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Department of Corporate Finance

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Equity Research of Vodafone Group Plc

Author:	João Santos Simões
Supervisor:	Doc. Ing. Tomáš Krabec, MBA, Ph.D.
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Declaration of Authorship

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In Prague on May 9, 2024

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Abstract

The aim of this thesis is to understand and analyze Vodafone Group Plc business and provide a recommendation for an investor. From the analysis, the investor for Vodafone would be a combination of a value investor and an income investor. The current stock price, which stands at its lowest point in the past two decades, coupled with assessments derived from discounted cash flow (DCF) and market multiples valuation methods, unequivocally indicate that the stock is significantly undervalued and possesses strong fundamentals, aligning well with the principles of value investing. Additionally, Vodafone's consistent payment of semiannual dividends, which rank among the highest on the FTSE index, makes it particularly appealing to income-oriented investors seeking stable returns.

Key words:

Vodafone; Strategy; Telecommunication; Undervalued; DCF; Market multiples

Table of content

Introduction

The world of investment is a complex and multifaceted one, with a lot of strategies and approaches available to investors. One such approach is equity research, a method used by investors and financial analysts to study and evaluate a company's financial health and market position. This thesis focuses on the equity research of Vodafone, a leading telecommunications company with a global presence.

The telecommunication industry is a dynamic sector with companies constantly seeking to innovate and adapt to new trends and technologies. Key emerging trends such as the business-to-business model (B2B), the integration of artificial intelligence (AI) and the adoption of cloud service, not only shape the landscape of the industry but also underscore the imperative for companies to remain alert and forward-thinking in their strategies to thrive in this competitive sector.

Vodafone is undergoing a change in its strategy to face these emerging trends and outperform its peers. They are strategically withdrawing from segments with limited growth prospects and reallocating resources to more profitable and high-growth areas.

Having this in mind, the ideal investor profile for Vodafone would be a combination of a **value investor** and an **income investor**. A value investor seeks stocks that they believe are undervalued by the market, and Vodafone's stock being undervalued, in line with my DCF and Multiples Market valuation, aligns with this investment strategy. They aim for long-term gains, and the potential for a significant return on investment in two to three years would be attractive to them. On the other hand, an income investor is attracted to stocks that yield regular income, typically through dividends. Vodafone's high dividend yield (11,2%, 2023), one of the highest in the FTSE index, paid semiannually, would be a significant draw for income investors.

Therefore, an investor who combines these strategies would find Vodafone an attractive option. They would benefit from the potential capital appreciation if the stock is indeed undervalued, while also enjoying a steady income stream from the

dividends. This combination could provide both growth and income, making Vodafone a balanced addition to their portfolio.

Regarding the structure of the thesis, the initial chapter presents an analysis of the company, explaining Vodafone's corporate profile, core business activities, a stock performance analysis and the rationale behind its new strategy. The following chapter provides an overview of the telecommunications industry and Vodafone's competitive standing. After that, an evaluation of Vodafone's ESG practices is conducted, appraising its dedication to sustainability, ethical standards, and societal impact. Then, a financial analysis is performed to understand the financial position of the company, compared to the main industry peers. For the valuation, both the discounted cash flow model (DCF) and the market multiples are used to compute the intrinsic value of the stock. Lastly, an analysis of the investment risks is performed to a better understanding of the major risks that can impact the business, along with a sensitivity analysis of the key inputs used in the DCF entity model.

1 Business Description

1.1 Vodafone footprint

Vodafone Group PLC is a multinational telecommunication corporation with its main office and global headquarters in Newbury, Berkshire, England. Presently, the company's shares are listed on the London Stock Exchange and are also available in the form of American Depositary Shares (ADS[1]) on NASDAQ.

As one of the world's largest mobile telecommunications companies, Vodafone manages mobile and fixed networks across 17 countries and holds interests in an additional five countries through their joint ventures and associates. Additionally, Vodafone also partner with mobile networks in 46 countries beyond their footprint. The portfolio of local markets they serve is bolstered by corporate services and collaborative operations, offering advantages through scale and standardization (Vodafone, 2023).

Figure 1 Vodafone Footprint

Source: Vodafone Annual Report 2023

[1] "ADS", each representing 10 ordinary shares, are traded on NASDAQ under the symbol 'VOD'. Issued by J.P. Morgan as depositary. ADS holders are not shareholders in the Company but may instruct J.P. Morgan on the exercise of voting rights relative to the number of ordinary shares represented by their ADSs.

1.2 Vodafone structure and service

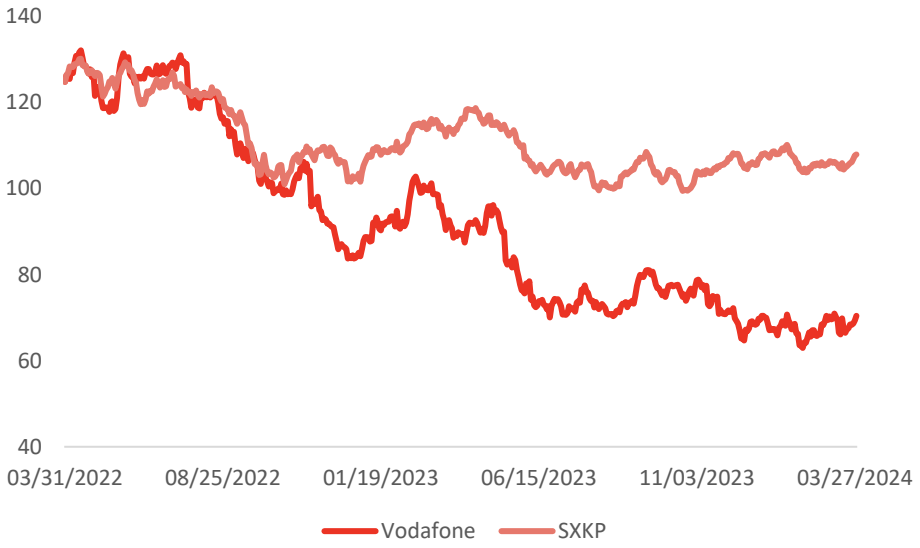
While Vodafone's primary revenue sources come from core fixed and mobile connectivity services, the company strategically diversifies its portfolio to encompass high-growth segments. These include digital services, the Internet of Things (IoT), and financial services, which complement and strengthen their core offerings.

Vodafone operates as one of the world's premier converged operators, offering a comprehensive suite of telecommunications services across multiple segments. With over 323 million customers, its mobile network stands as one of the largest globally, providing reliable connectivity to users worldwide. Additionally, its fixed-line network serves over 28 million customers, delivering dependable internet and telecommunication services. Vodafone's leadership extends into the field of the Internet of Things (IoT), where it presents a top-tier IoT platform linking over 160 million devices, facilitating communication and data exchange. In the field of television, Vodafone leads Europe's second-largest TV platform, serving 21 million customers with a diverse range of entertainment options. Particularly, Vodafone is distinguished by its extensive infrastructure, including Europe's largest 5G network and the continent's fastest-growing superfast internet service, passing 89 million homes at Gigabit speeds.This multifaceted business model underscores Vodafone's commitment to delivering cutting-edge telecommunications solutions and enhancing connectivity experiences for consumers and businesses alike (Vodafone, 2023).

1.3 Stock Performance Analysis

In the past two years, Vodafone’s stock price has seen a significant decrease of 44%, dropping from 124.84 GBP as of March 31, 2022, to 70.46 GBP as of March 28, 2024. As an investor, I am interested in understanding the factors contributing to this decline and the market’s negative perception of Vodafone’s stock. Currently, Vodafone’s shares are trading at a 35% discount compared to the STOXX Europe 600 Telecommunications (SXKP) index during the same timeframe, as shown in the graph.

Figure 2 Vodafone Share Price vs. Index



Source: Own presentation

The graph also shows a downward trend in the European telecommunications index, establishing a universal issue for all telecom firms. Over the past decade, the Return on Invested Capital (ROIC) or the Return on Capital Employed (ROCE) - the ROCE being more frequently used in this sector - has been lower than the Weighted Average Cost of Capital (WACC). This indicates that it is not generating shareholder value, largely due to the constant requirement of capital investment needed for new technology, network and infrastructure and this is the primary cause for the lack of appeal to investors.

Second, why has Vodafone share price decreased more than its peers and the average industry? The decline in Vodafone's stock price over the last two years can be attributed to several factors.

First, Vodafone's financial performance from 2018 to 2023 shows a stagnation in revenues. This lack of significant growth, coupled with the inconsistency in net profits, particularly the sharp loss in 2019, could be a warning for potential investors. Despite the increase in capital expenditure, likely directed towards the costly 5G infrastructure, there has not been a corresponding increase in revenues or profits. This suggests that the investments made have not yet translated into growth, contributing to the company's lack of appeal to investors. The financial data underscores an imbalance

where increased investments, particularly in new technologies like 5G, have not yielded the expected returns, impacting the company's financial health and investor appeal.

The main reason I believe that explains the substantial decline in the company's stock price was the appointment of Margherita Della Valle as CEO in early 2023 which marked a significant shift in Vodafone's business strategy. Under her leadership, Vodafone has undergone major changes, including three significant transactions: the sale of Vodafone Spain to Zegona, the sale of Vodafone Italy to Swisscom, and a joint venture in the UK with Hutchison.

These transactions have fundamentally changed Vodafone's business model and revenue structure. Notably, Italy and Spain, which were the third and fourth highest revenue-contributing segments respectively, were sold off. This has likely caused uncertainty among investors about the future revenue potential of the company, given that these were significant markets for Vodafone.

Additionally, another significant strategic decision made by CEO Margherita Della Valle is the plan to dismiss 11,000 jobs over the next three years**.** Such a move can have a dual impact. On one hand, it could lead to cost savings and improved operational efficiency, potentially enhancing the company's profitability in the long run. On the other hand, it could also lead to short-term disruptions and potential reputational risks, given the large number of job cuts.

1.4 The roadmap of Vodafone – History

Vodafone has experienced significant growth and transformation since its inception. The journey began in 1982 when Racal Electronics plc won a license to operate a cellular network in the UK, leading to the formation of Racal Vodafone Ltd. The company made its first mobile call in 1985 and was listed on the London Stock Exchange in 1991. Over the years, Vodafone has expanded its presence globally through strategic acquisitions and partnerships, such as the acquisition of Mannesmann AG in 2000, Telsim in 2005, and Kabel Deutschland in 2013. It also launched the first 3G network in Europe in 2001 and the third 4G network in 2013. In 2018, Vodafone

became the largest cable operator in Europe after acquiring Liberty Global's cable networks. The company launched 5G in major European cities in 2019 and entered a strategic partnership in 2022 to accelerate Vantage Towers' growth. As of 2023, the Chief Executive Officer is Margherita Della Valle. Vodafone's journey illustrates its commitment to innovation and growth in the telecommunications industry.

1.5 Key executives and key shareholders

Key Executives

David Nish

David Nish, who joined the Board on May 1, 2016, brings extensive international expertise in financial services, corporate governance, strategy, financial reporting, and operational transformation. Prior to his board appointment, Mr. Nish served as Group Chief Executive Officer of Standard Life plc, a leading global life insurance and asset management group, from 2010 to 2015. His tenure at Standard Life began in 2006 as Group Finance Director, where he oversaw strategy and risk management. Before his time at Standard Life, Nish held executive positions at Scottish Power plc and worked as a partner at Price Waterhouse, focusing on audit and transactions support across various sectors, including financial services.

Stephen Carter

Stephen A. Carter CBE is a Non-Executive Director at Informa plc, having joined the board on July 26, 2022. With a career spanning various leadership roles, he notably served as Group CEO of Informa plc since 2013, overseeing its evolution into a global leader in B2B events, digital services, and academic markets, achieving FTSE 50 status. Prior to his tenure at Informa, Carter held significant positions at Alcatel-Lucent, where he played a pivotal role in restructuring the company and spearheading advancements in next-generation mobile network equipment. He also served as the founding CEO of Ofcom, consolidating multiple regulatory bodies, and subsequently held high-level governmental roles, including Chief of Strategy for the UK Prime Minister and Minister of State for Communications, Technology & Broadcasting.

Additionally, Carter served as a non-executive director for the Department for Business, Energy and Industrial Strategy from 2016 to 2020.

Margherita Della Valle

Margherita Della Valle assumed the role of Group Chief Executive at Vodafone on January 1, 2023, following her appointment to the Vodafone Group Plc Board on July 27, 2018. Before her current position, Della Valle held several key roles within Vodafone, including Group Chief Financial Officer from 2018 to 2023, Deputy Chief Financial Officer from 2015 to 2018, as well as serving as Group Financial Controller and Chief Financial Officer for Vodafone's European region and Vodafone Italy. Her journey with the company began in 1994 at Omnitel Pronto Italia, which later became Vodafone Italy, where she initially held consumer marketing positions before transitioning into roles focused on business analytics and customer base management, eventually moving into finance.

Michael Demaré

Since February 1, 2018, Michel has served as a board director. His career commenced at Continental Bank SA, Belgium, followed by an extensive 18-year tenure at The Dow Chemical Company, where he held various finance and strategy roles across Benelux, France, the US, and Switzerland. Notably, he served as Chief Financial Officer Europe for Baxter International from 2002 to 2005 and later as Chief Financial Officer at ABB Group from 2005 to 2013, assuming the role of Interim CEO in 2008. Michel also held positions as independent vice-chairman at UBS Group from 2009 to 2019 and vice-chairman/chairman of Syngenta AG from 2013 to 2017.

Jean-François van Boxmeer

Jean-François van Boxmeer assumed the position of Chair at Vodafone Group Plc on November 3, 2020, following his appointment as a non-executive member of the Board subsequent to the 2020 AGM. He is widely recognized as one of Europe's most enduring and successful CEOs, having served as Chief Executive of Heineken for a remarkable 15-year tenure within his 36 years at the company. Jean-François held various significant roles across Africa and Europe before joining Heineken's Executive

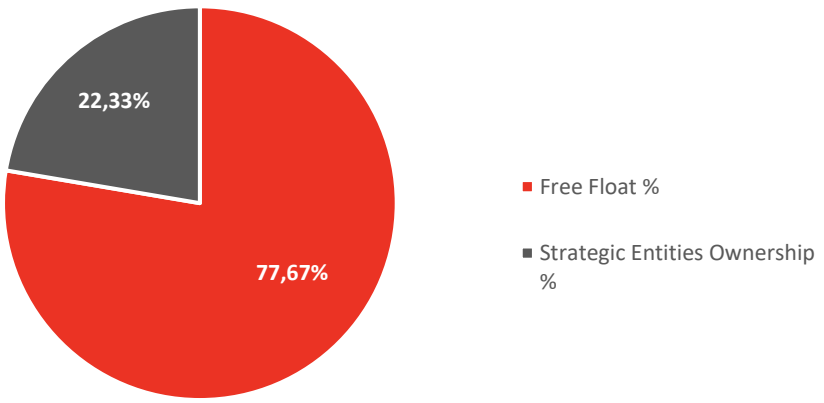
Board in 2001, where he oversaw global supply chain and technical services, alongside regional responsibilities for operating businesses in North-West Europe, Central and Eastern Europe, and Sub-Saharan Africa.

Table 1 Board Members

Members	Role
David Nish	Director/Board Member
Stephen Carter	Director/Board Member
Michel Demaré	Director/Board Member
Margherita della Valle	Chief Executive Officer
Simon Segars	Director/Board Member
Jean-François M. L. van Boxmeer	Chairman
Kandimathie Ramon	Director/Board Member
Deborah Kerr	Director/Board Member
Maria Amparo Moraleda Martinez	Director/Board Member
Hatem Dowidar	Director/Board Member

Source: Vodafone Annual Report 2023

Figure 3 Vodafone Shareholder's Structure



Source: Refinitv

The overview of the largest institutional shareholders and mutual fund holders is presented in table 2.

Table 2 Largest Institutional Holders and Largest Mutual Funds

Name	% of total shares
The Largest Institutional holders	
Emirates Investment Authority	14.0%
BlackRock Investment Management (UK) Ltd.	5.9%
Liberty Global Ltd	4.9%
Norges Bank Investment Management (NBIM)	3.0%
The Vanguard Group, Inc.	2.9%
Atlas investissement	2.6%
BlackRock Institutional Trust Company, N.A.	2.4%
Thornburg Investment Management, Inc.	1.5%
BlackRock Advisors (UK) Limited	1.2%
The Largest Mutual Funds	
Statens Pensjonsfond Utland	1.9%
Thornburg Investment Income Builder Fund	1.4%
Vanguard Total International Stock Index Fund	1.1%
Vanguard Developed Markets Index Fund	0.7%
iShares Core MSCI EAFE ETF	0.5%

Source: Refinitiv

1.6 The new roadmap for Vodafone – Future

In a significant shift for Vodafone, one of the world's leading telecommunications companies, Margherita Della Valle was appointed as the new CEO on January 1, 2023, following an internal and external search. This change in leadership comes at a critical juncture for the company and the industry as a whole. With her extensive experience and unique perspective, Della Valle is expected to navigate Vodafone through the complex challenges it currently faces. The appointment signifies not just a change in personnel, but also a potential shift in strategic direction, as Vodafone seeks to adapt to the evolving landscape of the telecommunications sector.

