Lisbon School of Economics & Management
Universidade de Lisboa

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MASTER'S FINAL WORK
PROJECT

EQUITY RESEARCH NOS SGPS SA:
CASE STUDY ON THE FINANCIAL POLICY TOWARDS 6G

JOÃO POIRET DE MENDONÇA E DE SALDANHA VIEIRA

JULY 2024

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Abstract

The present document consists of an Equity Research report on NOS SGPS, S.A. (NOS.LS). NOS is an established and leading telecommunications company in Portugal offering a diverse range of services, including Fixed Pay TV, Fixed Voice, Fixed Broadband, Mobile, IoT, and Data Management services.

This report issues a Buy recommendation for NOS, with a 2024YE price target of €4.15/share. To value the company, a Sum-of-the-Parts approach was employed where a discounted cash flow analysis, based on FCFF, was developed for each segment (Telco and A&C). This valuation represents an upside potential of 27% from the January 12th, 2024 closing price of €3.27, with a medium-low risk. To support this analysis, other methods such as Relative Valuation were developed, as well as a number of stress tests.

This report was used for the local Portuguese CFA Institute Research Challenge. To complement the original research presented during the competition, a case study was elaborated focusing on the existing financial policies that companies might adopt and their impacts on financial statements. Furthermore, it aims to identify the optimal financial policy for the company in preparation for the expected significant investment in deploying the 6G grid, which will succeed the recent deployment of 5G and is scheduled for the beginning of the next decade. The case study's elaborations also has into consideration the original analysis of the company's current position and competitive environment along with a number of constraints to guide its execution.

Please note that this report includes only publicly available information until January 12th, 2024.

JEL classification: G10 ; G32; G34

Keywords: Equity Research; Valuation; Mergers & Acquisitions

Resumo

O presente documento consiste num relatório de *Equity Research* sobre a NOS SGPS, S.A. (NOS.LS). A NOS é uma empresa de telecomunicações estabelecida e líder em Portugal, oferecendo uma ampla gama de serviços, incluindo TV por subscrição fixa, Voz fixa, Banda larga fixa, Mobile, IoT e serviços de Gestão de Dados.

Nste relatório é emitida uma recomendação de Compra para a NOS, com um preço-alvo de €4,15 por ação para o final de 2024. Para avaliar a empresa, foi utilizada uma abordagem de *Sum-of-Parts*, através de um modelo DCF, baseado em FCFF para cada segmento (Telecomunicações e Audiovisuais e Cinema). Esta avaliação representa um potencial de valorização de 27% em relação ao preço de fecho de €3,27 em 12 de janeiro de 2024, com um risco médio-baixo. Para apoiar esta análise, foram desenvolvidos outros métodos, como a Avaliação Relativa, além de uma série de testes de sensibilidade.

Este relatório foi utilizado foi utilizado para o *CFA Institute Research Challenge* em Portugal. Para complementar a pesquisa original apresentada durante a competição, foi elaborado um estudo de caso focado nas políticas financeiras que as empresas podem adotar e os seus impactos nas demonstrações financeiras. Além disso, visa também identificar a política financeira mais adequada para a empresa, considerando a sua necessidade se preparar o investimento significativo na implementação da rede 6G, que sucederá à recente implantação do 5G, agendado para o início da próxima década. As elaborações do estudo de caso também levam em consideração a análise inicial da posição atual da empresa e do seu ambiente competitivo, juntamente com um número de restrições para orientar a sua resolução. Note-se que este relatório inclui apenas informações publicas até 12 de janeiro de 2024.

JEL classification: G10 ; G32; G34

Keywords: Equity Research; Valuation; Mergers & Acquisitions

Disclosures

A significant portion of the Appendices were submitted by a group of students from ISEG, including the candidate, for the 2024 CFA Institute Research Challenge Portuguese Local Final. The main work can be read independently of these Appendices, although they provide a better understanding of the analysis.

This report is published for educational purposes by Master students at ISEG and is not an investment recommendation.

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This report was prepared by a Master's student in Finance at ISEG – Lisbon School of Economics and Management, exclusively for the Master's Final Work. The opinions expressed and estimates contained herein reflect the personal views of the author about the subject company, for which he/she is solely responsible. Neither ISEG, nor its faculty accepts responsibility whatsoever for the content of this report or any consequences of its use. The valuation methodologies and the financial model contained in this report was revised by the supervisor.

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Recommendation System

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

AI Disclaimer

This master thesis/internship report/project was developed with strict adherence to the academic integrity policies and guidelines set forth by ISEG, Universidade de Lisboa. The work presented herein is the result of my own research, analysis, and writing, unless otherwise cited. In the interest of transparency, I provide the following disclosure regarding the use of artificial intelligence (AI) tools in the creation of this thesis/internship report/project:

I disclose that AI tools were employed during the development of this thesis as follows:

- AI-based research tools were used to assist in literature review and data collection.
- AI-powered software was utilized for data analysis and visualization.
- Generative AI tools were consulted for brainstorming and outlining purposes. However, all final writing, synthesis, and critical analysis are my own work. Instances where AI contributions were significant are clearly cited and acknowledged.

Nonetheless, I have ensured that the use of AI tools did not compromise the originality and integrity of my work. All sources of information, whether traditional or AI-assisted, have been appropriately cited in accordance with academic standards. The ethical use of AI in research and writing has been a guiding principle throughout the preparation of this thesis.

I understand the importance of maintaining academic integrity and take full responsibility for the content and originality of this work.

João Poiret de Mendonça e de Saldanha Vieira, 30th June 2024.

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To my friends, knowing that you will always be there for me gives me the security and motivation to tackle any challenge. I am very fortunate to have you all in my life.

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And finally, "I want to thank me for believing in me. I want to thank me for doing all this hard work. I want to thank me for having no days off. I want to thank me for never quitting. I want to thank me for always being a giver and trying to give more than I receive. I want to thank me for trying to do more right than wrong. I want to thank me for being me at all times." – Calvin Broadus Jr.

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1. Case Study Guidelines

1.1 Scope of the Case Study

NOS has just surpassed a period of very high capital expenditures due to the implementation of the 5G grid. Entering a new stage of profitability and fewer future short-term investment requirements, the company is starting to prepare for the future. It is known that companies in this industry (telecommunications) must constantly adapt to new technologies and services as to avoid obsolescence and maintaining their competitive advantages in the market.

It is also known that some companies are already researching the development of 6G technology, for which experts believe will start to be developed and subsequently deployed in the beginning of the next decade. The deployment of this new technology grid will be expensive, likely even more than the just surpassed deployment of 5G grid, due to the complexity of technology required to do so. The firm currently expects those costs to range between €1.5B and €2.5B.

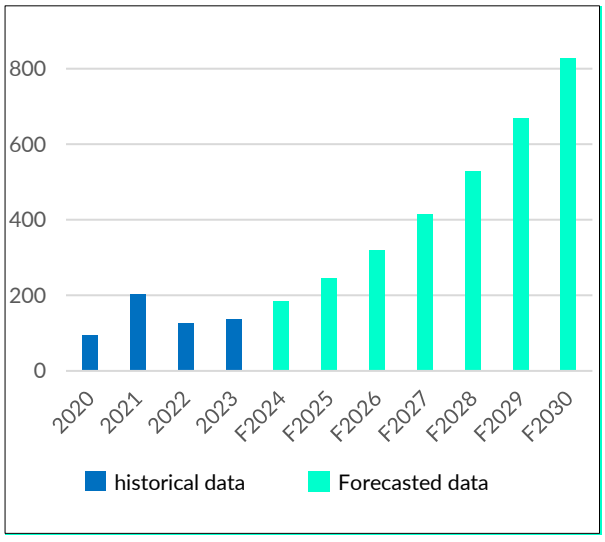
The development of 6G technology has become a major focus for technology companies, especially together with advancements in Artificial Intelligence (AI). The utility rate of AI is rapidly expanding, transforming numerous industries and potentially making some obsolete. This technology is evolving to arguably every sector, and companies that fail to adapt to it risk losing their competitive advantage and may struggle to sustain their presence in the long term.

According to Statista, the market size for AI in 2024 stands at $184B and is projected to reach approximately $830B by 2030. This growth represents a CAGR of 28.5%, a significant figure that underscores the weight of AI's development (Figure 1**Error! Reference source not found.**). As AI becomes more efficient and powerful, the demand for greater grid capacity increases. In other words, internet infrastructure must evolve in parallel with AI to support its growth and capabilities.

The rise of AI has also created the need for the development of even stronger internet connectivity to ensure faster, more reliable, and advanced networks capable of supporting AI's potency. Consequently, several global companies are prioritizing the rapid development of 6G technology. For these technology firms, staying ahead in the race for superior connectivity is crucial.

Samsung, for instance, has reported remarkable progress in its efforts to develop 6G technology, demonstrating significant advancements over 5G. As the new era of technology, propelled by AI, demands real-time data processing, ultra-fast data rates, and highly reliable connections with minimal latency, Samsung expects its 6G technology to achieve a peak data rate of 1000 Gbps and average user-experienced data rates of 1 Gbps. This is a substantial improvement compared to 5G's peak data rate of 20 Gbps, indicating a possible 50x increase in capability from 5G to 6G (Table 1).

Figure 1 – AI market size worldwide (€B)



Source: Statista, "AI Market size worldwide 2020-2030"

Table 1 – Generations peak capacity data

Wireless Technology Generation	Peak Capacity data rate
1G	2Kbps
2G	64Kbps
3G	8Mbps
4G	50Mbps
5G	20Gbps
6G	1000Gbps

Source: Samsung website: Global Business Solutions 6G

On a different note, as we approach the midpoint of the current decade, NOS' CFO has also recognized the importance of the 6th generation of wireless technology and how vital it will be on the following years. This idea has led him to focus on the evaluation of the company's position to withstand the financial challenges associated with deploying the 6G grid in the future. To assist in this assessment, the company has hired a consulting firm to analyse its current working capital management strategy and explore alternative financial policies to ensure its readiness for these upcoming capital-intensive challenges.

A thorough understanding of each potential working capital management strategy, including their respective advantages and disadvantages, is critical for NOS. The company has also stated its inclination to shift from its current strategy if a more suitable approach is identified, and desires to so by the end of 2026.

Notably, within the industry scope previously mentioned, the company operates in a mature and highly competitive market. Each player in this environment strives to maintain and expand market share while reducing costs to increase margins, having in mind customers' elastic price sensitivity.

Given this competitive landscape, NOS' CFO has imposed constraints for the consulting firm tasked with studying possible alternative financing policies. It was emphasized that no changes should be made to the credit terms NOS offers its customers. The CFO believes that altering these terms to be more restrictive could lead to lost sales, significantly impacting margins and straining the relationship between the company and its shareholders and creditors. Additionally, the CFO has prohibited any changes to the expected dividend policy to prevent unsettling the company's shareholders and signalling cash flow challenges to the market.

1.2 Current NOS Position

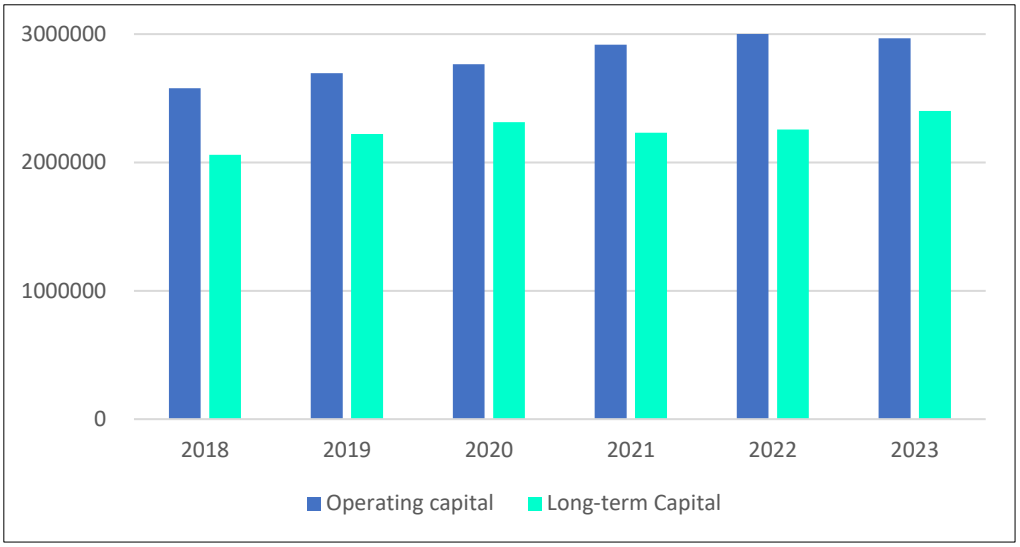
Before advancing into the strategies that NOS might pursue to adjust its financial policy, it is pertinent to recapitulate the key aspects of the company's financial position.

As of YE2023, NOS holds a total of €1737M in debt, for which 18% (€313M) is deemed as short-term, and its book value of equity is estimated to be €983M. Additionally, NOS' fixed assets are valued at €2887M.

It is also important to understand the company's permanent working capital requirements (WCR). Since 2018, NOS' lowest WCR were valued at €51M, also in 2018. We will assume this value to be its permanent needs. Any value above will be classified as temporary WCR. We will also assume that the aggressive strategy NOS intends on implementing is targeting 50% of its permanent WCR to be covered by the combination of the company's LTD and Equity.

From the prior, we may now infer that, as of YE2023, NOS' operating capital, which is the combination of value of its fixed assets and working capital requirements (FA + WCR) is €505M above the value of the firm's long-term capital, which is the value of long-term debt and equity (LTD + EQ).

Figure 2 – Financing of operating capital with long-term debt (€Th)



Source: Team Estimates

The reason for focusing on these variables is that, to infer a company's financial policy, and therefore its working capital management strategy, we must first understand the relationship between them. Since NOS' operating capital, which is the summation of its fixed assets along with its permanent working capital requirements, is greater than NOS long-term capital, which is the value of the company's long-term debt plus equity, we assess that the company is pursuing a risky working capital strategy.

Given the amplitude difference presented above is quite significant, transitioning from a risky to a different working capital strategy within one year is not feasible without dangerously jeopardizing NOS' financial structure, which justifies the company's desire to achieve it by 2026YE. We may also conclude that any working capital strategy shift will imply adjustments in these variables towards closing the gap between NOS' long-term capital and its operating capital.

From the previous premise, we will forecast the company's financial changes from its current risky financial policy to the other existing ones.

Considering NOS' position and the CFO's specific directives to our consulting firm, the essential question remains: What financial policy is optimal to ensure a robust balance sheet that can support future CAPEX requirements for deploying 6G technology, without compromising its market operations.

2. Teaching Notes

2.1 Shift from Risky to an Aggressive Financial Policy

The first step in shifting strategies is to establish the goal to be achieved. An aggressive working capital strategy is one defined by the company's long-term capital (LTD + EQ) covering its fixed assets (FA) and part of the firm's permanent working capital requirements. We will assume that, to achieve the strategy's shift, 50% of NOS' NWC will be covered, on top of its fixed assets, by the company's previously mentioned long-term capital.

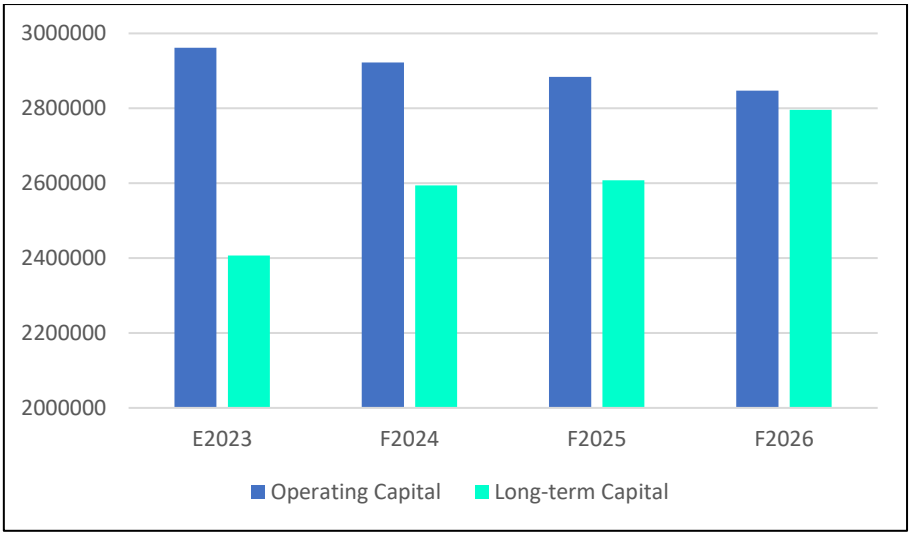
For this end, we will forecast NOS emitting €400M of sustainability-linked bonds with variable interest (Euribor still as the market reference rate). This emission will be two-staged, with half executed in F2024 and the other half in F2026. With the intent of retiring current short-term debt, we will follow a process involving retiring €150 million of short-term debt in both 2024 and 2026. This two-stage change in NOS's capital structure ensures a greater capacity to withstand potential challenges arising from the strategy's execution compared to executing all at once.

From the excess proceeds of the long-term debt emission, the firm could repurchase part of its shares on the open market. We will assume the value of said action to be €35M divided equally in 2024 and 2026. Additionally, the firm can withstand a higher payment of its operational expenses to suppliers. Yet, according to this strategy, we expect NOS to only revert its trend of increasing its payables, resulting in a yearly net change of €0 in this area.

As NOS transitions to an aggressive working capital strategy by replacing its short-term debt with longer-term debt, it is likely to face larger interest expenses due to the increased weight of longer maturity debt in its capital structure. These higher expenses will decrease the company's net income and reported profitability.

Considering all previous proposed changes to NOS' financing and day-to-day activities, we can outline these adjustments more clearly with the following graph (Figure 3**Error! Reference source not found.**). This graph illustrates the yearly progression expected in the company's operating and long-term capital to meet the financing restrictions that arise when transitioning from a risky to an aggressive financial policy.

Figure 3 – Shift from Risky to Aggressive financial policy (€Th)



Source: Author's Estimates

2.2 Shift from Risky to a Maturity Matching Financial Policy

This strategy differs from an aggressive one by the company's long-term capital covering the totality of permanent working capital, on top of the firm's fixed assets. Therefore, instead of covering solely €26M, to achieve the strategy it will have to cover now the €51M.

To achieve this, we will still forecast NOS emitting sustainability linked bonds with variable interest (Euribor still as the market reference rate) evenly in F2024 and F2026. However, instead of the previous total of €400M debt emitted, we will increase this value by 200bps, to €408M.

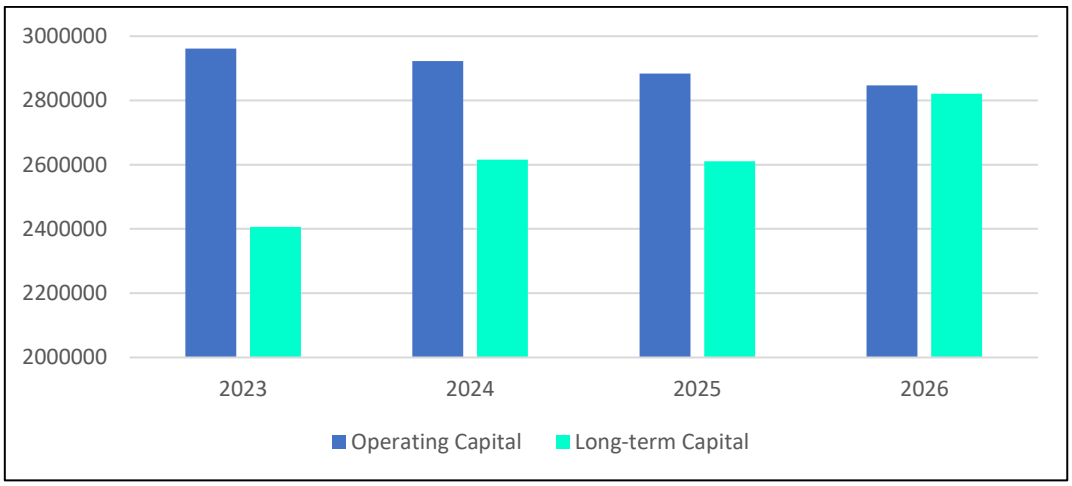
Even though the forecast is still maintaining the previous process of retiring €300M of short-term debt equally in F2024 and F2026 (€150M in each year) with the proceeds from the debt issuance, this strategy will also differ from the previous by bypassing the share repurchase program proposed in the previous strategy (aggressive policy).

On a separate note, this working capital strategy allows the firm to retire a larger sum of its liabilities to suppliers than the previous two strategies. By using part of the surplus from the long-term debt issue, we may forecast a payment of €5M towards a reduction in the company's payables, in 2024 and 2026.

This maturity matching strategy is designed to create a larger cash buffer compared to the previous two strategies analysed: aggressive and risky working capital strategies.

For a simpler visualization of the proposed changes to NOS' financial policies, focusing on its operating and long-term capital, a graph is introduced below (Figure 4**Error! Reference source not found.**). It shows the yearly movement of these variables, to achieve the proposed maturity matching working capital strategy by YE2026.

Figure 4 – Shift from Risky to Maturity Matching financial policy (€Th)



Source: Author's Estimates

2.3 Shift from Risky to a Conservative Financial Policy

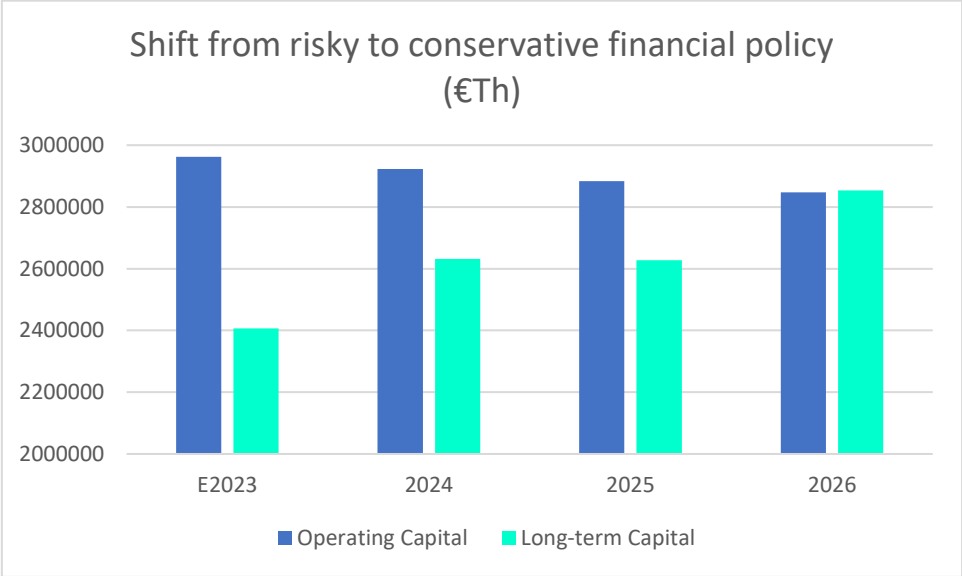
This strategy shift is the steepest given that, to be achieved, NOS' long-term capital will have to cover its fixed assets along with the firm's permanent and part of its temporary working capital. We will assume that temporary working capital requirements are 50% of NOS's permanent working capital amount. This translates into total capital requirements of 150% of the permanent working capital, amounting to €76 million.

This strategy enforces the idea of having a lot of cash readily available. Nevertheless, we will start from the same place as the previous strategies regarding the issuance of sustainability linked bonds to retire the company's short-term debt. Therefore, having in mind a conservative financial policy, we will forecast NOS to emit €440M green bonds. This value is still emitted the same way as the previous two strategies. This means equally in F2024 and F2026 (€220M in each of the years).

The conservative financial policy will mimic the maturity matching one regarding the two-stage €150M short-term debt repayment in F2024 and F2026 and the lack of share repurchases programs, implying a higher cash buffer than all the other strategies. However, this strategy hinges on the premise of reducing the company's liabilities to ensure smooth day-to-day operations. Therefore, we will forecast the highest payables payment to NOS' suppliers within this strategy. We anticipate a payment of €10M in 2024 and 2026, decreasing the firm's current liabilities and financial obligations.

