 417	38 255
Derivative financial instruments	441	441	441	441	441	441	441
Total Current Liabilities	**873 993**	**891 734**	**951 198**	**934 364**	**919 987**	**885 782**	**853 158**
Total Liabilities	**2 610 757**	**2 613 177**	**2 666 912**	**2 646 571**	**2 641 066**	**2 604 622**	**2 607 014**
Total Liabilities & Equity	**3 535 298**	**3 511 046**	**3 581 370**	**3 571 146**	**3 568 164**	**3 530 289**	**3 524 812**

Appendix 2: Income Statement

Description	2024E	2025F	2026F	2027F	2028F	2029F	2030F	CAGR 2024-2030
Operating revenues	**1 642 703**	**1 694 187**	**1 712 124**	**1 705 154**	**1 671 479**	**1 629 738**	**1 581 701**	***-0,63%***
Services Rendered	1 495 640	1 547 859	1 566 512	1 560 240	1 527 245	1 486 166	1 438 772	*-0,64%*
Sales	117 440	116 265	115 103	113 952	112 812	111 684	110 567	*-1%*
Other Operating Revenues	29 623	30 063	30 509	30 962	31 422	31 888	32 362	*1,48%*
Operating costs	**916 132**	**974 433**	**986 648**	**986 997**	**974 513**	**958 222**	**938 981**	***0,41%***
Wages and salaries	92 642	94 587	96 384	98 312	100 278	102 284	104 329	*2%*
Direct Costs	369 368	391 258	395 400	393 791	386 014	376 374	365 280	*0,19%*
Cost of Products Sold	116 148	138 353	139 817	139 248	136 498	133 090	129 167	*1,79%*
Marketing and advertising	40 012	41 092	42 202	43 341	44 511	45 713	46 947	*2,7%*
Support services	96 463	99 487	100 540	100 131	98 153	95 702	92 881	*-0,63%*
Supplies and external services	143 519	148 017	149 584	148 975	146 033	142 386	138 189	*-0,63%*
Other operating losses / (gains)	800	825	833	830	814	793	770	*-0,63%*
Taxes	47 365	50 573	51 200	51 217	50 574	49 735	48 744	*0,48%*
Provisions and adjustments	9 815	10 242	10 688	11 153	11 638	12 145	12 673	*4,35%*
Other Income (losses)	**-4 047**	**-4 047**	**-4 047**	**-4 047**	**-4 047**	**-4 047**	**-4 047**	**-**
Other (losses) / gains non recurrent net	-4 047	-4 047	-4 047	-4 047	-4 047	-4 047	-4 047	-
EBITDA	**722 525**	**715 707**	**721 429**	**714 110**	**692 919**	**667 470**	**638 673**	**-2,03%**
Depreciation and Amortization	464 292	455 007	445 906	432 529	415 228	398 619	386 660	-3%
EBIT	**258 232**	**260 701**	**275 522**	**281 581**	**277 691**	**268 851**	**252 013**	**-0,41%**
Net gains / (losses) of affiliated companies	3 481	3 317	3 160	3 011	2 869	2 733	2 604	-4,72%
Net Financial costs	-63 880	-62 603	-61 351	-60 124	-58 921	-57 743	-56 588	-2%
Net foreign exchange gains / (losses)	-153	-171	-192	-214	-240	-269	-301	11,99%
Net gains / (losses) on financial assets	-40	-22	-12	-7	-4	-2	-1	-44,56%
Net other financial income / (expenses)	-4 535	-4 886	-5 263	-5 670	-6 108	-6 581	-7 089	7,73%
Income before tax	**193 105**	**196 336**	**211 865**	**218 576**	**215 286**	**206 990**	**190 638**	**-0,21%**
Income Tax	43 449	44 176	47 670	49 180	48 439	46 573	42 894	-0,21%
Net Income from continuing operations	**149 656**	**152 160**	**164 195**	**169 397**	**166 847**	**160 417**	**147 744**	**-0,21%**
Net consolidated income from discontinued operations	0	0	0	0	0	0	0	-
Net Income	**149 656**	**152 160**	**164 195**	**169 397**	**166 847**	**160 417**	**147 744**	**-0,21%**
Net income attributable to NCI	185	167	152	137	124	112	102	-9,52%
Net Income attributable to NOS shareholders	**149 841**	**152 328**	**164 347**	**169 534**	**166 971**	**160 530**	**147 846**	**-0,22%**