Margherita Della Valle holds an extensive tenure at Vodafone, initially joining Omnitel Pronto Italia, later known as Vodafone Italy, in 1994. Beginning as a marketing analyst, she progressed through various consumer marketing roles in business analytics and customer base management before transitioning to finance.

Holding the position of Chief Financial Officer for Vodafone Italy from 2004 to 2007, she later served as Deputy Chief Financial Officer from 2015 to 2018. Prior to her CEO appointment, she held the role of Group Chief Financial Officer from 2018 to 2023.

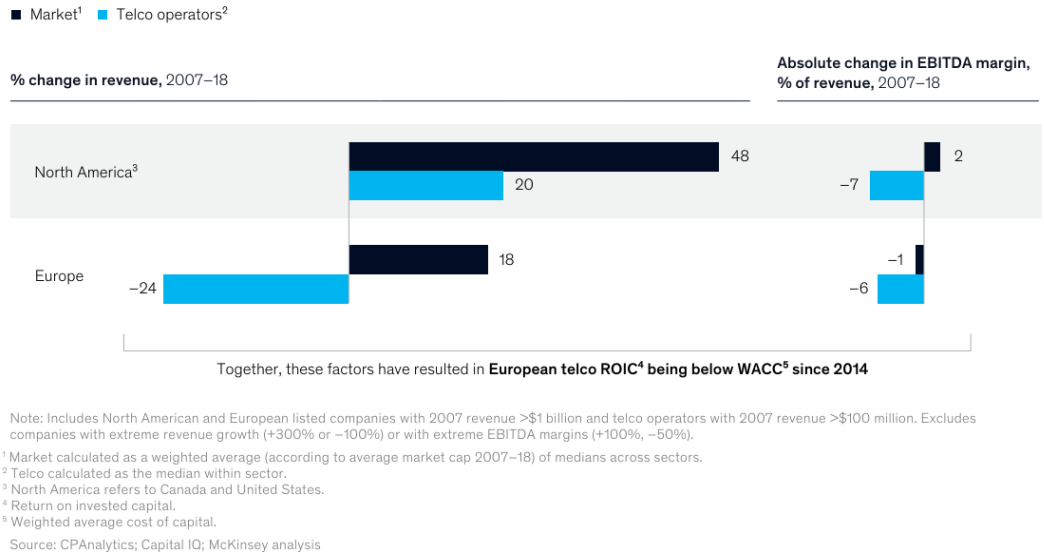
Her strong background and successful performance across marketing, operational, commercial, and financial roles within Vodafone were crucial in her elevation to CEO. Her key priorities in this role include enhancing customer service, streamlining operations, and fostering growth. Additionally, her appointment as Vodafone's first female CEO marks a significant milestone in the company's history.

1.6.1 Vodafone must change

This appointment as Vodafone's new CEO signals a pivotal shift in the company's strategic direction, driven by the imperative for change. Here are some reasons why changes are necessary.

Firstly, in the European telecommunications sector, the prevailing industry circumstances present a challenge, characterized by low returns on invested capital (ROIC) and substantial capital investment requirements. This trend has persisted for over a decade, with ROIC consistently falling below the weighted average cost of capital (WACC), ultimately impacting total shareholder returns. This convergence can be attributed to a decrease in revenues by 24% and a 6% decrease in EBITDA for European telecom operators from 2007 to 2018, as illustrated in a McKinsey report. This decline would have led to a decrease in Net Operating Profit After Taxes (NOPAT), thereby affecting the ROIC. In response, a strategic shift is imperative to enhance returns and navigate this challenging landscape.

Figure 4 Revenues and Margin declines since 2007-2018.



Source: McKinsey

Secondly, Vodafone's comparative performance has progressively deteriorated over time, a trend closely tied to customer experience. Addressing and enhancing the customer experience emerges as a critical point demanding significant changes within the company.

Thirdly, Vodafone's market position and performance reveals geographical and segmental disparities. In regions where Vodafone exhibits robust local execution and operates within a solid market structure, opportunities for growth and improved returns arise. However, disparities between the Consumer and Business segments are evident, with Business showing growth across most European markets. This indicates the necessity for different strategies, offering the unique demands of different segments and geographic regions.

Lastly, Vodafone's organizational complexity exceeds optimal levels, hindering local commercial agility. Streamlining operations and structures emerges as

a pivotal area for transformation, offering the potential to enhance efficiency and responsiveness to market dynamics.

1.6.2 Strategic shift

Under the new leadership of CEO Margherita Della Valle, Vodafone is setting sail on a transformative journey. The company's vision is clear: to become a best-in-class telecommunications company in Europe and Africa, and to establish itself as Europe's leading platform for Business. To achieve this ambitious goal, Vodafone has outlined four essential areas of change.

Firstly, the company plans to rebalance its organisation by maximising the potential of Vodafone Business, which continues to show promising growth. Vodafone believes it possesses a unique set of capabilities and holds a strong position in a large and growing market as organisations increasingly digitalise.

The second is Vodafone aims to refocus on its consumer markets by delivering the simple and predictable experience that customers expect.

Thirdly, Vodafone intends to become a leaner and simpler organization to increase its commercial agility and free up resources.

Finally, the company plans to focus its resources on a portfolio of products and geographies that is right-sized for growth and returns over time. This comprehensive strategy underlines Vodafone's commitment to its vision and sets the stage for its future success.

1.6.3 Action Plan

To execute the transformation in the four areas identified, Vodafone has already set an action plan centered around three priorities: Customers, Simplicity, and Growth. For Customers, the company has reallocated significant investment in FY24 towards enhancing customer experience and brand. In the pursuit of Simplicity, Vodafone has planned a reduction of 11,000 roles over three years, aiming for simplification at both headquarters and local markets. As for Growth, the company has

initiated a turnaround plan for Germany, continued pricing action, and the sale of Spain and Italy.

Vodafone is committed to changing the level of ambition, speed, and decisiveness of execution. The aim is to have empowered markets focused on customers, scale up Vodafone Business, and remove complexity to simplify operations. This action plan serves as a testament to Vodafone's commitment to its transformative journey.

1.7 Vodafone deal with Microsoft

Figure 5 Vodafone and Microsoft Logo

Source: Vodafone news

In a world increasingly driven by digital transformation, the strategic partnership between Microsoft and Vodafone marks a significant milestone. Announced by Vodafone on January 15, 2024, this 10-year partnership is designed to "bring generative AI, digital services, and cloud capabilities to over 300 million businesses and consumers across Europe and Africa" (Vodafone, 2024).

This alliance is a blend of capabilities, with Vodafone's solid connectivity services enhancing Microsoft's sophisticated AI and cloud technologies. Thus, Vodafone intends to allocate $1.5 billion over the forthcoming decade towards the development of cloud and customer-centric AI services in collaboration with Microsoft. This financial commitment highlights Vodafone's dedication to improving productivity and digital proficiency, particularly for small and medium-sized enterprises (SMEs).

Conversely, Microsoft plans to employ Vodafone's fixed and mobile connectivity services and invest in Vodafone's managed IoT connectivity platform. This platform,

which is anticipated to become an independent entity by April 2024, is expected to draw new partners and customers, thereby broadening its scope to connect more devices, vehicles, and machines.

Therefore, the partnership is set to yield long-term benefits for several reasons. First, it will accelerate the digital transformation of businesses, especially SMEs, by equipping them with advanced AI and cloud services. Second, the collaboration will enhance the customer experience through the application of generative AI technology, providing a service that is both highly personalized and distinct. Finally, the partnership will stimulate growth in applications and broaden the IoT platform, creating opportunities for new revenue streams and innovation.

1.8 Segmental Analysis

In this section, we will delve into a comprehensive segmental analysis of Vodafone, analyzing the company's geographic segments and their respective contributions to the group. The analysis will be structured by the order of stake in the company, starting with the German segment, followed by the UK, Italy, Spain, Other Europe, Vodacom, Other Markets and Vantage Towers, as Vodafone splits in their report.

Table 3 Vodafone's Revenue per Segment

Revenues per Segment (€m)				
Segment	**FY20**	**FY21**	**FY22**	**FY23**
Germany	12 076	12 984	13 128	13 113
Italy	5 529	5 014	5 022	4 809
UK	6 484	6 151	6 589	6 824
Spain	4 296	4 166	4 180	3 907
Portugal	1 082	1 084	1 160	1 235
Greece	958	925	925	964
Other Europe	3 501	3 540	3 568	3 545
Vodacom	5 531	5 181	7 807	8 076
Turkey	2 325	2 037	1 805	1 917
Egypt	1 452	1 537	–	–
Other Markets	609	191	211	155
Vantage Towers	–	–	1 252	1 338
Common Functions	1 567	1 368	1 414	1 387
Inter & Intra Region eliminations	(436)	(369)	(1 481)	(1 564)
Total Revenues	44 974	43 809	45 580	45 706

Source: Vodafone Annual Report 2023

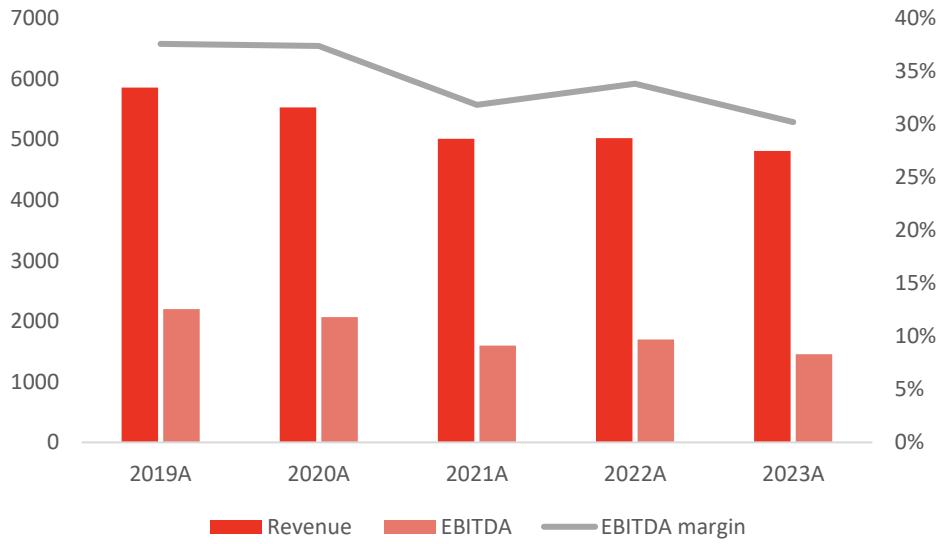
Germany stands as the cornerstone of Vodafone's operations, holding the highest material importance within the group. Accounting for 30% of Group service revenue and 29% of Group total revenue, the German segment is pivotal to Vodafone's financial success. With a robust infrastructure and a large subscriber base, Vodafone Germany continues to drive innovation and market leadership in one of Europe's largest telecommunications markets. This segment has the highest EBITDA margin of the group, 40.6%.

The UK emerges as the second most critical segment for Vodafone Group, contributing significantly to both service revenue and total revenue. Representing 14% of Group service revenue and 15% of Group total revenue. The UK segment underscores Vodafone's strong presence in its home market. With a focus on high-quality services and customer experience, Vodafone UK remains a key revenue driver for the group. However, the EBITDA margin for this segment is recorded at 19.8%, resulting in the segment with the lowest margin in the company.

Italy contributes 11% of Group total revenue and the EBITDA margin for this segment of last year end was 30.2%. However, Vodafone is losing market share

because of the intense competition in the Italian telecommunication landscape and, consequently, the metrics of performance such as revenues, EBITDA and EBITDA margin have decreased, as we can see in the figure.

Figure 6 Vodafone Italy Profitability

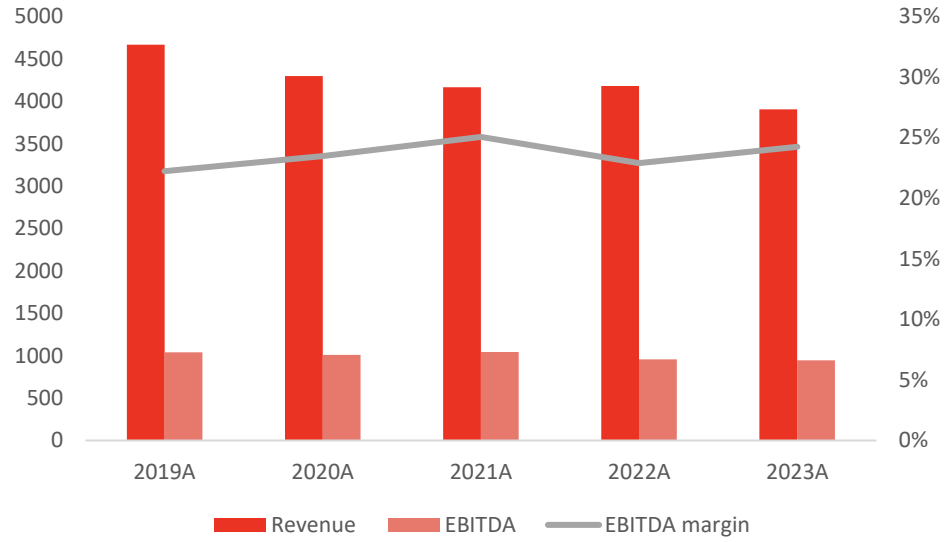


Source: Vodafone Annual Report 2023

Therefore, in line with the strategy, on 15 March of 2024, Vodafone announced the sale of 100% of Vodafone Italy to Swisscom. The transaction was valued at an enterprise value of €8 billion, with a valuation multiple 7.6x adjusted EBITDAal of and 26x of OpFCF, representing a premium to the group's trading multiple.

In relation to Spain, it accounts for 11% of the Group's overall revenue and had an EBITDA margin of 24.2% in 2023. Nonetheless, Vodafone has been experiencing a decline in market share over time, primarily due to the market's competitive nature, which is marked by the existence of many low-cost brands. Consequently, Vodafone's revenues and EBITDA have been on a downward trend - as we can see in the figure below - with the EBITDA margin ranking as the second lowest among the Group's segments.

Figure 7 Vodafone Spain Profitability



Source: Vodafone Annual Report 2023

Hence, adhering to the strategy, another significant move was the decision to sell 100% of Vodafone Holdings Europe, S.L.U., also known as Vodafone Spain, to Zegona Communications plc. The transaction, valued at an enterprise value of €5.0 billion, is set to comprise at least €4.1 billion in cash and up to €0.9 billion in the form of Redeemable Preference Shares (RPS), which are expected to be redeemed no later than six years after closing. This valuation corresponds to a multiple of 5.3x Adjusted EBITDAaL and 12.7x OpFCF for the 12-month period ended 31 March 2023.

Vodacom, encompassing South Africa and other African markets, holds substantial importance within Vodafone's portfolio. Contributing 14% of Group service revenue and 13% of Group total revenue, Vodacom plays a vital role in extending Vodafone's reach into the African continent, where mobile connectivity is a catalyst for economic development and social progress. Alongside an EBITDA margin of 34.2%, Vodacom stands out as the second-best performing segment within the group.

The Other Europe segment, which includes Albania, Czech Republic, Greece, Ireland, Portugal and Romania, represents 13% of both Group service revenue and Group total revenue. This diverse segment underscores Vodafone's commitment to serving

customers across various European markets. In this segment, the EBITDA margin is around 28.4%.

Other Markets encompass a range of regions beyond Europe, including Turkey, Egypt, and Ghana and represents an EBITDA margin of 29.9%. Despite comprising diverse geographical territories, this segment contributes 9% of Group service revenue and 8% of Group total revenue, reflecting Vodafone's global footprint and commitment to expanding its presence in high-growth regions.

Vantage Towers, representing infrastructure assets across selected markets, holds significance in Vodafone's ecosystem. Accounting for 3% of the Group's total revenue, Vantage Towers plays a strategic role in enabling Vodafone's network expansion and enhancing operational efficiency. This segment stands out from the others previously mentioned because its core business is the ownership of the towers, which is considered a real estate business. As a result, the EBITDA margin for this segment is higher (59.4%) compared to the others.

Common Functions constitute a distinct reporting segment encompassing activities primarily conducted within central Group entities. These activities do not meet the criteria for aggregation with other reporting segments, representing 1% of Group service revenue and 3% of Group total revenue.

