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Valuation of *Vodafone Group*, 20 May 2014

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Abstract

This thesis answers the main research question: "What are the enterprise value and the fundamental share value of *Vodafone Group* as of May 20th, 2014?" By using Monte Carlo simulations to estimate these values, the single enterprise value with the highest likelihood is found to be GBP 87.5bn, while the mean of the total probability distribution is calculated as GBP 94.1bn. Accordingly, the most likely fundamental share value is estimated to be GBP 2.23 with a mean value of GBP 2.48.

In order to answer the main research question, the present thesis follows a structure guided by the following research sub-questions:

- Which strategic factors, both on macro and micro level, are relevant to *Vodafone*, and how do they affect the valuation of the company?
- What are *Vodafone*'s sustainable competitive advantages?
- How has *Vodafone* been performing financially in the recent years?
- How is *Vodafone* expected to perform in the future?

By applying the PEST analysis and Porter's Five Forces analysis, the firm's business environment is analyzed in detail, finding that the rapid increase in demand for data services and the development of new technologies are amongst the biggest opportunities for *Vodafone*, while regulatory pressures, the strong competition, and the market saturation comprise its main threats.

A strategic analysis of *Vodafone*'s resources and capabilities is conducted, using the VRIO framework. The group's global footprint, its superior network (infrastructure), and its strong brand are identified as sustainable competitive advantages.

Following the DuPont-Model, *Vodafone*'s past financial statements are reformulated to distinguish operating from financing activities, are adjusted, and are analyzed as well as compared with peers. This allows to project the company's performance into the future, with an explicit forecasting period of five years followed by a terminal period.

Based on these forecasts, the adjusted present value model is used in combination with Monte Carlo simulations in order to estimate firm and share value. A sensitivity analysis is performed, so as to critically assess the valuation. Lastly, the results are tested against other network operators using comparative multiples, finding that the values found reflect a representative assessment of *Vodafone*'s value and its share value as of May 20th, 2014.

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1. Introduction

The world has undergone tremendous changes since the mid-1980s: Several financial crises have hit various economies in different regions on the globe or the entire world (such as the Asian financial crisis of 1997, and the global financial crisis of 2007-2008), bubbles were created and some of them burst (e.g. the dot-com bubble in the early 2000s), and technological developments have led to new products, new companies and new industries, some of which have drastically changed the way we live, we work, and we communicate.

A prominent example of such a product and technology that affects the lives of the vast majority of people worldwide every day is wireless communication. With the unprecedented growth starting in the mid-1980s, mobile communication influences other sectors, entire economies, and even society as a whole. In the last decades, it fostered economic growth, particularly in emerging markets, and enabled everyone to communicate across countries and time zones.

With about five billion subscribers to wireless telecommunication services today, this industry is one of the largest in the world. According to Forbes (2014), four of the 40 biggest public companies worldwide are wireless communication service providers: *AT&T*, *Verizon Communications*, *China Mobile*, and *Vodafone Group [Vodafone]*.

This industry is characterized by many, sometimes extremely large, mergers, acquisitions and disposals. Several of the largest acquisitions in corporate history are related to mobile network operators (Badkar, 2014). Especially *Vodafone* has been part of massive transactions: Its takeover of the German *Mannesmann AG* in 2000 (worth USD 181bn (Naik & Raghavan, 2000)) and its disposal of its 45% interest in *Verizon Wireless* in 2014 (worth USD 130bn (Moritz & Thomson, 2013)) are the second and third biggest mega-deal of all time. After the latter deal was announced, rumors started to spread that *Vodafone* itself could be taken over (Campbell & McCracken, 2013).

Given the importance of this industry to everyday life, the fact that big acquisitions characterize the wireless telecommunication services industry, and the actuality of *Vodafone*'s *Verizon* deal, this thesis focuses on *Vodafone* and its value. By using contemporary strategic analysis frameworks and theories, this thesis helps understanding the wireless communication industry today and *Vodafone* in particular, and with the valuation techniques described in Petersen & Plenborg (2012) and Koller, Goedhart, & Wessels (2010), the fundamental stock value of *Vodafone* is estimated.