Appendix 3: Cash Flow Statement

Cash-Flow Statement	2024E	2025F	2026F	2027F	2028F	2029F	2030F
Operating Activities							
EBIT	258 232	260 701	275 522	281 581	277 691	268 851	252 013
Depreciation, Amortization and Impairment Losses	464 292	455 007	445 906	432 529	415 228	398 619	386 660
Taxes	43 449	44 176	47 670	49 180	48 439	46 573	42 894
∂ in NWC	37 765	-16 604	-2 028	-2 494	-2 939	-3 105	-3 245
[COA] | Operating Activities	**641 311**	**688 135**	**675 787**	**667 424**	**647 419**	**624 002**	**599 025**
Investing Activities							
Tangible Assets	198 478	194 509	190 676	186 861	179 387	175 762	172 265
Intangible Assets	99 969	97 969	96 039	94 117	90 353	88 527	86 766
Contract Costs	108 411	106 242	104 149	102 065	97 983	96 003	94 093
RoU	57 191	56 048	54 943	53 844	51 690	50 646	49 638
Investment Property	11	11	11	11	10	10	10
[CIA] | Investing Activities	**-464 060**	**-454 779**	**-445 817**	**-436 898**	**-419 422**	**-410 947**	**-402 771**
Financing Activities							
Borrowings	77 226	-25 322	11 780	832	-2 003	-13 970	21 671
Interest and Related Expenses	-68 456	-67 511	-66 626	-65 801	-65 033	-64 325	-63 678
Dividends	-179 000	-147 758	-159 416	-164 448	-161 962	-155 714	-143 411
[CFO] | Financing Activities	**-170 230**	**-240 591**	**-214 262**	**-229 417**	**-228 998**	**-234 009**	**-185 418**
Change in Cash	**7 021**	**-7 235**	**15 707**	**1 109**	**-1 001**	**-20 954**	**10 836**
Begining	**8 495**	**15 516**	**8 281**	**23 988**	**25 097**	**24 095**	**3 141**
End	**15 516**	**8 281**	**23 988**	**25 097**	**24 095**	**3 141**	**13 977**

Appendix 4: Key Financial Ratios

Profitability Ratios	2024E	2025F	2026F	2027F	2028F	2029F	2030F
Gross Profit Margin	69,4%	69,8%	71,3%	70,4%	68,7%	68,7%	68,7%
EBITDA Margin	44,0%	42,2%	42,1%	41,9%	41,5%	41,0%	40,4%
EBIT Margin	15,7%	15,4%	16,1%	16,5%	16,6%	16,5%	15,9%
Net Profit Margin	9,1%	9,0%	9,6%	9,9%	10,0%	9,9%	9,3%
ROA	4,2%	4,3%	4,6%	4,7%	4,7%	4,5%	4,2%
ROIC	7,4%	7,6%	7,9%	8,1%	8,0%	7,7%	7,2%
ROCE	9,7%	10,0%	10,5%	10,7%	10,5%	10,2%	9,4%
Operating Margin	15,7%	15,4%	16,1%	16,5%	16,6%	16,5%	15,9%
Capital Turnover	61,7%	64,7%	65,1%	64,7%	63,1%	61,6%	59,2%
ROE	16,2%	16,9%	18,0%	18,3%	18,0%	17,3%	16,1%
Liquidity Ratios	**2024E**	**2025F**	**2026F**	**2027F**	**2028F**	**2029F**	**2030F**
Current Ratio	72,4%	70,1%	69,8%	69,7%	70,0%	67,6%	69,6%
Quick Ratio	66,5%	64,3%	64,5%	64,3%	64,6%	62,1%	63,8%
Cash Ratio	1,8%	0,9%	2,5%	2,7%	2,6%	0,4%	1,6%
Efficiency Ratios	**2024E**	**2025F**	**2026F**	**2027F**	**2028F**	**2029F**	**2030F**
DSO (days)	89	89	89	89	89	89	89
DIO (days)	21	19	19	19	19	19	19
DPO (days)	129,9	129,9	129,9	129,9	129,9	129,9	129,9
Operating Cycle (days)	(19,7)	(21,1)	(21,6)	(21,8)	(21,7)	(21,6)	(21,4)