The Eliminations segment includes adjustments made to consolidate financial results across different segments. While accounting for -3% of Group total revenue and -1% of Group service revenue, Eliminations ensure accuracy and transparency in Vodafone's financial reporting process.

2 Industry Overview and Competitive Position

2.1 Global Economic Outlook

The world´s economy, in recent years, has gone through difficult times as it faced the Covid-19 pandemic, the Russia-Ukraine war, high inflation and, more recently, the Hamas-Israel conflict.

Global growth is projected to remain steady, with an estimated 3.1% growth in 2024 and a further increase to 3.2% in 2025. Notably, the 2024 forecast is more 0.2% from the previous projection from October 2023. This positive adjustment is attributed to the resilience in the United States and several large emerging markets and developing economies, along with fiscal support in China (International Monetary Fund, 2024).

However, challenges persist. Elevated central bank policy rates aimed at combating inflation, coupled with a withdrawal of fiscal support due to high debt levels, continue to impact economic activity. On the bright side, inflation is falling faster than anticipated in most regions, due to resolving supply-side issues and restrictive monetary policies. Global headline inflation is expected to decline to 5.8% in 2024 and further to 4.4% in 2025 (International Monetary Fund, 2024).

Overall, the likelihood of a global decrease is very reduced and risks to global growth are broadly balanced. Policymakers face the delicate task of managing inflation while adjusting monetary policy and focusing on fiscal consolidation to enhance resilience against future shocks and maintain debt sustainability. Structural reforms and efficient multilateral coordination will play crucial roles in shaping the economic landscape (Wigglesworth, 2024).

2.2 Global Telecommunications Sector Outlook

In the past, the telecommunications (telco) sector experienced rapid growth and innovation, yielding substantial returns. However, the current landscape presents a different picture. The industry is now perceived to have matured, with telco services

increasingly viewed as utilities. To thrive in this environment, companies must adopt lean and digitized operations, eliminate excess costs, and offer a diverse product portfolio. Successful telcos focus on 5G deployment, offer to both business-to-business (B2B) and business-to-consumer (B2C) applications, and prioritize robust customer support (Val Elbert, 2023).

Despite the challenges, suppliers face limited pricing power in the commoditized connectivity and data services market. The industry is projected to grow modestly at a 4% CAGR through 2027. Simultaneously, telcos must make substantial investments in infrastructure to serve their customers effectively. The transition to 5G, coupled with adoption of newer technological standards, will drive network investments, reaching an impressive US$342.1 billion in 2027 alone (PWC, 2023).

Artificial Intelligence (AI) also plays a pivotal role. While it promises significant advancements, regulatory challenges loom. Telcos must navigate this landscape carefully. Looking ahead, the main focus will be on 5G expansion, enhancing infrastructure and improving connectivity. Additionally, 6G technology is on the horizon, amplifying this trend. By 2030, 5G and 6G are estimated to expand connectivity to up to 80 percent of the global population (Tomas Lajous, 2023).

Privacy emerges as a critical concern for customers. Telcos must implement zero trust architecture, digital identity solutions, and robust privacy engineering to establish trust with stakeholders. Balancing innovation, investment, and regulatory compliance will define the future success of the telecommunications sector (Tomas Lajous, 2023).

2.3 Global Trends Outlook

The rise of Gen Z, the second-youngest generation, is characterized by their digital nativity and their behaviors shaped by the era they grew up in. They have come of age amidst climate change, pandemic lockdowns and economic uncertainties. Gen Z is growing rapidly and is expected to make up a quarter of the Asia – Pacific population by 2025. They are known for working, shopping, dating and making friends online. The rise of Gen Z is also leading to a surge inside hustles, with young workers increasingly pursuing multiple jobs and sources of income (McKinsey, 2023).

5G technology is expected to revolutionize the B2B sector. Companies are deploying strategies to control costs and navigate uncertainty, with a focus on achieving cost reductions through efficiency improvements. They are also investing in growth to outpace the competition, with a majority of executives planning to invest in innovation, focusing one technology and their business models (Thomas Fink, 2024).

Intensifying Competition from “Hyperscalers”, primarily big tech companies, are entering on telecommunication industry, presenting a new type of threat for incumbents. This competition is forcing companies to revisit their traditional strategic approaches. The widespread emergence of Web3, the rise of Gen Z, 5G enabled B2B applications, and the potential in structural separation are set to transform telecommunications (Hill, 2022).

Geopolitical instability has become a critical factor shaping global decision-making, often surpassing the influence of capital markets. Two key events exemplify this trend: the Ukraine Conflict and the Indo-Pacific Tension. In this complex landscape, leaders must recognize that geopolitical considerations now have a huge influence, shaping policies, investments, and strategic decisions. The lessons from history - such as the aftermath of World War II and the breakup of the Soviet Union - remind us that geopolitical shifts can herald new economic eras. As we navigate these disruptions, understanding their lasting effects is crucial for informed leadership and global stability (McKinsey, 2023).

2.4 Industry Outlook: Business to Business (B2B)

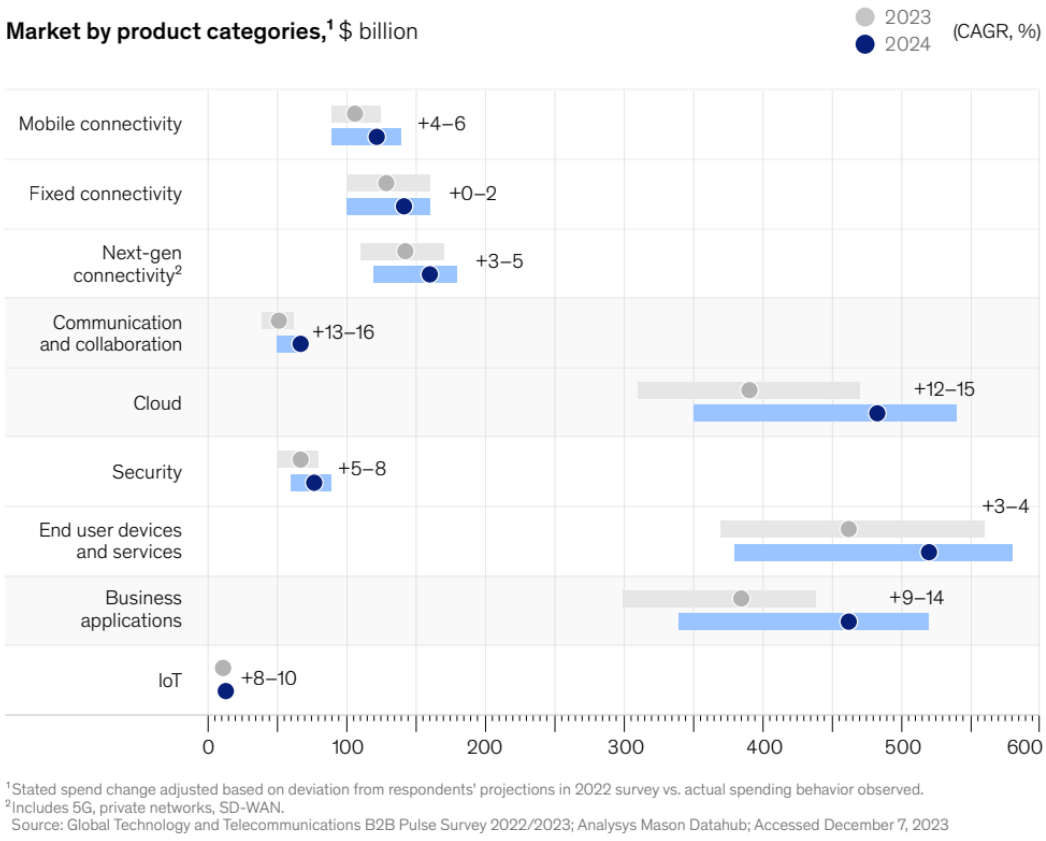
According to a Mckinsey & Company report, (Thomas Fink, 2024), the tech and telecommunications B2B market is projected to experience robust growth in 2024, with an increase of approximately $150 billion or 8.5 percent across 15 surveyed regions, reaching a total of $1.9 trillion in annual revenue.

The most dynamic product categories, expected to grow at rates above 10 percent, are cloud services, business applications, and communication and collaboration tools. Although communication and collaboration is an emerging subsector, cloud services and business applications, each accounting for about 22

percent of the total market, are quickly catching up to the largest revenue generator - end user devices and services - which represents around 26 percent of the market but is expected to grow only 3 to 4 percent.

Connectivity categories are also predicted to grow, although at a slower pace, except for fixed connectivity, which is expected to remain flat. This slower growth, combined with increased tech product spending, underscores the need for traditional vendors, such as telcos, to enhance their tech offerings.

Figure 8 The tech and telecommunications B2B market.



Source: McKinsey

2.5 Industry Outlook per Segment

In the forthcoming sections, a comprehensive industry analysis per segment will be conducted. The focus will primarily be on most significant markets for Vodafone: Germany and United Kingdom. These markets represent key segments of Vodafone's operations and offer valuable insights into the company's performance and strategies. Additionally, an analysis of the Portuguese market will also be included. As a

Portuguese researcher, this will provide a unique perspective and understanding of Vodafone's position and influence in Portugal, contributing to a more holistic view of the company's global operations.

2.5.1 Germany Telecommunications Sector Outlook

The German telecommunication industry is led by major players such as Deutsche Telekom, Vodafone Germany, and Telefonica Germany. Deutsche Telekom remains a dominant force, providing fixed-line, mobile, and broadband services. Vodafone Germany focuses on mobile communications, while Telefonica Germany (O2) offers both mobile and fixed-line services. Other notable players include Freenet AG and Sky Deutschland GmbH (Comcast Corporation) (Statista Research Department, 2023).

In 2023, the German technology, media, and telecommunications (TMT) sector witnessed a record high deal volume for German assets. Technology M&A activity surged, with software deals dominating. Software vendors accounted for almost 70% of the deal volume. Notable transactions included the acquisition of automotive software provider ASAP Group by India's HCLTech. IT services and data center M&A were also active. Data centers are expected to drive future deals, reflecting the growing demand for cloud services and digital transformation (Schustereder, 2023).

2.5.2 United Kingdom Telecommunications Sector Outlook

Vodafone Group Plc, a prominent player, holds a significant position among its peers. As one of the largest telecommunication markets globally, the UK offers a competitive landscape where Vodafone competes with other major operators. The company's strategic focus on network enhancements, digital services, and customer experience positions it well for future growth. However, intense competition and regulatory challenges persist, necessitating agility and innovation to maintain a competitive edge (MordorIntelligence, 2023).

Looking ahead, several trends will shape the UK telecom sector. These include the rapid adoption of 5G technology, increased demand for high-speed broadband, and

the convergence of services (such as fixed-mobile bundles). Additionally, the Internet of Things (IoT) and cloud-based solutions will play pivotal roles in transforming the industry. Regulatory policies, consumer preferences, and technological advancements will continue to influence market dynamics (MordorIntelligence, 2023).

2.5.3 Portugal Telecommunications Sector Outlook

The telecommunications industry in Portugal is composed by three main players: Altice, NOS and Vodafone Portugal. However, recently, some shifts have occurred that will change the landscape in the future. The main shift is the entry of Digi, a Romanian Telco company with operations in Spain and Italy, in 2024. Digi is known for its aggressive market entry strategy of low prices in the mobile and fixed broadband segments and has already an established partnership with Cellnex. However, the current market players have already increased their prices for 2024, in line with the average CPI of 2023. Another shift has been the potential sale of Altice Portugal by Altice, which already attracted attention from Warburg, a Private Equity fund, who has already prepared a €6 billion offer, and from the multimillionaire Xavier Niel. The last important shift has been the purchase of Nowo, the 4th operator in the market, by Vodafone, which has already been agreed, but is waiting for the approval of the competition authority, which may occur in 2024.

2.6 Competitive Positioning – Porter's 5 Forces Framework

2.6.1 Threat of New Entrants – LOW

The high barriers of entry, such as a good network infrastructure (towers and other telecom equipment's, the asset intensive nature of the business and the high fixed costs make the Telco industry a difficult one to enter. Companies who want to get into this market have to buy the spectrum band (2G, 3G, 4G, and 5G spectrum) for a significant licensing charge. Since spectrum is distributed by auction, only businesses with substantial financial resources are able to join the telecom industry. Additionally, a company has to operate by a number of government rules, which makes it challenging for new players to enter this market.

In addition, technology is evolving quickly - from 3G to 4G to 5G. Any new company will consequently need to make significant investments in order to develop technologies and construct network infrastructure. Well-established companies like Vodafone have a solid customer base. However, the new entrant will need to invest a lot of effort in finding new clients. The new player will have to endure losses up to that point, which may take several years. It's difficult for a new player to survive since the more experienced players are hostile. There are only a certain number of telecom providers worldwide, and it is challenging for new players to enter the market.

2.6.2 Power of Consumers – HIGH

The customers of Vodafone have significant bargaining leverage. It is simple for customers to move between telecommunications companies. Nowadays, with the help of mobile number portability, one can even keep his old number portability. This makes the switching cost for the customer very low. There aren't many companies in the telecom industry. Customers are therefore left with few options. Consumers ask telecom operators for a wide range of services. Moreover, the recent macroeconomic environment of high inflation has reduced the buying power of consumers and increased their price sensitivity. So, the customers want to pay the least amount of money while getting the greatest services. Hence, they evaluate the offerings and costs of several operators and choose the one that provides greater value. Every telecom provider is able to offer comparable goods and services. Vodafone doesn't provide any unique goods or services. (MBA Skoll, 2023)

2.6.3 Threat of Substitutes – MODERATE

Emerging technologies and applications such as artificial intelligence and Web3, might provide new solutions for the B2B and B2C markets that may threaten the existing solutions Telcos have. So, companies should be aware and quickly adapt to the implementation of new technologies in their solutions.

2.6.4 Power of Suppliers – MODERATE

Telecom technology equipment's raw materials are standardized and quickly available from several suppliers. The fundamental supplies needed for Vodafone's

network infrastructure are easily accessible. Service providers need good infrastructure and are constantly investing in improving their offers, so the relationship they have with their suppliers is important to assure the quality of the service and that the company is able to provide the most up-to-date solutions. As a result, the supplier has limited negotiating strength. These suppliers offer telecom equipment that is typically standardized, with little difference in goods across different suppliers.

In the case of Portugal, the competitor NOS has established a long-term partnership with Cellnex, in 2020, for the leasing of their tower infrastructure, that allows for the continuation of the company´s operations in the long run.

2.6.5 Rivalry Among Competitors – HIGH

The telecom sector is extremely competitive, with strong firm-to-firm rivalry. In the majority of countries, the market is fully developed and experiencing no further growth. Therefore, to maintain and increase their market share, current players must compete with one another. Since switching costs are low for the customer, every business tries to draw in new clients by offering different one-time deals. Companies have made investments in the network infrastructure's development. The expense was decided upon and one-time. Now, companies aim to use economies of scale to reduce operational costs, so they don't think twice about cutting prices to increase market share and do it at a reduced cost.

So, rivalry among the companies is very intense and it’s applied in forms of price competition, differentiated offers and partnerships with streaming companies.

2.7 SWOT analysis

For a better understanding of Vodafone overall position, the SWOT analysis is presented in the following table.

Table 4 Vodafone SWOT Analysis

Strengths	Weaknesses
Global Presence	Fight for market share due to price wars
Very high brand visibility	Intensive capex industry
Strong brand	Regulatory Challenges
Innovation & Digital Transformation	Divestment in Italy and Spain markets
Robust Infrastructure	Slow digital integration in some markets
Partnerships and Alliances	
Opportunities	**Threats**
Growth in Emerging markets	Economics recession
5G Expansion	Intense competition
IoT Expansion	High infrastructure costs
Cost reduction - Economies of scale	Cybersecurity concerns
Growth in B2B model	Regulatory and Compliance Issues

Source: own presentation

3 Environmental, Social and Governance

ESG is a growing trend in investing globally that is raising awareness of environmental, social, and governance (ESG) concerns and aiming for goals other than maximizing profits and minimizing risks. This is why it is increasingly becoming a standard practice, particularly in Europe where most of the assets of sustainable funds are located. The most common approach to investing sustainably is through ESG integration - by explicitly and systematically factoring ESG issues into the investment decision (Statista, 2024). This strategy has an effect because it requires businesses to report how they address significant environmental, social and governance concerns.

Nowadays, there are several ESG Ratings Agencies that provide an opinion on a company's ESG profile. A lot of agencies only focus on the financial material impact of ESG risks and opportunities on company performance, while others may also consider a company's impact on stakeholders and broader society. These agencies generally summarize their assessments and conclusions using their unique scoring or rating methods before comparing the evaluated company to its peers. However, there is no widely agreed definition of 'ESG' amongst market participants and the purpose or objectives of ESG ratings can be very different. Ratings often differ amongst providers because of three factors: (i) Scope (what they assess); (ii) Measurement (how they assess); and (iii) Weight (the relative importance of assessed topics) (Vodafone, 2023).