2. Problem Definition

This thesis has one overall objective, namely to answer the following main research question:

What are the enterprise value and the fundamental share value of *Vodafone Group* as of May 20th, 2014?

In order to answer this question, a holistic view of *Vodafone*, its operations, and the global wireless telecommunication services industry is needed. Therefore, this thesis answers the following sub-questions:

- Which strategic factors, both on macro and micro level, are relevant to *Vodafone*, and how do they affect the valuation of the company?
- What are *Vodafone*'s sustainable competitive advantages?
- How has *Vodafone* been performing financially in the recent years?
- How is *Vodafone* expected to perform in the future?

The date of the valuation has been selected to be May 20th, 2014 for two reasons. Firstly, it is the date of the publication of *Vodafone*'s most recent annual report (the firm's financial year started on April 1st, 2013 and ended on March 31st, 2014). Secondly, it is the date of the first published report of the company¹ after the disposal of its 45% stake in *Verizon Wireless*. Hence, the (financial) information included describes the (financial) position after the mega-deal which lowered the firm value significantly. This information will be used to forecast *Vodafone*'s future performance of ongoing operations.

The research of this thesis is considered relevant to any investor who considers purchasing *Vodafone* shares: both small, private investors, as well as large equity investors or companies who are interested in buying a share in the firm.

The main structure of the present thesis follows the overarching research question and the various subquestions stated above. Although there exist numerous other analyses, models, and frameworks which could support the determination of *Vodafone*'s share value, the ones used in this thesis are considered to be the most relevant, and thus the most important. The next subsection explains the overall structure of the thesis and sets up the common thread that runs through the entire paper.

2.1 Thesis Structure

Following the general introduction to the mobile communication industry and the definition of a research question above, this thesis continues with the method section in chapter three. Various models, theories and frameworks will be explained and assessed. Furthermore, it will be discussed which theories are considered as the most suitable to describe *Vodafone*'s business environment, to analyze its (future) potential, and ultimately to estimate the value of the firm and its shares. This section is essential to understanding the results of the analyses and their implications.

In the fourth chapter, *Vodafone* will be presented. The history of the firm will be described briefly, starting from its foundation in 1984, up until its most recent activities, particularly the sale of the 45% stake in

¹ In the following, the terms company, firm, group, and organization are used interchangeably.

Verizon Wireless in February 2014. In addition, the company's business structure and operating markets are analyzed in brief in order to explain *Vodafone*'s present day operations. That section is considered very important, since it appears hard to understand a company and its valuation without grasping its background.

The subsequent chapter five comprises a strategic analysis of *Vodafone* and its business environment, and is divided into three parts. Firstly, an analysis is presented of the firm's macro-environment, and how various macro factors impact the group's performance and results. Secondly, by analyzing the wireless telecommunication services industry, the firm's micro-environment is discussed in detail. Thirdly, an internal analysis is presented, which is to determine *Vodafone*'s competitive advantages and its general strengths and weaknesses. The overall goal of this chapter is to shed light on the firm's business from various perspectives and on different levels, as a basis to gauge *Vodafone*'s future potential for value creation.

The strategic analysis is followed by a financial analysis in chapter six. In a first step, *Vodafone*'s financial statements of the last six years will be reformulated to separate operating items from financing items. In a second step, these reformulated financial statements will be used to conduct a profitability analysis of the past years. The results are crucial for revealing the key drivers of the company's most recent performance, which in turn are needed to estimate its future performance.

A forecast is presented in chapter seven, pro forma income statements, balance sheets and cash flow statements will be provided for the forecasted period. These will be based on the results of the strategic analysis and reformulated financial statements of the previous sections five and six, and will follow the approach of Petersen & Plenborg (2012).

Chapter eight intends to answer the overall research question by ultimately valuing *Vodafone* as a company and its shares, respectively. To this end, several variables and inputs will be calculated through thorough analysis. On this basis, a sensitivity analysis will be conducted, followed by a multiples comparison with peers as a sanity check.