Lastly, presented below is another graph illustrating the movement between NOS' operating and long-term capital (Figure 5). This graph provides a straightforward depiction of how the company transitions from a risky to a conservative working capital strategy by YE2026.

Figure 5 – Shift from Risky to Conservative financial policy (€Th)



Source: Author's Estimates

From the previous three strategy shifts, it is evident they share similar approaches, therefore a few key variables succinctly summarize the transition from a risky strategy to more conservative ones. These variables include the issuance of green bonds, the company's debt repayment affecting total net borrowings (with future borrowing planned through sustainability-linked bonds to benefit from the 'greenium' reduction on NOS' debt spread) as well as the company's share repurchase activities and changes in trade payables.

Highlighting these specific adjustments and their implications on NOS' overall financial strategy is vital to understand their implication on NOS financials and, therefore, its financial policy. Below are Table 2 and Table 3, which illustrate these variables and emphasize their impact on NOS' cash flow statement:

Table 2 – Key variables for financial policy shift, part 1

	Risky Working Capital Management Strategy			Aggressive Working Capital Management Strategy		
Summary of changes between financial policies (€M)	2024F	2025F	2026F	2024F	2025F	2026F
Green Bonds Issuance	0	0	0	200	0	200
Debt repayment	-30	-33	-35	-150	0	-150
Net Borrowings	-30	-33	-35	50	0	50
Shares repurchase	0	0	0	-17.5	0	-17.5
Net Accounts Payables	6	3	1	0	0	0

Source: Author's Estimates

Table 3 – Key variables for financial policy shift, part 2

	Maturity Matching Working Capital Management Strategy			Conservative Working Capital Management Strategy		
Summary of changes between financial policies (€M)	2024F	2025F	2026F	2024F	2025F	2026F
Green Bonds Issuance	204	0	204	220	0	220
Debt repayment	-150	0	-150	-150	0	-150
Net Borrowings	54	0	54	70	0	70
Shares repurchase	0	0	0	0	0	0
Net Accounts Payables	-5	0	-5	-10	0	-10

Source: Author's Estimates

These shifts in financial policy, moving from risky to conservative, significantly affect both NOS's profitability and its day-to-day operations. Comparing these effects provides a comprehensive understanding of where each strategy has the greatest impact and how well it aligns with NOS' strategic plans going forward.

To facilitate this comparison, various metrics were calculated, covering operational efficiency, liquidity, and solvency aspects. These metrics help clearly identify the advantages and potential drawbacks of each financial policy. A table was created to visualize these differences, combining these metrics across the four existing working capital management strategies (Table 4). It highlights the distinct impacts and implications of each strategy on NOS's financial performance and operational effectiveness.

Table 4 – Key multiples for expected financial policy shift

	Risky Financial Policy	Aggressive Financial Policy	Maturity Matching Financial Policy	Conservative Financial Policy
Multiples of NOS financial position	2026F	2026F	2026F	2026F
ROIC	8.14%	7.70%	7.64%	7.62%
ROE	17.96%	17.66%	17.33%	17.25%
Net debt/EBITDA	2.23	2.26	2.24	2.27
Debt ratio= Financial Debt / (Financial Debt + Equity)	0.63	0.65	0.64	0.66
Interest Coverage ratio	3.66	3.42	3.41	3.37
NTC (days)	40	43	45	47
WCR % = NTC/365	11.05%	11.66%	12.27%	12.88%
Cash ratio	0.03	0.33	0.38	0.40
Quick ratio	0.41	0.96	1.02	1.05
current ratio	0.63	1.32	1.38	1.42
Cash holdings/STd	0.08	16.34	18.15	18.98
WACC	5.66%	5.53%	5.52%	5.50%
Economic Value Added (EVA) = ROIC - WACC	2.47%	2.17%	2.12%	2.12%
EPS	0.34	0.36	0.34	0.33
Gross Dividend (€M)	167	167	167	167
DPS	0.33	0.35	0.33	0.33

Source: Author's Estimates

3. Q&A from Case Study

In light of this, NOS' CFO has compiled a comprehensive list of questions regarding the alternative financial policies presented. These questions aim to delve into the specifics of each policy to better understand their potential impacts on the company's financial health, operational efficiency, and strategic positioning. The goal is to evaluate which path would be most beneficial for the company to take in the short term, ensuring alignment with NOS' broader objectives and market conditions.

This session will dedicate around 20 minutes for presenting information and promote student discussion of the case. This timeframe allows and encourages interactive exploration of the case's nuances and potential implications. Participants have the opportunity to delve into the topic, exchange perspectives, and deepen their understanding collaboratively.

Question 1 (20 min): What are the advantages and disadvantages of each financial policy?

Question 2 (15 min): Considering the changes in NOS' capital structure associated with the different strategies, what do you anticipate will happen to the company's debt rating?

Question 3 (15 min): As we are currently experiencing a period of high interest rates, do you think it is the correct time to shift from a risky financial policy to a different one?

Question 4 (15 min): Do you believe the timeline imposed by NOS of achieving a complete financial policy shift by 2026, if it is optimal to do, is reasonable?

Question 5 (20 min): If there were no constraint on changing the dividend policy, would you recommend NOS to consider this path to shift its current financial policy to a conservative one to prepare for the significant expected investment needed for deploying 6G in the early next decade?

Question 6 (25min): All in all, what recommendations would you provide the board for redefining the company's financial policy, considering return expectations and the risk profile?

3.1 Question 1: What are the main advantages and disadvantages of each financial policy?

Given the previously displayed 4 financial policies, we can clearly observe that each alternative financial policy approach has direct and indirect impacts on NOS' financial statements (Table 4**Error! Reference source not found.**). To better understand the "pros and c ons" of each, 5 main pillars will be addressed: liquidity, solvency, profitability, efficiency and valuation metrics.

Starting with the first pillar concerning a liquidity analysis, we may directly access some consequences from shifting from a risky, all the way to a conservative financial policy and corresponding working capital management strategy.

Looking at the evolution of the liquidity ratios (current, quick, and cash), we observe an upward trend of the company's ability to cover its current liabilities with its current assets.

Notably, NOS' current risky policy has consistently resulted in these three liquidity ratios being significantly lower than 1 (with current, quick and cash ratios of 0.66, 0.42, 0.02, respectively as of YE2023). However, as we transition from a risky strategy to more conservative ones, we observe that by F2026, both the current and quick ratios now surpass the threshold of 1, for all policies except the aggressive one, which only has its current ratio above 1. The previous data can be seen below (Table 5):

Table 5 – Liquidity ratios for expected financial shift

	Current NOS Strategy	Risky Financial Policy	Aggressive Financial Policy	Maturity Matching Financial Policy	Conservative Financial Policy
Liquidity Multiples	E2023	2026F	2026F	2026F	2026F
Cash ratio	0.02	0.03	0.33	0.38	0.40
Quick ratio	0.42	0.41	0.96	1.02	1.05
current ratio	0.66	0.63	1.32	1.38	1.42

Source: Author's Estimates

Table 5 suggests that less risky financial policies tend to enhance the company's liquidity position, allowing it to cover its daily liabilities not only with current assets but also solely with cash & equivalents, and receivables, as it can be seen by NOS' expected liquidity multiples in the different strategies.

Moreover, with regards to the second pillar, when examining the evolution of the company's solvency position considering the shift in NOS' financial policies, we also detect some direct impacts. As previously noted, during the transition from a risky financial policy to a more conservative scenario, the firm will decrease its reliance on short-term debt in favour of longer-term. However, debt with longer maturity tends to have higher associated interest rates, as its longer maturity generates a higher level of uncertainty regarding future interest rate's curve movement along with the whole macroeconomic landscape surrounding NOS.

Naturally, as NOS issues more long-term debt (exceeding the amount used to retire short-term debt), the firm will incur higher interest expenses. This implies a decrease in the company's interest coverage ratio, as it will have a lower capacity to cover these expenses with the same after-tax EBIT.

Nevertheless, it is evident that a riskier financial policy may yield greater benefits than a conservative one, especially in terms of a company's profitability, being this the third pillar. This approach allows NOS to expand its margins by relying on short-term debt, even though it comes at the expense of a less stable financial position. Therefore, as NOS shifts towards less risky financial policies, these previously mentioned benefits become less significant. As shown in the different financial statements of each financial policy shift (**Error! Reference source not found.**, **Error! Reference source not found.** and **Error! Reference source not found.**), substituting sho rt-term debt with longer-term debt leads to higher interest expenses, thereby reducing net income.

Similarly, in the short term, metrics such as ROE and ROIC are projected to be higher for riskier financial policies. As of F2026, ROIC and ROE under a risky policy are expected to exceed those under a conservative policy by 50bps and 80bps, respectively. This difference is significant, especially given that NOS operates in a mature market where maintaining market presence relies heavily on higher margins to combat obsolescence.

When addressing the fourth pillar, efficiency, activity ratios provide insights into how efficiently a company uses its assets. For instance, the net trade cycle (NTC) measures the days taken to convert inventory into cash after paying suppliers. Clearly, a riskier policy speeds up this process at a faster pace by operating with minimal resources, resulting in a lower cycle than it would a more conservative strategy. Forecasts of NOS' cash flows under different strategies show that by F2026, the risky working capital strategy has a NTC 7 days shorter than the conservative one. It ought to be mentioned that NOS' CFO established several constraints into the analysis on the execution of the shift between different policies on NOS financial position, being one the prohibition of changing customer's credit terms. As such, differences in the NTC will not be as significant as they could be without this constraint.

Finally, we need to address the fifth pillar pertaining to the impact of these policy changes on NOS' valuation. Increasing the weight of debt in the capital structure will imply a decrease in the discount rate (WACC) to be applied in the discounted cash flow models, as NOS' cost of debt is lower than its cost of equity. This fall alone, from 5.7% to 5.5% (-20bps), will contribute to a rise in NOS' value when applying a DCF valuation model.

Conversely, because ROIC declines by 50bps, to 7.6%, while WACC only drops by 20bps when shifting from a risky to a conservative financial policy, NOS' EVA (economic value added) will decrease. Calculated as ROIC minus WACC, EVA will fall to 2.1%, representing a 40bps reduction from a risky policy.

Therefore, by shifting from a riskier to a more conservative financial policy, NOS is generating less value above its cost of capital. This idea is quite clear from the previously addressed lower profitability of more conservative financial policies, likely decreasing investor's confidence.

3.2 Question 2: Considering the changes in NOS' capital structure associated with the different strategies, what do you anticipate will happen to the company's debt rating?

First, it is vital to understand that credit rating agencies can be viewed as lagging entities. This is because their studies of individual companies take time, not only to ensure high-quality evaluations but also due to the extensive amount of information they must review. Therefore, despite NOS proposing to review its financial policy and potentially transitioning to a new one by 2026, this does not guarantee that credit agencies will immediately adjust NOS' credit rating upon completion of this transition.

It is also important to note that these agencies employ highly advanced and complex algorithms to determine, as accurately as possible, the company's credit risk and attribute a corresponding rating. It would be irresponsible to make a decision concerning the effect of a possible shift in NOS financial policy on its financial position, and consequently, its credit rating without devoting adequate time to examine and address all scenarios.

Another aspect to note is that lenders strive to optimize their exposure to credit risk by being adequately compensated for the same. If a company becomes more/less financially solid, the company's credit risk will move accordingly and so will investor's required compensation for loans.

Therefore, given that each financial policy shift will impact the company's financials, specifically its liquidity and solvency, we can infer some possible effects on the company's newfound credit risk, in the case of NOS shifting its financial policy. As previously discussed, adopting less risky financial policies will provide NOS with greater flexibility to meet its credit obligations, due to the improvement of its financial position, when compared to riskier policies. In other words, the firm's default risk becomes less pronounced, and so does its overall credit risk.

On the other hand, a more conservative firm will face lower profitability, resulting in thinner margins (all else being constant). This is crucial because NOS operates in a mature industry where margins determine firm's competitive survival. Decreasing margins could increase the risk of the firm not remaining a going concern, meaning the firm may not continue to operate indefinitely without exiting the market or going bankrupt. Lenders will view the thinner margins as a higher going concern risk, demanding higher compensation for lent capital. This apparently weaker financial position would result in a situation where lenders require a higher return on loans with longer maturity, indicating an increase in the company's perceived credit risk.

Considering the previously presented positive and negative effects of various financial policies on NOS' credit risk, it can be argued that adopting more conservative financial policies will enhance NOS' ability to meet its financial obligations at the expense of a decrease on NOS' profitability and ability to generate sufficient cash flows to remain competitive in the industry.

All in all, it is quite clear that there are many factors affecting a company's credit rating. Moving from a risky strategy to a more conservative one will likely create bipolar effects such that, without comprehensive risk management tools and quantitative methods, we may not conclusively define a clear direction on the movement of NOS' credit rating, following financial policy shifts. We may, however, note the decrease in short-term default risk, coupled with the possible rise in the long-term going concern risk of the company.

3.3 Question 3: As we are currently experiencing a period of high interest rates, do you think it is the correct time to shift from a risky financial policy to a different one?

A climate of rising interest rates will impact not only NOS but also the overall market. In a period of rising interest rates, firms that are highly levered will face more hardships due to their potential inability to meet their interest payments. In some extreme scenarios, such firms may even default and go bankrupt.

NOS is indeed following a risky strategy where it is unable to cover its fixed assets with internally generated funds. Similarly, the firm has worrisome liquidity metrics, particularly with a current ratio, as of YE2023 of 0.66. Nonetheless, NOS' size and stability of cash flows serve as a buffer to its debtholders, who believe (given NOS' financial history of meeting its debt payments) that the firm will continue to pay its obligations on time.

At present, this question lacks a definite answer. It can be argued that NOS' decision to shift its financial policy in the current rising interest rates climate may be a preventive measure to decrease its exposure and vulnerability to interest rate risk.

It would then be fair to suggest that, by retiring most of its short-term debt with debt of longer maturity, NOS would be actively moving towards a more conservative strategy that is not reliant on the rollover of money market instruments. Therefore, NOS would be shielding itself from possible adverse movements in the interest rate curve. Additionally, the firm is, on a present note, protecting itself from this risk using derivative instruments (such as interest rate swaps), adding an extra layer of safety and predictability of its interest expenses.

There are also arguments against executing this strategy in the current macroeconomic scenario. As mentioned before, in a period of higher interest rates, rolling over short-term debt by issuing longer-maturity debt will likely increase the spread added to the MRR (market reference rate). NOS, with its significant leverage, risks financial stability in a weaker economy, particularly because the average cost of debt tends to be higher under such conditions. Moreover, opting to replace short-term debt with longer-term debt will likely result in higher average debt costs, as longer maturities generally come with higher spreads due to increased uncertainty for lenders compared to shorter-term debt.

It is logical to assert that there are positive aspects from shifting from a risky financial policy to a more conservative one in a climate of rising interest rates. This is mainly due to the reduction of rollover risk and default risk. However, there are also drawbacks to this strategy in the current macroeconomic conditions. Higher interest rate payments are likely to occur as lenders may demand a higher spread over the MRR. This is to account for NOS' worsening financial structure, as it is significantly leveraged and more vulnerable to interest rate risk.

All in all, while shifting towards a more conservative financial policy may offer advantages such as reducing rollover and default risks in a rising interest rate environment, NOS faces challenges in the current macroeconomic scenario. The potential for higher interest payments, driven by elevated rates on longer maturity debt, increased spreads over the MRR, and the resulting rise in NOS' average cost of debt, underscores the company's heightened financial vulnerability, considering its significant leverage.

3.4 Question 4: Do you believe the timeline imposed by NOS of achieving a complete financial policy shift by 2026, if it is optimal to do, is reasonable?

It is important to recognize that altering a firm's financial policy can have extensive effects, impacting not just its capital structure but also its daily financial operations. Evidently, the faster the transition, the larger the shock effect on the company's stakeholders.

It is vital for a company to address the time to shift a financial policy as a resource and manage it adequately. If a policy is too harsh and executed too quickly, the repercussions may be severe, possibly putting the firm at a disadvantage. On the other hand, a too long transition may signal an inefficient management of the firm and ineffective execution.

There is not an optimal timeframe for a firm to transition from a riskier financial policy to a more conservative one. For this reason, firms should evaluate carefully the impacts from policy change on their financials while, in parallel, run scenario analyses and simulations to have a large grasp on possible outcomes from the same.

NOS' CFO is currently evaluating the potential scenarios and effects of each financial policy. If a decision to shift financial policy is made, it should be fully implemented by 2026. The short time frame from E2023 and F2026 may create some challenges in both the short and long-term. Given that the starting point for transitioning to a less risky financial policy is to decrease the company's reliance on short-term debt, to reduce rollover risk and increase the company's long-term capital, a 3-year window to complete the transition may pose constraints or difficulties for NOS.

The very large amount of short-term debt that will be retired, by the issuance of long-term green debt, to achieve a policy shift, will quickly change the firm's expected interest payments.

On a different note, changes in how NOS manages its obligations to suppliers will impact their relationship. As witnessed previously, more conservative financial policies tend to reduce the amounts owed to suppliers and ensure quicker payments, strengthening the company's relationship with them. This is the opposite for a riskier policy, where the firm delays payments as much as possible without critically damaging the relationship with the suppliers. Therefore, a total shift in the company's fiscal policy may be delayed by existing contracts with suppliers that could be active for several more years.

Considering all this, it is clear that there is not a perfect formula or optimal time frame for NOS, or any company, to transition from a risky to a more conservative financial policy strategy. However, a 3-year window is arguably too ambitious, given the wide-ranging effects of such a strategy shift on the entire company and may aggravate its financial position.

3.5 Question 5: If there were no constraint on changing the dividend policy, would you recommend NOS to consider this path to shift its current financial policy to a conservative one to prepare for the significant expected investment needed for deploying 6G in the early next decade?

When a company distributes dividends, it rewards its shareholders by redirecting cash generated from its operations, which decreases its retained earnings and equity. Conversely, if the company retains these earnings instead of distributing dividends, its cash reserves and equity will increase in comparison to having a payout policy in place.

It is generally understood that dividends strengthen the relationship between the company and its shareholders. However, they may strain the relationship with debtholders due to reduced ability to meet future debt obligations and decrease financial flexibility for unforeseen events and investments to improve operations, all else being equal.

Dividend policies are typically stable and consistent. When companies put into place payout policies (aside from extraordinary dividends), they signal to the market that their company's financial health is robust enough to consistently remunerate shareholders, in addition to expected capital gains. This practice is commonly adopted by established companies that generate sufficient cash flow to fulfil promised payouts to shareholders and, being typically mature with lower growth expectations, aim to attract investors.

Conversely, when a company with a stable payout policy abruptly stops or reduces it, it is signalling to the market that their current cash flow generation is insufficient to cover expected capital needs or that these needs are projected to increase beyond the company's capability to continue distributing its earnings. This increase may be due to various factors, such as planning future investments that require substantial capital or a drop in profitability.

Given the prior ideas, when a firm that previously distributed dividends announces it will stop, investors may perceive the same as riskier and choose to sell their shares or reduce their investment exposure. This likely generates selling pressure on the company's shares, leading to a drop in its equity value as the share price declines. On the other hand, the company is expected to retain more of its earnings, which will increase its cash reserves and positively impact its assets and equity.

Moreover, as previously stated, a financial policy can be characterized by analysing the relationship between the company's long-term capital (equity and long-term debt) and its operating capital (fixed assets and working capital requirements). A risky financial policy will have its long-term capital value below the value of the company's fixed assets. Conversely, a conservative policy will have its long-term capital value above the company's operating capital.

Zeroing in on NOS, the company has consistently distributed a dividend of €0.27/share. Even though it has not explicitly disclosed these measures as an official dividend policy, its consistent stable distribution has acted as such. Besides, given that it has surpassed a period of intense capital expenditures with the deployment of 5G, we have also projected that, by continuing following its current risky financial policy, the firm will have sufficient capacity to increase the current payout by €0.055, bringing it to €0.325/share. If NOS were to shift policies, towards a more defensive one, it may consider decreasing or stopping its dividend distribution, to inflate its cash reserves and enhance its financial flexibility.

Now returning to the question, would it be optimal for NOS to shift from its current risky financial policy to a conservative one by reducing or stopping its dividend payouts, aiming to build up cash reserves to handle the anticipated heavy capital expenditures for deploying 6G in the early next decade?

As previously mentioned, if NOS were to announce a reduction in its dividend distribution, investors might perceive it negatively, leading to selling pressure on the company's shares and a subsequent decline in share price. Consequently, the market value of NOS' equity would decrease. An immediate effect of this would be the reduction in NOS' long-term capital (summation of its long-term debt and equity), and consequently, a decrease in the coverage of the company's operating capital by the same. Therefore, transitioning to a more conservative financial policy following this strategy would pose further challenges, potentially requiring a larger issuance of sustainability-linked long-term bonds. On the other hand, reducing dividends would yield positive effects for NOS, as it would enable the company to retain more of its earnings, thereby increasing its cash reserves and equity strengthening NOS financially.

Therefore, the dual impact of cutting dividends — both positive and negative — introduces uncertainty about its effects on NOS's equity value. Implementing this approach could lead to unpredictable outcomes regarding NOS' equity, complicating efforts to assess and plan the shift from a risky to a more conservative financial policy.

Gerald R. Jensen and James M. Johnson's article "The Dynamics of Corporate Dividend Reductions" highlights that the primary motivations for reducing dividends include declining company earnings, deteriorating liquidity positions, and increased debt levels. The article also underscores that the stock market typically reacts negatively to dividend reductions, often resulting in a decline in stock prices. These findings provide compelling arguments that tilt the balance towards the negative effects of a dividend cut for NOS, over its positive ones.

All in all, given the negative market perception from a drop in the dividend policy, arguably stronger than the positive effects resulting from the same, we may not fully endorse and recommend a shift towards a conservative fiscal policy via a cut in dividends.

4. Conclusion & Recommendation

4.1 Question 6: All in all, what recommendations would you provide the board for redefining the company's financial policy, considering return expectations and the risk profile?

We must remember that NOS operates in a mature market with limited growth prospects, which restricts the profitability of market players. However, the three main companies in this market (Vodafone, Altice, and NOS) generate relatively stable cash flows, with NOS exhibiting particularly lower volatility. This stability enhances the company's ability to pursue riskier financial policies and take on more leveraged positions, as lenders perceive companies with such stable performance as less risky.

Given the previously defined market conditions, it is clear that optimizing margins is a continuous priority for Portuguese telco companies in this competitive landscape. By generating higher margins, they demonstrate financial robustness and a stronger competitive position to manage market uncertainties and potential new unfavourable regulations that may arise. NOS has been pursuing these endeavours over the past decade, leading the Portuguese market in margins, which in turn implies its continuous efforts to remain an active competitor.

Referring now to the answer in question 1, we can simplify it by stating that shifting NOS' financial policy from a risky to a more conservative approach will likely decrease the company's profitability and reduce the efficiency of the net trade cycle, meaning

the company will take more time (in days) to convert its products into cash after paying suppliers. On the other hand, this shift points to an improvement of the company's capacity to handle its borrowing obligations due to higher cash reserves.

Overall, we expect that the combination of the development of new technologies, along with ANACOM's push to liberalize the market, easing access for new companies to enter, will put downward pressure on the margins of the current industry participants. Observing the financial policies in the European landscape, we also note a trend towards more risky approaches to endure existing price competitiveness.

Considering all the previously described ideas, it is important to highlight that large, mature companies with stable cash flows generally have a higher capacity to pursue riskier financial policies while managing associated constraints, than firms with more volatile cash flows. These constraints include the need to rollover short-term debt to finance daily operations as a response to the lack of internal resources to do so. Additionally, most European companies in the Telco landscape opt for riskier policies to ensure sufficient profitability amid strong price competition and elastic customer price sensitivity. Consequently, riskier financial policies tend to be the more common approach in this industry.