In the annual report, Vodafone is notably vocal about its ESG efforts, demonstrating a strong commitment to transparency and accountability. The company frequently utilizes its peers as benchmarks for comparison, recognizing the importance of industry standards and best practices in driving continuous improvement. By aligning its ESG reporting with its peers, Vodafone aims to provide stakeholders with a clear understanding of its performance relative to industry norms and expectations. Therefore, this chapter is focused on evaluating the ESG performance of Vodafone Group PLC in greater detail and comparing it to the peer group including BT Group, Deutsche Telekom, Liberty Global, MTN, Orange, Royal KPN, Telecom Italia, Telefonica, and Telefonica Deutschland, as referenced in the annual report.

Table 5 Vodafone ESG Score by Refinitiv

Pillar/Category	FY22	FY23
ESG Score	**88**	**86**
Environmental Score	**80**	**83**
Resources Use Score	90	91
Environmental Innovation Score	88	95
Environmental Innovation	60	59
Social Score	**87**	**82**
Workforce Score	86	82
Human Rights Score	88	87
Community Score	69	46
Product Responsibility Score	98	98
Governance Score	**94**	**95**
Management Score	96	98
Shareholders Score	86	83
CSR Strategy Score	96	95

Source: Refinitiv

Refinitiv is one of the leading agencies in ESG analysis and attributes to Vodafone an overall score of 86 for FY2023, presenting a slight decrease of 2 points when compared to 2022. Governance emerges as the strongest category, scoring 95, followed by the environmental category with 83. The social category has a score of 82, reflecting the lowest score and a decline of 5 points when compared to 2022.

The subcategory that primarily contributed to this decline was the community score, which dropped from 69 in 2022 to 46 in 2023.

I will explore each category in more detail, analyzing the factors that led to a decline in the community score, which had the most significant impact on the overall rating.

3.1 Environmental

Regarding the environmental category, Vodafone understands the importance of reducing its environmental footprint and supporting the shift to green practices in society. This year, the drive for environmentally friendly digital transitions became more pressing due to worsening global climate and energy issues. Vodafone acknowledges the urgent necessity to contribute to tackling the worldwide climate

crisis. With the ICT sector accounting for approximately 1.8% to 2.8% of global greenhouse gas emissions (Allianz, 2023), Vodafone is determined to decrease its emissions significantly.

Therefore, their environmental strategy focuses on three main pillars: achieving net zero, enabling sustainable practices, and embracing circularity. To achieve this, the company has established both short and long-term objectives within these strategic domains to focus their efforts where they believe that can make the most significant difference.

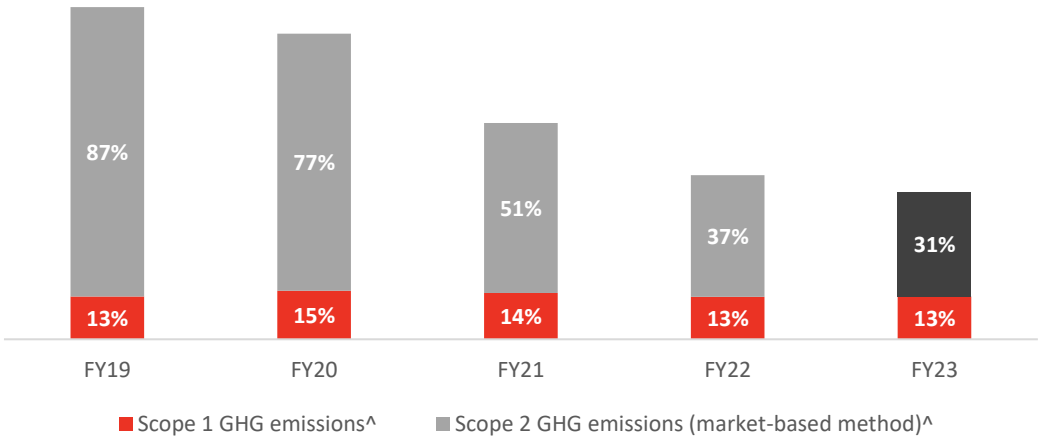
Table 6 Long- and Short-Term Environment Goals

Long term & Short term	Environmental goals
2025	Purchase 100% of the electricity used globally from renewable sources Reuse, resell or recycle 100% of the network waste
2030	Net zero emissions from the operations and from energy purchase and use Halve emissions from value chain Enable of 350 million tonnes of carbon emissions to be avoided through green digital solutions
2040	Net zero emissions across full value chain

Source: Vodafone Annual Report 2023

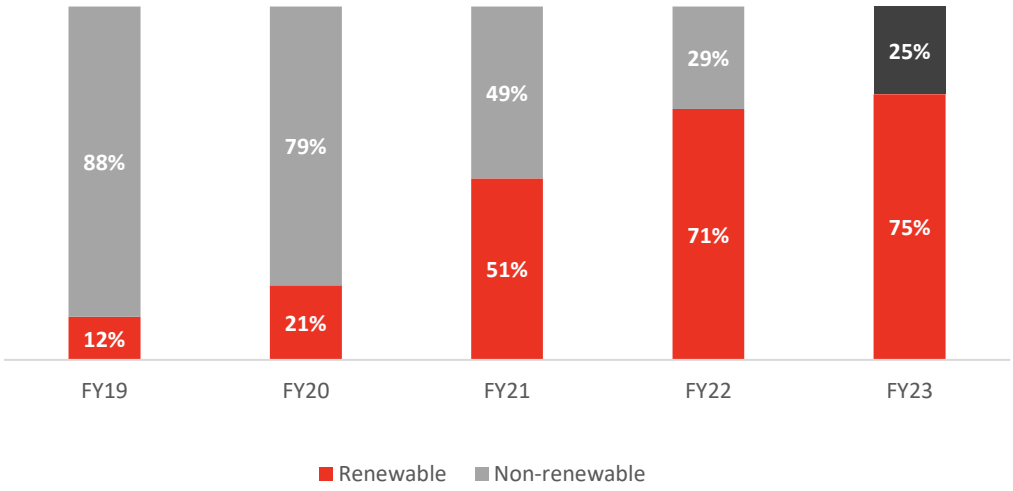
Vodafone, according to its annual report, has decreased its combined score of Scope 1 and Scope 2 of greenhouse emissions through the years - as we can see in the graph – which is in line with the target of net zero emissions by 2030. While Scope 1 emissions remained almost the same within a five-year range, Scope 2 was able to counter this maintenance towards the target goal, due to the higher consumption of renewable energy, as we can see in the graph. Moreover, Vodafone is making an effort to switch to renewable energy. Compared to 2020, Vodafone has decreased its non-renewable energy source from 79% in 2020 to 25% in 2023. They are phasing out the use of fossil fuels such as diesel for stationary generators, and petrol or diesel for vehicle fuel.

Figure 10 Scope 1 and Scope 2 Emissions



Source: Vodafone Annual Report 2023

Figure 9 Renewable vs. Non-Renewable



Source: Vodafone Annual Report 2023

A pivotal pillar of Vodafone commitment to environmental preservation involves enabling their clients (consumers, businesses, and governmental bodies) to reduce their ecological impact through the utilization of Vodafone digital technologies and services. The journey has started by prioritizing the adoption of eco-friendly digital solutions to combat climate change and promote the decarbonization of society. This effort is towards empowering customers to lower their carbon emissions by 350 million tonnes from 2020 to 2030.

Lastly, the circularity is about reusing, reselling or recycling 100% of the network waste by 2025. Vodafone, according to the annual report of 2023, achieved a 96% reuse, resale, or recycling rate for network waste, compared to 2022 performance of 95%. Vodafone aims to extend the use of resources for as long as possible, thereby maximizing their employed value. Subsequently, they aim to recover and responsibly reuse materials, ensuring their sustainable management.

3.2 Social

In the scope of ESG, the social field covers several factors. This includes an analysis of diversity and inclusion practices within the organization, the prioritization of health and safety standards for employees and stakeholders, as well as the management of a responsible and ethical supply chain and others. Regarding the overall ESG score, it's the social category that is causing the score to be lower than it was in the previous year.

The increase of digital education and presence in rural areas can support and improve many well-being problems, such as the isolation of the elderly. For example, in Portugal, the rural population is around 32% and a highly elderly population (Trading Ecomomics, 2023), so Portuguese telecommunication companies have a big challenge trying to include this population in the new digital world.

In terms of diversity, Vodafone's primary focus is on dismantling barriers to workplace equality, and they are dedicated in the commitment to cultivating a diverse and inclusive global workforce that resonates with the diversity of their customers and the societies Vodafone engages with. Regarding the diversity in gender, women on board account for 42% and 58% of total employees in the company, as we can see from the graph below. This leads us to conclude that they pay attention to this factor.

Figure 12 Board Diversity

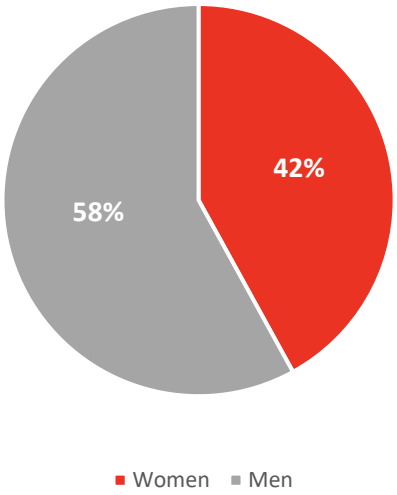
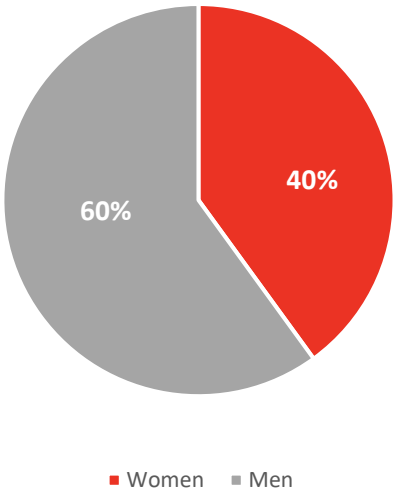


Figure 11 Diversity of Total Employees



Source: Vodafone Annual Report 2023

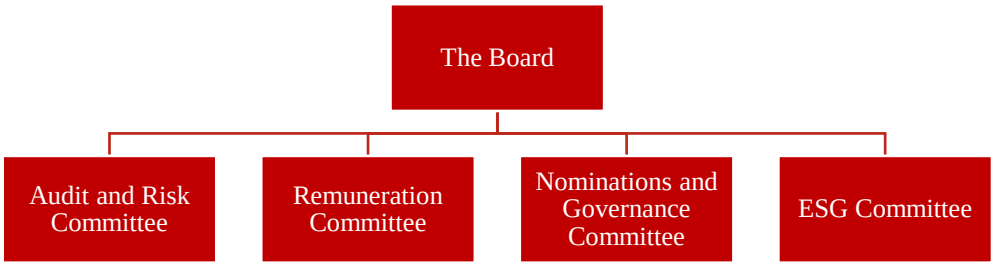
Regarding the community score, the main reason behind Refinitiv scores being very low is that one of the metrics, which is the Total Donations to Revenues, has a score of 15 out of 100. This metric is computed by the total amount of all donations divided by net sales or revenue. I took close attention to their annual report and did not find any material aspect to improve this metric. One of the things that Vodafone can implement after analyzing their peers, it is building a TSI (Total Societal Impact) approach to their business. “We are entering an era where the value of a company won’t just be measured in terms of economic or social performance, but also by its contribution to society,” said Stephane Richard of Orange (one of the peers of Vodafone) (BCG, 2020).

3.3 Governance

Concerning Governance in ESG, it is crucial to have a good understanding of the potential risks and benefits of governance in decision-making, as poor corporate governance has been the core of major corporate scandals. Instances like Volkswagen's emissions tests scandal and Facebook's mishandling of data have inflicted considerable financial harm on these firms.

Vodafone governance is structured as shown in the figure below.

Figure 13 Vodafone Governance Structure



Source: Vodafone Annual Report 2023

3.3.1 Board of Directors

At the end of 2023, the board of directors of Vodafone has 12 members, of which 2 are executive directors (Margherita Della Valle and Luka Mucic), 1 chairman (Jean-François van Boxmeer) and the remaining are non-executive directors.

From the last annual report, Sir Crispin Davis, Dame Clara Furse, Valerie Gooding and Nick Read stepped down from the board and Luka Mucic and Hatew Dowldar joined.

Additionally, as of today, 42% of the board are woman, aligning with the diversity targets outlined in the last annual report, which stated that the board aims to meet and surpass the target of having at least 40% of board positions held by women. Furthermore, one of the key leadership positions, including Chair, CEO, CFO, or Senior Independent Director, is occupied by a woman, fulfilling a target achieved through Margherita Della Valle's role as CEO.

Table 7 Board Members: Executive and Non-Executive

Board members	Role	Appointed
Stephen Carter	Non-Executive Director	July 2022
Margherita Della Valle	Executive Director	July 2018
Michel Demaré	Non-Executive Director	February 2018
Delphine Ernotte Cunci	Non-Executive Director	July 2022
Deborah Kerr	Non-Executive Director	March 2022
Amparo Moraleda	Non-Executive Director	June 2017
David Nish	Non-Executive Director	January 2016
Christine Ramon	Non-Executive Director	November 2022
Simon Segars	Non-Executive Director	July 2022
Jean-François van Boxmeer	Chairman	July 2020
Luka Mucic	Executive Director	September 2023
Hatem Dowldar	Non-Executive Director	February 2024

Source: Vodafone Annual Report 2023

3.3.2 Remuneration Committee

To prevent conflicts of interest, the Remuneration Committee consists entirely of Non-Executive Directors who are not eligible to partake in the Company's annual bonus or long-term incentive schemes. Furthermore, the Remuneration Committee ensures that individuals excuse themselves from discussions regarding their own compensation.

The annual remuneration of non-executive members is based on a fixed salary and the annual remuneration of executive directors is based on fixed remuneration, which compromises base salary, pension and benefits, as well as variable remuneration, the annual bonus. In recent years the performance measures have normally been equally weighted across service revenue, adjusted free cash flow, adjusted EBIT and customer appreciation. However, the committee adjusted these weightings ahead of the start of the 2024 plan to ensure alignment with strategic priorities, especially focused on Growth and Customer satisfaction.

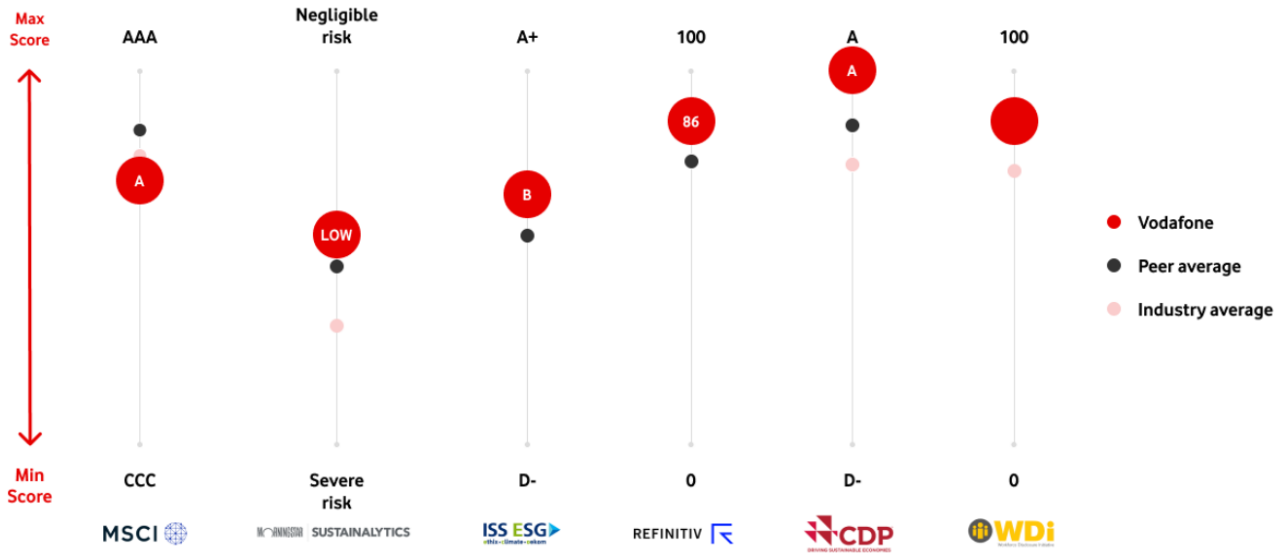
For the 2024 plan, measures under the annual bonus will be:

- Growth (70%): service revenue (20%), adjusted EBIT (20%), adjusted free cash flow (20%) and revenue market share (10%).
- Customers (30%): Net Promoter Score (20%) and churn (10%)

3.3.3 Vodafone vs Peer & Industry average ESG Ratings

According to the figure below, almost all agencies give Vodafone Group Plc a superior ranking in ESG compared to the industry average and their peer group. MSCI was the only agency that did not. Vodafone was rated AA last year, however, this year's downgrade to A was caused by changes in MSCI methodology.