Appendix 5: Common-Size Statement of Financial Position

Assets	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Non-current assets							
Tangible assets	31%	31%	31%	31%	31%	31%	31%
Investment property	0%	0%	0%	0%	0%	0%	0%
Intangible assets	34%	34%	34%	34%	34%	34%	34%
Contract costs	4%	5%	4%	4%	4%	5%	5%
Rights of use	9%	9%	9%	9%	9%	9%	9%
Investments in jointly controlled companies and associated companies	1%	1%	1%	1%	1%	1%	1%
Accounts receivable - other	0%	0%	0%	0%	0%	0%	0%
Tax receivable	0%	0%	0%	0%	0%	0%	0%
Other financial assets non-current	0%	0%	0%	0%	0%	0%	0%
Deferred income tax assets	2%	2%	3%	3%	3%	3%	2%
Derivative financial instruments	0%	0%	0%	0%	0%	0%	0%
Total Non-current assets	**82%**	**82%**	**81%**	**82%**	**82%**	**83%**	**83%**
Current assets							
Inventories	1%	1%	1%	1%	1%	1%	1%
Accounts receivable - trade	11%	11%	11%	11%	11%	11%	10%
Contract assets	2%	2%	2%	2%	2%	2%	2%
Accounts receivable - other	1%	1%	1%	1%	1%	1%	1%
Tax receivable	1%	0%	1%	1%	1%	0%	0%
Prepaid expenses	2%	2%	2%	2%	2%	2%	2%
Non-current assets held-for-sale	0%	0%	0%	0%	0%	0%	0%
Derivative financial instruments	0%	0%	0%	0%	0%	0%	0%
Cash and cash equivalents	0%	0%	1%	1%	1%	0%	0%
Total Current assets	**18%**	**18%**	**19%**	**18%**	**18%**	**17%**	**17%**
Total Assets	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Shareholders' Equity	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Share capital	24%	24%	24%	24%	24%	24%	24%
Capital issued premium	0%	0%	0%	0%	0%	0%	0%
Own shares	0%	0%	0%	0%	0%	0%	0%
Legal reserve	0%	0%	0%	0%	0%	0%	0%
Other reserves and accumulated earnings	-2%	-3%	-3%	-3%	-3%	-3%	-2%
Net Income	4%	4%	5%	5%	5%	5%	4%
Equity before NCI	**26%**	**25%**	**25%**	**26%**	**26%**	**26%**	**26%**
Noncontrolling interests	0%	0%	0%	0%	0%	0%	0%
Total equity	**26%**	**26%**	**26%**	**26%**	**26%**	**26%**	**26%**

Liabilities	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Non-Current Liabilities							
Borrowings	44%	44%	43%	43%	43%	44%	44%
Provisions	2%	3%	2%	2%	2%	2%	3%
Accounts payable - other	1%	1%	1%	1%	1%	1%	1%
Tax Payable	0%	0%	0%	0%	0%	0%	0%
Accrued expenses	0%	0%	0%	0%	0%	0%	0%
Deferred income	0%	0%	0%	0%	0%	0%	0%
Derivative financial instruments	0%	0%	0%	0%	0%	0%	0%
Deferred income tax liabilities	1%	1%	1%	1%	1%	1%	2%
Total Non-Current Liabilities	**49%**	**49%**	**48%**	**48%**	**48%**	**49%**	**50%**
Current Liabilities							
Borrowings	7%	7%	7%	7%	7%	7%	7%
Accounts payable - trade	8%	8%	8%	8%	8%	8%	8%
Accounts payable - other	1%	1%	1%	1%	1%	1%	1%
Tax payable	2%	1%	3%	2%	2%	1%	1%
Accrued expenses	6%	6%	6%	6%	6%	6%	6%
Deferred income	1%	1%	1%	1%	1%	1%	1%
Derivative financial instruments	0%	0%	0%	0%	0%	0%	0%
Total Current Liabilities	**25%**	**25%**	**27%**	**26%**	**26%**	**25%**	**24%**
Total Liabilities	**74%**	**74%**	**74%**	**74%**	**74%**	**74%**	**74%**
Total Liabilities & Equity	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Appendix 6: Common-Size Income Statement