Even though NOS has underlined the heavy investments it expects to make in the beginning of the next decade and how a financial policy shift may assist in the early preparation for the same, if the company were to start shifting towards a conservative or maturity matching strategy, it may lose its ability to compete in price. Adding, with Digi already scheduled to enter the market in 2024, thereby likely increasing price competition, any additional cash buffer generated by these policies may not fully compensate the potential decline in profitability and revenue that could result from such a policy shift.

In summary, we recommend that NOS should prioritize its profitability to maintain its competitiveness in the market. Despite actively pursuing a risky financial policy, which is especially sensitive to interest rate fluctuations due to the continuous rolling over of its short-term debt to manage its day-to-day operations, we anticipate that shifting to a more conservative approach could translate into foregoing several advantages. These include potential higher margins, increased revenues, reduced costs, and a stronger competitive position against price competition—benefits that may outweigh the specific financial gains of a defensive policy. Therefore, considering NOS's low cash flow volatility, capacity to manage risk and the anticipated low market growth, we believe the company should continue pursuing riskier financial policies to sustain its significant presence in the Portuguese telecommunications sector.

5. Closing Remarks and Summary

The main purpose of this case study is to ensure that students, upon completion, gain an understanding on the different financial policies that exist and how versatile they may be on their approach. Additionally, each strategy shift can be executed in many ways, resulting in different outcomes.

By presenting a practical exercise, students may apply their existing knowledge, along with a deep dive on these concepts to get a sense of a real-life challenge that firms and consultants often face from their client companies.

In the following financial policy's review section of this case study there will be presented the 4 main strategies firms may face to finance their day-to-day operations. It will also be displayed an alternative way to understand the cash conversion cycle of a company that deals mostly in intangible products (Net Trade Cycle). The scope of these previously stated notions should be interpreted in the context of NOS and its position as of YE2023.

The resolution of this exercise does not clearly state the existence of an optimal strategy for the company to prepare itself for the future. It is also evident that, each financial policy has its advantages and disadvantages that should be carefully examined and evaluated, having in mind the company's current position and its plans moving forward. The aim of this exercise is to create a discussion around the possible financial policies NOS may pursue, how each of them influences the day-to-day operations of the company and their implications on its competitive positioning in the market.

6. Supplementary Materials: Review of Covered Financial Policy

These supplementary materials are designed to aid students in comprehending financial policies, particularly if they have not been previously exposed to this topic. They aim to provide a comprehensive understanding and clarity on various aspects of financial policies, ensuring students grasp the fundamentals effectively.

As we have seen previously, NOS operates in a mature industry with slow growth prospects. This description has led the market participants to work towards higher margins and efficiency while trying to maintain optimal levels of working capital and sufficient liquidity to meet daily cash needs.

Firms in these types of industries must continuously strive to enhance their working capital through different management policies as to optimize profitability and ensuring their survival and competitive position.

It is then vital to have a good understanding of what is working capital management and its different frameworks. This term refers to the company's management of its current assets and liabilities to ensure that there is enough cash to meet its daily operational needs.

Firms ought to manage the previously described balance, so to increase its profitability and cash flows, without compromising its financial capacity to deal with unexpected challenges or economic downturns.

It becomes apparent then that, managing the company's CCC (cash conversion cycle) is an important endeavour to understand how well the firm is performing in the market, especially in comparison to its peers.

Traditionally, this indicator is composed by the days it holds its inventory before selling (DOH), plus the number of days it takes to collect sales on credit (DSO) minus the days it takes to pay its suppliers (DPO).

$$CCC = DIO + DSO - DPO$$

A very high CCC may suggest the company is taking longer to convert its investments in inventory and other resources into cash. This may be caused by slow inventory turnover, extensive receivable collection period or paying its suppliers very quickly.

On the other hand, a significantly low CCC could indicate that, although the firm efficiently converts its investments in inventory into cash, it may be doing so at the expense of its relationships with supply chain partners. It may be imposing very strict credit terms on its customers, delaying its payments to suppliers, or maintaining minimal inventory levels to meet forecasted demand, possibly risking stockouts and jeopardize the stability of the supply chain.

Nevertheless, when addressing the cash conversion cycle of companies we must be aware of some limitations. The indicator, in its traditional form is especially insightful for firms inserted in industries that focus on the sale of tangible goods and products. CCC's metrics such as DSO, DPO, DOH convey in a very direct and simple manner the timing of the company's cashflows and if it's managing its inflows efficiently, when compared to the outflows.

However, traditional metrics may not be adequate for industries that primarily supply intangible products. Indicators like Days of Payables Outstanding (DPO) and Days of Inventory on Hand (DOH), which are closely tied to a company's Cost of Goods Sold (COGS) and inventory, often fail to accurately reflect the reality of the company's Cash Conversion Cycle (CCC) in these industries.

$$DPO = (\text{Average Accounts Payable} \div \text{Cost of Goods Sold}) \times 365 \text{ Days}$$

$$DOH = (\text{Average Inventory} \div \text{Cost of Goods Sold}) \times 365 \text{ Days}$$

This inadequacy has been a topic of discussion among researchers who have formulated an alternative composition for the cash conversion cycle, to be able to use its valuable insights while bypassing its limitations in certain industries. Said reformulation is based on using the company's revenues as a common denominator for all the three above-mentioned components of the CCC (DOH, DPO and DSO).

$$NTC = \frac{Inventories + Accounts\ receivables - Accounts\ payables}{Net\ Sales} * 365$$

This simpler formulation of the CCC was developed by Shin and Soenen (1998) and named Net Trade Cycle (NTC). NTC is a tool that became commonly used to evaluate how efficiently a firm manages its working capital, especially in sectors that mainly involved with intangible goods.

Let us shift again our focus toward NOS. This firm operates in an industry primarily dealing with bundles of intangible products. Traditional calculations of the Cash Conversion Cycle with indicators such as DPO and DOH, based on inventory and costs of goods sold, wouldn't provide accurate insights as these metrics don't reflect NOS' core business of the sale of intangible products, unlike in industries that supply and store physical inventory.

It becomes apparent that, for a more precise analysis of NOS' working capital management strategy we ought to employ Shin and Soenen's reformulation of the Cash Conversion Cycle, if we are to achieve meaningful insights. The previously computed NTC, which better fits with NOS' business model, has been incorporated into our analysis and projections.

Adding to the presented ideas above, it's essential to distinguish between the four major strategies of working capital management and financial policies (risky, aggressive, maturity matching, and conservative), according to Gabriel Hawawini and Claude Viallet's work on firm's value creation. These valuable insights into financial strategies, particularly their analysis, help to understand how NOS would transition from its current risky financial policy to more conservative approaches.

Risky Financial Policy

A risky strategy focuses on the maximization of profitability by minimizing, in an extreme way, current assets and extending, as long as possible, the company's current liabilities, while financing its daily operations using short-term debt (cheaper than longer-term).

Consequently, this financial policy involves a "Just-in-Time" inventory approach and aggressive collection procedures to improve short-term financials. While it enhances profitability and cash flow, it increases vulnerability to risks like stockouts and insufficient cash reserves for unexpected events, common in highly competitive industries.

A risky financial policy is particularly appealing to larger, mature companies. Their size, credibility and low volatility of cash flows serves as an extra layer of insurance for lenders as these firms are perceived to be less risky and the application of this strategy is intended to enhance the company´s profitability (reducing apparent credit risk). Therefore, this type of borrower would be in a more capable position to afford the constant rollover of debt on a medium-long timeframe.

Consequently, this strategy is characterized by the company`s lack of ability to, not only meet its working capital requirements (WCR), but also cover its fixed assets (FA), resourcing to the firm`s long-term debt (LTD) and equity (EQ). This situation showcases a stressful financial environment since the firm will rely solely on short-term debt to maintain its daily activities.

Even though on paper short-term debt is cheaper, this silver lining goes together with rollover risk. This financial term refers to the vulnerability that a company faces when, for a continued period, continues refinancing its debt.

The idea behind this refinancing is that when debt matures, the firm will have to pay the principal and, considering this strategy, it will not have a large enough "cash buffer" to do so, therefore incurring into another short-term loan to be able to comply with its obligations. It is quite clear that in this circumstance companies are quite exposed to interest rate risk (rising interest rates) due to deteriorating market conditions possibly affecting their own credit score. The prior mentioned risks may lead to liquidity problems or, in extreme cases when firms cannot refinance, bankruptcy.

Aggressive Financial Policy

In an aggressive working capital strategy, the company is still not able to meet the totality of its permanent working capital requirements by resourcing to its equity and long-term debt. Yet, even though the firm still needs to resource to shorter term debt to finance its daily operations, this strategy distinguishes itself from the previously mentioned policy (risky) as it is now capable to cover its fixed assets with its long-term capital (LTD + EQ).

Evidently, an aggressive financial policy is still subject to rollover risk, as it keeps relying on short-term debt to maintain its daily operations, however, the company demonstrates more robustness to face this risk than it would a risky financial policy.

On the same note, this strategy is similar to a risky one regarding the management of its working capital. The company continues to employ a "Just-in-Time" inventory approach, aggressively collecting receivables, and delaying payments to suppliers, continuing its aim to enhance short-term financials, resulting in margin improvements.

Maturity Matching Financial Policy

In a maturity matching working capital strategy the firm will balance its permanent working capital requirements to be met exactly by its total equity and long-term, while also covering the value of its fixed assets. On this note, any extra temporary working capital requirements it may have will be covered by resorting to short-term debt.

Unlike the previous two strategies, by ensuring its permanent daily needs are covered, the company will display less vulnerability to changes in interest rates and is not subject to significant rollover risk. On the other hand, this strategy also entails maintaining larger reserves to establish a significant cash-buffer, which, while safeguarding the previously mentioned risks, may limit the flexibility to seize possible investment opportunities.

In a maturity matching framework, the company will ensure that its permanent working capital needs (such as inventory and credit extensions to customers, amongst others), which are necessary to support its daily operations along with its fixed assets, are financed by long-term debt and equity. Meanwhile using to short-term debt to cover any fluctuations in working capital requirements or temporary working capital needs that may arise.

Conservative Financial Policy

Finally, for a conservative working capital strategy, firms typically resort to its long-term debt and equity to cover its fixed assets, permanent and part of its temporary working capital requirements. By using mostly internally generated funds or long-term debt firms are considerably decreasing the risk of not being able to finance its daily operations.

Evidently, this strategy is generally pertinent to companies with more volatile cash flows. Their lack of assurance of short-term liquidity demands a more rational and risk averse use of internal resources along with a prudent and restricted use of external funds. Nevertheless, when following this strategy, firms can use short-term debt to finance part of its temporary working capital needs, yet they will exercise caution and restraint to ensure they keep distance for any rollover risks or liquidity constraints.

In this strategy, prudent management of current assets and liabilities is vital. By imposing stricter credit policies and being conservative on extending credit to customers, the firm will minimize the risk of bad debt. Similarly, inventory levels are carefully maintained to avoid overstocking, while ensuring that sufficient goods are available to meet customer demand. On the liabilities side, companies may take advantage of trade credit terms to delay payment to its suppliers, yet without causing any friction on its relationship with suppliers.

Appendix A: Case Study Supplementary Materials

Appendix 1: Financial Statements Aggressive Financial Policy

(in € millions)	2023E	2024F	2025F	2026F
Operating revenues	1579	1616	1637	1645
Services Rendered	1435	1466	1484	1489
Telco	1341	1368	1383	1387
A&C	94	98	101	102
Sales	114	117	120	122
Telco	101	104	106	108
A&C	13	13	14	14
Other Operating Revenue	31	32	33	34
Telco	30	31	32	33
A&C	1	1	1	1
Operating costs	864	888	915	923
Wages and salaries	91	93	95	97
Direct Costs	341	351	366	367
Cost of Products Sold	101	104	106	108
Marketing and advertising	38	39	40	40
Support services	93	95	97	97
Supplies and external services	164	168	172	175
Other operating losses / (gains)	1	1	1	1
Taxes	35	36	37	38
EBITDA	716	728	722	722
Depreciation and Amortization	440	434	423	409
EBIT	276	294	299	313
Net Financial costs	-85	-91	-90	-91
Income before tax	192	204	209	221
Income Tax	43	46	47	50
Net Income from continuing operations	148	158	162	172
Net Income	148	158	162	172

	2023E	2024F	2025F	2026F
Assets	3482	3525	3546	3587
Non-current assets	2886	2846	2808	2771
Tangible assets & Investment Property	1091	1075	1059	1044
Intangible assets	1185	1161	1137	1115
Contract costs	162	163	164	165
Rights of use	298	297	297	297
Investments in jointly controlled and associated companies	39	39	39	39
Other accounts receivables & non-current financial assets	10	10	10	10
Deferred income tax assets	90	90	90	90
Derivative financial instruments	11	11	11	11
Current assets	595	682	732	810
Inventories	70	71	72	73
Accounts receivable and other current assets	370	380	385	386
Contract assets	63	64	65	65
Tax receivable & other accounts receivable	25	25	26	26
Prepaid expenses	52	53	55	55
Cash and cash equivalents	15	89	129	205
Shareholders' Equity	983	970	984	972
Share capital	855	855	855	855
Capital issued premium	4	4	4	4
Own shares	-14	-17.5	0	-17.5
Legal and other reserves & accumulated earnings	-17	-36	-44	-47
Net Income	148	158	163	172
Equity before NCI	977	964	978	966
Noncontrolling interests	6	6	6	6
Liabilities	2499	2555	2562	2614
Non-Current Liabilities	1600	1800	1800	2000
Borrowings	1424	1624	1624	1824

Provisions	81	81	81	81
Accounts payable - other	42	42	42	42
Deferred income & tax liabilities	53	53	53	53
Current Liabilities	899	756	763	615
Borrowings	313	163	163	13
Accounts payable - trade	258	258	258	258
Accounts payable - other	54	54	54	54
Tax payable	39	39	39	39
Accrued expenses	198	204	210	212
Deferred income	37	38	39	39
Total Liabilities & Equity	3,482	3,525	3,546	3,587

	2023E	2024F	2025F	2026F
EBIT	276366	294490	298974	312929
Depreciation, amortization and impairment losses	439554	433620	423156	408886
Taxes	43093	45881	46964	49831
Change in NWC	65264	-12000	-7000	-2000
Operating Activities (CFO)	**607563**	**694230**	**682166**	**673984**
CAPEX (Tangible Assets)	-121957	-120311	-117407	-113448
CAPEX (Intangible Assets)	-91268	-90035	-87863	-84900
CAPEX (Contract costs)	-81083	-79989	-78058	-75426
CAPEX (Rights of Use)	-105287	-103865	-101359	-97941
Investment Activities (CFI)	**-399594**	**-394200**	**-384687**	**-371714**
New Borrowings		200000	0	200000
Debt Repayment		-150000	0	-150000
Net new borrowing	98735	50000	0	50000
Interest and related expenses	-84842	-90576	-90246	-91457
Dividends	-219987	-167427	-167427	-167427
Accounts payable Trade	4879	0	0	0
Share repurchases		-17500	0	-17500
Financing Activities (CFF)	**-201215**	**-225503**	**-257674**	**-226385**
Change in Cash	6753	74526	39806	75885
Beginning	8072	14825	89352	129157
End	**14825**	**89352**	**129157**	**205042**

Appendix 2: Financial Statements Maturity Matching Financial Policy

(in € millions)	2023E	2024F	2025F	2026F
Operating revenues	1579	1616	1637	1645
Services Rendered	1435	1 466	1 484	1 489
Telco	1341	1368	1383	1387
A&C	94	98	101	102
Sales	114	117	120	122
Telco	101	104	106	108
A&C	13	13	14	14
Other Operating Revenue	31	32	33	34
Telco	30	31	32	33
A&C	1	1	1	1
Operating costs	864	888	915	923
Wages and salaries	91	93	95	97
Direct Costs	341	351	366	367
Cost of Products Sold	101	104	106	108
Marketing and advertising	38	39	40	40
Support services	93	95	97	97
Supplies and external services	164	168	172	175
Other operating losses / (gains)	1	1	1	1
Taxes	35	36	37	38
EBITDA	716	728	722	722
Depreciation and Amortization	440	434	423	409
EBIT	276	294	299	313
Net Financial costs	-85	-91	-90	-92
Income before tax	192	203	209	221

Income Tax	43	46	47	50
Net Income from continuing operations	148	158	162	171
Net Income	148	158	162	171

	2023E	2024F	2025F	2026F
Assets	3482	3542	3551	3601
Non-current assets	2886	2846	2808	2771
Tangible assets & Investment Property	1091	1075	1059	1044
Intangible assets	1185	1161	1137	1115
Contract costs	162	163	164	165
Rights of use	298	297	297	297
Investments in jointly controlled and associated companies	39	39	39	39
Other accounts receivables & non-current financial assets	10	10	10	10
Deferred income tax assets	90	90	90	90
Derivative financial instruments	11	11	11	11
Current assets	595	694	744	833
Inventories	70	71	72	73
Accounts receivable and other current assets	370	380	385	386
Contract assets	63	64	65	65
Tax receivable & other accounts receivable	25	25	26	26
Prepaid expenses	52	53	55	55
Cash and cash equivalents	15	101	141	228
Shareholders' Equity	983	987	983	989
Share capital	855	855	855	855
Capital issued premium	4	4	4	4
Own shares	-14	0	0	0
Legal and other reserves & accumulated earnings	-17	-36	-44	-47
Net Income	148	158	162	171
Equity before NCI	977	981	977	983
Noncontrolling interests	6	6	6	6
Liabilities	2499	2554	2561	2612
Non-Current Liabilities	1600	1804	1804	2008
Borrowings	1424	1628	1628	1832
Provisions	81	81	81	81
Accounts payable - other	42	42	42	42
Deferred income & tax liabilities	53	53	53	53
Current Liabilities	899	751	758	605
Borrowings	313	163	163	13
Accounts payable - trade	258	253	253	248
Accounts payable - other	54	54	54	54
Tax payable	39	39	39	39
Accrued expenses	198	204	210	212
Deferred income	37	38	39	39
Total Liabilities & Equity	3,482	3,542	3,551	3,601

	2023E	2024F	2025F	2026F
EBIT	276366	294110	299130	312815
Depreciation, amortization and impairment losses	439554	434000	423000	409000
Taxes	43093	45767	46971	49750
Change in NWC	65264	-7000	-7000	3000
Operating Activities (CFO)	**607563**	**689343**	**682159**	**669065**
CAPEX (Tangible Assets)	-121957	-120311	-117407	-113448
CAPEX (Intangible Assets)	-91268	-90035	-87863	-84900
CAPEX (Contract costs)	-81083	-79989	-78058	-75426
CAPEX (Rights of Use)	-105287	-103865	-101359	-97941
Investment Activities (CFI)	**-399594**	**-394200**	**-384687**	**-371714**
New Borrowings		204000	0	204000
Debt Repayment		-150000	0	-150000
Net new borrowing	98735	54000	0	54000
Interest and related expenses	-84842	-90700	-90370	-91705
Dividends	-219987	-167427	-167427	-167427
Accounts payable Trade	4879	-5000	0	-5000
Share repurchases		0	0	0

Financing Activities (CFF)	-201215	-209127	-257798	-210133
Change in Cash	6753	86016	39675	87218
Beginning	8072	14825	100841	140516
End	**14825**	**100841**	**140516**	**227734**

Appendix 3: Financial Statements Conservative Financial Policy

(in € millions)	2023E	2024F	2025F	2026F
Operating revenues	1579	1616	1637	1645
Services Rendered	1435	1 466	1 484	1 489
Telco	1341	1368	1383	1387
A&C	94	98	101	102
Sales	114	117	120	122
Telco	101	104	106	108
A&C	13	13	14	14
Other Operating Revenue	31	32	33	34
Telco	30	31	32	33
A&C	1	1	1	1
Operating costs	864	888	915	923
Wages and salaries	91	93	95	97
Direct Costs	341	351	366	367
Cost of Products Sold	101	104	106	108
Marketing and advertising	38	39	40	40
Support services	93	95	97	97
Supplies and external services	164	168	172	175
Other operating losses / (gains)	1	1	1	1
Taxes	35	36	37	38
EBITDA	716	728	722	722
Depreciation and Amortization	440	434	423	409
EBIT	276	294	299	313
Net Financial costs	-85	-91	-91	-93
Income before tax	192	203	208	220
Income Tax	43	46	47	50
Net Income from continuing operations	148	157	161	171
Net Income	148	157	161	171

	2023E	2024F	2025F	2026F
Assets	3482	3546	3556	3614
Non-current assets	2886	2846	2808	2771
Tangible assets & Investment Property	1091	1075	1059	1044
Intangible assets	1185	1161	1137	1115
Contract costs	162	163	164	165
Rights of use	298	297	297	297
Investments in jointly controlled and associated companies	39	39	39	39
Other accounts receivables & non-current financial assets	10	10	10	10
Deferred income tax assets	90	90	90	90
Derivative financial instruments	11	11	11	11
Current assets	595	699	749	843
Inventories	70	71	72	73
Accounts receivable and other current assets	370	380	385	386
Contract assets	63	64	65	65
Tax receivable & other accounts receivable	25	25	26	26
Prepaid expenses	52	53	55	55
Cash and cash equivalents	15	106	146	238
Shareholders' Equity	983	987	983	989
Share capital	855	855	855	855
Capital issued premium	4	4	4	4
Own shares	-14	0	0	0
Legal and other reserves & accumulated earnings	-17	-36	-44	-47
Net Income	148	158	162	171
Equity before NCI	977	981	977	983
Noncontrolling interests	6	6	6	6

Liabilities	2499	2566	2573	2635
Non-Current Liabilities	1600	1820	1820	2040
Borrowings	1424	1644	1644	1864
Provisions	81	81	81	81
Accounts payable - other	42	42	42	42
Deferred income & tax liabilities	53	53	53	53
Current Liabilities	899	746	753	595
Borrowings	313	163	163	13
Accounts payable - trade	258	248	248	238
Accounts payable - other	54	54	54	54
Tax payable	39	39	39	39
Accrued expenses	198	204	210	212
Deferred income	37	38	39	39
Total Liabilities & Equity	3,482	3,553	3,556	3,624

	2023E	2024F	2025F	2026F
EBIT	276366	294110	299130	312815
Depreciation, amortization and impairment losses	439554	434000	423000	409000
Taxes	43093	45655	46858	49525
Change in NWC	65264	-2000	-7000	8000
Operating Activities (CFO)	**607563**	**684456**	**682272**	**664290**
CAPEX (Tangible Assets)	-121957	-120311	-117407	-113448
CAPEX (Intangible Assets)	-91268	-90035	-87863	-84900
CAPEX (Contract costs)	-81083	-79989	-78058	-75426
CAPEX (Rights of Use)	-105287	-103865	-101359	-97941
Investment Activities (CFI)	**-399594**	**-394200**	**-384687**	**-371714**
New Borrowings		220000	0	220000
Debt Repayment		-150000	0	-150000
Net new borrowing	98735	70000	0	70000
Interest and related expenses	-84842	-91201	-90872	-92703
Dividends	-219987	-167427	-167427	-167427
Accounts payable Trade	4879	-10000	0	-10000
Share repurchases		0	0	0
Financing Activities (CFF)	**-201215**	**-198628**	**-258299**	**-200130**
Change in Cash	6753	91627	39286	92445
Beginning	8072	14825	106452	145738
End	**14825**	**106452**	**145738**	**238184**

Appendix 4: Multiples of each Financial Policy Shift

Risky Financial Policy	2023E	2024F	2025F	2026F
ROIC	7.18%	7.73%	7.83%	8.14%
ROE	15.10%	16.37%	16.91%	17.96%
Net debt/EBITDA	2.40	2.32	2.29	2.23
Debt ratio= Financial Debt / (Financial Debt + Equity)	0.64	0.64	0.63	0.63
Interest Coverage ratio	3.26	3.34	3.44	3.66
CCC (days)	40	40	40	40
WCR % = CCC/365	11.07%	11.06%	11.06%	11.05%
Cash ratio	0.02	0.02	0.02	0.03
Quick ratio	0.42	0.41	0.40	0.41
current ratio	0.66	0.65	0.64	0.63
Cash holdings/STd	0.05	0.05	0.05	0.08
WACC	5.66%	5.66%	5.66%	5.66%
Economic Value Added (EVA) = ROIC - WACC	1.52%	2.07%	2.17%	2.48%
EPS	0.29	0.31	0.32	0.34
Gross Dividend	220	167	167	167
DPS	0.43	0.33	0.33	0.33