Figure 14 Vodafone ESG Scores vs. Peer Scores



Source: Vodafone Annual Report 2023

4 Financial Analysis

In this chapter, I analyze Vodafone's financial position, focusing on aspects such as profitability, efficiency, liquidity, and solvency, using the most relevant ratios and comparing them with the industry peers. The selected peers for comparison are the same ones I used for the market multiples valuation, which I elaborate on in Chapter 6. These competitors include BT Group, Orange, Hellenic, Telefonica Deutschland, and Proximus.

4.1 Profitability

As for profitability, if we want to use the financial statements to assess the financial performance and current standing of a company, we should start to analyze the Market-to-book ratio, according to (Brealey, Myers, & Allen, 2023). The reason is because we want to evaluate a company's current market value relative to its book value.

Initially, the Market-to-book ratio is calculated by dividing the market value of equity by the book value of equity. The market value of equity is the same as the total market capitalization. As of the end of the fiscal year on 31 March 2023, Vodafone's market capitalization stood at 27.4 billion euros. This indicates that shareholders have invested billions in the company over time. The book value represents the total investment made by shareholders in the company. At the end of the 2023 fiscal year, Vodafone's equity had a book value of 64.5 billion euros. Therefore, the market-to-book ratio is computed as follows:

$$\text{Market-to-book ratio} = \frac{27.4}{64.5} = 0.4$$

Given that this ratio is less than one, it requires further examination. The interpretation of the ratio suggests that the stock is undervalued - a belief I hold and that I will elaborate on in the valuation chapter - or it could imply that there are issues with the company. Either way, no single ratio can provide a complete picture of a company's financial health. It's important to consider a variety of ratios and other financial information when assessing a company's financial position.

Therefore, I used the ratio Return on Capital Employed (ROCE) to analyze deeply the profitability comparing to their peers of the year 2023 and also comparing to the weighted average cost of capital (WACC).

Table 8 Profitability Growth

Profitability	2021	2022	2023	Peers 2023
Post-tax ROCE	3.90%	5.20%	5.1%	5.0%

Source: Vodafone Annual Report 2023

As we can see from the table, Vodafone surpasses the peers in terms of profitability in the year 2023. However. when compared to the Weighted Average Cost of Capital (WACC) of **5.04% in perpetuity**, Vodafone's ROCE margin is very low. This indicates that during periods such as 2023 and the projected WACC of 8.4% for 2024, where both the cost of equity and debt are elevated due to inflation and interest rates, Vodafone's returns fall short of covering its capital costs. In other words, the company was not able to create value for its investors, as the cost of funding the projects was higher than the earnings from those projects.

As I mentioned before, the telecommunications sector is marked by significant capital expenditure needs and low Return on Capital Employed (ROCE). This pattern, which has seen the ROCE regularly underperforming the Weighted Average Cost of Capital (WACC), has been ongoing for more than ten years and has had a direct effect on the overall returns to shareholders.

A valuable measure for also evaluating profitability is the Return on Equity (ROE). However, due to the significant fluctuations in Vodafone's net income over the years, this ratio is not the most effective indicator in this case or even within the industry.

Table 9 Profitability Ratio: ROE

Profitability	2021	2022	2023
ROE	0.9%	4.6%	19.1%

Source: Vodafone Annual Report 2023

4.2 Efficiency

I initiated the evaluation of Vodafone by calculating the added value for its shareholders and then comparing the profit it generates with the cost of capital that it employs. The next step was to delve deeper to comprehend the factors behind the company's operations.

Firstly, the asset turnover ratio shows how much sales are generated by each dollar of total assets, and therefore it measures how hard the firm's assets are working. For Vodafone, each dollar of assets produced 0.32€ of sales in 2023:

$$\text{Asset turnover} = \frac{Sales}{Average\ Total\ Assets} = \frac{45\,706}{(155\,521+154\,049)/2} = 0.32\ €$$

Another way to express this measure is by examining the **Cash Conversion Cycle (CCC)**, which represents the duration required to transform inventory acquisitions into cash proceeds from sales. The CCC is a key indicator that aids in assessing a company's efficiency in managing its working capital, and it is calculated based on three distinct elements: Days Sales Outstanding (DSO) or the number of days taken to collect cash from customers, Days Inventory Outstanding (DIO) or the number of days the company holds its inventory before selling it and Days Payable Outstanding (DPO) or the number of days from the time a company acquires raw materials to payment to suppliers.

$$\text{DSO} = \frac{Avg.\ Accounts\ Receivables}{Revenues} * 365 = \frac{(3\,277+3\,300)/2}{45\,706} * 365 = 26$$

$$\text{DIO} = \frac{Avg.Inventory}{Cost\ of\ Good\ Sold} * 365 = \frac{(956+836)/2}{30\,850} * 365 = 11$$

$$\text{DPO} = \frac{Avg.\ Accounts\ Payable}{Cost\ of\ Good\ Sold} * 365 = \frac{(7\,662+7\,327)/2}{30\,850} * 365 = 89$$

Cash Conversion Cycle (CCC) = DSO + DIO – DPO = 26 + 11 + 89 = - 52

A negative Cash Conversion Cycle (CCC) indicates that a company can collect revenue from its customers before settling payments to its suppliers for resources

utilized in those sales. In the case of Vodafone, with a CCC of -52 days, it means the company receives customer payments faster than it needs to pay suppliers.

The main reason is that the telecommunication industry's unique financial dynamics are largely shaped by its subscription model of revenue stream, which significantly contributes to its negative working capital as customers typically pay upfront or on a monthly basis for services. This model allows telecom companies to display the lowest ratio of working capital to sales across sectors, indicating their efficiency in managing current assets with current liabilities.

Another reason is that the industry has one of the highest capital expenditure ratio due to the growing demand for network infrastructure, increasing data consumption, and rapid technological innovation. Their efficient working capital management supports this high capital expenditure. As these expenditures increase, initiatives aiming at working capital optimization have become increasingly popular in the industry to maintain financial health and support these necessary investments (Bitiren, 2018).

In the table below, we can see the improvement over the years:

Table 10 Efficiency Ratios

Efficiency ratios	2021	2022	2023	Peers 2023
DSO	31	28	26	70
DIO	8	9	11	15
DPO	81	84	89	121
Cash Conversion Cycle	- 43	- 47	- 52	- 36
Asset Turnover	0.30	0.32	0.32	-

Source: Vodafone Annual Report 2023

In addition, we can see that Vodafone outperforms its competitors in efficiency, as evidenced by the mean of the Cash Conversion Cycle of -36.

4.3 Liquidity

Liquidity refers to a company's capability to fulfill its short-term obligations. Liquidity ratios are computed at three levels, depending on the liquidity of current assets employed in the calculation. The Current ratio, calculated as current assets

divided by current liabilities, illustrates a company's capacity to settle short-term debts by liquidating current assets. The Quick ratio, on the other hand, considers more liquid current assets since it subtracts inventory from current assets in the numerator. Finally, the Cash ratio indicates a company's ability to satisfy its liabilities using its most liquid assets - cash and cash equivalents. There is no generally recommended values for each ratio because each industry has usually different scales, therefore it is important to compare each liquidity with the industry standards. The table below shows the figures of Vodafone's liquidity of the period analyzed and also the peers.

Table 11 Liquidity Ratios

Liquidity	2021	2022	2023	Peers 2023
Current Ratio	0.98	0.82	0.89	0.77
Quick Ratio	0.96	0.79	0.86	0.73
Cash Ratio	0.20	0.22	0.34	0.17

Source: Vodafone Annual Report 2023

The table indicates an upward trend in the cash ratio, which is a result of Vodafone's liquidity risk management strategy. A significant factor contributing to the rise in all ratios in 2023 compared to 2022 was the divestment of Vodafone Hungary for 1.6 billion euros to 4iG Public Limited Company and Corvinus Zrt, and the sale of Vantage Towers to Oak Holdings 1 GmbH, a co-control partnership of Vodafone, GIP, and KKR, which resulted in a net gain of 8.6 billion euros from the disposal. This disposal, coupled with increased free cash flow, enabled Vodafone to invest more in capital expenditure, accounting for 18% of total sales.

Excluding the year 2023, which is considered an anomaly due to the divestment of certain segments, Vodafone continues to surpass its competitors in the three liquidity ratios.

4.4 Solvency

Solvency ratios are key metrics used to measure an enterprise's ability to meet its long-term debt obligations. Solvency ratios are focused on financial leverage and capital structure. They indicate whether a company's cash flow is sufficient to meet its

long-term liabilities, thus providing a measure of its financial health. (Investopedia, 2023). The table below illustrates the chosen solvency ratios.

Table 12 Solvency Ratios

Solvency/Leverage	2021	2022	2023	Peers 2023
Debt to Equity	117%	123%	103%	128%
Total Debt/ Assets	44%	45%	43%	38%
Total Debt / Total Capital	54%	55%	51%	56%
Total Debt / EBITDA	2,8	2,7	2,3	2.5
Interest Coverage Ratio	2.28	2.36	2.07	6.07

Source: Vodafone Annual Report 2023

From 2021 to 2023, Vodafone demonstrated a consistent effort to improve its solvency and leverage ratios. The **Debt to Equity** ratio, which measures the financial leverage of the company, decreased from 123% in 2022 to 103% in 2023, indicating a reduction in debt relative to equity. This was lower than the peer average of 128% in 2023, suggesting a more conservative financing strategy. The **Total Debt/Assets** ratio remained fairly stable, showing a slight decrease from 45% in 2022 to 43% in 2023, but was still higher than the peer average of 38%. The **Total Debt/Total Capital** ratio also showed a downward trend, decreasing from 55.1% in 2022 to 50.7% in 2023, indicating a decrease in the proportion of the company's capital structure financed by debt. The **Interest Coverage Ratio**, however, decreased from 2.36 in 2022 to 2.07 in 2023, which was significantly lower than the peer average of 6.07, indicating a lower ability to cover interest expenses on outstanding debt. Lastly, the **Net Debt/EBITDA** ratio, a key indicator of a company's ability to pay off its incurred debt, decreased from 2.7 in 2022 to 2.3 in 2023, slightly below the peer average of 2.53, indicating an improvement in the company's ability to generate sufficient earnings to cover its debt obligations.

In conclusion, Vodafone has shown a positive trend in reducing its leverage and improving its solvency position from 2021 to 2023. Despite some ratios being higher than the peer average, the overall downward trend in debt ratios and the improvement in the Net Debt/EBITDA ratio suggest that Vodafone is on a path of financial stability and has been managing its debt effectively. However, the lower Interest Coverage Ratio compared to peers indicates a potential area for improvement.

5 Valuation

5.1 Discounted Cash Flow Method

5.1.1 INCOME STATEMENT FORECAST

Vodafone's revenues were split into regions: Germany, United Kingdom, Italy, Spain, Portugal, Greece, Other Europe, Vodacom, Turkey, Other Markets, Vantage Towers, and Inter & Intra Region Eliminations. However, it is important to note that Vodafone divested its operations in Spain, Italy, Hungary (part of Other Europe), Ghana (part of Other Markets), and Vantage Towers in 2023. The sales of Vodafone Ghana, Vodafone Hungary, and Vantage Towers occurred before the fiscal year end on 31 March, 2023, so they are not included in the 2024 figures.

On the other hand, the segments that were disposed of in 2023 following the fiscal year are incorporated into the revenue forecasts exclusively for the fiscal year end on 31 March, 2024, due to Vodafone's continued service provided in those areas.

As value drivers for projections, the primary drivers for Vodafone's revenue are the **subscription base** and the **Average Revenue Per User (ARPU)**. The subscription base refers to the number of individuals or entities that are currently using Vodafone's services and ARPU, on the other hand, is a measure of the revenue generated per user or unit. It is a critical metric in the telecom industry that helps in understanding the company's revenue generation capability. However, Vodafone does not disclose these numbers to the public so I could not forecast based on these drivers.

Therefore, the best drivers that I identified as the most influential were market conditions, the consumer price index, and the value of the GDP. These factors are particularly impactful in this industry, given that it provides a service that is primary to our daily lives. Additionally, I have examined the past performance of each segment to understand historical trends. Lastly, I have looked into the performance of each segment, as each one may have different growth potential. To gain a deeper understanding of this, I studied Vodafone's strategy, focusing on their approach to each segment and the opportunities they have identified.

In Germany, the average growth rate over the past four years was 6%. The fiscal year 2024's growth rate closely aligns with this trend, based on the last twelve months' reports. Looking ahead, I predict a 4% growth rate for the 2025 fiscal year, influenced by the forecasted CPI of 3% and Vodafone's business segment expansion. By 2026, I anticipate a 3% growth rate for Vodafone Germany, driven by the potential opportunities within Vodafone Business. In subsequent years, I expect a steady growth rate of 2%, consistent with the inflation target.

In the UK, the average growth rate for the past four years was 2%. For the forecast period, I maintain a steady growth rate of 2%, considering the historical performance. The merger with Three UK is also expected to significantly influence this growth rate due to the anticipated increase in the customer base. Additionally, this merger is not just expected to increase the customer base but also to enhance the service quality and coverage, leading to higher customer satisfaction. This could further drive the growth rate in the coming years.

In Portugal, for 2025, I expect an increase of 4.5% also driven by all operators positioning themselves to increase prices on February 1st, 2024, (4.6%) in line with the average CPI (5.3%) of 2023. In the subsequent years, I foresee a modest growth primarily due to the introduction of Digi, a telecom operator renowned for its aggressive market entry with low prices in both mobile and fixed broadband segments. Digi has already formed a partnership with Cellnex for infrastructure. As a result, I predict a 1% growth in Portugal, mostly due to Digi's lower pricing strategy and consequently gaining market share.

Over the previous four years, Greece has experienced an average growth rate of 1%. In alignment with the anticipated inflation rate of 2%, I project a 2% growth rate for this sector in the forecast period. This growth rate also reflects the positive trends in the Greek economy. One that potentially can contribute to the growth of the sector of telecommunications is the Information and Communications Technology (ICT) sector that is driving the Greek government's efforts to reduce bureaucracy, simplify procedures, and boost the country's digital economy.

For the segment of Other Europe, which includes Albania, Czech Republic, Ireland and Romania I expect a growth rate in revenues of 2% every year. This projection is primarily driven by the target inflation of 2% and Vodafone's strategic focus on these due to their specific economic and technological advancements that make them attractive markets for Vodafone. For example, Romania has one of the fastest internet speeds globally, which could drive growth in the telecommunications sector.

Regarding Vodacom, the average growth rate stands at 6%. However, I've projected a growth rate of 3% for the forecast period. The main reason behind this is Vodacom's strategic evolution from being a telecommunications firm to a combined technology and telecom entity, also known as a techco. This transformation is anticipated to establish a competitive edge by aligning with customer journeys and fostering growth. The expected growth is further bolstered by the increasing adoption of digital and financial services, of these emerging technologies and regions.

In the previous period, Turkey's average growth rate was negative by 5%. However, a turnaround was observed in the fiscal year of 2023, with a revenue growth of 6%. This was primarily due to the country's hyperinflation, which stood at a staggering 72% in 2022 compared to the year before. This inflationary pressure was driven by the significant depreciation of Turkey's currency, the lira, which hit an all-time low against the dollar. Given the economic projections for 2024 with inflation around 60%, I anticipate a 15% growth in this segment for the fiscal year of 2025. For the years 2026 and 2027, I project a modest revenue growth of 1%, influenced by macroeconomic factors. However, for the subsequent forecast years, I predict a 1% decrease in revenues.

Regarding Intra & Intra Region eliminations, this segment is typically used to remove the impact of transactions that occur between different segments within the company. For the forecast, a possible approach would be to calculate the average percentage of this segment relative to the total revenue over the past few years. Another approach could be the use of the last available figure, which is from 2023. However, these approaches do not consider disinvestment in other segments. Therefore, I decided to use the minimum value for eliminations & others and a simple

average of the last years of Intra & Intra region eliminations due to their significant fluctuations.

In the table below, we can see the projected revenues for the forecast period.