Description	2024E	2025F	2026F	2027F	2028F	2029F	2030F
Operating revenues	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Services Rendered	91%	91%	91%	92%	91%	91%	91%
Sales	7%	7%	7%	7%	7%	7%	7%
Other Operating Revenues	2%	2%	2%	2%	2%	2%	2%
Operating costs	**56%**	**58%**	**58%**	**58%**	**58%**	**59%**	**59%**
Wages and salaries	6%	6%	6%	6%	6%	6%	7%
Direct Costs	22%	23%	23%	23%	23%	23%	23%
Cost of Products Sold	7%	8%	8%	8%	8%	8%	8%
Marketing and advertising	2%	2%	2%	3%	3%	3%	3%
Support services	6%	6%	6%	6%	6%	6%	6%
Supplies and external services	9%	9%	9%	9%	9%	9%	9%
Other operating losses / (gains)	0%	0%	0%	0%	0%	0%	0%
Taxes	3%	3%	3%	3%	3%	3%	3%
Provisions and adjustments	1%	1%	1%	1%	1%	1%	1%
Other Income (losses)	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Other (losses) / gains non recurrent net	0%	0%	0%	0%	0%	0%	0%
EBITDA	**44%**	**42%**	**42%**	**42%**	**41%**	**41%**	**40%**
Depreciation and Amortization	28%	27%	26%	25%	25%	24%	24%
EBIT	**16%**	**15%**	**16%**	**17%**	**17%**	**16%**	**16%**
Net gains / (losses) of affiliated companies	0%	0%	0%	0%	0%	0%	0%
Net Financial costs	-4%	-4%	-4%	-4%	-4%	-4%	-4%
Net foreign exchange gains / (losses)	0%	0%	0%	0%	0%	0%	0%
Net gains / (losses) on financial assets	0%	0%	0%	0%	0%	0%	0%
Net other financial income / (expenses)	0%	0%	0%	0%	0%	0%	0%
Income before tax	**12%**	**12%**	**12%**	**13%**	**13%**	**13%**	**12%**
Income Tax	3%	3%	3%	3%	3%	3%	3%
Net Income from continuing operations	**9%**	**9%**	**10%**	**10%**	**10%**	**10%**	**9%**
Net consolidated income from discontinued operations	0%	0%	0%	0%	0%	0%	0%
Net Income	**9%**	**9%**	**10%**	**10%**	**10%**	**10%**	**9%**
Net income attributable to NCI	0%	0%	0%	0%	0%	0%	0%
Net Income attributable to NOS shareholders	**9%**	**9%**	**10%**	**10%**	**10%**	**10%**	**9%**

Appendix 7: Income Statement Assumptions

Description	Assumption
Operating revenues	-
Services Rendered	Check ***Appendix 8*** for detailed RGU evolution
Sales	Decrease of 1% as historic evolution
Other Operating Revenues	Historical average of last 5 years
Operating costs	-
Wages and salaries	Linked to inflation
Direct Costs	Average of last 5 years as % of Total Sales
Cost of Products Sold	Average of last 5 years as % of Total Revenue
Marketing and advertising	Above historical average of last 5 years to adapt for the incoming increase in competition
Support services	Historical average of last 5 years
Supplies and external services	Average of last 5 years as % of Total Revenue
Other operating losses / (gains)	Average of last 9 years as % of Total Revenue
Taxes	Average of last 5 years as % of Operating Costs (Excluding previous Taxes)
Provisions and adjustments	Historical average of last 5 years
Other Income (losses)	-
Other (losses) / gains non recurrent net	-
EBITDA	-
Depreciation and Amortization	Adjusted to decrease to the company's target of 350M€ in 2030. Though the company has set this target, it is expected that the market will keep requiring continued investments from the company to maintain it at the forefront
EBIT	-
Net gains / (losses) of affiliated companies	Historical average of last 5 years
Net Financial costs	
Net foreign exchange gains / (losses)	
Net gains / (losses) on financial assets	
Net other financial income / (expenses)	
Income before tax	-
Income Tax	22,5%
Net Income from continuing operations	-
Net consolidated income from discontinued operations	-
Net Income	-
Net income attributable to NCI	-
Net Income attributable to NOS shareholders	-