Aggressive Financial Policy	2023E	2024F	2025F	2026F
ROIC	7.18%	7.55%	7.55%	7.70%
ROE	15.10%	16.29%	16.45%	17.66%
Net debt/EBITDA	2.40	2.33	2.29	2.26
Debt ratio= Financial Debt / (Financial Debt + Equity)	0.64	0.65	0.64	0.65
Interest Coverage ratio	3.25	3.25	3.31	3.42
CCC (days)	40	42	42	43
WCR % = CCC/365	10.95%	11.38%	11.60%	11.66%
Cash ratio	0.02	0.12	0.17	0.33
Quick ratio	0.43	0.62	0.67	0.96
current ratio	0.66	0.90	0.96	1.32
Cash holdings/STd	0.05	0.55	0.79	16.34
WACC	5.66%	5.60%	5.58%	5.52%
Economic Value Added (EVA) = ROIC - WACC	1.52%	1.94%	1.97%	2.17%
EPS	0.29	0.30	0.32	0.36
Gross Dividend	220	167	167	167
DPS	0.43	0.34	0.34	0.35

Maturity Matching Financial Policy	2023E	2024F	2025F	2026F
ROIC	7.17%	7.51%	7.52%	7.64%
ROE	15.06%	15.97%	16.46%	17.33%
Net debt/EBITDA	2.40	2.32	2.28	2.24
Debt ratio= Financial Debt / (Financial Debt + Equity)	0.64	0.64	0.65	0.65
Interest Coverage ratio	3.25	3.24	3.31	3.41
CCC (days)	40	43	43	45
WCR % = CCC/365	10.95%	11.69%	11.90%	12.27%
Cash ratio	0.02	0.13	0.19	0.38
Quick ratio	0.43	0.64	0.69	1.02
current ratio	0.66	0.92	0.98	1.38
Cash holdings/STd	0.05	0.62	0.86	18.15
WACC	5.68%	5.62%	5.60%	5.54%
Economic Value Added (EVA) = ROIC - WACC	1.50%	1.89%	1.93%	2.10%
EPS	0.29	0.31	0.32	0.34
Gross Dividend	220	167	167	167
DPS	0.43	0.33	0.33	0.33

Conservative Financial Policy	2023E	2024F	2025F	2026F
ROIC	7.17%	7.50%	7.51%	7.62%
ROE	15.06%	15.93%	16.42%	17.25%
Net debt/EBITDA	2.40	2.33	2.30	2.27
Debt ratio= Financial Debt / (Financial Debt + Equity)	0.64	0.65	0.65	0.65
Interest Coverage ratio	3.25	3.22	3.29	3.37
CCC (days)	40	44	45	47
WCR % = CCC/365	10.95%	12.00%	12.21%	12.88%
Cash ratio	0.02	0.14	0.19	0.40
Quick ratio	0.43	0.65	0.71	1.05
current ratio	0.66	0.94	0.99	1.42
Cash holdings/STd	0.05	0.65	0.90	18.98
WACC	5.68%	5.61%	5.58%	5.51%
Economic Value Added (EVA) = ROIC - WACC	1.50%	1.89%	1.93%	2.10%
EPS	0.29	0.31	0.32	0.33
Gross Dividend	220	167	167	167
DPS	0.43	0.33	0.33	0.33

Appendix B: NOS' Equity Research

NOS: Disconnected From Its Value

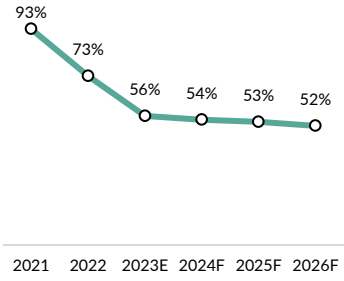
NOS is a large and established player in the Portuguese Telecommunications Market, focusing on delivering advanced technology to enhance its customers' connectivity. With a commitment to keep innovating, NOS is ready to face its future onwards with an upwards share price.

Table 6 - NOS.LS Overview

Company Name	NOS SGPS, S.A.
Price Target (2024YE)	**€4.15**
Upside	**27%**
Closing Price (Jan 12, 2024)	€3.27
Stock Exchange	Euronext Lisbon
Industry	Telecommunication
Ticker (Refinitiv)	NOS.LS
52w Price Range (€)	3.13 – 4.46
Average Volume (Th)	466,178
Shares Outstanding	511M
Market Cap (Jan 12th, 2024)	1.69B
Free Float	36%
Dividend Yield	8.5%

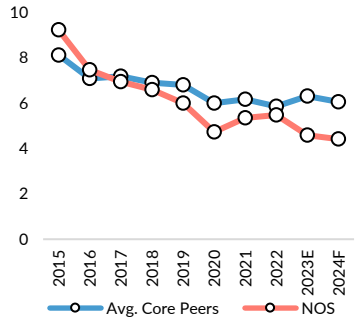
** As of January 12th*
Source: Team Estimates, NOS' data, Refinitiv

Figure 6 - CAPEX/EBITDA



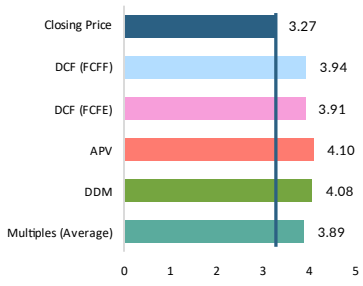
Source: Team Estimates

Figure 7 – EV/EBITDA



Source: Refinitiv

Figure 8 – Valuation Summary



Source: Team Estimates

Investment Summary

BUY is our recommendation for NOS SGPS, S.A., a key figure in the Portuguese telecommunications market, with a price target of €4.15/sh for 2024YE using a DCF model, with a Sum-of-the-Parts (SoP) approach. Our forecasted price implies a 27% upside potential from the January 12th, 2024 closing price of €3.27/sh (Table 6) with a medium-low risk. Our recommendation is based on three main pillars.

PILLAR 1 | Free Cash Flow to pick up as Capex Normalizes

NOS has completed an intensive investment phase with the rollout of Fiber and 5G networks. From 2019 to 2022, accumulated Capex amounted to €1.74 billion, averaging €495 million annually (excluding the atypical year 2020). With the expansion phase largely completed, Capex is expected to fall gradually towards a long-term level of €350 million. This shift will enhance cash flow generation, facilitating distributions without compromising NOS' financial stability. Shareholders have consistently received dividends of €0.27 per share since 2019. As Capex normalizes, we project a rise in NOS's payout by €0.055 per share (potentially increasing the dividend yield by 150 basis points). Our projections for Capex/EBITDA support this outlook (Figure 6).

PILLAR 2 | Room to Entry but Bundles Make the Market!

Digi's entry into the Portuguese market, dominated by three key players, has been overestimated according to our analysis. The market's oligopolistic nature, high service penetration, and preference for bundled services pose significant barriers for new entrants. Digi targets a niche segment of internet-only consumers, a small part of NOS's business. Despite regulatory efforts to increase competition, Portuguese consumers prefer established local companies. NOWO, a Spanish company, despite lower prices, only secured a 3% market share, indicating limited impact on the big three players' market share.

PILLAR 3 | Attractive Valuation vs. Peers

Using a DCF model based on FCFF with a Sum-of-Parts (SoP) approach, we attained a target price of €4.15/share, suggesting a 27% upside. This potential for value creation is appealing given an average cost of equity capital of 8.4%. Furthermore, NOS is trading well below the average of its peers, strengthening our buy recommendation. Before the COVID-19 pandemic, NOS consistently traded at or above the average multiples of its peers; now it trades at a 19% discount (Figure 7). Although the A&C segment has raised some concerns, it only contributes approximately 7% to the overall revenue. Considering that the company has already exceeded its pre-pandemic Revenue, EBITDA, and FCF figures, we anticipate a revaluation of the company's multiples. Our EV/EBITDA 2024F valuation points to a target price of €4.59/share, while the average across four assessed multiples suggests a price target of €3.89/share. Alternative valuation methods also endorse our recommendation, all indicating upside potential (Figure 8).

OUTLOOK | Market and NOS Forecasts

High market penetration (Figure 17) indicates that future growth in the traditional Telco sector will mainly stem from inflation-linked price adjustments and the adoption of new technologies. The Telco industry calls for continuous capital expenditure to steer clear of obsolescence. While NOS's Capex peaked recently and is expected to slow down, it is anticipated to ramp up again in the long-term. Bundled services are projected to remain a key aspect of the industry. Customers increasingly prefer more comprehensive bundles, encompassing 4-5 products, over lower-cost packages with fewer features. Our forecasts suggest this trend will persist, with the share of 4-5 product bundles steadily increasing over the next several years. Currently, these bundles account for around 55% of the total market, and we anticipate this to grow by 550 basis points by the decade's end. NOS is well-positioned to take advantage of this trend, having focused on boosting its number of convergent customers. This strategy has resulted in a notable EBITDA margin increase, climbing 300 basis points from 2018 to 42.8% in 2023. From 2024 to 2030, we anticipate the margin to hover around 43.3%, while the average EBITDA margin for competitors stands at 37.4%. We believe the entire market will gravitate towards more comprehensive bundles, with NOS leading this evolution.

RISKS TO ACHIEVE PRICE TARGET

While NOS is poised to generate robust cash flows and maintain a strong market position, several risks could influence our price target. These include the possibility of new players entering the market due to eased regulatory requirements and sudden regulatory changes, along with the competitive dynamics of the tech-driven market. Established competitors such as Vodafone and Altice could threaten market share and margins, although historical data indicates minimal volatility in these metrics. Governance risks stem from the stake held by ZOPT, although no significant issues have arisen (Table 11). Moreover, potential geopolitical events impacting the macroeconomic environment and the increase in cyber threats should be considered. Despite these risks, stress tests indicate that NOS remains a favorable stock to buy.

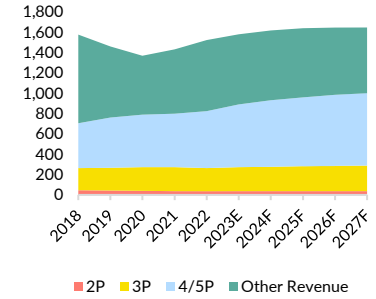
Table 7 - Abbreviations

FttH	Fiber-to-the-Home
IoT	Internet-of-Things
RGU	Revenue Generating Unit
M2M	Machine to Machine
MVNO	Mobile Virtual Network Operator
GHG	Greenhouse Gas
OTT	Over-the-Top
VoIP	Voice Over internet Protocol
WISPs	Wireless Internet Service Providers

Figure 9 – Stock Evolution

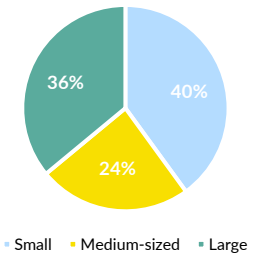
Source: Refinitiv, Team Analysis

Figure 10 –Revenue Breakdown (Bundles and Other Revenue)



Source: NOS' data, Team Estimates

Figure 11 – B2B Revenue Sources



Source: NOS' data

Business Description

NOS, S.G.P.S., S.A. (NOS.LS), headquartered in Lisbon, is a leading telecommunications company in Portugal. The company provides an extensive range of services, including fixed pay TV, fixed voice, fixed broadband, mobile communications, IoT, and data management. These offerings comprise the company's telecommunications segment, which is expected to generate approximately 92.3% of the projected revenue for 2023. The remaining 7.7% of the company's revenue comes from its audiovisual and cinema segment.

The origins of NOS trace back to 2013, when the company was formed through the merger of two notable telecommunications companies: ZON and Optimus. ZON Multimedia, founded in 1999 following a mandatory spinoff by the antitrust authority, was primarily owned by Angolan businesswoman Isabel dos Santos and specialized in cable TV, internet, and landline services. Optimus, established in 1998 as the telecommunications arm of the Sonae group, was a major mobile telecommunications operator in Portugal.

The merger of ZON Multimedia and Optimus to create NOS was a strategic decision aimed at leveraging the growing trend of convergent offers in the telecommunications industry. ZON Multimedia was a clear leader in fixed pay TV, commanding a market share of over 40%, while Optimus held a significant position in the mobile telecommunications market in Portugal with approximately 18% market share in the personal mobile segment but had no presence in TV services. The growth for Optimus was stagnating, and ZON Multimedia lacked a mobile segment, presenting a prime opportunity for synergetic gains and consolidation growth. This merger allowed NOS to create a comprehensive portfolio of services encompassing both fixed and mobile offerings. The introduction of ZON4i, the first integrated package, was well-suited to meet the demands of a market eager for bundled services.

NOS's strategic move quickly proved successful. Within the first three months of launching ZON4i, 89% of new customers came from the existing fixed pay TV subscriber base. This highlighted the effectiveness of offering a comprehensive package that combined TV, internet, landline, and mobile services to the current customer base. Moreover, this initiative marked NOS's significant growth in the mobile segment, with its market share increasing from 18% in 2013 to 28.9% by the third quarter of 2023.

In recent years, NOS has focused on implementing 5G technology. In 2020, NOS decided to sell its tower management business, NOS Towering, to Cellnex. This transaction involved an initial payment of approximately €375 million and an additional €175 million to be paid over six years, with NOS receiving €163 million of this amount in 2022. Less than a year later, leveraging its strong financial position, NOS secured the most 5G spectrum in ANACOM's auction, investing €165 million. Acquiring more spectrum generally translates to higher capacity and faster data speeds, enhancing the quality and efficiency of the telecommunications services offered to customers. The primary goal is to improve customer retention rates, especially given the low switching costs for consumers, driving the need for continuous innovation. Additionally, NOS is actively exploring alternative revenue sources that may arise from ongoing developments in the telecommunications sector, particularly digital transformations in the B2B segment. For instance, NOS acts as an intermediary for cloud computing services such as AWS, Azure, and Google Cloud Platform.

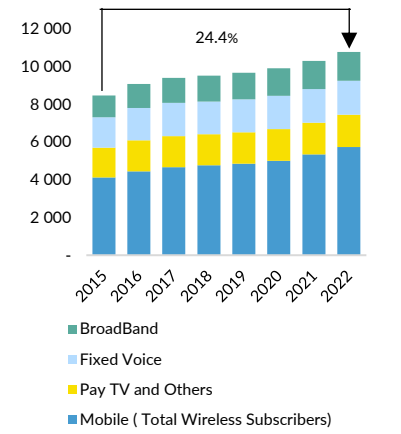
Segments Breakdown

Telco | Since its inception in 2013, NOS has achieved a revenue growth of approximately 6% CAGR, with its EBITDA margin increasing from 35.7% to 41.2% (+550 bps). The company categorizes its telecommunications customers into Consumer, Business, and Wholesale segments. Its fixed services are divided into Fixed TV, which offers a wide range of TV channels and streaming content; Fixed Voice, providing home phone lines; and Fixed Broadband, delivering fast and reliable internet connections. On the mobile side, NOS provides access to 4G and 5G networks, along with roaming and hotspot solutions. Revenue is split between bundles (which will be broken down and forecasted in detail later) and other sources (Figure 10).

NOS established its competitive advantage by creating service bundles for customers, focusing on convergent customers (those using both fixed and mobile services). This strategy aimed to leverage ZON's substantial market share in fixed services (>40%) to upsell Optimus's mobile services, thereby increasing revenue per customer. Convergent customers now represent 69.0% of NOS's total subscriber base, rising from 384.6K subscribers (29% of total customers) in 2014 to 1126K currently, a growth of 192.77% (12.7% CAGR). During this period, the total number of telecommunications RGUs (Revenue Generating Units) grew from 7.611M to 10.980M, an increase of 44.26% (4.2% CAGR). NOS's Telco RGUs have shown significant growth over the past decade, with mobile services standing out, having grown 95.5% since 2014 and now representing over 50% of total RGUs, primarily due to the substantial increase in convergent customers. Fixed Broadband and Fixed Voice RGUs also experienced growth, increasing by 69.8% and 41.8%, respectively. In contrast, the Fixed Pay TV segment showed minimal RGU growth (4%), mainly due to its already high market penetration at the time (Figure 12).

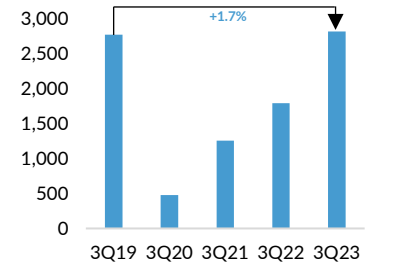
NOS' Business segment has the highest proportion of sales coming from traditional telecommunications services, which have a similar revenue profile to residential customers. Additionally, it offers a diverse range of tailored products and services to fit each client's needs, particularly centered around IoT and Data Management Solutions. As of 3Q2023, this business facet represented 21.5% of total Telco revenues, having grown 17.2% since 2018, in contrast with Telco's consumer segment growth of only 5.6%. This shows NOS' commitment to revenue diversification. Nevertheless, it is worth noting that, in Portugal, most firms are SMEs without any interest in IoT and Data Management solutions, making it difficult for NOS to rely on those services to grow its operations. B2B revenue breakdown, as of November 2023, is segmented by 40% of NOS' business customers were small businesses like restaurants and cafes, approximately 24% were mid-size companies, and around 36% were large corporations with volatile revenue profiles that rely mostly on large projects (Figure 11). In the Wholesale segment of Telco, NOS generates revenue from various sources, including telecommunication services to other operators (network infrastructure, data transmission, and storage), roaming revenues from other operators' customers using NOS networks, and value-added call revenues from

Figure 12 - NOS' RGUs (number of units)



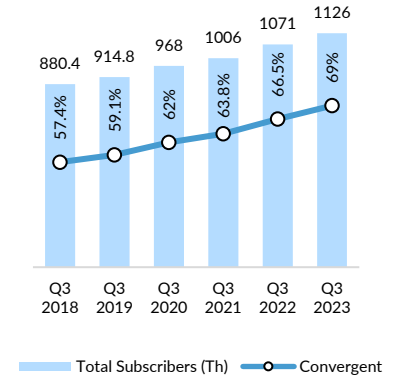
Source: NOS' data

Figure 13 – Cinema tickets sold



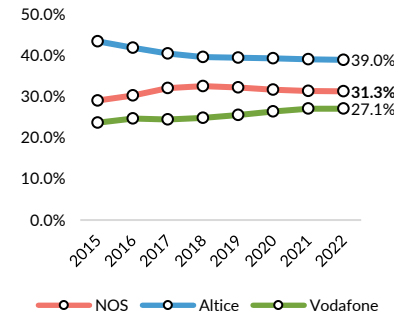
Source: NOS

Figure 14 –Convergent Customer Growth



Note: Convergent customers – bundled consumers with fixed and mobile services.
Source: NOS' data

Figure 15 – Market Share Evolution



Source: ANACOM

services like cloud computing, data centers, IT services, and IoT solutions. As of 3Q2023, these activities accounted for 6.5% of Telco revenues.

A&C | The Audiovisuals and Cinema business unit oversees the production, distribution, and exhibition of audiovisual content through television and cinemas. This segment recently experienced its best quarter ever in 3Q2023, generating €32.2 million in revenue and €15.4 million in EBITDA (Figure 13). This strong performance was driven by the release of blockbuster movies such as Barbie, Oppenheimer, Mission: Impossible, and Elemental, resulting in a 57.4% increase in ticket sales (YoY). Despite being a smaller segment, NOS has no plans to divest these operations due to their differentiation factor. It is also important to highlight the significant recovery from the COVID-19 pandemic, during which this segment was severely affected by nationwide lockdowns. This recovery indicates that, despite the rise of streaming platforms, there remains a strong demand for the cinema experience.

Company Strategies

Lead in 5G | Despite regulatory challenges, NOS remains dedicated to leading in 5G technology to ensure high-quality services and reduce customer churn, a common issue in the telecommunications industry. Following the 5G auction in 2021, NOS emerged as the leader in 5G spectrum frequencies. This leadership is crucial as data-intensive applications gain importance in the current era of digitalization. NOS's 5G network coverage already exceeds 90% of its customer base.

Lead in Customer Experience | Digitalization presents a significant opportunity to redefine customer experience. NOS is determined to lead in this realm, leveraging the expanding digital landscape. This commitment is underscored by a strong history of innovation and, more recently, by the company's B2B strategy aimed at becoming the primary partner for Portuguese firms embracing digital transformation.

Deepen Customer Relationships | With a substantial market presence in Portugal's telecommunications sector and the potential entry of new competitors, customer retention poses a considerable challenge for NOS. To address this challenge, NOS aims to deepen customer engagement by introducing new offerings. These include consumer-oriented services such as alarms, as well as enterprise-focused initiatives where NOS serves as a partner in digital transformations.

Key drivers of profitability

Convergent customers | The foundation of NOS was built on a strategic shift towards convergent offers, the bedrock of its merger. Convergent offers encompass bundled services that include Fixed Pay TV, Fixed Broadband, and Mobile services. These customers are pivotal in driving revenue and profitability for NOS. Since its inception, NOS has significantly increased the share of convergent customers as a percentage of total subscribers, rising from 29.2% in 2014 to 69.0% as of 3Q2023 (Figure 14). This growth was propelled by a successful upselling strategy that captured market share in the Mobile segment, increasing from 13% in 1Q 2014 to 29% by 3Q2023, banking on its substantial existing customer base in other Telco segments.

Ability to maintain above-market EBTIDA margins | NOS has consistently outperformed its domestic and international peers in EBITDA evolution, a trend that is expected to continue. The integration of Artificial Intelligence for Robotic Process Automation (RPA) has demonstrated NOS's capacity to enhance efficiency and enhance financial performance. By automating repetitive tasks and reducing General and Administrative (G&A) costs, the company not only showcases its adaptability but also its ability to thrive in a mature and competitive market. This commitment to maximizing efficiency is evident in the rise of EBITDA margins from 35.7% in 2013 to an estimated 44.3% in 2023, surpassing the average current value of 37.4% among NOS's peers (Table 15). Given the industry dynamics, maintaining above-market margins is crucial for future profit growth and financial resilience.

Infrastructure sharing partnerships | NOS and Vodafone entered into a strategic agreement to share access to their network infrastructure. This partnership targeted greenfield areas encompassing 2.6 million households, split evenly between NOS and Vodafone. The objective was to enhance cost efficiency by avoiding redundant investments in network coverage nationwide. While specific cost savings figures are undisclosed, both companies successfully expanded their network reach to over 30% of households across the country, achieving a milestone that would have otherwise required significant additional capital expenditure. Importantly, this collaboration not only contributed to boosting profit margins but also expanded reach without adding extra costs, offering a strategic advantage to both parties involved.

Industry Overview and Competitive Positioning

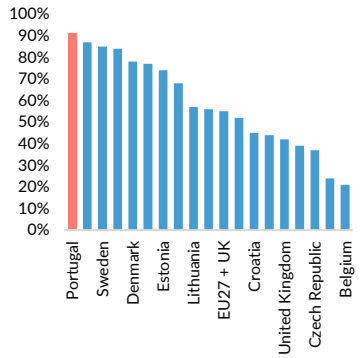
Economic Outlook

In 2022, Europe experienced an armed conflict that triggered an energy crisis, aggravating the ongoing price hikes. The escalation in raw material costs, which began in 2021, resulted in increased prices for goods and services, contributing to a rise in inflation (7.8% in 2022). The ECB's decision to raise interest rates aimed at curbing inflation also led to higher borrowing costs, impacting the heavily leveraged telecom industry. Additionally, telecom prices in the EU rose by an average of 0.9% YoY from September 2022, while prices in Portugal increased by 2.9% during the same period, exceeding the EU average by 200bps. Despite these constraints, Portugal's real GDP grew by 6.7%, surpassing the EU average of 3.61%, although the unemployment rate rose to 6.1% in 3Q2023, marking an increase of 30bps YoY.