Table 13 Revenue Forecast per Segment

Revenue (€m)	2024E	2025E	2026E	2027E	2028E	2029E
Germany	13 150	13 676	14 086	14 368	14 655	14 948
Italy	4 700	0	0	0	0	0
UK	6 960	7 100	7 242	7 387	7 534	7 685
Spain	3 800	0	0	0	0	0
Portugal	1 325	1 385	1 398	1 412	1 427	1 441
Greece	974	993	1 013	1 033	1 054	1 075
Other Europe	3 616	3 688	3 762	3 837	3 914	3 992
Elimination/Others	-91	-91	-91	-91	-91	-91
Total Europe	**34 434**	**26 751**	**27 410**	**27 946**	**28 493**	**29 050**
Vodacom	8 238	8 485	8 739	9 001	9 271	9 550
Turkey	2 205	2 183	2 139	2 150	2 160	2 171
Other Markets	0	0	0	0	0	0
Total AMAP	**10 442**	**10 667**	**10 878**	**11 151**	**11 432**	**11 721**
Vantage Towers	0	0	0	0	0	0
Inter & Intra Region eliminations	719	719	719	719	719	719
Total Group	**45 595**	**38 137**	**39 008**	**39 817**	**40 644**	**41 491**

Source: own presentation

For the upcoming income statement forecast, my initial approach was to calculate the cost of sales as the average proportion of revenues, which stands at 68%. However, considering the business's restructuring and the new strategy to expand market share in countries with greater opportunities, I realized this could affect the EBITDA. Therefore, I concluded that it would be more appropriate to evaluate the EBITDA margin per segment and then determine the difference between the total revenues and the total EBITDA. This approach takes into account the potential impacts of strategic changes on the company's financial performance.

Table 14 EBITDA Forecast per Segment

EBITDA (€m)	2024E	2025E	2026E	2027E	2028E	2029E
Germany	5 129	5 416	5 663	5 862	6 067	6 278
Italy	1 306	0	0	0	0	0
UK	1 377	1 430	1 485	1 542	1 600	1 660
Spain	874	0	0	0	0	0
Portugal	504	498	496	494	506	519
Greece	259	269	280	290	301	312
Other Europe	968	1 001	1 035	1 070	1 106	1 143
Total Europe	10 416	8 615	8 959	9 259	9 581	9 913
Vodacom	2 972	3 097	3 227	3 362	3 502	3 647
Turkey	617	589	566	558	550	541
Other Markets	0	0	0	0	0	0
Total AMAP	3 590	3 687	3 794	3 920	4 052	4 189
Vantage Towers	0	0	0	0	0	0
Intra & Intra region eliminations	-139	-139	-139	-139	-139	-139
Total Group	13 867	12 163	12 614	13 040	13 494	13 963

Source: own presentation

Table 15 Computed Cost of Sales

(€m)	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	**45 595**	**38 137**	**39 008**	**39 817**	**40 644**	**41 491**
Cost of sales	31 728	25 974	26 394	26 777	27 150	27 528
Weight - cost of sales/revenue	69.6%	68.1%	67.7%	67.2%	66.8%	66.3%
EBITDA	**13 867**	**12 163**	**12 614**	**13 040**	**13 494**	**13 963**
EBITDA margin	30.4%	31.9%	32.3%	32.8%	33.2%	33.7%

Source: own presentation

In terms of Depreciation and Amortization, I computed the weight of D&A compared to the total revenue of the past four years. After, I did the average and the result was 22.3%. This average was then used in the forecast.

When it comes to the interest expense, prediction is complex since I did not project the balance sheet due to the transactions that occurred in the fiscal year of 2024. I elaborate on this further in the balance sheet forecast chapter. Nonetheless, Vodafone has openly expressed their aim to keep the Net Debt/ EBITDA ratio between 2.25 and 2.75. Therefore, I used the value 2.5 to strike a balance and not be overly conservative or aggressive in debt levels and multiplied by the forecast EBITDA.

Table 16 Computed Interest Expenses

(€m)	2024E	2025E	2026E	2027E	2028E	2029E
Net Debt	34 668	30 407	31 535	32 600	33 735	34 906
EBITDA	13 867	12 163	12 614	13 040	13 494	13 963
Net debt/ EBITDA	2.5	2.5	2.5	2.5	2.5	2.5
Cost of Debt	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
Interest expense	1 000	877	910	941	974	1 007

Source: own presentation

Lastly, for the calculation of the tax expense, I have applied the UK's corporate tax rate of 25%. In the table below, it is presented the income statement forecast.

Table 17 Income Statement Forecast

Income Statement (€m)	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	**45 595**	**38 137**	**39 008**	**39 817**	**40 644**	**41 491**
Cost of sales	31 728	25 974	26 394	26 777	27 150	27 528
EBITDA	**13 867**	**12 163**	**12 614**	**13 040**	**13 494**	**13 963**
D&A	10 185	8 519	8 713	8 894	9 079	9 268
EBIT	**3 682**	**3 644**	**3 901**	**4 146**	**4 415**	**4 695**
Interest expense	1 000	877	910	941	974	1 007
EBT	**2 682**	**2 766**	**2 991**	**3 205**	**3 442**	**3 687**
Tax expense	670	692	748	801	860	922
Net income	**2 011**	**2 075**	**2 243**	**2 404**	**2 581**	**2 765**

Source: own presentation

5.1.2 BALANCE SHEET FORECAST

Under the leadership of the new CEO, Vodafone has executed three significant deals - a partnership in the UK with Hutchison, the sale of Vodafone Spain to Zegona, and the sale of Vodafone Italy to Swisscom. These transactions will change Vodafone's balance sheet and cash flow. Given the ongoing mergers and acquisitions, predicting the future state of Vodafone's balance sheet post all these activities is very challenging and would probably be inaccurate, therefore I decided not to do it.

5.1.3 ADJUSTMENT OF NOPAT TO FREE CASH FLOW TO THE FIRM

In the next step, having completed the income statement projections of Vodafone, I have adjusted NOPAT to arrive at the Free Cash Flow to the Firm. This involved forecasting both the operating working capital and the capital expenditure.

In the telecommunications industry, the ratio of capital expenditures to sales, often referred to as capital intensity, is a key measure. To determine this, I have computed the historical average of this ratio over the past four years, which turned out to be 18% as it is presented in the subsequent table. This ratio is not only indicative of the substantial investments needed for infrastructure enhancements like network equipment, towers, and data centers, but it also serves as an indicator of a company's efficiency in utilizing the capex to drive sales. Hence, this practice of calculating the capital intensity is quite prevalent in this industry.

Table 18 CAPEX Historical

Capital Expenditure (€m)	2020A	2021A	2022A	2023A	Average
Revenue	44 974	43 809	45 580	45 706	
Capex	7 411	7 854	8 306	8 378	
Capex/revenue	16%	18%	18%	18%	18%

Source: own presentation

For the capital expenditure of the forecast period, I multiplied the average historical by the total revenues.

Table 19 CAPEX Forecast

Capital Expenditure (€m)	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	45 595	38 137	39 008	39 817	40 644	41 491
Capex	8 089	6 765	6 920	7 063	7 210	7 360

Source: own presentation

For the working capital, since I did not forecast the balance sheet and the components of working capital, the accounts receivables, inventories, accounts payables and other items, the same method was used. The computed historical average

of working capital over the revenues of the past four years was 15%, as we can see from the table below.

Table 20 Working Capital Historical

Working capital (€m)	2020A	2021A	2022A	2023A	Average
Revenue	44 974	43 809	45 580	45 706	
Accounts receivable	11 724	10 923	11 019	10 705	
Inventory	598	676	836	956	
Accounts payable	17 719	18 070	19 661	18 247	
Working capital	- 5 397	- 6 471	- 7 806	- 6 586	
Working Capital/Revenue	12%	15%	17%	14%	15%

For the forecast period, I multiplied the average by the revenues estimated.

Table 21 Working Capital Forecast

Working capital (€m)	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	45 595	38 137	39 008	39 817	40 644	41 491
Working capital	6 646	5 559	5 686	5 804	5 925	6 048

Source: own presentation

Free Cash Flow to the Firm

Table 22 Free Cash Flow to the Firm Forecast

FCFF	2024E	2025E	2026E	2027E	2028E	2029E
NOPAT	2 762	2 733	2 925	3 109	3 311	3 521
D&A	10 185	8 519	8 713	8 894	9 079	9 268
Capex	8 089	6 765	6 920	7 063	7 210	7 360
Changes in WC	- 60	1 087	- 127	- 118	- 121	- 123
FCFF	4 918	3 399	4 846	5 058	5 301	5 552

Source: own presentation

5.1.4 WACC

In order to find a suitable rate to discount the free cash flows, I calculated the weighted average cost of capital (WACC).

The WACC could be calculated by the following formula:

$$K_{WACC} = w_e \times k_e + w_d \times k_d \times (1-T)$$

w_e –Equity Weight

k_e – Cost of Equity

T – Tax rate

w_d –Debt Weight

k_d – Cost of Debt

Cost of Debt

Initially, I considered the cost of debt calculation by segment, using the risk-free rate (r_f) of 10-year German bonds and adding each segment's default spread. Using this formula:

$$K_d = r_f + \text{default spread}$$

However, as an international entity, Vodafone Group can raise debt, for instance, for Vodacom in Africa, at the minimum cost of debt sourced from Germany. Hence, using the default spread could lead to an overestimated cost of debt, neglecting the benefits of being an international group operating in countries with lower default spreads.

Therefore, a more effective method to compute the cost of debt was adopted. I gathered the interest paid from the cash flow statement over the past four years and divided it by the total debt for each respective year. I then calculated the average and projected the same cost of debt for the forecast period.

In the table below, you can see how the cost of debt was computed.

Table 23 Computed Cost of Debt

Cost of debt	2020A	2021A	2022A	2023A	average
Interest expense	2 284	2 152	1 804	1 951	
Total Debt	74 925	67 760	70 092	66 390	
Cost of Debt	3,0%	3,2%	2,6%	2,9%	2,9%

Source: own presentation

Cost of Equity

To compute the cost of equity was used the Capital Pricing Asset Model model (CAPM), that is presented by the following formula:

$$K_e = r_f + \beta_L \text{ x market risk premium}$$

Risk free rate

Vodafone's main business activities are predominantly based in Europe, with Germany contributing significantly. Given Germany's role as a key economic indicator for Europe, it makes sense to use it as a benchmark for European economic conditions. As such, the 10-year German bond yield has been chosen as the risk-free rate (rf), providing a more accurate reflection of Vodafone's business risk.

Market Risk Premium

The Market Risk Premium was calculated using data from the renowned American Professor Damodaran's website. Each business segment was allocated a market risk premium from Professor Damodaran's 2024 database (Damodaran, 2024). Given the difference in revenue ratios across segments, weights were assigned to each for more precise computations, resulting in the calculation of the weighted market risk premium. Thus, while the MRP is generally taken from the standpoint of a diversified investor, in this instance, it has been used to reflect the specific risks associated with the markets where Vodafone is active. This provides a more accurate measure of the risks and potential returns for an investor focused on these markets.

Country Inputs	Market Risk Premium	Weight in revenues	MRP weighted
Germany	4,60%	29,84%	1,37%
United Kingdom	6,35%	15,27%	0,97%
Spain	9,28%	8,33%	0,77%
Italy	11,03%	10,31%	1,14%
Portugal	8,11%	2,91%	0,24%
Greece	11,92%	2,14%	0,25%
Other Europe	11,46%	7,93%	0,91%
Turkey	23,61%	4,84%	1,14%
Africa	22,93%	18,07%	4,14%
SUM			**10,9%**

Table 24 Market Risk Premium per region

Source: own presentation

For the forecast period and perpetuity beyond 2024, the average market risk premium of the past decade for each segment was used. The value of the perpetuity is the average, and the figures for the years after 2024 gradually approach this average. This approach was adopted because the 2024 value represents the current economic state and may not accurately reflect the forecast period.

Table 25 10-year average Market Risk Premium per region

	10 years Average MRP	Weigh per revenues	MRP weighted
Germany	5,6%	38%	2,1%
United Kingdom	6,0%	19%	1,1%
Portugal	7,3%	4%	0,3%
Greece	12,7%	3%	0,3%
Other Europe	6,2%	10%	0,6%
Turkey	10,0%	6%	0,6%
Africa	7,4%	22%	1,6%
SUM			**6,6%**

Source: own presentation

Beta

To determine the Beta value, I gathered historical data for the past five years from the Investing website. This data included the share price of Vodafone and the FTSE 100 index, where Vodafone shares are traded. Using this data, I performed calculations to determine the slope, covariance, and established a regression model. The resulting Beta value was 0.896.

Figure 15 Beta Regression Model

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,55
R Square	0,30
Adjusted R Sq	0,30
Standard Erro	0,01
Observations	1282

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1,0	0,1	0,1	555,1	0,0
Residual	1280,0	0,3	0,0		
Total	1281,0	0,4			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95,0%*	*Upper 95,0%*
Intercept	0,000	0,000	-1,137	0,256	-0,001	0,000	-0,001	0,000
X Variable 1	**0,896**	0,038	23,561	0,000	0,822	0,971	0,822	0,971

Source: own presentation

Capital Structure

The capital structure was forecasted to remain constant due to the uncertainties surrounding the divestments in Italy and Spain. At the time of the research, there was a lack of specific information regarding the debt levels, with only a net debt/EBITDA ratio of 2.25 to 2.75 available. There was also no detailed information about the capital allocation related to these sales. However, it's important to note that Vodafone has announced a capital allocation of €4 billion for a share buyback program. Thus, this will increase the book value of equity, which could potentially change the capital structure in the future. Despite these changes, the assumption of a constant capital structure was deemed the most prudent approach given the information available at the time of the research

After having all the components, the WACC can be calculated. Results are in the table below (see Table).

Table 26 WACC computation

	2024E	2025E	2026E	2027E	2028E	2029E	Perpetuity
WACC	**8.40%**	**7.84%**	**7.28%**	**6.72%**	**6.16%**	**5.60%**	**5.04%**
Ke	**12.38%**	**11.41%**	**10.45%**	**9.48%**	**8.52%**	**7.56%**	**6.59%**
Unlevered Ke	**7.10%**	**6.48%**	**5.86%**	**5.24%**	**4.63%**	**4.01%**	**3.39%**
Rf	2.58%	2.26%	1.93%	1.61%	1.29%	0.97%	0.64%
Beta (levered)	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Beta (unlevered)	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Market Risk Premium	10.93%	10.22%	9.50%	8.79%	8.07%	7.35%	6.64%
Equity weight (we)	58%	58%	58%	58%	58%	58%	58%
Kd	**2.90%**	**2.90%**	**2.90%**	**2.90%**	**2.90%**	**2.90%**	**2.90%**
Debt weight (wd)	42%	42%	42%	42%	42%	42%	42%
Tax	25%	25%	25%	25%	25%	25%	25%

Source: own presentation

5.1.5 Determine Valuation

The Discounted Cash Flow (DCF) valuation is a technique used to determine a company's (or investment's) worth by considering the expected future cash flows. This method is grounded in the concept of the time value of money, which means that the present value of projected future cash flows is calculated using a predetermined discount rate, in this case, the WACC. The value derived from the DCF is often referred to as the company's intrinsic value. By comparing this intrinsic value with the company's market value, we can determine if a stock is undervalued or overvalued.

In the following DCF valuation, I calculate the present value of the projected FCFF for the years 2024 to 2029, as well as the terminal value. The terminal value represents the company's worth beyond the forecast period and is calculated using the terminal growth rate or an exit multiple. For the DCF, I opted for the exit multiple method as I believe it mirrors reality more accurately. Specifically, I used the EV/EBITDA multiple and a 4.2x EBITDA multiple was chosen because it is the median of the comparable companies. I justify the choice of this multiple in the chapter of relative valuation. The formula for calculating the terminal value using the Exit Multiple Method was:

$$\text{Terminal Value} = EBITDA_n \times Exit\ Multiple = 13\,963 \times 4.2 = 59\,160$$

To obtain the Enterprise Value, I have discounted every expected free cash flow to the firm, using the following formula:

$$EV_0 = \sum_{i=0}^{\infty} \frac{FCFF_i}{(1 + k_{wacc})^i} = \sum_{i=1}^{n} \frac{FCFF_i}{(1 + k_{wacc})^i} + \frac{TV}{(1 + k_{wacc})^n}$$

Table 27 Enterprise Value computation

	2024E	2025E	2026E	2027E	2028E	2029E	TV
FCFF	4 918	3 399	4 846	5 058	5 301	5 552	
WACC	8.4%	7.8%	7.3%	6.7%	6.2%	5.6%	
Discount time	0.25	1.25	2.25	3.25	4.25	5.25	
Discount factor	0.98	0.91	0.85	0.81	0.78	0.75	
Present Value of FCFF and TV	4 820	3 093	4 137	4 094	4 111	4 170	43 502
Enterprise Value	67 929						

Source: own presentation

As the value of the firm equals the present value of future cash flows, I followed by summing all the discounted FCFF, reaching an Enterprise Value of 67,929€. The next step was to obtain the share price to define an investment strategy. In order to do so, of the Enterprise Value subtracted the Net Debt and Netherland 50% Debt to have the equity value. Finally, I divided the equity by the number of outstanding shares, which gave us the final result – a share price of 1.02€.