Appendix 8: NOS RGU's Evolution (Price and #)

RGU Price Evolution	2024	2025F	2026F	20227F	2028F	2029F	2030F
Pre-Paid	€5,50	5,50 €	5,56 €	5,61 €	5,61 €	5,61 €	5,55 €
Post-Paid	€5,50	5,50 €	5,56 €	5,61 €	5,61 €	5,61 €	5,55 €
Pay TV Fixed Access	€27,00	27,00 €	27,27 €	27,54 €	27,54 €	27,54 €	27,27 €
Pay TV DTH	€27,00	27,00 €	27,27 €	27,54 €	27,54 €	27,54 €	27,27 €
Fixed Voice	€12,00	12,00 €	12,12 €	12,24 €	12,24 €	12,24 €	12,12 €
Broadband	€13,00	13,00 €	13,13 €	13,26 €	13,26 €	13,26 €	13,13 €

# of RGU Evolution	2024	2025F	2026F	20227F	2028F	2029F	2030F
Pre-Paid	2,7%	0,0%	1,0%	1,0%	0,0%	0,0%	-1,0%
Post-Paid	2,7%	0,0%	1,0%	1,0%	0,0%	0,0%	-1,0%
Pay TV Fixed Access	2,7%	0,0%	1,0%	1,0%	0,0%	0,0%	-1,0%
Pay TV DTH	2,7%	0,0%	1,0%	1,0%	0,0%	0,0%	-1,0%
Fixed Voice	2,7%	0,0%	1,0%	1,0%	0,0%	0,0%	-1,0%
Broadband	2,7%	0,0%	1,0%	1,0%	0,0%	0,0%	-1,0%

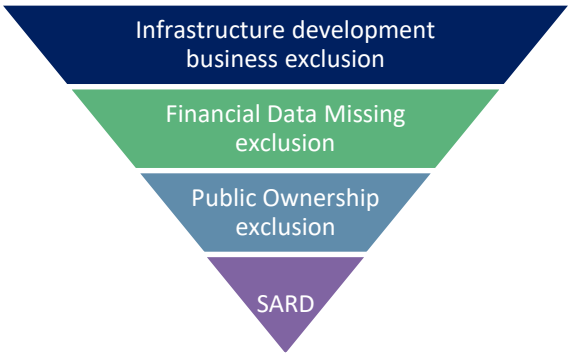
Appendix 9: Peers Selection

To establish a relevant peer group for NOS, a systematic selection process based on **Systematic Analysis of Relevant Data** was applied, incorporating specific exclusion criteria. As a result, the following companies were excluded from consideration:

Entities with incomplete or unavailable financial data were removed from consideration.

Infrastrutture Wireless Italiane SpA and **Cellnex Telecom SA** were excluded as they are primarily engaged in infrastructure development rather than direct telecom services.

Telecom Italia SpA and **Proximus NV** were excluded due to significant government ownership, which could impact competitive dynamics.