Telco Sector

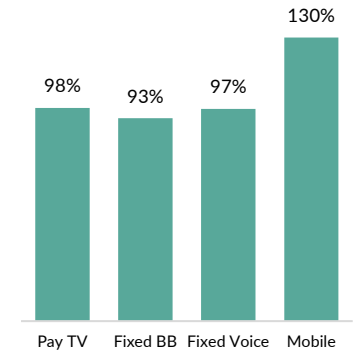
The European telecommunications sector operates under liberal market policies designed to foster competition. Despite the EU's defined objectives for digital development, the European telecom industry faces

Figure 16 – FttH Coverage in Europe 2023



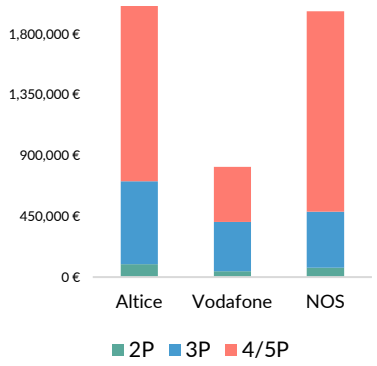
Source: FttH Council Europe Market Intelligence Committee and Moody's Investors Service

Figure 17 – 3Q23 Service Penetration



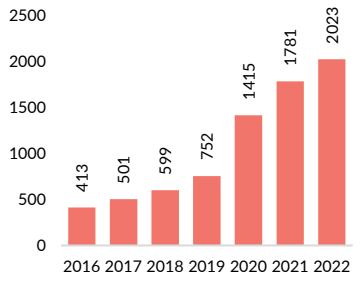
Source: ANACOM data

Figure 18 – TTM Bundle Revenue per Player



Source: ANACOM data

Figure 19 – Total of cyberattacks recorded in Portugal



Source: CNCS

pressures on profitability, uncertainties in demand and pricing, and the depreciation of value in existing technologies. These factors present challenges for companies, demanding continued investment to avoid becoming obsolete. Moreover, a trend toward vertical separation of the value chain (decoupling) is emerging as a strategy to address these challenges, a trend expected to persist over the next decade. While this strategy can lead to increased market capitalization and more efficient business models, it also opens the door for non-EU players to enter and compete in the market.

In Portugal, the expansion of telecom infrastructure includes 92.5% FttH coverage and rapid 5G deployment, both ranking among the highest in the EU. This is illustrated by NOS, covering over 90% of its customer base. There is a growing demand for bundled services among households, with penetration reaching 92.8% by the 1H2023, up from approximately 2.5 million subscribers in 2013 to around 4.7 million today.

In the domestic market, mobile services penetration has reached 180% (130% considering only effective usage, excluding M2M). Regarding fixed services, Fixed Voice has a penetration rate of 97%, Fixed Broadband stands at 93%, and Fixed Pay TV has achieved a penetration rate of 98%.

Market Overview

The Portuguese telecommunications industry, led by Altice (38.8%), NOS (31.6%), and Vodafone (27.2%), is known for its maturity and steady growth, evidenced by a 3.64% YoY revenue increase following a 2.34% growth in 2021 (Figure 15). NOS has focused on expanding mobile services within its extensive fixed customer base, increasing its mobile market share from 23.1% in 2016 to 29.5% by 3Q2023. This strategic focus, however, led to declines in other segments, benefiting Vodafone. Despite steady growth across those segments, NOS did not match the overall market's pace.

The Portuguese telecom market is characterized by price-sensitive consumers and significant churn rates. Smaller competitors, such as NOWO and LYCAMOBILE, have gained a small market share through Mobile Virtual Network Operator (MVNO) agreements, leveraging cost leadership strategies with bundle prices 20% to 30% below the market average. However, since 2017, these operators have experienced a downward trajectory in market share (NOWO's market share decreased by 90 bps over six years, and LYCAMOBILE's market share remains marginal). Their limited success highlights the substantial barriers to entry in the market. Established players carry significant value, and foreign entrants lacking consumer awareness struggle to expand market share. High marketing costs are required to alter the current market status quo. Notably, Vodafone recently announced its acquisition of NOWO, a process currently under investigation by ANACOM, with no official acquisition price disclosed.

The anticipated entry of Digi, focused on internet services, resulted in NOS launching its WOO service package (internet standalone), to which Vodafone responded with its "amigo" offering (also an internet standalone service). Digi's successful entry into the Spanish telecom market demonstrated strategic acumen by addressing an underserved market. However, its entry into Portugal's much more developed and well-served market, with high FttH coverage (90% compared to Spain's below 30% at the time), presents a distinct and more challenging scenario. Digi's budget-friendly approach introduces uncertainty about future market pricing and potential shifts.

Additionally, satellite service providers like Starlink and SpaceMobile are developing innovative technologies to bypass telecom limitations by allowing cell phones and mobile devices to connect to the internet via satellite by 2025. Although regulatory processes may delay their introduction in Portugal, these providers could become global competitors and disrupt the industry.

Supply drivers

Regulatory incentives | ANACOM, the regulatory body, plays a vital role in maintaining a competitive telecom landscape. By implementing regulations that foster fair competition and curb anti-competitive practices, ANACOM drives innovation, service quality, and competitive pricing. It also sets strategic objectives and performance benchmarks for telecom companies, motivating them to broaden their service offerings, upgrade network infrastructure, and invest in technological advancements. Notably, ANACOM's intervention to stimulate investment is exemplified by its acceptance of the 2022 BEREC draft, which moderated Altice's cost of capital rate increase by over 150 bps. This measure aimed to balance investment incentives, prevent anti-competitive actions, and protect consumers from inflated prices.

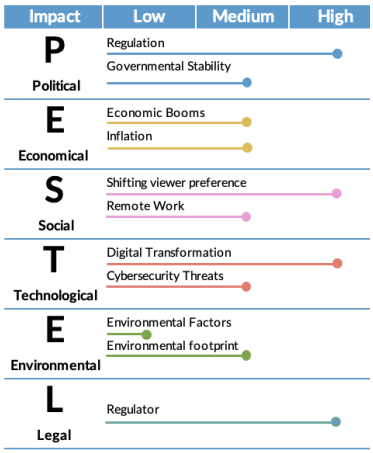
Operational efficiency improvement | Telecom companies focus on operational efficiency and cost reduction in critical areas, such as network infrastructure, equipment procurement, and energy consumption. This drive for efficiency promotes the adoption of new technologies, for instance, cloud computing and artificial intelligence, which help telecom providers streamline their processes and enhance profitability.

Technology | Adopting advanced technologies is crucial for firms to continue supplying the telecom sector. Companies investing substantially in innovations like 5G infrastructure, IoT solutions, AI-driven services, and cloud-based platforms achieve notable improvements in their supply capabilities. Besides optimizing costs, integrating these cutting-edge technologies allows companies to offer innovative services, extend connectivity, and improve operational efficiency, thereby boosting their supply potential.

Demand drivers

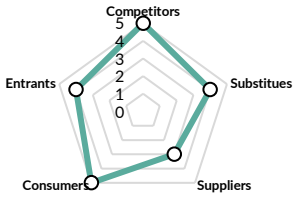
Changing consumer preferences – Shifting consumer preferences are fuelling demand within the telecom sector. The growing reliance on mobile data—projected to increase by 5.34% annually from 2023 to 2027, according to the Economist Intelligence Unit—and the rise of remote work are driving the need for enhanced internet connectivity and data services. Additionally, there is a rising demand for larger bundles with added services, such as access to streaming platforms. We anticipate that 4/5P bundles will comprise 61% of the total market bundles by 2030, up from the current 55%. Telecom companies that cater to these preferences by offering reliable, high-speed data solutions are likely to see increased demand.

Figure 20 – PESTEL Analysis



Source: Team Analysis

Figure 21 – Porter's 5 Forces



Source: Team Analysis

Table 8 – SWOT Analysis

Strengths	Weaknesses
Established Infrastructure	Rural Connectivity
Market Reputation	Saturated Market
Diversified Offerings	Economic Conditions
High Penetration	Regulations
Opportunities	**Threats**
More Efficient Networks	New Entrants
Emerging Technologies	New Substitutes
Improved Customer Experience	Cybersecurity
Strategic Partnerships	Changing Consumer Preferences

Source: Team Analysis

Table 9 – ESG scores

Pillar	Source	NOS
ESG	Refinitiv	B (64/100)
ESG	Bloomberg	4.73/10 - "Leading"
ESG risk	Sustainalytics	14.3 - low
ESG risk resiliece	MSCI	AA (6.1)
E	Refinitiv	A
E	Bloomberg	3.75/10 - "Above Median"
S	Refinitiv	B+
S	Bloomberg	5.35/10
S	Moody's	70
G	Refinitiv	C - "Below Average"

Note: E – Environment; S – Social; G – Governance

Technological advancements and increased connectivity – The telecom industry flourishes by responding to consumer demands for advanced technologies and seamless connectivity. Companies that consistently innovate by enhancing network speeds, expanding coverage, and introducing pioneering services attract customers searching for superior solutions. According to ETNO, total European Mobile 5G coverage surged from 13% in 2019 to over 70% in 2022. This progress meets consumer desires for faster internet speeds, broader coverage, and reliable connectivity in their daily lives. Telecom providers that deliver extensive coverage and dependable services can capitalize on this growing demand, establishing themselves as preferred choices for consumers looking for robust connectivity solutions.

Privacy and Security – In Portugal, cyber-attacks increased significantly between 2016 and 2022, +30.3% CAGR (Figure 19). The rising value of data and the complexity of cyber threats are driving the need for enhanced privacy, security, and resilience in the telecommunications sector. Consumers are more and more concerned about data security, making an operator's ability to combat cyber threats a critical consideration. Telecom companies that strategically address and effectively manage these security concerns not only lead the industry's evolution but also protect themselves from potential incidents that could harm their brand reputation.

PESTEL Analysis

Political | ANACOM promotes fair competition, enforces regulatory compliance, and establishes industry standards, which benefit consumers through access to innovative services and competitive pricing. Additionally, stable government policies enhance telecom companies' confidence, encouraging significant investments in infrastructure and innovation.

Economical | Economic growth typically leads to increased spending on communication services due to higher disposable incomes. Conversely, inflation and rising borrowing costs can impede the growth of the telecom industry, which requires substantial infrastructure investments.

Social | Changing consumer preferences from traditional TV to on-demand streaming services and the rise in mobile data usage indicate a growing demand for flexibility and personalized content. Furthermore, the reliance on remote work has heightened the need for dependable broadband services.

Technological | The ongoing digital transformation in the telecom sector fuels innovation but also brings new cybersecurity challenges. Telecom companies must adopt new advanced measures to safeguard consumer data and protect their infrastructure.

Environmental | Environmental factors, such as adverse weather conditions, can affect service reliability and customer experience. In response, companies are adopting eco-friendly practices to minimize their environmental impact during infrastructure upgrades.

Legal | ANACOM regulates the telecom industry, protecting consumer rights through data protection laws, ensuring pricing transparency, and fair contract management. It also prevents anti-competitive behavior by establishing a legal framework that governs mergers and acquisitions.

Competitive Positioning

Rivalry Among Competitors - HIGH | The Portuguese telecom market is dominated by three major players: ALTICE, NOS, and VODAFONE. Despite the oligopolistic structure limiting price competition, these companies aggressively seek to expand their market share through extensive advertising and strategic alliances. The potential for mergers and acquisitions among competitors also plays a significant role, as seen with VODAFONE's acquisition of NOWO, currently under regulatory review.

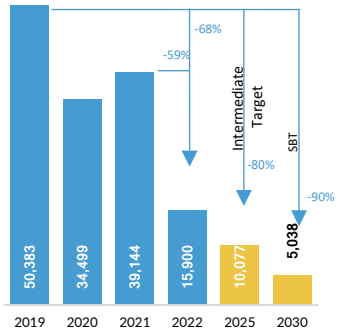
Threat of Substitute Products – MODERATE | Although direct replacements for traditional telecom services may not encompass all facets, alternatives such as Over-the-Top (OTT), Voice over Internet Protocol (VoIP), and certain social media platforms compete in specific areas. In remote or underserved regions, Fiber to the Home (FttH) encounters competition from Wireless Internet Service Providers (WISPs) and satellite service providers like Amazon (Project Kuiper) and Starlink, reshaping the industry landscape. Regulatory scrutiny will be crucial in determining how these advancements impact and integrate into the market.

Bargaining Power of Suppliers – MODERATE | In 2022, NOS collaborated with over 6,250 suppliers, spending about €1,575M, with 86% sourced domestically. This extensive largely network supports the local economy, especially within telecommunications highlighting NOS's strategic influence. Since 2019, rigorous annual supplier evaluations have emphasized proactive engagement, contract compliance, quality, ethics, and ESG factors. Despite its market presence and varied offerings, NOS has moderate leverage over its suppliers due to the strategic importance of certain supplies. However, reliance on specialized suppliers grants them negotiation power, as NOS seeks to avoid disruptions by switching. Overall, there is a balanced power dynamic between NOS and its suppliers.

Bargaining Power of Customers – HIGH | Portuguese consumers are highly price-sensitive, facilitated by minimal switching costs, making it easy for them to change telecom operators. Previously, 24-month contracts with fidelity clauses imposed higher switching costs, requiring customers to pay a penalty if they switched providers. Now, mandatory options without such clauses exist. Despite the dominance of established telecom firms, competition to attract and retain customers remains fierce, with operators focusing on reducing churn rates and fostering customer loyalty. As a result, consumers wield significant influence, driving companies to continuously innovate and provide improved services at competitive prices to retain their market position.

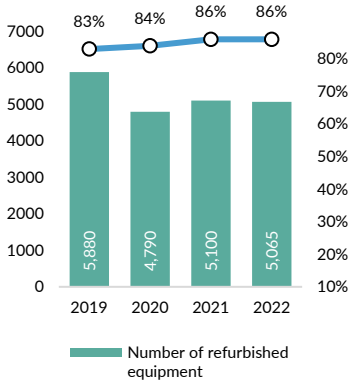
Threat of New Entrants – MODERATE | Telecom market liberalization creates a favourable environment for new entrants, provided they meet ANACOM's stringent requirements to safeguard consumer interests and promote competition. Although substantial capital investment has traditionally been necessary, potential entrants can now lower costs through MVNO agreements. Nevertheless, established telecom giants pose formidable barriers to new players seeking to capture market share and benefit from economies of scale. They

Figure 22 – Emissions from own operations (tCO_2e)



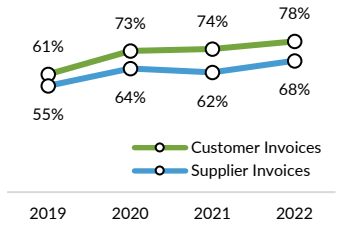
Note: SBT – Science Based Target
Source: Team Analysis

Figure 23 – Collection and recovery of customer equipment in the fixed service (in 00's)



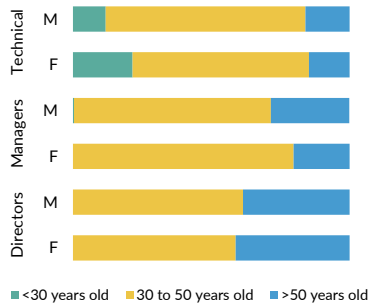
Source: Team Analysis

Figure 24 – Level of digitalization of billing processes



Source: Team Calculation

Figure 25 – Distribution of employees



Source: Team Calculation

Table 10 – NOS' Management Team

Women	33%
Men	67%

Source: Team Analysis

actively develop cost-effective solutions (like NOS's WOO) to counter emerging threats such as DIGI. Despite ANACOM's efforts, new entrants may find it challenging to compete fully, encountering obstacles in overcoming the well-prepared strategies of dominant companies.

SWOT Analysis

Portuguese telecom companies confront several challenges, including rural connectivity issues, market saturation, and regulatory constraints. Established firms like NOS take advantage from their existing infrastructure and strong brand awareness. Opportunities exist in optimizing networks, leveraging emerging technologies, enhancing customer experience, and forming strategic partnerships. However, threats include the entrance of new competitors and cybersecurity risks.

Environment, Social and Governance

NOS developed a strategic sustainability plan for 2021-2025, focusing on four key pillars: "On behalf of the planet," "For a digital future," "More for our people," and "Ethical and responsible management." This plan supports 11 out of the 17 United Nations Sustainable Development Goals (SDGs). NOS possesses strong ESG scores (Table 9) and to ensure that all partners, suppliers, and their subcontractors adhere to their sustainability principles, the company established specific Sustainability Requirements for Suppliers and Partners.

Environment

NOS has shown a strong dedication to environmental sustainability, achieving remarkable scores (Table 9) and being included in the A List of the CDP Climate 2022 Program. As the only Telecom company in Portugal evaluated by CDP, NOS consistently surpasses the international sector average and has sustained a Leadership level rating for three consecutive years. Furthermore, NOS actively participates in the Global e-Sustainability Initiative (GeSi) and has signed the Manifesto Towards COP 27, aligning its initiatives with the objectives of the Paris Agreement and the 2030 Sustainable Development Goals.

Carbon Efficiency | NOS achieved a 59% YoY reduction in its operational GHG emissions and a 68% reduction compared to the 2019 baseline. The company aims for a 90% reduction in GHG emissions from its operations and a 30% reduction from its value chain by 2030, also relative to 2019 levels (Figure 22). As a founding member of the European Green Digital Coalition, NOS is dedicated to achieve carbon neutrality by 2040.

Energy Efficiency | By 2030, NOS aims to fully electrify its fleet and offset unavoidable emissions through reforestation projects in Portugal. The company is replacing harmful gases and improving energy efficiency while addressing increased emissions from capital goods production and network expansion. In 2022, NOS's electricity consumption rose by 39% YoY. Implementing intelligent network management saved 5-10% on energy costs during low-traffic periods. Overall, energy consumption increased by 27% YoY, driven by growing energy needs and activity recovery.

Supply Chain | To ensure a greener supply chain, NOS participates in the Eco Rating project, providing consumers data on mobile phones' environmental impact, having witnessed an increase of 2pp of the average Eco Rating score since its launch in 2021. The company plans to expand this to all main suppliers and include data on emissions from network equipment. This empowers more informed and sustainable choices, incentivizes supplier improvements, all while fostering sector-wide transparency and reduction of environmental impact.

Circular Economy | NOS aims to consistently enhance business circularity from 2022 to 2025, having recycled 98% of its total waste in 2022, an increase of 1p.p. YoY. With the introduction of 5G technology, NOS strengthened its recovery and reuse processes, refurbishing and reintegrating equipment, as well as selling legacy items to reduce and minimize energy and material consumption (Figure 23). Additionally, NOS digitized billing and contractual processes, increasing efficiency and reducing energy use associated with printing and transportation (Figure 24).

Sustainability-Linked Bonds | NOS's Sustainability-Linked Financing Framework contributes to reducing the company's environmental footprint. Moreover, the objectives incorporated into the framework align with NOS's long-term target for reduced emissions. In January 2023, NOS secured 350 million euros in bank loans. The funds were distributed among bond loans and commercial paper programs, set to mature in 2028 and were linked to sustainable objectives. Adding, the S&P Global Ratings report indicates the company is aligned with all Sustainability Performance Targets. This form of financing ensures that NOS benefits from lower interest rates, thereby reducing its cost of debt. During a period of rising interest rates, this form of debt has allowed NOS to maintain a manageable cost of debt. Currently, 70% of the company's debt is linked to sustainability KPIs, yielding interest rate benefits known as a 'greenium'.

Social

NOS possesses a robust workforce, receiving an 84.11% score from Bloomberg's 2023 Gender-Equality Index, which exceeds both sector and national averages. The company's dedication to gender diversity is evident, with women making up 41% of the workforce and 33% of management positions (Table 10). NOS has established a certified Occupational Health and Safety (OHS) management system focused on proactive health and safety measures. In partnership with ENSICO, NOS launched "Projeto ZER01," an initiative to integrate computer science education into schools nationwide, highlighting the company's commitment to digital literacy and inclusion. Yet, employee turnover at NOS has risen by 4% from 2018 (10% turnover) to 2022.

Table 11 – Shareholders

Sonae Com, SGPS, S.A.	26%
ZOPT, SGPS, S.A.	26%
Sonae, SGPS, S.A.	11%
Mubadala Investment Company PJSC	5%
Free Float	32%

Source: NOS' data

Table 12 – Management Team

Name	Position (Since)
Miguel Almeida	CEO (2013)
José da Costa	CFO (2007)
Luís Nascimento	Member of EC (2017)
Jorge Graça	CTO (2016)
Manuel Eanes	Member of EC (2013)
Filipa Carvalho	CCO (2021)
Daniel Beato	Member of EC (2021)

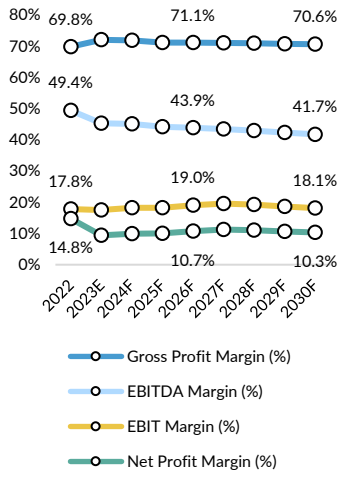
Source: NOS' data

Table 13 – Valuation

	Model	g	%EV	M €
Telco	FCFF	1.0%	92.3%	3,920,562
A&C	FCFF	1.0%	7.7%	251,119
NOS				4,171,682
Adjustments for Net Debt				-1,690,895
Other Adjustments				-359,773
Equity Value				**2,121,013**
# Shares ('Th)				511,382
Price Target (€/sh)				**4.15 €**

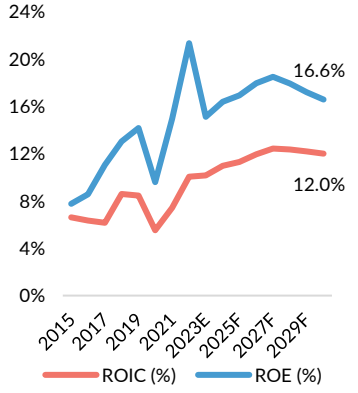
Source: Team Estimates

Figure 26 – Margin evolution



Source: Team Estimates

Figure 27 – Ratios evolution



Source: Team Estimates

Governance & Management

Shareholder structure | NOS has 4 principal shareholders (Table 11), with 36% of its shares being free float. Although there are no restrictions on share transfer and ownership, shareholders who are competitors to NOS's subsidiaries are limited to holding a maximum of 10% of the capital without approval from the General Meeting. In 2022, the General Meeting approved the buyback and sale of own shares for an 18-month period. Additionally, certain financing agreements permit a change of control (including takeovers), which may demand early repayment. NOS does not have measures in place to prevent public takeover bids or to protect the company's assets in the event of a Board of Directors change or a shift in control.

Controversies | In 2020, close associates of Isabel dos Santos, including Jorge Brito Pereira, Mário Leite da Silva, and Paula Oliveira, exited NOS's board following the "Luanda Leaks" scandal. Dos Santos was accused of diverting over €100M from Sonangol to a Dubai firm, leading to a UK court freezing her assets, including her NOS stake. In June 2023, a Dutch court convicted her of embezzlement and document forgery, involving €52.6M from Sonangol. After her associates' departure, Ana Rita Cernadas, Cristina Maria de Jesus Marques, and José Carvalho de Freitas were appointed for the 2019-2021 mandate. Notably, two new members have ties to Isabel dos Santos through Santoro Finance, implicated in the scandal.

In 2022, ANACOM fined the Portuguese Telecom companies, including NOS, for inadequate customer communication following price increases. Moreover, in April 2023, NOS was fined €50K for violating Electronic Communications Law by signing service contracts via phone call without proper compliance.