Table 28 Intrinsic Value computation

Enterprise Value	67 929
Net Debt	33 375
NL	7 029
Equity	27 525
Shares outstanding	27 080
Share Price in €	1.02
Exchange rate (EUR/GBX)	85.56
Share Price in GBX	87

Source: own presentation

Comparing the intrinsic share price of Vodafone with the market price on 17th of April - a closing price of 67/sh GBX - is possible to conclude that the share price is undervalued by 28%.

5.2 Market Multiples

In order to determine the value of Vodafone Group Plc, I utilized a market multiples valuation approach. This was done to supplement my Discounted Cash Flow (DCF) and to reinforce my investment thesis.

This technique, also known as relative valuation or comparable companies analysis, is a key method used to estimate the value of a specific company, division, business, or set of assets. It offers a market reference point that a banker can use to appraise a private company or assess the worth of a public company at a specific moment.

For this approach, I referred to the book "Investment Banking: Valuation, Leveraged Buyouts, and Mergers & Acquisitions" by Joshua Pearl and Joshua Rosenbaum (Rosenbaum, 2009). This methodology is highly professional and is considered by many industry professionals to be the one that most closely aligns with actual practice.

As per (Rosenbaum, 2009), a systematic procedure is outlined for executing trading comps, mirroring how this valuation technique is applied in the real world. The initial step involves choosing a set of Universe of Comparable Companies. The next step is to find the required financial data. The third step is to distribute key statistics, ratios, and trading multiples. The fourth step is to establish benchmarks for the comparable companies, and the final step is to determine the valuation.

5.2.1 First Step – Select the Universe of Comparable Companies

In this stage, I started the process of identifying comparable companies by first identifying key characteristics of Vodafone for comparison purposes. Hence, I scrutinized its profile, focusing on both the business and financial aspects. These elements are illustrated in the following table.

Business Profile	Financial Profile
Sector	Size
Products and Services	Profitability
Geography	Growth Profile
Distribution Channels	Return on Investment
Customers and End Markets	Credit Profile

Table 29 Business and Financial Profile Framework

Source: own presentation

Therefore, I began searching for an index that includes telecommunications companies. This led me to find out that Vodafone is a member of the STOXX Europe 600 Telecommunications Index, which is made up of 16 companies. This is advantageous because it only includes companies that are based in Europe, and it is worth noting that 80% of Vodafone's revenue comes from Europe. Furthermore, considering that a portion of Vodafone's revenue comes from Africa, I looked through Vodafone's annual report because some companies mention their peers in such reports, and I found MTN Group (Africa's largest mobile network operator), so I included it in the list of potential comparable companies. Moreover, I found out two more companies that were not listed in the index but were mentioned in the annual report. The table below shows the list of comparable companies.

Table 30 List of comparable companies

Comparable Companies
STOXX Europe 600 Telecommunications
BT Group
Cellnex Telecom
Deutsche Telekom AG
Elisa Oyj
Freenet AG
Koninklijke KPN
Orange
Proximus
Swisscom
Tele2 AB
Telecom Italia
Telefonica
Telefonica Deutschland AG
Telenor
Telia Company
Annual report (not in index)
Hellenic telecom
Liberty Global
MTN Group

Source: own presentation

After conducting a comparative analysis of various companies to Vodafone, I observed that Cellnex Telecom stands out as the most different. This is primarily because **Cellnex Telecom's** business model is heavily focused in the ownership and management of telecommunications infrastructure assets, which is more similar to a real estate business. This is in contrast to offering a broad spectrum of services to consumers and businesses, which is typical of other telecommunications companies. Upon analyzing the primary revenue sources for each company, I observed that **Deutsche Telekom's** largest market is the United States, contributing to approximately 66% of their revenue as per their annual report. The main revenue for **Tele2 AB**, **Telenor**, and **Telia Company** is generated from the Nordic and Baltic regions. Additionally, **Elisa's** and **Swisscom's** predominant revenue sources are from Finland and Switzerland, respectively. Notably, these regions do not fall under

Vodafone's coverage as an operating company but as a partner market (Vodafone, 2023), hence they were removed from the list of comparable companies.

5.2.2 Second Step – Collect of Financial Information

In this phase, I gathered all the necessary data for the valuation by conducting intensive research. This involved examining each company's annual and quarterly reports, as well as utilizing financial platforms like Refinitiv and S&P Global. I also referred to Yahoo Finance and Investing for additional information. Furthermore, I reviewed equity research conducted by industry professionals and master's thesis related to equity research of the companies on my list. The key objective in this phase was to gather data from the most credible financial reports and platforms.

In terms of information reliability, I would rank the sources as follows: The annual reports of each company were the most reliable and required the most exhaustive effort; next were the financial information services, which greatly expedited my work. Lastly, I used equity research from other authors, but their reliability can sometimes be questionable.

5.2.3 Step Third – Spread Key Statistics, Ratios and Trading Multiples

Once I had gathered all the necessary data, I began to assess the size of each company. This involved focusing on the market capitalization that I obtained from Refinitiv, as well as the net debt, which allowed me to compute the enterprise value. Initially, I attempted to calculate the market capitalization myself (share price multiplied by the number of shares outstanding) but I soon realized that obtaining an accurate figure was challenging due to the presence of fully diluted shares. These shares include basic shares outstanding, "in the money" options and warrants, and "in the money" convertible securities. Finding these instruments required extensive research, so I decided to use the numbers provided by Refinitiv. The enterprise value was calculated by adding the market capitalization to the net debt, which is the total debt plus both preferred equity and minority interest, and then subtracting cash and

short-term investments. I also collect data from Refinitiv for this calculation. The table below displays the order from the highest to the lowest based on market capitalization.

Table 31 Market Data of comparable companies

Company	Ticker	Market Cap	Net Debt	Enterprise Value	Equity to Net Debt
Orange	ORA	27 409	42 583	69 992	155%
Telefonica	TEF	20 322	41 674	61 996	205%
Vodafone	VOD	21 761	33 375	55 136	153%
BT Group	BT.L	14 209	19 940	34 149	140%
Royal KPN	KPN	12 308	5 964	18 272	48%
MTN Group	MTN	10 787	3 423	14 210	32%
Telefonica Deutschland	O2D	6 984	4 049	11 033	58%
Telecom Italia	TLIT	6 336	30 487	36 823	481%
Liberty Global	LBTYA	6 161	11 149	17 310	181%
Hellenic telecom	OTE	5 392	624	6 017	12%
Freenet AG	FNTN	3 013	544	3 557	18%
Proximus	PROX	2 877	3 501	6 378	122%

Source: own presentation

Table 32 Market Financial Data of comparable companies

Company	Financials				
	Revenue	EBITDA	EBITDA margin %	Net Income	OpFCF
Vodafone Group	44 447	13 799	31%	12 335	18 054
BT Group	23 923	9 178	38%	2 205	7 784
Liberty Global	6 929	2 191	32%	- 3 583	2 003
MTN Group	11 097	4 509	40%	202	3 216
Orange	44 122	13 035	29%	2 892	12 054
Royal KPN	5 480	2 420	44%	844	2 242
Telecom Italia	16 296	5 710	35%	- 441	3 944
Telefonica	40 652	11 390	28%	- 574	11 649
Telefonica Deutschland	8 614	2 604	30%	273	2 426
Proximus	5 993	1 786	30%	357	1 620
Hellenic telecom	3 469	1 382	40%	532	1 195
Freenet AG	2 627	500	19%	156	398

Source: own presentation

Then, because size is not enough, it's crucial to examine the profitability profiles of comparable companies. As such, I've collected pertinent financial data as suggested by Joshua Pearl and Joshua Rosenbaum (Rosenbaum, 2009). This includes Revenue, EBITDA, Net Income, and Operating Free Cash Flow. I chose not to include EBIT in my analysis because the telecommunications sector is characterized by high capital expenditures in infrastructure, leading to significant depreciation and amortization.

Lastly, after disseminating the crucial financial figures, I then undertake the computation of the applicable trading multiples for the universe of comparable entities. According to Joshua Pearl and Joshua Rosenbaum (Rosenbaum, 2009), different industries might use unique or industry-specific valuation multiples, the most universal and frequently used multiples use a market valuation metric in the numerator (for instance, enterprise value, equity value) and a global measure of financial performance in the denominator (like EBITDA, sales, net income). When it comes to enterprise value multiples, the denominator uses a financial figure that is applicable to both debt and equity holders, such as sales, EBITDA, and EBIT. For equity value multiples, the denominator should be a financial figure that is relevant only to equity holders, such as net income. Among these multiples, EV/EBITDA and P/E are the most prevalent.

In this case, I have chosen the multiples: EV/Sales, EV/EBITDA and EV/OpFCF and the reason is because those are the most often used for the telecommunication industry due to its nature. I have also thought about the EV/EBIT multiple but is not commonly used in the telecommunications industry and this is largely because telecommunications companies that own and operate infrastructure tend to hold large high-value of fixed assets, which are subject to high rates of depreciation. These depreciation expenses can distort the EBIT figure, making the EV/EBIT multiple less useful for comparison. In addition, I have thought about the P/E multiple and computed it but there was a lot of disparity between companies and the reason is the same as I referred to EV/EBIT.

Company	Valuation			
	EV/Sales	EV/EBITDA	P/E	EV/OpFCF
Vodafone Group Plc	1.2x	4.0x	1.8x	3.1x
BT Group	1.4x	3.7x	6.4x	4.4x
Liberty Global	2.7x	8.4x	-1.7x	9.2x
MTN Group	1.3x	3.2x	53.5x	4.4x
Orange	1.6x	5.4x	9.5x	5.8x
Royal KPN	3.3x	7.6x	14.6x	8.1x
Telecom Italia	2.3x	6.4x	-4.4x	9.3x
Telefonica	1.5x	5.4x	-35.4x	5.3x
Telefonica Deutschland	1.3x	4.2x	25.6x	4.5x
Proximus	1.1x	3.6x	8.1x	3.9x
Hellenic telecom	1.7x	4.4x	10.1x	5.0x
Freenet AG	1.4x	7.1x	19.3x	8.9x

Table 33 Valuation multiples of comparable companies

Source: own presentation

5.2.4 Step Four – Benchmark the Comparable Companies

After narrowing down from an initial list of eleven potential peers, it becomes clear from the data that for Vodafone most comparable companies in terms of market capitalization and enterprise value are **Orange**, **Telefonica**, **BT Group**, and **Telecom Italia**. These competitors also share a similar capital structure with Vodafone, making them its primary peers at present.

However, the table 32 demonstrates that **Liberty Global**, **Telecom Italia**, and **Telefonica** incurred a negative net income, marking a significant disparity in profitability compared to Vodafone, which recorded the highest net income margin. Consequently, I chose to exclude them.

From a geographical perspective, the decision was made to exclude **MTN Group**, due to their main segment is Africa and does not reflect the business profile of Vodafone. The last decision to set the peer list for the purpose of valuation was to

remove **Freenet AG** and **Royal KPN** because of the higher multiples when compared to the other companies of the list, as you can see in table 33.

Table 34 Final List of comparable companies

Company	Valuation		
	EV/Sales	EV/EBITDA	EV/OpFCF
Vodafone Group Plc	1.2x	4.0x	3.1x
BT Group	1.4x	3.7x	4.4x
Orange	1.6x	5.4x	5.8x
Telefonica Deutschland	1.3x	4.2x	4.5x
Proximus	1.1x	3.6x	3.9x
Hellenic telecom	1.7x	4.4x	5.0x

Source: own presentation

Table 35 Multiples metrics

Metrics	Valuation		
	EV/Sales	EV/EBITDA	EV/OpFCF
Max	1.7x	5.4x	5.8x
75th Percentile	1.6x	4.4x	5.0x
Average	**1.4x**	**4.3x**	**4.7x**
Median	**1.4x**	**4.2x**	**4.5x**
25th Percentile	1.3x	3.7x	4.4x
Min	1.1x	3.6x	3.9x

Source: own presentation

Companies in Vodafone's sector tend to trade based on forward EV/EBITDA multiples. Therefore, I framed the valuation of Vodafone on the basis of the forward EV/EBITDA multiples for its closest comparables, selecting ranges of 3.6x to 5.4x 2023E EBITDA.

Table 36 Enterprise Value / EBITDA valuation

EBITDA	Metric	Multiple Range	Implied Enterprise Value
2023E	**13 799**	**3.6x - 5.4x**	**49 275 - 74 095**

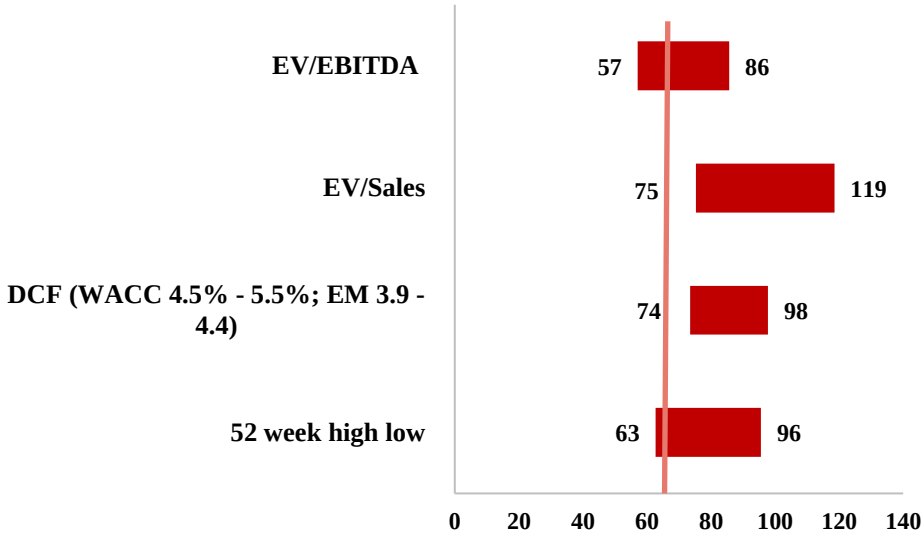
Source: own presentation

Also, using the median to find a final target price I have reached a Vodafone's share price of 80/sh GBX only using EV/EBITDA that the share price of Vodafone using only EV/EBITDA is **80/sh GBX**, representing a 17% upside potential from April 19th, 2024, that registered a closing price of **67/sh GBX.**

5.3 Summary of Valuation

In this chapter, I used a football field chart as a summarizing tool. This chart effectively showcases the range of values obtained from different valuation methods, namely the Discounted Cash Flow (DCF) and market multiples. By displaying the minimum and maximum values from each approach along with the market share price represented by the bar, the chart offers a complete perspective on the possible intrinsic value. This allows an investor to gain a holistic understanding of Vodafone's valuation, thereby aiding in making an informed investment decision.

Figure 16 Football Field Valuation



Source: own presentation

6 Investment Risks

In this chapter, I address the investment risks linked with Vodafone and the industry it operates within. Firstly, I will discuss financial risks, followed by regulatory risks, market risks, and finally, operational risks. At the end of this chapter, a graphical representation ranks all risks based on their impact and probability.

6.1 FINANCIAL RISK

6.1.1 Inflation (FR1)

Unfavourable shifts in the economy may lead to decreased consumer spending, increased interest rates, adverse inflation, currency devaluations, or fluctuations in foreign exchange rates. Adverse circumstances may also result in fewer possibilities for debt refinancing and/or higher expenses.

The European Central Bank (ECB) anticipates a significant decrease in inflation from 5.4% in 2023 to 2.3% in 2024, further declining to 2.0% in 2025 and 1.9% in 2026 (Europe Central Bank, 2024). This decline in inflation is largely positive, especially considering consumers' sensitivity to prices. In recent years, there has been a period of high inflation, during which Vodafone opted not to adjust prices in line with inflation, aiming to safeguard consumers and avoid losing them to peers. However, this strategy poses a notable risk concerning increased costs in supplies, such as energy consumption.

6.1.2 Interest Rates (FR2)

Given the current uncertainty in financial markets regarding the economic landscape, particularly the potential for rising interest rates, OECD's forecast for the Euro area (comprising 17 countries) indicates a rise in the long-term interest rate until 2025, followed by a gradual decline (OECD, 2022). This uncertainty could result in higher borrowing costs and increased volatility in debt costs going forward. Moreover,

there may be challenges in meeting financial or operational obligations promptly due to these uncertainties. These factors could lead to a significant rise in the cost of capital.

6.1.3 Exchange Rates (FR3)

Due to its international operations, Vodafone seeks financing in the same currency as the revenues of the projects it invests in. Also, payments to suppliers may be denominated in different currencies. Vodafone's greatest exposure is to the EUR/GBP exchange rate since 15% of its 2023 revenues come from the UK. To mitigate these risks, Vodafone employs hedging strategies for foreign currency denominated borrowings and investments. The company uses a mix of cross-currency and foreign exchange swaps to hedge against exposure to foreign exchange and interest rate fluctuations (Vodafone, 2023).