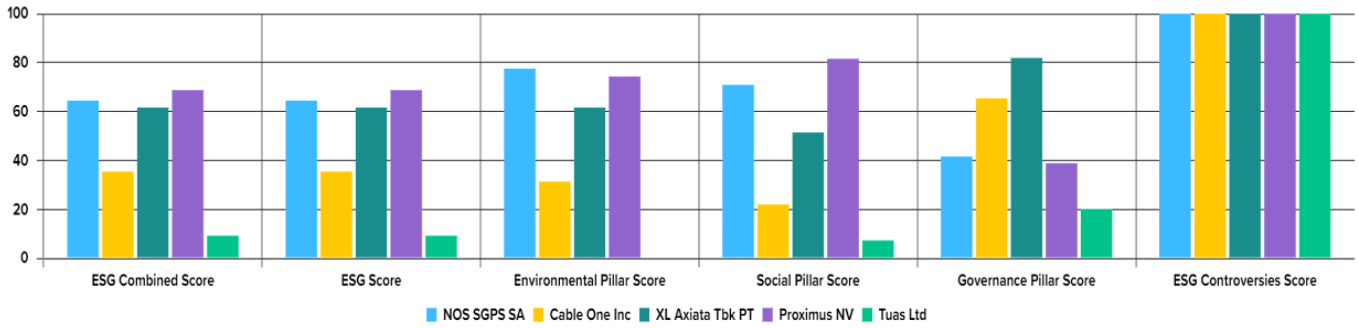


Appendix 10: ESG Peers Summary

PEER SUMMARY

Closest four peers by market capitalization and Telecommunications Services

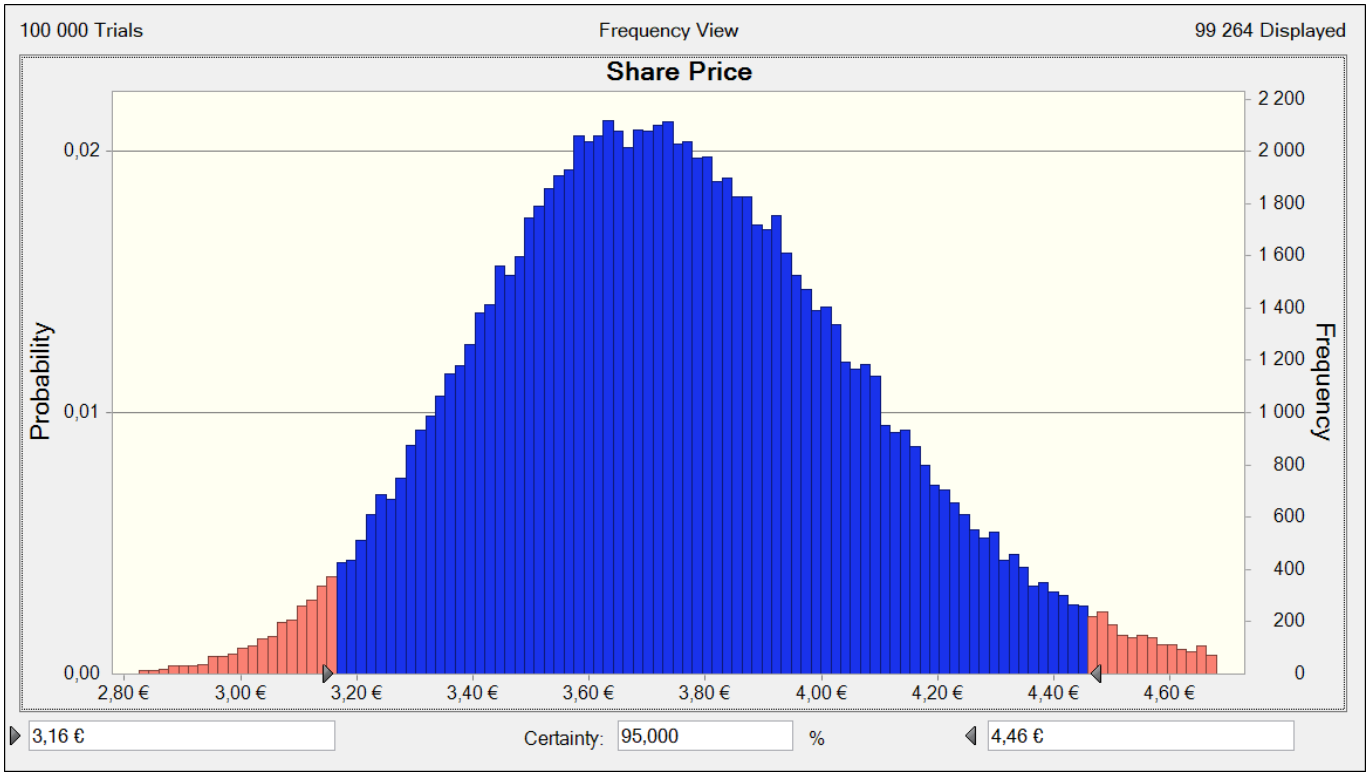
	NOS.LS	CABO.N	EXCL.JK	PROX.BR	TUA.AX
	NOS SGPS SA	Cable One Inc	XL Axiata Tbk PT	Proximus NV	Tuas Ltd
Company Market Cap (Mil USD)	$1,829	$1,924	$1,847	$1,828	$1,810
Total Revenue (Mil USD)	$1,763	$1,678	$2,100	$6,614	$77
ESG Combined Score	64.45	35.41	61.59	68.78	9.18
ESG Score	64.45	35.41	61.59	68.78	9.18
Environmental Pillar Score	77.51	31.34	61.59	74.30	0.00
Social Pillar Score	70.87	22.02	51.44	81.57	7.27
Governance Pillar Score	41.56	65.39	81.93	38.87	20.02
ESG Controversies Score	100.00	100.00	100.00	100.00	100.00