Board of Directors | NOS has a one-tier board structure, comprising a Board of Directors (BoD) responsible for daily management and a statutory independent audit board overseeing management supervision. The Board of Directors includes 7 executive and 8 non-executive members, with a gender distribution of 67% male and 33% female, and an average of 15 years of experience in the telecommunications sector.

Management Team | Miguel Almeida, President of the Executive Committee for 2022-2024 and the sector's longest-serving CEO, leads a team that provides strategic guidance to the BoD. His primary objective is to create long-term shared value, evident in the team's efforts to spearhead 5G deployment and reinforce NOS's industry position.

Remuneration Policy | Executive administrators' remuneration has grown the most in the past decade. Their compensation policy includes a fixed component, with executive directors also receiving a capped variable component. This variable pay is tied to both individual performance (30%) and company performance (70%, based on NOS' performance KPIs), and is related to profit sharing and/or shares' allocations.

Valuation

Free Cash Flow to the Firm: A Sum-of-the-Parts Approach (SoP)

We issue a **BUY** recommendation with a 12-month price target of €4.15, indicating a 27% upside from January 12th closing price of €3.27/share. This target is derived from a Discounted Cash Flow (DCF) model employing a SoP approach, which separates the valuation of each business segment. Different WACCs were computed to reflect the different risks associated with each segment's peer group (Appendix 12). To amplify the scope of the initial valuation, we also used additional valuation methods. Our financial statements were forecasted using a hybrid top-down approach, relying heavily on Portuguese macroeconomic projections.

Revenue Breakdown

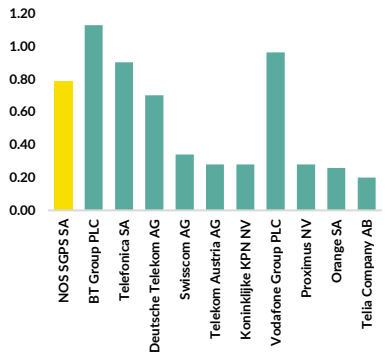
NOS' revenue forecast is divided into Telco and A&C, each further categorized into three sections. The primary category is **Services Rendered**, representing c.90% of total NOS revenues. Starting with Telco's services rendered, we used ANACOM's data, other sources, and our own estimates to calculate the average bundle price for each type of bundle (ranging from 2P to 5P). Each bundle price was estimated independently, considering expected market trends, convergent customers, and yearly inflation-linked adjustments disclosed by the three major operators through contractual clauses to facilitate price increases. Additionally, we complemented the previously mentioned projections by forecasting the evolution of the number of bundles in the market along with the market shares of NOS and its competitors (Figure 30). Our market dynamics analysis reveals a significant trend: while NOS continues to attract customers favoring 4/5P bundles, its growth rate falls behind the overall market pace. This trend results in a gradual loss of market share, predominantly captured by Vodafone, consistent with recent years. Despite this, NOS is increasing its number of customers and RGUs. These rendered services also include content VOD (Video-On-Demand) and other additional services, which were forecasted based on their declining weight compared to the bundle's percentage of services rendered. The cinema-driven A&C segment was independently estimated. This segment's Services Rendered include box office, film distribution, advertising, and production of audiovisual content. Revenue projections for these services were made considering inflation-adjusted forecasts.

The second and third revenue categories for NOS consist of **sales and other operating revenue**. These sources collectively contribute 10-11% of total revenues from 2023E to 2030F, estimated based on the evolution of services rendered and inflation adjustments.

Capex and D&A

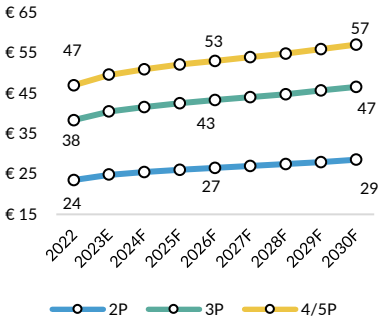
NOS has surpassed its peak Capex for FttH and 5G deployment. We anticipate a decrease in Capex at a -1.9% CAGR until 2030, starting from an expected expenditure of approximately €400M in 2023, narrowing to a terminal value of €350M. Since 2015, Depreciation & Amortization (D&A) has consistently averaged around 110% of Capex, and we project that depreciations will continue to exceed Capex in the coming years. However, future technology deployments in the long run will necessitate net Capex adjustments.

Figure 28 – Market Levered Beta



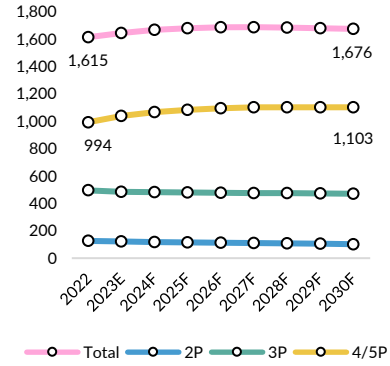
Source: Refinitiv

Figure 29 –NOS' Bundles Average Selling Price (€)



Source: Team Estimates

Figure 30 –NOS' Number of Bundles



Source: Team Estimates

Table 14 – WACC

	2024F	TV
Debt ratio	50.8%	46.2%
Cost of debt	3.2%	3.2%
Cost of equity		
Telco	8.1%	8.9%
A&C	12.3%	11.6%
WACC		
Telco	5.7%	6.5%
A&C	7.7%	7.9%

Source: Team Estimates

Table 15 – Peers and industry comparison (%)

	NOS	Industry Average	PT sector's average
ROE	14.9	9.3	-
ROCE	0.1	-	-0.62
EBITDA	42.5	37,4	30.19
Current Ratio	56.9	-	64.97

Note: Most updated data used
Source: Team Estimates, Orbis

Weighted Average Cost of Capital

The various segments within the NOS Group present unique risks. To evaluate these risks precisely, we computed two distinct WACC rates for discounting the FCFF of each segment. The **cost of equity** was estimated using the standard CAPM method, using leveraged adjusted Betas from the selected peer groups. NOS' **cost of debt** was calculated by integrating three components. Firstly, we employed the normalized 10-Year German Government Bond Yield (2.14%) as a proxy for the Risk-Free Rate. Then, we added NOS' specific spread (2.0%), which corresponds to its BBB Fitch rating. The after-tax cost of debt for 2024 is approximately 3.2%. Throughout the forecast period, we will assume that the cost of equity will vary in accordance with NOS' annual capital structure changes, while keeping the cost of debt constant.

Terminal Period | Value from the Long-Run

For our terminal period forecast, we incorporated the additional long-term uncertainties affecting both the market and NOS. The Telco sector is characterized by ongoing technological innovation; for instance, there are already market expectations regarding the transition from 5G to 6G technology within the next decade. This calls for continuous reinvestment by companies to maintain relevance and profitability. Moreover, regulatory bodies are pushing for a more liberalized market, fostering increased competition. For NOS specifically, there are governance concerns related to Isabel dos Santos' substantial frozen stake in the company, adding to the uncertainty about the future ownership of those shares.

To address these factors, we incorporated specific adjustments into our models. Firstly, we increased the Telco segment's unlevered beta to 0.55, reflecting a more accurate assessment of the business risks NOS faces, especially considering the industry's long-term uncertainties and the risk of obsolescence (Appendix 12). Moreover, we set a terminal growth rate of 1%. This conservative rate aims to account for the various challenges NOS will encounter while still allowing for the projection of future cash flow growth.

FCFF and APV

In our DCF model, we discounted NOS' FCFF, as a sum of part of the Telco and A&C segments at the company's consolidated yearly WACC. This process involved several adjustments from the enterprise value to the equity value (Appendix 15), resulting in a target price of €4.15 per share, while the APV model points to a target price of €4.10 per share. Both models apply the SoP FCFF approach, guiding our recommendation.

FCFE

Following NOS's yearly changing capital structure, we developed this valuation method extending directly to the terminal value. We then discounted the projected cash flows by the company's cost of equity (Appendix 12), making adjustments for NOS' non-controlling interests, which yielded a target price of €3.9 per share.

Relative Valuation

For our multiple's valuation, we employed a SoP approach, forming distinct peer groups for NOS's Telco and A&C segments. Telco peers were selected using the Sum of Absolute Rank Differences (SARD) method, zeroing in on companies aligned with NOS' core operations (Appendix 9: Peers). We excluded Altice USA and firms heavily investing in capex for a more illustrative sample. For the A&C segment, we sampled cinema theatre operators with comparable pre- and post-COVID-19 conditions.

The multiples valuation, based on EV/EBITDA 2024F, applied a weighted average of multiples from NOS's Telco and A&C peers, resulting in a price target of €4.59 per share pointing to a 40% upside. An equal-weighted average of the price targets from the four multiples evaluated provided a price target of €3.89 per share, reflecting a 19% upside (Appendix 14). Analyzing historical multiples further supports our assessment, showing that NOS has consistently traded below its peers since the COVID-19 correction.

DDM

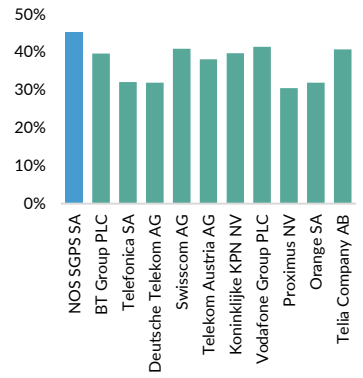
The DDM analysis was based on NOS's recent stable dividend payouts (€0.27/share since 2019). Given that NOS has surpassed a period of high Capex and is entering a phase of increasing margins and financial strength, we projected a €0.055 increase to the current dividend, bringing it to €0.325/share. This model implementation resulted in a price target of €4.04/share, representing a **24**% upside.

Sensitivity Analysis

A sensitivity analysis was conducted to evaluate the impact of key inputs on our valuation. We found that a decrease in NOS's terminal growth rate to 0.2%, combined with an increase in WACC to 7.18%, would result in a shift in our recommendation. However, this scenario is highly unlikely, as NOS is planning to grow following its intense capital-expenditure period.

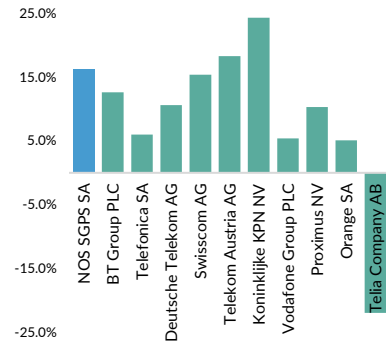
Besides, NOS has several contracts tied to inflation, and given an expected long-term inflation rate of 1.5-2%, a terminal growth rate of 0.2% would not be feasible. A terminal growth rate of 0.6% could challenge our recommendation's confidence. However, it is still improbable for NOS to face a rate lower than 1% due to its continuous efforts to evolve, even in a mature industry. It's worth noting that stressing this variable leftwards implies a downgrade of our recommendation only 30% of the time (Appendix 20).

Figure 31 – EBITDA Margin



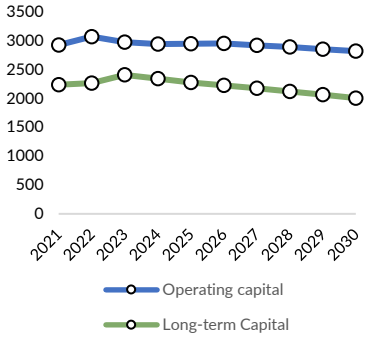
Source: Refinitiv

Figure 32 – Peers ROE



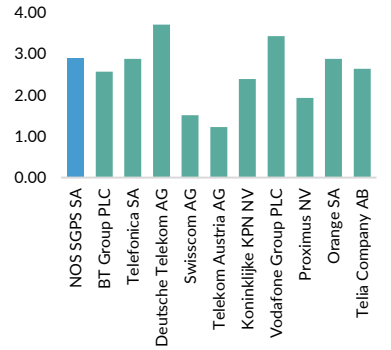
Source: Refinitiv

Figure 33 – Financing Strategy (in 000's)



Note: The spread between Operating Assets and Equity and Long Term-Debt corresponds to the Short-Term Debt
Source: Team Estimates

Figure 34 – Net Debt / EBITDA



Source: Refinitiv

Financial Analysis

Profitability | Bottom Line Stability

NOS has consistently demonstrated growth in both EBITDA and EBIT, achieving a +3.1% and +7.0% CAGR from 2015 to 2023YE, respectively. The industry averages a margin of 37.4%, but NOS exceeds this figure (Figure 31). Following this period of steady growth, it is anticipated that the company will begin to consolidate its margins. The entry of new competitors, led by Digi, potential market demand shifts, and further liberalization by ANACOM are expected to reduce EBITDA margins by up to 460 basis points, though this will have minimal impact on the bottom line. We expect the NOS' profit margin to stabilize around 11%. In spite of steady net profit margin growth, the pace has decelerated due to market saturation.

General profitability has been on an upward trajectory, with ROA growing at a +5.5% CAGR from 2015 to 2023YE. We project this positive trend to continue at a +1.9% CAGR from 2024 to 2030YE. The reduction in additional capital requirements and margin stability underpins sustainable profitability. Moreover, NOS's asset turnover of 0.45 surpasses and aligns with the industry's average of 0.43. Most profitability ratios display a slight initial rise in the early forecasted years, followed by modest consolidation, resulting in a consistent and stable overall trend. In terms of ROCE, NOS has maintained relative stability alongside VODAFONE, outperforming other competitors like Altice, which experienced a significant downturn with a -102.45% ROCE in 2019. For both NOS and VODAFONE, ROE has risen, whereas Altice's ratio has remained volatile and consistently underperforming. All in all, NOS has surpassed the industry's average ROE of 9.3% by over 300 bps (Figure 32).

Liquidity | Taking Risks as They Have a Bargain

The company's financing strategy appears to involve a higher level of risk (Figure **33**) This stems from NOS' ability to secure short-term financing with favorable yields, ensuring the necessary levels for investment and payout targets. Persistent negative net liquid balances and working capital suggest that current assets are insufficient to meet short-term liabilities. Stable funding does not cover operational assets. Our treasury forecast does not indicate significant risks despite the short-term imbalance. This aligns with the adopted risky financing strategy.

Overall, operating assets are financed partly through short-term borrowing, facilitated by NOS's capacity to access the market for short-term funds at attractive rates. While this approach minimizes interest expenses, it increases risk since the company must frequently renew its short-term financing. However, NOS seems comfortable with this method, leveraging its status as a major corporation with easy access to capital markets. These characteristics explain the consistently low liquidity ratios, which are in line with other Portuguese players.

Furthermore, NOS has set a target of 2.0x for Net financial debt to EBITDA AL, reflecting a defensive approach to leverage. This metric has fluctuated among NOS's competitors, averaging 2.55x. The company's ability to cover interest payments has remained strong, averaging 7.0x from 2015 to 2023YE and is projected to stabilize at 6.0x from 2024 to 2030YE.

Efficiency | Stability

NOS demonstrates stable efficiency ratios. These indicators contribute to a negative operating cash cycle, forecasted at -567 days for 2024YE. As a well-established company with a solid reputation, NOS can comfortably prolong payment terms to suppliers without putting at risk its creditworthiness. The business model also points to its necessity.

Dividends | Room for improvement/growth

Despite lacking an official payout policy, NOS has routinely conveyed a message favoring shareholder rewards. At times, these remunerations have exceeded the company's bottom line figures (2018-2020). Subsequently to the significant capital expenditure period mentioned earlier, NOS organized an extraordinary dividend of €0.152 per share (distributed in 2023), in addition to the regular dividend of €0.278 per share (unchanged since 2019). This extraordinary dividend was supported by additional cash proceeds and capital gains that resulted from the towers' transaction. Furthermore, anticipating a future period of increasing margins along with reduced investment and enhanced financial strength, we anticipate NOS's dividend practice to rise to €0.325 per share. This increase aligns with the company's historical profit-sharing approach and underscores its commitment to rewarding shareholders.

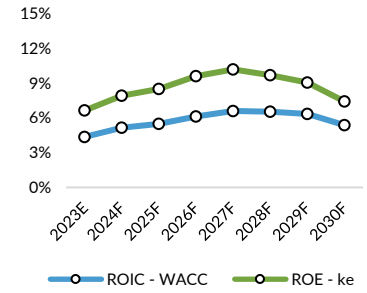
Financial Risk | Under Control

NOS was assigned a BBB- credit rating by Standard and Poor's and BBB by Fitch Ratings. Despite relying heavily on short-term financing, the company maintains a conservative capital structure approach with a target Net Debt/EBITDA after leases of 2.0x. The issuance of sustainability-linked bonds has also provided an estimated 'greenium' compared to similar offerings by the company.

Value Creation | Delivering

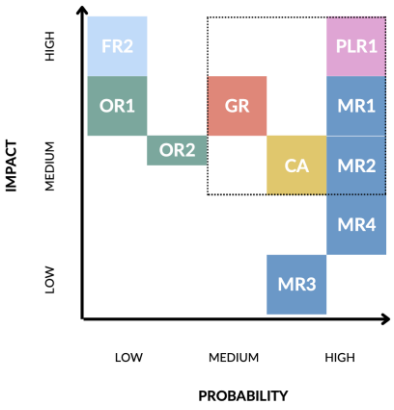
NOS's ROIC, a profitability proxy, consistently outperforms the WACC by more than 400bps. On the same note, ROE generates a spread over the cost of equity of 245bps, contributing additional value to shareholders. These robust positive spreads (Figure 33) across metrics indicate that NOS is well-positioned to deliver sustained value to its shareholders, likely maintaining its historically strong payout. With our estimated approximately 8.1% cost of equity for Telco and an implied 2024YE dividend yield of 8.5%, we expect NOS to continue providing strong value to shareholders.

Figure 35 – ROIC spread to WACC and ROE spread to Cost of Equity



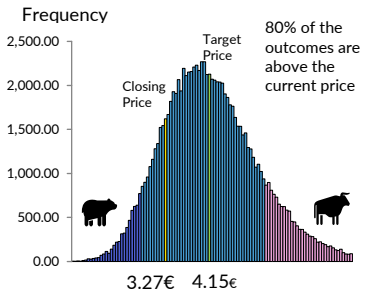
Source: Team Estimates

Figure 36 – Risk Matrix



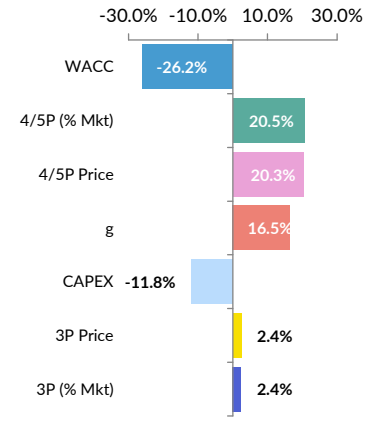
Source: Team estimates

Figure 37 – Monte Carlo Simulation



Source: Team calculations

Figure 38 – Sensitivity analysis



Source: Team calculations

Investment Risks

These are the main risks, although in Appendix 18 is presented additional investment risks.

Market Risk | Existing Competition (MR1)

NOS operates in a relatively dense and saturated market (5.6 million households in a country with around 10.3 million residents) and faces direct competition from the two other large players, Vodafone and Altice, that offer homogenous services and products. Therefore, these three leading companies continually compete to maintain and expand their respective market shares. **Mitigation:** NOS employs proactive approaches focused on expanding its Telco services, emphasizing improved customer experience, product quality, and additional services such as security alarms. These initiatives are designed to attract new bundled service customers and consequently reduce customer churn. Moreover, NOS intends to maintain its focus on innovation within the B2B segment of Telco by offering competitive IT and IoT services to small and medium-sized enterprises (SMEs), thereby diversifying its revenue sources.

Market Risk | Entry of New Players (MR2)

The rise of new competitors, such as Digi Communications, offering economical alternatives, may attract a new customer segment seeking only Fixed Broadband and Mobile services at lower prices. In such a scenario, price competition may negatively impact established players, challenging their ability to grow and sustain market share without compromising margins. **Mitigation:** NOS has emphasized the distinctions between the Portuguese market and others, citing its high penetration and challenging market share acquisition. However, the potential entry of new low-cost competitors targeting the expanding mobile sector has been anticipated by NOS for several years. This led to the introduction of the "WOO" offering in 2020, a cost-effective package tailored for customers seeking basic internet connectivity, comprising Fixed Broadband and Mobile services. It's important to note that NOS is not aggressively promoting this alternative but rather preparing to adapt to potential shifts in market preferences or competitor-driven changes in customer behavior.

Political, Regulatory and Legal Risk | Recent changes in Regulations (PRL1)

NOS confronts material political, regulatory, and legal risks in the Portuguese telecommunications sector, largely influenced by the actions of ANACOM. ANACOM's regulatory decisions have shown a tendency for unexpected changes that can affect market stability and promote the entry of new competitors. Notably, the 5G auction regulations implemented in February 2020 substantially lowered entry barriers for new players. For example, new entrants are now obligated to cover only 25% of the population within three years and 50% within six years, resorting to existing towers from larger operators until then. Conversely, when NOS entered the market as the third largest player, it was required to cover over 90% of the population within four years without access to other networks. This disparity created tensions between NOS and ANACOM, leading to legal actions on the grounds that the regulator's actions constituted unlawful discrimination among industry participants. More recently, ANACOM demanded Altice to provide access to its FttH network in 402 rural areas where it held a monopoly, being an example of the possibility for sudden regulatory shifts in this sector.

Governance Risk | NOS' Shareholders (GR)

Sonaecom holds a 37.37% stake in NOS. As a diversified conglomerate with investments across several industries, it may prioritize its own interests over those of NOS' minority shareholders. Moreover, ZOPT, NOS' second-largest shareholder, owning 26.08% of the company, poses a serious risk due to uncertainties surrounding its position. ZOPT, controlled by Isabel dos Santos, faces legal challenges in Angola related to alleged harmful management and document falsification. Recently, UK authorities have frozen ZOPT's stake in NOS following a request from Angola's state-owned Unitel. **Mitigation:** Despite past pressures from influential stakeholders seeking changes to its strategies and financial structure, NOS has consistently maintained a cautious approach to debt. The company has firmly defined its priorities and long-term plans. Nevertheless, with ZOPT previously owned by Isabel dos Santos, NOS remains subject to legal proceedings (Table 11).

Cybersecurity Attacks | (CA)

Portugal has seen a concerning rise in cyberattacks affecting various sectors, as reported by the Portuguese National Cybersecurity Centre (CNCS). This increase has heightened awareness of cybersecurity risks across the country. While such incidents have become more frequent today, their impact could vary depending on factors such as the intensity and time span of the attack or whether they put at risk customers' private data. In February 2022, Vodafone Portugal experienced a significant cyberattack that disrupted all clients in the country for at least one day, although it did not result in a breach of its customer's private information. Interestingly, this event did not seem to affect the company's market share trends. **Mitigation:** Besides offering B2B cybersecurity solutions and launching a collaborative integrated solution with Fidelity in 2022—combining preventive and reactive security measures—NOS has put into place several measures to improve its operational security. The company remains committed to a strategy of ongoing vigilance while upgrading its technical infrastructure in accordance with technological advancements. This strategy places a strong emphasis on comprehensive training for its cybersecurity team in crucial domains such as cyberstrategy, intelligence, architecture, and defence. Furthermore, NOS has appointed a new Chief Information Security Officer (CISO) to oversee and advance all the aforementioned cybersecurity aspects.

Scenario and Sensitivity analysis

Monte Carlo Simulation with 100k iterations was conducted on the DCF model to evaluate its reliability and robustness. Figure 37 and Figure 38 provide an overview of the findings. Additional details on the analysis and its outcomes can be found in Appendix 19.