The final chapter will conclude the thesis' results and findings, and provide final answers to the overall research question and the sub-questions.

2.2 Delimitations

Throughout the work process of this thesis, certain delimitations needed to be made, so as to achieve a level of information and analysis that is manageable and appropriate in this context.

This thesis aims at estimating the value of *Vodafone Group* from an investor's point of view, who is an outsider to the firm. Therefore, only information is used which is publicly available. That applies to information about both the firm as such, and the industry or the macro-environment in which the company is operating. *Vodafone Group* has subsidiaries and operations in numerous countries on several continents and partnerships with companies in even more countries worldwide. The set of factors and parameters impacting the firm's activities and performance might be different from market to market. Despite this, the present thesis generally treats *Vodafone* as a single entity (except in revenue forecasting). This is reasonable, since none of the single subsidiaries accounts for the majority of the total firm value, or is expected to be a primary driver for future company value.

Vodafone's financial statements will be reformulated and analyzed only back to the financial year 2008/2009. As stated before, the telecom industry is characterized by numerous acquisitions (or disposals), some of which are on a very large scale. *Vodafone*, for instance, acquired several companies in the last three years, some of which worth billions of GBP, e.g. the acquisition of *Cable & Wireless Worldwide* in 2012 for GBP 1.04bn (Browning & Campbell, 2012), the acquisition of *Kabel Deutschland AG* in 2014 for EUR 7.7bn (Kirchfeld, Thomson, & Rahn, 2013), and the disposal of a 45% stake in *Verizon Wireless* in 2014 for USD 130bn (Moritz & Thomson, 2013). However, in order to get comparable and meaningful results in the financial analysis of the past, it is required to have financial statements which are based on a same level of operations over the years considered. Major acquisitions and disposals obviously distort comparability, and would need to be calculated out of the respective financial statements. Due to the great impact of the *Verizon* disposal in the latest financial year, *Vodafone* reports restated financial statements for the financial year 2011/2012 and following. For the three years before that, it is not attempted to calculate out all acquisitions and disposals, given constraints on time and page space. Hence, there might be significant changes in the individual line items of the analytical financial statements and the profitability analysis in chapter six after the financial year 2010/2011 owed to these business transactions.

3. Methodology

The following section will explain the models that are used throughout the thesis and the theories on which they are based. These models will be critically assessed and it will be shown why the models used are the most appropriate in the context of this thesis. The first subsection will focus on the strategic analysis, while the latter subsection deals with the valuation as such.

3.1 Methodology of the Strategic Analysis

In order to perform a sound valuation, a series of analyses needs to be conducted so as to obtain relevant information, trends and dynamics that could impact the firm's future financial performance and profitability. One portion of these analyses will be of financial nature. However, Amir & Lev (1996) find that, especially for the wireless telecommunications industry, non-financial information is significantly more value-relevant

to investors. Therefore, a large portion of this thesis will first focus on a qualitative analysis of *Vodafone* and its business environment.

Johnson, Scholes, & Whittington (2008) characterize the environment of a company as a series of layers. The outer, most general layer is referred to as the firm's macro-environment and consists of those environmental factors that impact more or less all companies. The second layer represents the sector, or the industry. This micro-environment consists of various firms that offer and/or produce similar products and services. Lastly, the core inside these layers is the company itself with all its unique resources and capabilities. This thesis will follow this characterization, because it provides a holistic view of a firm and the environment in which it operates. In a similar way, most other contemporary strategy books also follow the external/internal division, and present extensive frameworks and models to analyze firms and markets, e.g. for valuation purposes (e.g. Barney & Hesterly (2012), Grant (2010), etc.).

To analyze the macro-environment, the PEST framework is chosen. Based on the underlying theory that a firm's strategy and success, to a large extent, is dependent on external macro factors, this framework describes the political, economic, social, and technological environment of the company. Although there is hardly any doubt that this framework is very useful to analyze the macro-environment from various perspectives, there have been a lot of discussions whether further dimensions should be added. Most prominently, PESTEL (or PESTLE) add the legal and environmental dimensions. Other versions, such as PESTLIED, STEEPLE, LONGPESTLE, etc. further add ethical, international or global aspects (MindTools, 2014). However, it is argued that all these additional dimensions (e.g. ethics and demographics can be viewed as subcomponents of the social dimension) are covered by the original PEST model, and therefore the simple version will be used to answer the related research sub-question.