Appendix 11: Investment Risks

Short Name	Probability	Risk Category	Risk Factor	Description	Impact	Mitigation Strategy
M1	High	Market	Existing Competition	High market penetration with Vodafone and MEO competing aggressively.	High	Expansion of Telecom offerings, improved customer experience, and IT/IoT services for SMEs.
M2	High	Market	Entry of New Players	DIGI's entry with low-cost broadband and mobile services intensifies price competition.	High	"WOO" budget-friendly package introduced in 2020 to retain price-sensitive customers.
M3	High	Market	Inflation & Interest Rates	Inflation raises operating and financing costs, with NOS's cost of debt rising from 1.3% (Q4 2022) to 3.9% (Q3 2023)	Medium	Inflation-linked price adjustments and the use of interest rate swaps help hedge against debt cost volatility.
PRL1	High	Political, Regulatory, and Legal	Regulatory Changes	ANACOM's policies have historically favored new entrants, creating an uneven playing field.	High	Legal actions challenging unfair regulations and strategic alignment with compliance mandates.
GR1	Moderate	Governance	Shareholder Uncertainty	ZOPT's stake in NOS remains uncertain due to legal issues involving Isabel dos Santos, posing governance risks.	Moderate	NOS upholds independent decision-making and a conservative financial strategy to mitigate external shareholder pressures.
CR1	Moderate	Cybersecurity	Increasing Cyber Threats	Portugal has seen a rise in cyberattacks, with Vodafone Portugal suffering a major breach in 2022, highlighting the sector's vulnerability.	Medium	Strengthening cybersecurity infrastructure, appointing a Chief Information Security Officer (CISO), and expanding B2B cybersecurity solutions.
OR1	Medium	Operational	High Capital Expenditure for Network Expansion	NOS's investments in 5G and Fiber-to-the-Home (FttH) require substantial capital expenditure.	High	NOS is transitioning to a lower CapEx phase to enhance cash flow while maintaining essential network investments.
OR2	High	Operational	Supply Chain Disruptions	Global supply chain instability may delay equipment procurement, affecting service rollout.	Medium	Supplier diversification and inventory buffers help ensure continuity in network deployment.
OR3	Moderate	Operational	Natural Disasters & Climate Risks	Extreme weather events may damage infrastructure and disrupt service availability.	Moderate	A Business Continuity Management (BCM) program and Occupational Health & Safety (OHS) initiatives ensure preparedness.
FR1	Medium	Financial	Solvency & Liquidity Management	NOS operates in a capital-intensive industry requiring strong liquidity to meet financial obligations.	High	Maintaining a Net Financial Debt/EBITDA AL ratio of ≤2, sufficient cash reserves, and unissued committed commercial paper programs to ensure financial stability.
TR1	Medium	Technological	5G Adoption & Rollout	The transition to 5G requires significant investment, with uncertain consumer adoption rates.	Medium	Targeted marketing, strategic partnerships, and phased infrastructure investments to optimize returns.
RR1	High	Reputational	Customer Satisfaction & Brand Perception	Poor customer experiences can increase churn rates and negatively impact NOS's brand positioning.	Medium	Enhanced customer service, proactive feedback mechanisms, and loyalty programs to improve retention.
FR2	High	Financial	Disappearance of the Greenium	The "greenium" (the premium investors are willing to pay for green bonds) has been shrinking due to rising interest rates and increased issuance of sustainable debt. This could lead to higher financing costs for NOS's sustainability-linked projects.	Moderate	NOS can diversify its funding strategy by combining traditional bonds, sustainability-linked financing, and EU grants, while maintaining strong ESG performance to retain investor confidence and access favorable financing terms.

Appendix 12: Monte Carlo Simulation – Share Price Forecast



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André Marques
22/02/2025

Recommendation System

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

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