Appendix C: NOS' Equity Research Supplementary Materials

Appendix 5: Income Statement

(in € millions)	2023E	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Operating revenues	1 579	1 616	1 637	1 645	1 645	1 641	1 640	1 639
Services Rendered	1 435	1 466	1 484	1 489	1 487	1 480	1 476	1 472
Telco	1341	1368	1383	1387	1383	1374	1368	1361
A&C	94	98	101	102	104	106	108	111
Sales	114	117	120	122	124	126	129	131
Telco	101	104	106	108	110	112	114	116
A&C	13	13	14	14	14	14	15	15
Other Operating Revenue	31	32	33	34	34	34	35	36
Telco	30	31	32	33	33	33	34	35
A&C	1	1	1	1	1	1	1	1
Operating costs	864	888	915	923	931	937	946	955
Wages and salaries	91	93	95	97	99	100	102	104
Direct Costs	341	351	366	367	367	366	365	365
Cost of Products Sold	101	104	106	108	110	112	114	117
Marketing and advertising	38	39	40	40	41	42	43	44
Support services	93	95	97	97	97	97	97	97
Supplies and external services	164	168	172	175	178	181	185	188
Other operating losses / (gains)	1	1	1	1	1	1	1	1
Taxes	35	36	37	38	38	38	39	39
EBITDA	716	728	722	722	715	704	694	684
Depreciation and Amortization	440	434	423	409	393	388	388	388
EBIT	276	294	299	313	322	316	306	296
Net Financial costs	(85)	(88)	(87)	(85)	(84)	(82)	(80)	(79)
Income before tax	192	206	212	227	238	234	226	218
Income Tax	43	46	48	51	54	53	51	49
Net Income from continuing operations	148	160	164	176	184	181	175	169
Net Income	148	160	164	176	184	181	175	169

Appendix 6: Statement of Financial Position

	2023E	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Assets	3 482	3 457	3 431	3 408	3 380	3 345	3 306	3 262
Non-current assets	2 886	2 846	2 808	2 771	2 735	2 700	2 664	2 629
Tangible assets & Investment Property	1 092	1 075	1 060	1 044	1 029	1 015	1000	986
Intangible assets	1 185	1 161	1 137	1 115	1 093	1 071	1 049	1 028
Contract costs	162	163	164	165	166	167	168	170
Rights of use	298	297	297	297	297	297	296	296
Investments in jointly controlled and associated companies	39	39	39	39	39	39	39	39
Other accounts receivables & non-current financial assets	10	10	10	10	10	10	10	10
Deferred income tax assets	90	90	90	90	90	90	90	90
Derivative financial instruments	11	11	11	11	11	11	11	11
Current assets	596	611	623	638	645	645	642	633
Inventories	70	71	72	73	73	73	72	72
Accounts receivable and other current assets	370	380	385	386	386	384	383	382
Contract assets	63	64	65	65	65	65	65	64
Tax receivable & other accounts receivable	25	25	26	26	26	26	26	26
Prepaid expenses	52	53	55	55	56	55	55	55
Cash and cash equivalents	15	16	19	33	40	43	41	33
Shareholders' Equity	983	975	972	981	997	1 011	1 019	1 020
Share capital	855	855	855	855	855	855	855	855
Capital issued premium	4	4	4	4	4	4	4	4
Own shares	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
Legal and other reserves & accumulated earnings	(17)	(36)	(44)	(47)	(39)	(22)	(8)	0
Net Income	148	160	164	176	184	181	175	169
Equity before NCI	977	969	966	974	991	1 005	1 013	1 014
Noncontrolling interests	6	6	6	6	6	6	6	6
Liabilities	2 499	2 482	2 459	2 428	2 382	2 334	2 288	2 241
Non-Current Liabilities	1 600	1 542	1 482	1 422	1 355	1 288	1 224	1 162

Borrowings	1 424	1 365	1 306	1 246	1 179	1 112	1 048	986
Provisions	81	81	81	81	81	81	81	81
Accounts payable - other	42	42	42	42	42	42	42	42
Deferred income & tax liabilities	53	53	53	53	53	53	53	53
Current Liabilities	899	940	977	1 005	1 027	1 046	1 063	1 079
Borrowings	313	341	368	393	414	432	449	464
Accounts payable - trade	258	264	267	268	268	266	266	265
Accounts payable - other	54	54	54	54	54	54	54	54
Tax payable	39	39	39	39	39	39	39	39
Accrued expenses	198	204	210	212	213	215	217	219
Deferred income	37	38	39	39	39	39	39	39
Total Liabilities & Equity	3 482	3 457	3 431	3 408	3 380	3 345	3 306	3 262

Appendix 7: Cash Flow Statement

(in € millions)	2023E	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Operating Activities (CFO)	**608**	**675**	**672**	**672**	**663**	**655**	**647**	**638**
EBIT	276	294	299	313	322	316	306	296
Depreciation, Amortization, and Impairment losses	440	434	423	409	393	388	388	388
Taxes	43	46	48	51	54	53	51	49
Change in NWC	65	7	2	(1)	(2)	(4)	(3)	(3)
Investment Activities (CFI)	**(400)**	**(394)**	**(385)**	**(372)**	**(357)**	**(353)**	**(353)**	**(352)**
CAPEX (Tangible Assets)	(122)	(120)	(117)	(113)	(109)	(108)	(108)	(108)
CAPEX (Intangible Assets)	(91)	(90)	(88)	(85)	(82)	(81)	(81)	(80)
CAPEX (Contract costs)	(81)	(80)	(78)	(75)	(72)	(72)	(72)	(71)
CAPEX (Rights of Use)	(105)	(104)	(101)	(98)	(94)	(93)	(93)	(93)
Financing Activities (CFF)	**(201)**	**(280)**	**(284)**	**(287)**	**(299)**	**(299)**	**(296)**	**(294)**
Net Borrowings	99	(30)	(33)	(35)	(47)	(49)	(47)	(47)
Interest and related expenses	(85)	(88)	(87)	(85)	(84)	(82)	(80)	(79)
Dividends	(220)	(167)	(167)	(167)	(167)	(167)	(167)	(167)
Accounts payable Trade	5	6	3	1	(0)	(1)	(1)	(1)
Change in Cash	**7**	**1**	**4**	**14**	**7**	**3**	**(2)**	**(8)**
Beginning	8	15	16	19	33	40	43	41
End	**15**	**16**	**19**	**33**	**40**	**43**	**41**	**33**

Appendix 8: Financial Ratios

Key Financial Ratios	2021	2022	2023E	2024F	2025F	2026F	2027F	2028F	2029F	2030F	CAGR (2015-2023)	CAGR (2024-2030)
Liquidity Ratios												
Current Ratio (%)	56.9%	52.5%	66.3%	64.9%	63.8%	63.4%	62.8%	61.7%	60.4%	58.6%	1.0%	-1.7%
Quick Ratio (%)	39.7%	34.3%	44.3%	43.4%	42.6%	42.9%	42.6%	42.0%	42.0%	39.5%	-1.1%	-1.5%
Efficiency Ratios												
Total Assets Turnover (x)	0,44 x	0,44 x	0,45 x	0,47 x	0,48 x	0,48 x	0,49 x	0,49 x	0,50 x	0,50 x	-0.8%	1,2%
DSO (days) - core	82	76	83	83	83	83	82	82	82	82	-0.6%	-0.2%
DIO (days)	162	214	252	250	248	245	241	236	231	227	2.4%	-1.6%
DPO (days)	1 013,4	662,0	895,7	899,5	895,7	887,9	874,4	857,5	837,2	818,3	-2.7%	-1.6%
Operating Cash Cycle (days)	(769,8)	(372,2)	(561,1)	(566,2)	(565,0)	(560,5)	(551,2)	(539,0)	(523,6)	(509,7)	-2.7%	-1.7%
Profitability Ratios												
Gross Profit Margin (%)	69.4%	69.8%	72.0%	71.8%	71.1%	71.1%	71.0%	70.9%	70.7%	70.6%	1.1%	-0.3%
EBITDA Margin (%)	42.5%	49.4%	45.3%	45.0%	44.1%	43.9%	43.4%	42.9%	42.3%	41.7%	2.6%	-1.3%
EBIT Margin (%)	13.9%	11.2%	17.5%	18.2%	18.3%	19.0%	19.6%	19.2%	18.7%	18.1%	5.3%	-0.1%
Net Profit Margin (%)	10.1%	14.8%	9.4%	9.9%	10.0%	10.7%	11.2%	11.0%	10.7%	10.3%	6.4%	0.7%
ROA (%)	4.4%	6.5%	4.3%	4.6%	4.8%	5.2%	5.5%	5.4%	5.3%	5.2%	5.5%	1.9%
ROIC (%)	7.4%	10.0%	10.2%	11.0%	11.3%	11.9%	12.4%	12.4%	12.2%	12.0%	5.5%	1.5%
ROE (%)	14.9%	21.3%	15.1%	16.4%	16.9%	18.0%	18.5%	17.9%	17.2%	16.6%	8.7%	0.2%
EPS	0.28	0.44	0.29	0.31	0.32	0.34	0.36	0.35	0.34	0.33	7.6%	0.9%
DPS	0.28	0.28	0.43	0.33	0.33	0.33	0.33	0.33	0.33	0.33	15.0%	0.0%
Payout Ratio (%)	98.8%	63.4%	148.2%	104.9%	101.9%	95.1%	90.8%	92.5%	95.6%	99.1%	6.8%	-0.9%
Solvency Ratios												
Total interest-bearing Debt Ratio (%)	62.08%	60.88%	64.61%	65.00%	65.26%	65.23%	65.01%	64.87%	64.90%	65.11%	2.6%	-1.3%
Interest Coverage Ratio (x)	5.5	8.6	3.3	3.3	3.4	3.7	3.8	3,8	3.8	3.8	-7.5%	2.1%

Appendix 9: Income Statement Assumptions

Income Statement Assumptions	Unit	2023E	2024F	2025F	2026F	2027F	2028F	2029F	2030F	Notes for assumptions
Portuguese inflation	YoY	5.4%	2.8%	2.3%	1.8%	1.7%	1.7%	2.0%	2.0%	Data from EIU forecasts
Operating Revenues										
Telco										
Services rendered	M€	1,341	1,368	1,383	1,387	1,383	1,374	1,368	1,361	See Valuation Revenue Breakdown
Sales	M€	101	104	106	108	110	112	114	117	
Other operating Revenue	M€	30	31	32	32	33	33	34	35	
A&C										
Services rendered	M€	94	99	101	103	104	106	108	111	See Valuation Revenue Breakdown
Sales	M€	13	13	13	14	14	14	14	15	
Other operating Revenue	M€	0.7	1	1	1	1	1	1	1	
Operating Costs										
Wages and salaries	%	10%	11%	11%	11%	11%	12%	12%	12%	Linked to inflation
Direct Costs	% operating costs	39%	41%	42%	42%	42%	42%	42%	42%	Projection resulting from 2022 direct costs over Revenues
Cost of Products Sold		12%	12%	12%	13%	13%	13%	13%	14%	Projection from 3 prior years of COPS over Sales
Marketing and advertising		4%	5%	5%	5%	5%	5%	5%	5%	Linked to inflation
Support services		11%	11%	11%	11%	11%	11%	11%	11%	Projection from 7 prior years of Support services over Sales
Supplies and external services		19%	19%	20%	20%	21%	21%	21%	22%	Linked to inflation
Other operating losses / (gains)		0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	Projection from 6 prior years Other operating losses over Other Operating Revenues
Taxes		4%	4%	4%	4%	4%	4%	4%	5%	Projection from last three years taxes over sum of Direct Costs, COPS and Supplies and External Services
Provisions and adjustments		0%	0%	0%	0%	0%	0%	0%	0%	Kept at 0, See Appendix with Balance
EBITDA										
D&A	M€	400	394	385	372	357	353	353	352	Maintaining the company's depreciation rate, adjusted for new Capex
EBIT										
Borrowings	%, Kd	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	See Appendix WACC
Finance leases	% RoU	-9.8%	-9.8%	-9.8%	-9.8%	-9.8%	-9.8%	-9.8%	-9.8%	Expectation from 2 prior years of finance leases over Rights of Use
Others	% interest expense	6.3%	6.0%	5.8%	5.5%	5.3%	5.0%	4.7%	4.5%	ratio over interest expense. Yearly decrease of 25bp
Income tax	% of EBT	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	For our forecasts we will assume the nominal tax rate of 21%+ Derrama municipal tax rate of 1.5%
Dividends	€/share	0.43	0.325	0.325	0.325	0.325	0.325	0.325	0.325	See Financial Analysis, Dividends

Appendix 10: Balance Sheet Assumptions

Balance Sheet Assumptions	Unit	2023E	2024F	2025F	2026F	2027F	2028F	2029F	2030F	Notes for assumptions
Non-current assets										
Tangible assets	%NCA	38%	37%	37%	36%	36%	35%	35%	34%	Team Calculations of tangible Assets 'A) as prior year TA + TA Capex – TA epreciation
Investment property	M€	514	514	514	514	514	514	514	514	Assumed constant due to lack of ecessary information to estimate
Intangible assets	%NCA	41%	40%	39%	39%	38%	37%	36%	36%	Team Calculations of Intangible Assets A) as prior year IA + IA Capex – IA nortization
Contract costs	%NCA	6%	6%	6%	6%	6%	6%	6%	6%	Team Calculations of Contract Costs 'C) as prior year CC + CC Capex – CC epreciation
Rights of use	%NCA	10%	10%	10%	10%	10%	10%	10%	10%	Team Calculations of Rights of Use loU) as prior year RoU + RoU Capex – oU depreciation
Investments in jointly ontrolled companies and ssociated companies	M€	39	39	39	39	39	39	39	39	Assumed constant due to lack of ecessary information to estimate
Other Non-Current Assets	M€	111	111	111	111	111	111	111	111	Assumed constant due to lack of ecessary information to estimate
Current assets										
Inventories	DIO	252	250	248	245	241	236	231	227	Projection from 7 prior years
Accounts receivable - trade	DSO	83	83	83	83	82	82	82	82	Projection from 7 prior years
Contract assets	% Services Rendered	4,4%	4,4%	4,4%	4,4%	4,4%	4,4%	4,4%	4,4%	Projection from 7 prior years of ontract Assets over Services Rendered
Accounts receivable - other	% Services Rendered	1,4%	1,4%	1,4%	1,4%	1,4%	1,4%	1,4%	1,4%	Projection from 5 prior years of AR ver Services Rendered
Tax receivable	% Revenues	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	Projection from 5 prior years of tax eceivable over Services Rendered
Prepaid expenses	% Direct Costs	15,1%	15,1%	15,1%	15,1%	15,1%	15,1%	15,1%	15,1%	Projection from 2022 Prepaid xpenses over Direct Costs

Other current assets	M€	9	9	9	9	9	9	9	9	Assumed constant due to lack of ecessary information to estimate
Non-Current Liabilities										
Borrowings	%Total Debt	82%	80%	78%	76%	74%	72%	70%	68%	See Appendix 6: FCFE
Provisions	M€	81	81	81	81	81	81	81	81	Assumed constant due to lack of ecessary information to estimate
Other Non-Current iabilities	M€	95	95	95	95	95	95	95	95	Assumed constant due to lack of ecessary information to estimate
Current Liabilities										
Borrowings	%Total Debt	18%	20%	22%	24%	26%	28%	30%	32%	See Appendix 6: FCFE
Accounts payable - trade	DPO	896	899	896	888	874	857	837	818	Projection from 5 prior years of AP ver Services Rendered
Accrued expenses	% Operating Costs	22,93%	22,93%	22,93%	22,93%	22,93%	22,93%	22,93%	22,93%	Projection from 5 prior years of ccrued expenses over Services endered
Deferred income	% revenues	2,36%	2,36%	2,36%	2,36%	2,36%	2,36%	2,36%	2,36%	Projection from 5 prior years of eferred Income over Services Rendered
Other Current Liabilities	M€	93	93	93	93	93	93	93	93	Assumed constant due to lack of ecessary information to estimate

Appendix 11: Swot Analysis

Strengths

Established infrastructure | Existing players own large networks of communication infrastructure, needing significant CAPEX, posing hurdles for the new entrants to replicate.

Market Reputation | Established operators have built strong brand recognition, challenging the entry of new players.

Diversified Offerings | Portuguese Telecom companies offer diverse bundled services, attracting consumers with varied needs.

High Penetration | High penetration eases the upselling of new services to existing users, lowering acquisition costs.

Weaknesses

Rural Connectivity | Telecom operators struggle with high-speed internet in remote areas, seeing competition from satellite service providers.

Saturated Market | Portuguese telecom market, with 92,8% penetration, has limited growth potential due to saturation.

Economic Conditions | Telecom usage is tied closely to economic conditions, with booms driving consumption, and recessions lowering it.

Regulations | Regulators aim to protect consumers and encourage competition, but strict compliance restrict flexibility in the decision making.

Opportunities

More Efficient Networks | New technologies enhance efficiency, flexibility, and cost reduction, improving network performance.

Emerging Technologies | New technologies allow operators to offer higher performance and a more services, improving quality and meeting consumer needs better.

Improved Customer Experience | Improving service, personalization, communication, and security drives loyalty and attract new subscribers.

Strategic Partnerships | Partnering with tech-focused companies can help telecom companies stay ahead in technology.

Threats

New Entrants | New players with innovative technologies can intensify competition, pressuring the market share and profitability of established firms.

New Substitutes | Over-the-Top services and satellite providers have been gaining traction potentially disrupting the industry.

Cybersecurity | New tech brings better services, but also cyber threats, compelling companies to enhance cybersecurity measures.

Changing Consumer Preferences | Consumer preferences drive telecom companies to continuously invest in newer services to meet evolving needs.

Appendix 12: WACC Assumptions

NOS' business is divided into two distinct segments, each with different risk levels and thus varying required rates of return. Consequently, our team estimated a different discount rate for the Telco and A&C segments.

Cost of Equity (Ke) | Computed using the Capital Asset Pricing Model (CAPM: Ke = RFR + b * ERP + FRP). Due to the YoY variability of NOS' capital structure influencing the model's b, the cost of equity will fluctuate, following a downward trend related to NOS' process of deleveraging. Following a conservative approach, we factored a 1% firm premium for the risks outlined in the report. It is our estimate that with this value we can perform a realistic valuation of the firm reflecting its business, industry and market conditions.

Betas | The Betas used to calculate the cost of equity were estimated using a sample of 65 European companies operating as integrated telecom service providers. Initially, we gathered the levered betas of the peers and adjusted them using the Hamada formula by removing leverage based on each peer's capital structure. Subsequently, we calculated the average of the unlevered betas for each segment and estimated the unlevered beta for each segment of NOS (0.45 for Telco and 0.83 for A&C). Finally, we re-levered the betas for each forecasted year, considering NOS' projected yearly capital structure. For the terminal value of the unlevered Telco beta, we found it coherent to increase it to 0.55. The reasoning behind it is that this industry faces several long-term risks, from regulation to market intrinsic technologic developments amongst other presented before. Therefore, we find it to be reasonable and necessary to adjust our model for the future uncertainty of this segment.

RFR and MRP | In relation with the risk-free rate we applied the normalized 10Y German Bond Yield, as of 6th of January 2024 (2.1%). The market risk premium was obtained from "Country Default Spreads and Risk Premiums, last updated: *January 5, 2024*" (Aswath Damodaran) obtaining a value of 6.85%.

Cost of Debt | Calculated as the sum of two components. The First part of the summation was the RFR, for which we used the normalized 10-Year German Government Bond Yield (2.14%) Secondly, we added NOS' spread regarding its Rating (2%), in relation to the BBB Fitch rating. The three components led to an after-tax cost of debt of 3.21%.

	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Debt ratio	50.8%	50.3%	49.8%	49.3%	48.6%	47.8%	47.0%	46.2%

Cost of debt	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
Cost of equity	**2024F**	**2025F**	**2026F**	**2027F**	**2028F**	**2029F**	**2030F**	**TV**
Telco	8.1%	8.1%	8.0%	8.0%	7.9%	7.8%	7.8%	8.9%
A&C	12.3%	12.2%	12.1%	12.0%	11.8%	11.7%	11.7%	11.6%
WACC	**2024F**	**2025F**	**2026F**	**2027F**	**2028F**	**2029F**	**2030F**	**TV**
Telco	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	6.5%
A&C	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.9%

Appendix 13: Peers

Rank	SARD	Company	ROE	Rank	Asset Turnover	Rank	EBITDA Margin	Rank	Net Debt/EBITDA	Rank	Beta	Rank
	0	**NOS SGPS SA**	**16,3%**	**5**	**0,45**	**10**	**45,3%**	**4**	**2,90**	**8**	**0,80**	**9**
1	25	BT Group PLC	12,6%	8	0,40	13	39,7%	9	2,57	12	1,13	4
3	32	Telefonica SA	6,0%	14	0,37	17	32,1%	13	2,88	9	0,90	8
3	32	Deutsche Telekom AG	10,6%	9	0,39	16	32,0%	15	3,71	6	0,70	11
2	27	Swisscom AG	15,4%	7	0,45	11	40,9%	6	1,51	16	0,34	15
7	48	Telekom Austria AG	18,3%	4	0,58	7	38,1%	11	1,22	19	0,28	17
5	34	Koninklijke KPN NV	24,3%	3	0,43	12	39,7%	8	2,39	13	0,28	17
6	36	Vodafone Group PLC	5,4%	15	0,30	18	41,4%	5	3,42	7	0,96	7
10	53	Proximus NV	10,3%	10	0,59	5	30,5%	17	1,93	14	0,28	17
8	51	Orange SA	5,1%	16	0,40	15	32,0%	16	2,87	10	0,26	20
8	51	Telia Company AB	21,9%	21	0,40	14	40,7%	7	2,64	11	0,20	22

Source: Refinitiv

To value NOS using a multiples valuation, we adopted a Sum-of-Parts (SoP) approach to Relative Valuation, where distinct peer groups were established for each segment: Telco and A&C. For the telecommunications segment, we employed the Sum of Absolute Rank Differences (SARD) method developed by Knudsen et al. (2017). This method involved selecting key financial metrics — Return on Equity, EBITDA margin, Net Debt/EBITDA, Asset Turnover, and Beta — and ranking them across a chosen peer group of telecommunications companies (excluding non-European entities initially). However, due to disparities in currencies among the chosen companies, we decided to narrow our scope and exclude companies from some Eastern Europe countries, such as Poland, Romania and Hungary. This adjustment aimed to create a more cohesive and representative sample, aligning with similar macroeconomic risks. After that, our team delved deeper into the different types of businesses operating within the sample. The telecommunications sector offers various business models, prompting us to explore this diversity further and include in our analysis only the companies which were pure plays in the focal areas addressed by NOS, such as Fixed TV, Fixed Voice, Broadband, and Mobile services.