6.2 REGULATORY RISK

6.2.1 Changes in Regulation (RR1)

In Europe, telecommunications companies face numerous of regulatory requirements, making it one of the most heavily regulated sectors. Typically, these companies manage several compliance programs. Apart from industry-specific obligations, they must navigate regulations covering areas such as sales conduct, privacy, and safety. Dealing with these diverse and intricate compliance risks demands significant time and resources.

6.3 MARKET RISK

6.3.1 Disintermediation (MR1)

If Vodafone fails to address the threats from emerging technology or disruptive business models, it risks losing customer relevance, market share, and potential revenue streams, the definition of disintermediation.

This escalating risk is prevalent across the industry and impacts all companies within it. To mitigate this challenge, Vodafone must prioritize customer relationships

by offering innovative and transformative products and services that extend beyond their traditional connectivity offerings. Vodafone's strategy entails simplifying its organizational complexity by refining its product portfolio, optimizing its operating model, and accelerating its digital transformation efforts.

6.3.2 Adverse Market Competition (MR2)

The telecommunications industry is characterized by the significant activity of peers, with price wars, new market entrants, alliances between peers and others related to the software industry, which may reduce margins, market share and increase customer churn (Vodafone, 2023).

When addressing this concern, Vodafone must assess its geographic segments individually to evaluate the associated risks. For example, in Portugal, there are three primary operators—Vodafone, Altice, and NOS—alongside a minor player, Nowo, holding a small market share. With limited competition, pricing wars in this market are reduced, and Vodafone enjoys a significant market share. However, in Spain, there are four major operators—Orange Spain, Telefonica Spain, Vodafone Spain, and MasMovil Ibercom—and over one hundred smaller operators functioning as Mobile Virtual Network Operators (MVNOs) by reselling the networks of larger companies. In this competitive landscape, Vodafone faces intensified pricing competition and must plan comprehensive strategies to maintain its market share (MordorIntelligence, 2023).

6.4 OPERATIONAL RISK

6.4.1 Cyber Threat (OR1)

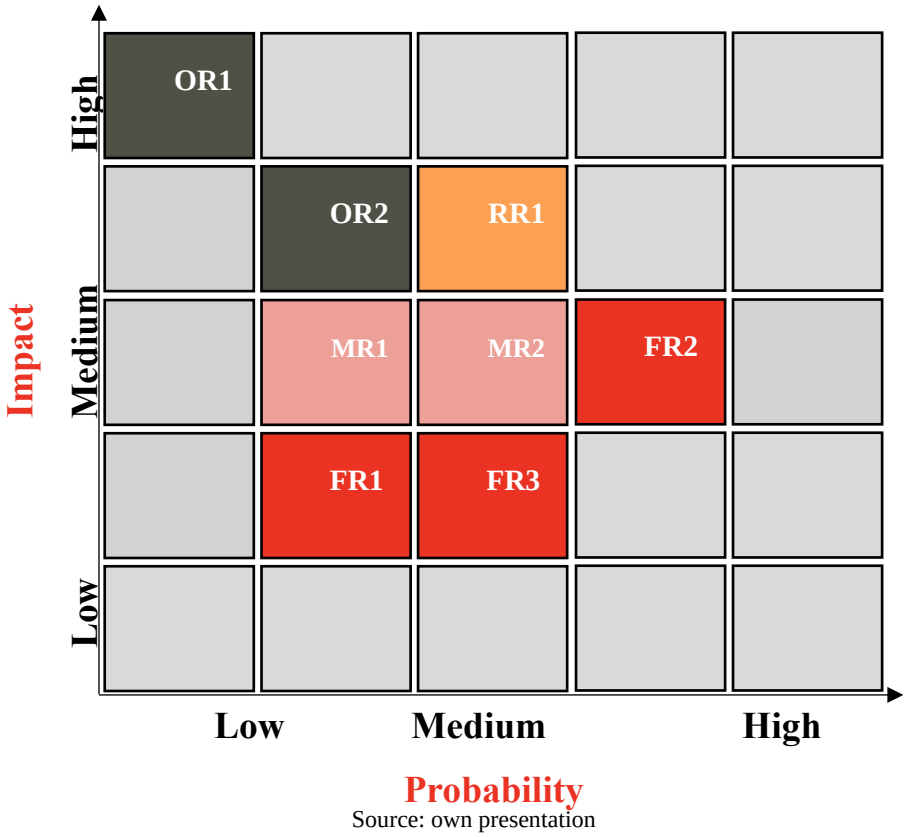
Cyber threats pose a significant risk to companies in the telecommunications industry and are constantly evolving in line with technological and geopolitical developments. Telecommunication companies such as Vodafone manage huge volumes of data within an industry known for its constant innovation. This innovation, while advantageous, also introduces risks. For instance, the launch of new technologies like 4G, 5G, and the anticipated 6G can potentially unveil vulnerabilities

that malicious actors may exploit. Additionally, the integrity of vendor software poses a significant risk, given that telecom companies rely on multiple vendors for their software requirements. Any compromise within the software supply chain could potentially result in breaches within the telecommunication systems (Vodafone, 2023).

6.4.2 Data Management and Privacy (OR2)

Data management and privacy have undergone an extreme transformation, marked by exponential growth and heightened importance across industries. Now more than ever, businesses like Vodafone find themselves with a record volume of data. Instances such as data breaches, misuse, manipulation, inappropriate sharing, or unavailability of data pose significant risks to Vodafone. These risks include potential fines, damage to Vodafone's reputation, loss of value, missed business opportunities, and failure to meet customer expectations. Ineffectively managing the privacy of Vodafone stakeholders' data in line with regulations could lead to regulatory penalties, substantial compensation payments to affected individuals, and reputational harm, potentially resulting in increased customer turnover (Vodafone, 2023).

Figure 17 Risk Matrix



Source: own presentation

6.5 Sensitivity Analysis

The Discounted Cash Flow (DCF) method relies on several assumptions, each capable of significantly influence the valuation. Hence, rather than yielding a single value, the DCF result is interpreted as a range of values, determined by adjusting crucial input assumptions. This process of establishing a valuation range through modifying key inputs is referred to as sensitivity analysis.

In my sensitivity analysis, as the present Terminal Value is very sensitive to the exit multiple and the discount rate to perpetuity - in this case, the WACC - I vary the WACC between 4.0% and 6% and the exit multiple between 3.6 and 4.6. The share price obtained for each scenario is presented in the following table.

Table 37 Sensitivity analysis

		WACC				
		4,0%	4,5%	5,0%	5,5%	6,0%
Exit Multiple (EV/EBITDA)	3,6	74,8	71,1	67,5	64,0	60,7
	3,9	85,1	81,1	77,2	73,5	69,9
	4,2	95,4	91,1	87,0	82,9	79,1
	4,4	102,3	97,8	93,4	89,2	85,2
	4,6	109,2	104,5	99,9	95,5	91,3

Source: own presentation

The center shaded in blue is the share price of my DCF (87.0 GBX), the best scenario is in green (109.2 GBX) and the worst scenario is in red (60.7 GBX). This wide range highlights the importance of the assumptions made in the DCF model and highlights the potential change in the valuation. Therefore, it's crucial to consider this range when making investment decisions or financial forecasts based on the DCF valuation, because these changes can consequently change the final recommendation.

Conclusion

In my view, the decline in Vodafone's stock price over the past two years can be attributed to the reasons mentioned in the chapter of business overview. However, I believe that the market is not fully appreciating the strategic decisions made by Margherita Della Valle and is overlooking the broader strategy at play and, despite the challenges, there are reasons to believe in a better future for Vodafone.

The primary reason for Vodafone's divestment from Italy and Spain was the lack of value creation in these markets due to low EBITDA margins, intense price competition, and a significant cash flow disparity with competitors in these segments. As a result, Vodafone has shifted its focus to its primary market, Germany, where it holds a strong position just behind Deutsche Telekom. The UK - being the second market - and the rest of Europe, where Vodafone has a competitive edge and robust EBITDA margins, are also areas of focus.

Furthermore, Vodafone has strategically divided its revenue into two categories: consumer revenue and business revenue. The company's vision is clear and ambitious: to emerge as a top-tier telecommunications company in Europe and Africa, and to position itself as Europe's premier platform for Business, with the partnership of Microsoft.

I believe this strategy is solid and will yield positive results in the future. By focusing on markets where it has a competitive advantage and strong EBITDA margins, Vodafone is positioning itself for sustainable growth. This approach, coupled with a clear division of revenue streams, should enhance the company's resilience and profitability, ultimately benefiting its shareholders.

Nevertheless, predicting Vodafone's exact bottom of the stock price is indeed challenging due to the numerous factors at play. In this case, the company's revenues in 2024 are not projected to match expectations due to the significant transactions and uncertainties involved. The divestments have fundamentally changed Vodafone's business model and revenue structure and have caused uncertainty among investors about the future revenue potential of the company. This uncertainty, coupled with the

broader economic conditions and industry trends, could potentially lead to a further decrease in Vodafone's stock price. However, it is important to note that while stock prices may go down in the short term due to these factors, the long-term performance of a company's stock is typically driven by its underlying business performance.

In spite of that, this shift in strategy presents risks and the execution risk lies in the company's ability to successfully implement the new strategy, particularly in the face of the ongoing industry challenges, but Vodafone is facing these challenges and also partner with companies that will drive success. Although, the triumph of the strategy depends on several factors, including the company's ability to keep its competitive position in its primary markets, manage costs effectively, and successfully navigate the ongoing technological shifts in the industry.

In conclusion, does the investment in Vodafone is worth after all? If you are looking for a quick return on your investment, Vodafone may not be the best choice. This is a long-term investment strategy that takes on Vodafone's transformation into a leading player in European markets such as Germany, the UK, and Central Europe. It also aims to dictate the business segment across its geographic footprint and secure a leadership position in Africa, where Vodafone already has a strong presence and profitability. The divestments are strategic moves to free up capital for investment in these focus markets, to become a top-tier telecommunications provider. The successful execution and impact of this strategy are expected to materialize over two to five years. Moreover, as previously stated, Vodafone's stock is currently near its lowest price, so betting on the best time to buy is uncertain. However, the focus should be less on timing the market and more on time spent in the market. In sum, the recommendation is to invest now and, if the price dips further, to reinforce your investment, reducing the average cost of the stock in your portfolio, while collecting dividends.

Hence, patience and a long-term investment perspective are crucial when investing in Vodafone.

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List of Figures, Tables, and Abbreviations

List of Figures

List of Tables

List of Abbreviations

AMAP – Africa, Middle East, Asia-Pacific

CAPEX – Capital Expenditures

CAPM – Capital Asset Pricing Model

CCC – Cash Conversion Cycle

CEO – Chief Executive Officer

CFO – Chief Financial Officer

DA – Depreciation and Amortization

DIO – Days Inventory Holding

DPO – Days Payable Outstanding

DSO – Days Sales Outstanding

DCF – Discounted Cash Flow

EBITDA – Earnings Before Interest, Tax, Depreciation and Amortization

EBIT – Earnings Before Interest and Tax

EMM – Exit Multiple Method

EM – Exit Multiple

ESG – Environmental, Social and Governance

FCF – Free Cash Flow

FCFF – Free Cash Flow to the Firm

EV – Enterprise Value

NOPAT – Net Operating Profit After Taxes

ROA – Return on Assets

ROE – Return on Equity

ROCE – Return on Capital Employed

ROIC – Return on Invested Capital

WACC – Weighted Average Cost of Capital

TV – Terminal Value

List of Annexes

Annex A – Income Statement

Income Statement (Annual)	2018	2019	2020	2021	2022	2023
	€m	€m	€m	€m	€m	€m
Revenue	**46 571**	**43 666**	**44 974**	**43 809**	**45 580**	**45 706**
Cost of sales	(32 771)	(30 160)	(30 682)	(30 086)	(30 574)	(30 850)
Gross Profit	**13 800**	**13 506**	**14 292**	**13 723**	**15 006**	**14 856**
Selling and distribution expenses	(4 011)	(3 891)	(3 814)	(3 522)	(3 358)	(3 329)
Administrative expenses	(5 644)	(5 410)	(5 810)	(5 350)	(5 713)	(6 092)
Net credit losses on financial assets		(575)	(660)	(664)	(561)	(606)
Share of equity and JV investments	(59)	(908)	(2 505)	342	211	433
Impairment loss	-	(3 525)	(1 685)	-	-	(64)
Other income/(expense)	213	(148)	4 281	568	79	9 098
Operating profit (loss)	**4 299**	**(951)**	**4 099**	**5 097**	**5 664**	**14 296**
Non-operating expenses	(32)	(7)	(3)	-	-	
Investment income	685	433	248	330	254	248
Financing costs	(1 074)	(2 088)	(3 549)	(1 027)	(1 964)	(1 728)
Profit(loss) before taxation	**3 878**	**(2 613)**	**795**	**4 400**	**3 954**	**12 816**
Income tax expense	879	(1 496)	(1 250)	(3 864)	(1 330)	(481)
Tax rate %	*-23%*	*-57%*	*157%*	*88%*	*34%*	*4%*
Profit(loss) from continuing operations	**4 757**	**(4 109)**	**(455)**	**536**	**2 624**	**12 335**
Profit(loss) from discontinued operations	**(1 969)**	**(3 535)**	**-**	**-**	**-**	**-**
Net profit	**2 788**	**(7 644)**	**(455)**	**536**	**2 624**	**12 335**

Annex B – Balance Sheet

Balance Sheet (annual)	2018	2019	2020	2021	2022	2023
	€m	€m	€m	€m	€m	€m
Goodwill	26 734	23 353	31 378	31 731	31 884	27 615
Other intangible assets	16 523	17 652	22 631	21 818	21 360	19 592
PPE	28 325	27 432	40 113	41 243	40 804	37 992
Investment in associates	2 538	3 952	5 831	4 670	5 323	11 079
Other investments	3 204	870	792	925	1 073	1 093
DTAs	26 200	24 753	23 606	21 569	19 089	19 316
Post employment benefits	110	94	590	60	555	329
Trade and other receivables	4 026	5 170	10 393	4 777	6 383	7 843
Non current assets	**107 660**	**103 276**	**135 334**	**126 793**	**126 471**	**124 859**
Inventory	581	714	598	676	836	956
Taxation recoverable	106	264	278	434	296	279
Trade and receivables	9 975	12 190	11 724	10 923	11 019	10 705
Other investments	8 795	13 012	7 089	9 159	7 931	7 017
Cash and cash equivalents	4 674	13 637	13 557	5 821	7 496	11 705
Bank overdrafts	*720*	*(32)*	*(269)*	*(31)*	*(125)*	*-77*
Assets held for sale	13 820	(231)	(412)	1 257	-	-
Current assets	**37 951**	**39 586**	**32 834**	**28 270**	**27 578**	**30 662**
Total assets	**145 611**	**142 862**	**168 168**	**155 063**	**154 049**	**155 521**
Called up share capital	4 796	4 796	4 797	4 797	4 797	4 797
Paid in capital	150 197	152 503	152 629	150 812	149 018	149 145
Treasury shares	(8 463)	(7 875)	(7 802)	(6 172)	(7 278)	(7 719)
Accumulated losses	(106 695)	(116 725)	(120 349)	(121 587)	(122 022)	(113 086)
Acummulated other comprehensive income	27 805	29 519	32 135	27 954	30 268	30 262
Equity attributable to owners of the parent	**67 640**	**62 218**	**61 410**	**55 804**	**54 783**	**63 399**
Minorty interests	967	1 227	1 215	2 012	2 290	1 084
Total equity	**68 607**	**63 445**	**62 625**	**57 816**	**57 073**	**64 483**
Borrowings	32 908	48 685	62 949	59 272	58 131	51 669
DTLs	644	478	2 103	2 095	520	771
Post employment benefits	520	551	438	513	281	258
Provisions	1 065	1 242	1 479	1 747	1 881	1 572
Trade and other payables	2 843	2 938	5 189	4 909	2 516	2 184
Non current liabilities	**37 980**	**53 894**	**72 158**	**68 536**	**63 329**	**56 454**
Borrowings	10 351	4 270	11 976	8 488	11 961	14 721
Financial liabilities under put option agreements		1 844	1 850	492	494	485
Taxation liabilities	541	596	787	769	864	457
Provisions	891	1 160	1 053	892	667	674
Trade and other payables	16 242	17 653	17 719	18 070	19 661	18 247
Liabilities held for sale	10 999	-	-	-	-	-
Current liabilities	**39 024**	**25 523**	**33 385**	**28 711**	**33 647**	**34 584**
Total liabilities and equity	**145 611**	**142 862**	**168 168**	**155 063**	**154 049**	**155 521**