Peers	Market Cap (€)	FttH Coverage*	Capex	EV/EBITDA *	Description
BT Group	14,20B	MEDIUM	Increasing	4.34	Headquartered in London, the United Kingdom, the company operates in the UK, Europe, the Middle East, Africa, the Americas, and the Asia Pacific. BT Group plc is the largest telecom operator in the UK with over 30% market share.
Telefónica	20,36B	HIGH	Decreasing	5.32	Telefónica, S.A. is a telecommunications giant headquartered in Madrid, Spain, serving Europe and Latin America. Its services cover mobile, fixed telephony, broadband, and wholesale offerings, with a market share exceeding 35% in Spain.
Deutsche Telekom	107,78B	LOW	Stable	6.44	Deutsche Telekom AG, based in Germany, is a leading provider of integrated telecommunication services globally. It operates in over 50 countries, having ~30% market share in Germany and being the 3rd largest operator in the U.S.
swisscom	27,89B	MEDIUM	Stable	7.38	Headquartered in Bern, Switzerland, Swisscom AG leads the telecommunication sector in Switzerland, having over 50% market share in the Mobile segment. It is also growing significantly in Italy and internationally.
A1 Telekom Austria Group	5,06B	MEDIUM	Stable	4.10	Based in Austria, Telekom Austria AG and its subsidiaries provide integrated telecommunication solutions across several countries within Central and Eastern Europe, including Belarus, Bulgaria, Croatia, North Macedonia, Serbia, and Slovenia.
kpn	12,30B	HIGH	Stable	7.18	Koninklijke KPN N.V., headquartered in the Netherlands, is a premier provider of telecommunications and IT services within the region, with over 40% market share in most of the segments.
vodafone	21,46B	MEDIUM	Increasing	4.02	Vodafone Group PLC, based in UK, is a global leader in telecommunications services across Europe and internationally. It operates through both digital and physical channels and it is a pioneering force since its establishment in 1984.
proximus	2,90B	LOW	Increasing	3.77	Proximus PLC, headquartered in Brussels, Belgium, is a leading provider of digital services and communication solutions within Belgium, with over 40% market share, and with a small international presence.
orange	27,37B	HIGH	Decreasing	5.17	Based in France, Orange S.A. is a leading provider of telecommunications and data transmission services globally, operating in 26 countries across Europe, Africa, and the Middle East, having over 35% market share in its domestic market.
Telia	9,12B	HIGH	Decreasing	6.39	Telia Company AB (publ), based in Solna, Sweden, is a leading telecommunications provider in Sweden, Norway, and Finland, and the second-largest provider in Denmark, Estonia, Latvia, and Lithuania.
NOS	1,65B	HIGH	Decreasing	4.58	

*Domestic *2023E

Source: *Refinitiv and Companies' guidance*

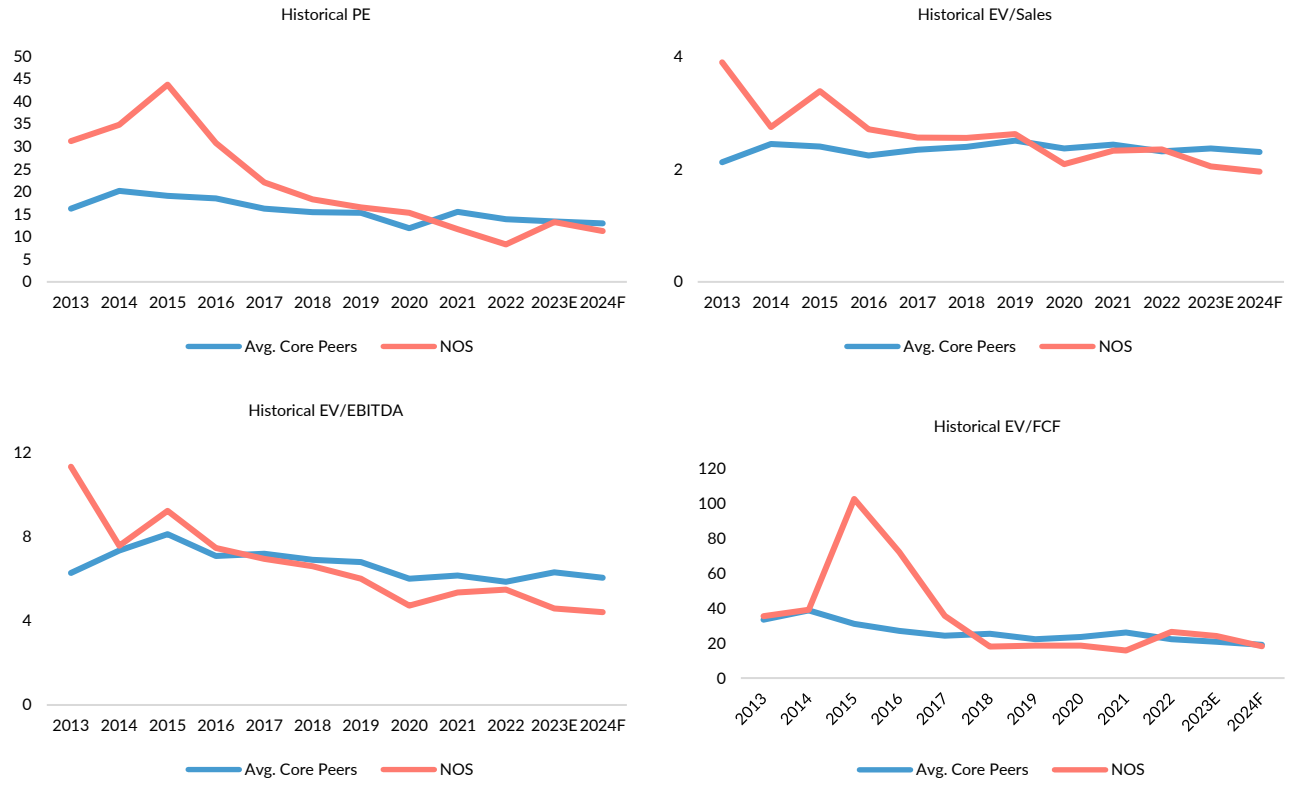
It is important to note that Altice Portugal's parent company, Altice USA, Inc, has been left out of our peer comparison due to reported debt and capital structure concerns. According to Financial Times and Bloomberg, the company is exploring a potential sale of its Portuguese operations and there are several interested buyers, such as António Horta Osório and the Warburg Pincus investment fund, the billionaire Xavier Niel, and Saudi Telecom. These uncertainties have led to Altice being priced below its peers due to increased risk. As a result, including it would distort the average valuation of our peer group. Also, to ensure accuracy, we selected a Core Peers group, accounting for disparities in capex cycles. Consequently, we excluded companies undergoing a capex expansion cycle, given the distinct risks they pose in contrast to NOS.

In the A&C segment, due to the lack of listed pure play companies in this sector, our team assembled a sample of 6 cinema theatre operators exhibiting similar behaviour to NOS' A&C segment pre- and post-COVID-19, considering the substantial impact of this event on cinema operators. The selected peer group includes Kinepolis Group NV (KIN.BR), AMC Entertainment Holdings, Inc. (AMC), Cinemark Holdings, Inc. (CNK), Cineplex Inc. (CGX.TO), Wanda Film Holding Co., Ltd. (002739.SZ), and CJ CGV Co., Ltd. (079160.KS).

Appendix 14: Multiples Valuation

Our valuation using multiples is based on 2024F data extracted from Refinitiv Multiples. Initially, we gathered multiples data for each of NOS' segments from selected peers. By applying the weighted average of EV/EBITDA for 2024F, we derived a price target of €4.59 per share, suggesting a 40% upside. Additionally, using an equal-weighted average of price targets from the four multiples assessed, we arrived at a price target of €3.89 per share, indicating a 19% upside. The preference for EV/EBITDA stems from differences in capital structures among the companies, with some constituents of the A&C Peers group showing negative profitability and book values. Nonetheless, the average upside of 19% confirms our buy recommendation.

Analysing NOS' historical multiples, it reveals a consistent trend of trading at or slightly above its Core Peers group across various metrics. However, following the COVID-19 correction, NOS is currently trading below the average of its comparables. We anticipate this valuation gap to narrow in the near future. Specifically, NOS is now trading at 4.41x EV/EBITDA 2024F, reflecting a discount of approximately 27.1% compared to its Core Peers group. This further reinforces our analysis.



	P/E			EV/Sales			EV/EBITDA			EV/FCF		
	2022	2023E	2024F	2022	2023E	2024F	2022	2023E	2024F	2022	2023E	2024F
Avg. Peers Telco	11,75	10,70	11,15	2,02	2,01	1,95	5,17	5,41	5,34	24,38	26,08	24,05
Avg. Core Peers Telco	13,87	13,41	12,96	2,32	2,37	2,30	5,86	6,31	6,05	22,27	20,76	19,04
Avg. Peers A&C	40,72	15,27	13,33	2,48	1,71	1,50	58,78	8,80	8,10	31,71	18,03	15,38
NOS Multiple	8,30	13,25	11,24	2,35	2,05	1,96	5,48	4,58	4,41	26,55	24,17	18,13
Price Target*			**3,78**			**3,76**			**4,59**			**3,39**

***Average price target** of **€3.89/share,** indicating **upside of 19%.**

Appendix 15: FCFF Valuation

FCFF TELCO	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	**1 502 778**	**1 521 575**	**1 527 286**	**1 526 033**	**1 519 572**	**1 516 293**	**1 512 428**	**1 512 428**
OPEX (including provisions)	825 899	850 380	857 251	863 275	867 749	874 476	881 144	881 144
EBITDA	**676 879**	**671 194**	**670 035**	**662 758**	**651 823**	**641 817**	**631 284**	**631 284**
D&A	-403 346	-393 327	-379 683	-364 264	-359 379	-358 603	-357 689	-357 689
EBIT	**273 534**	**277 867**	**290 351**	**298 494**	**292 444**	**283 213**	**273 595**	**273 595**
Taxes	-43 105	-44 360	-47 475	-49 629	-48 675	-47 015	-45 258	-45 258
NOPAT	**230 429**	**233 507**	**242 876**	**248 865**	**243 769**	**236 198**	**228 337**	**228 337**
+ D&A	403 346	393 327	379 683	364 264	359 379	358 603	357 689	
- Change in NWC	6 208	2 245	-1 259	-1 796	-3 608	-2 884	-3 018	
- Capex	366 678	357 570	345 167	331 149	326 708	326 003	325 172	
Reinvestment Value = (CAPEX - D&A + DNWC)								-35 535
FCFF	**260 889**	**267 019**	**278 652**	**283 776**	**280 048**	**271 682**	**263 872**	**192 802**
WACC	5,66%	5,66%	5,66%	5,66%	5,66%	5,66%	6,51%	6,51%
Discount Factor	0,95	0,90	0,85	0,80	0,76	0,72	0,67	0,67
Telco Discounted FCFF	**246 914**	**239 179**	**236 226**	**227 679**	**212 647**	**195 237**	**178 035**	**2 384 645**
Telco Enterprise Value		**3 920 562**						

FCFF A&C FLOWS	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	**112 797**	**115 391**	**117 468**	**119 465**	**121 496**	**123 926**	**126 404**	**126 404**
OPEX (including provisions)	-61 991	-64 490	-65 934	-67 581	-69 380	-71 470	-73 643	-73 643
EBITDA	**50 806**	**50 901**	**51 534**	**51 884**	**52 116**	**52 455**	**52 761**	**52 761**
D&A	-30 275	-29 829	-29 203	-28 516	-28 734	-29 308	-29 895	-29 895
EBIT	**20 531**	**21 072**	**22 332**	**23 367**	**23 382**	**23 147**	**22 866**	**22 866**
Taxes	-3 235	-3 364	-3 651	-3 885	-3 892	-3 843	-3 783	-3 783
NOPAT	**17 296**	**17 708**	**18 680**	**19 482**	**19 490**	**19 304**	**19 084**	**19 084**
+ D&A	30 275	29 829	29 203	28 516	28 734	29 308	29 895	
- Change in NWC	466	170	-97	-141	-288	-236	-252	
- Capex	27 522	27 117	26 548	25 924	26 122	26 644	27 177	
Reinvestment Value = (CAPEX - D&A + DNWC)								-2 970
FCFF	**19 582**	**20 250**	**21 432**	**22 215**	**22 391**	**22 204**	**22 054**	**16 114**
WACC	7,70%	7,71%	7,71%	7,71%	7,71%	7,71%	7,71%	7,94%
Discount Factor	0.93	0.86	0.80	0.74	0.69	0.64	0.6	0.6
A&C Discounted FCFF	**18 181**	**17 456**	**17 153**	**16 508**	**15 447**	**14 222**	**13 086**	**139 066**
A&C Enterprise Value		**251 119**						

Some adjustments were made to accurately determine NOS' Equity Value, from its Enterprise Value, within our FCFF model. Debt (short and long-term borrowings) along with Cash & Equivalents and Net trade Accounts Receivable were considered. Non-controlling interests, Provisions and Other financial undertakings were removed as they negatively impact the value of the company. Within Provisions, there are €22.9M in contingent liabilities, which given the total inherent value of €55.3M indicates a 41% implicit likelihood of incurring those potential losses. Conservatively, our team adjusted this probability to 75%. Under Other financial undertakings we included €61.5M in tax guarantees and €299.5 in Assignment agreements football broadcast rights. It ought to be noted that the incremental Cash Flows originated by such rights are included in our forecasted evolution of market share, justifying the adjustments made from EV to Equity Value. The following tables reflect the FCFF (SoP) segmented between Telco and A&C. The calculations of the segments' terminal values follow a separate methodology. In this approach we subtracted the reinvestment value (calculated as the ratio of NOS' terminal value growth by its ROIC) to the NOPAT and then proceeded to discount the perpetuity. Throughout the valuation we used in an effective tax rate of 22.5% for both segments.

NOS Enterprise Value	4 171 682
Adjustments from EV to Equity Value	
Noncontrolling interests	-6 251
Cash & Equivalents	15 783

Debt	-1 706 678
Provisions and Contingent Liabilities (revised)	-99 842
Net Accounts Receivable - trade	107 332
Other financial undertakings	-361 012
Equity Value	2 121 013
Share Price	**€ 4,15**
Nos SGPS SA (XLIS: NOS)	**€ 3,27**
Upside	**27%**

Appendix 16: FCFE Valuation

NOS' equity value was derived by computing the regular steps to the FCFE from the Net income, including adjustments regarding the company's non-controlling interests. Net borrowings in 2023 correspond to the amount needed to finance the operation, with special focus on the extra dividend payment followed by the sale of the towers, in the previous year. From 2024 onwards, net borrowings were estimated having in mind NOS cash generation and its ability to deleverage.

FCFE		2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
NI		159 616	164 384	176 102	184 326	181 062	175 176	168 917	168 917
D&A		433 620	423 156	408 886	392 780	388 113	387 912	387 584	387 584
CAPEX		394 200	384 687	371 714	357 073	352 830	352 647	352 349	352 349
dNWC		6 674	2 415	-1 356	-1 936	-3 896	-3 119	-3 270	-3 270
Net Borrowings		-29 692	-32 532	-34 591	-46 804	-48 535	-47 376	-47 348	-47 348
FCFE		**162 671**	**167 905**	**180 038**	**175 165**	**171 706**	**166 184**	**160 073**	**160 073**
Discount rate		8,43%	8,38%	8,34%	8,27%	8,20%	8,14%	9,13%	9,13%
Discount factor		0,92	0,85	0,79	0,73	0,67	0,62	0,57	0,57
FCFE 0		**150 024**	**142 872**	**141 409**	**127 072**	**115 120**	**103 033**	**90 945**	**1 130 420**
Equity Value	**2 000 895**								**g = 1%**

Appendix 17: Dividend Discount Model

DDM		2024	2025	2026	2027	2028	2029	2030	TV
Dividends		167 427	167 427	167 427	167 427	167 427	167 427	167 427	167 427
Discount Factor		0,92	0,85	0,79	0,73	0,67	0,62	0,57	0,57
Discounted Dividends		154 410	142 466	131 504	121 459	112 251	103 804	95 123	1 223 942
Equity Value	2 084 960								
Non-Controlling Interests	-6 251								
Equity Value	2 078 709								
Equity Value per Share	**€4,06**								

Appendix 18: Risk Matrix

Market Risk | Energy Prices (MR3)

The volatility and unpredictability of energy prices, driven by geopolitical conflicts in recent years, pose a notable risk to companies across various sectors, including NOS. However, it is crucial to note that this risk has a relatively limited potential impact, as energy costs constitute only a small fraction, approximately 2%, of the company's overall expenses. Mitigation: NOS is actively managing this risk through an energy provisioning strategy based on a long-term PPA (power and purchase agreement), which secures "very attractive prices" as highlighted by the CFO during the 3Q2023 conference call. This strategy covers 35% of the company's energy consumption, while the remaining 65% is procured at spot market rates.

Market Risk | Inflation and Interest Rates (MR4)

In recent years, inflation has remained a concern for companies and consumers all around the world. Despite a slight easing of the inflation rate in Portugal (at 2.1% YoY in the last reported month), uncertainty prevails regarding whether this signals the conclusion of a period of high inflation. This has direct implications for interest rates, consequently impacting the company's average cost of debt. Notably, it has risen from 1.3% (4Q2022) to 3.9% (3Q2023) in recent times. Mitigation: NOS 'contracts have a clause that allow the company to increase prices according to inflation rates in the country. Regarding its average cost of debt, NOS adopted a policy of hedging its risk using interest rate swaps to hedge its future interest payments on bond loans.

Operational Risk | Intense Capex (OR1)

The telecommunications sector is known for its intense capital expenditure, either for maintenance or expansion. This creates potential for financial distress from large upfront investments in infrastructure and technology upgrades that might fail to generate the expected returns. Mitigation:

Following an intensive period of capital expenditure to align with FttH and 5G advancements, NOS intends to reduce its annual capex. This shift will improve its cash flows and reinforce the company's already robust financial position.

Operational Risk | Potential Natural Disasters (OR2)

Climate factors are becoming increasingly important for investors to consider as the frequency and intensity of extreme weather events increase due to global warming. Particularly for NOS, natural disasters have the potential to harm infrastructure, disrupt supply chains, and cause substantial business interruptions. Such impacts could significantly affect the financial performance of NOS and, consequently, the company's ability to generate shareholders' returns. Mitigation: NOS has in place a Business Continuity Management (BCM) program which oversees the development of plans to improve the resilience and availability of the most critical functions vital for the well-functioning of its daily operations. It covers infrastructure (networks, facilities, and the communications support services), as well as NOS' business activities. This program also considers the protection of its employee's health and safety through the previously mentioned OHS management system.

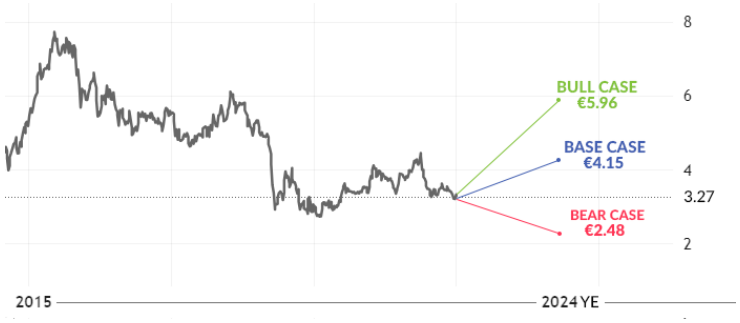
Financial Risk | Solvency and Liquidity (FR2)

NOS' main sources of liquidity are its operating cash flow, its available committed commercial paper programmes, as well as its cash & equivalents. Operating in a capex intensive industry, it becomes even more important to maintain a capable liquidity position strong enough to handle unexpected events, as well as the company's forthcoming obligations. Mitigation: NOS has a proactive risk management strategy, always maintaining Net Financial Debt / EBITDA AL at or below 2, a level that the management team is constantly emphasizing as being its target leverage ratio. Regarding the company's cash & liquidity position, NOS has 267.5 million euros of unissued available committed commercial paper programmes, and cash & equivalents totalling 11.9 million euros. As for operating cash flows, these have been consistently strong enough to comfortably cover capital expenditures. Finally, and as mentioned earlier, NOS is now entering a period of significantly reduced capex, strengthening even further the company's position.

Appendix 19: Scenario Analysis

Monte Carlo simulation was performed to address the valuation key drivers under uncertainty. The variables used in the performed analysis can be checked in Figure 33. A bull and bear case analysis was also conducted. In the bear case, we consider the entry of new players into the market and increased price competition, potentially reducing NOS's market share and prices. In the bull case, NOS emerges as the market leader in 4/5P Bundles and successfully maintains price increases. Details can be found below:

Scenarios	Bear Case	Base Case	Bull Case
WACC	5.21%	6.51%	7.8%
4/5P (% Mkt)	31.9%	36.43%	38.99%
4/5P Price	51.40 €	57.11 €	62.82 €
3P (% Mkt)	26.1%	29%	31.90%
3P Price	41.96 €	46.60%	51.28 €

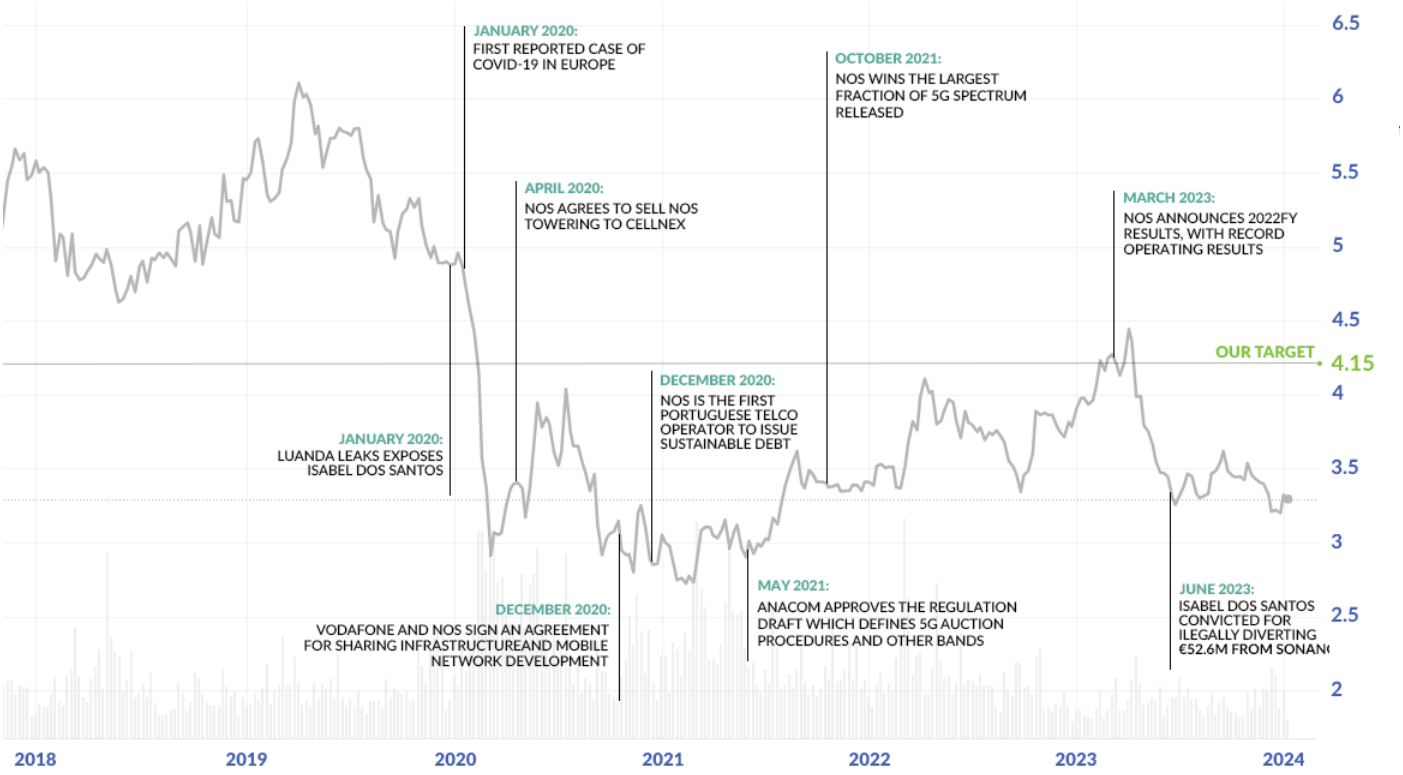


Appendix 20: Sensitivity Analysis

A sensitivity analysis was conducted to assess the significance on 2 of the most important valuation drivers. With the performed analysis we stressed the 2 variables analysing the impact on the FCFF price target. We found that for a 4/5 Bundle Price in 2030 below 54.61€ allied with a WACC above 5.71% would shift our recommendation. Most of the outcomes reinforce our buy recommendation with target prices considerably above the current trading price.

WACC	4/5P Bundle Price in 2030				
	52.11 €	54.61 €	57.11 €	59.61 €	62.11 €
5.71 %	3.06 €	3.98 €	4.91 €	5.84 €	6.77 €
6.11 %	2.78 €	3.63 €	4.49 €	5.35 €	6.20 €
6.51 %	2.54 €	3.33 €	4.15 €	4.92 €	5.72 €
6.91 %	2.33 €	3.07 €	3.81 €	4.55 €	5.29 €
7.31 %	2.15 €	2.85 €	3.54 €	4.23 €	4.93 €

Appendix 21: Stock price evolution & important events



Source: Refinitiv, Team Analysis

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