In recent years, there has been much debate about the best model to analyze a firm's micro environment. The most common model is the so called Porter's Five Forces framework (Porter, 1979), which considers the forces that have an impact on a firm's ability to make profits and serve its customers: the rivalry between existing competitors, the threat of new entrants and of substitute products, and the bargaining power of both suppliers and buyers. However, this framework has been criticized for the following reasons. It is argued that there are different forces, depending on the stage of the value chain, and that a single analysis is not useful for companies that span several value chains or industries. Furthermore, Nell (2011) concludes that Porter's Five Forces are less useful in dynamic markets, as innovation (and with it other forces like start-up companies) has the largest external impact on firms. Accordingly, new frameworks have arisen, such as the eco-system framework (Cool, 2013), which is able to capture the dynamic interactions of companies with specific groups of actors that they engage with on a regular basis.

However, it is argued that *Vodafone* is only operating in one industry, the wireless telecommunications industry, and is spanning only one value chain. As will be discussed later, this industry is heavily regulated,

needs substantial investments to enter, and is therefore dominated by long-established players. Hence, while the eco-system framework might be more useful for describing younger industries, such as social networks or everything that is built around the internet, Porter's Five Forces is still an appropriate framework to analyze *Vodafone*'s micro-environment. This conclusion is supported by recent literature, e.g. by Sutherland (2014), who finds that "the 'Five Forces' model is a useful tool [...] in a heavily regulated market" and specifically the telecommunications market, and e.g. by Grundy (2006), who states that the model still has significant potential when combining and interrelating it with other tools, such as PEST, or when examining sub-forces. Both is done in this thesis.

Finally, for the internal analysis, *Vodafone*'s resources and capabilities will be evaluated with the VRIO framework which is based on the resource based view (Barney & Hesterly, 2012). This well-known and established model suggests that those resources or capabilities that are valuable, rare, inimitable and can be exploited by the firm are the sources of sustained competitive advantages.

3.2 Valuation Method

Petersen & Plenborg (2012) summarize various approaches to valuation: present value approaches, relative valuation models, and the liquidation approach. This thesis has decided for the first, as the relative valuation only delivers useful and reasonable results under a set of assumptions that are hardly accurate (e.g. the same discount, growth, and tax rates across firms), and the liquidation approach tends to underestimate the value of the firm compared to its value as an ongoing concern (Petersen & Plenborg, 2012).

There also exist a number of different present value approaches, e.g. the discounted cash flow (DCF) and the residual income approach. Although these two approaches are theoretically equivalent, "finance literature has argued in favor of the DCF approach for firm valuation since it is unaffected by accounting methods" (Plenborg, 2002). From the set of DCF models, the adjusted present value (APV) approach has the "attractive feature" that the value of the tax shield is measured separately (Petersen & Plenborg, 2012). In addition, Koller, Goedhart, & Wessels (2010) recommend the APV method for companies with changing debt-to-value ratios. As will be discussed later, this is the case for *Vodafone*. Hence, the APV model will be used in this thesis.

A two-stage model will be used, consisting of an explicit forecasting period where the various line items will be forecasted year by year, and a terminal period which assumes constant growth until eternity (Gordon Growth model). As *Vodafone* is expected to stay on an ongoing concern basis, this seems to be a reasonable model. Due to the fact that the level of uncertainty increases in each year in the future, the duration of the explicit forecasting period is set to be five years. Forecasting up to ten years or more into the future seems only reasonable for high growth firms (Damodaran, 2014B), which does not apply to *Vodafone*. Further-

more, Petersen & Plenborg (2012) state that "after no more than three or four years, [...] growth converges towards a long-term average value", thus making explicit forecasting for longer periods redundant.

Another debated topic in the area of APV calculations is the required discount rate. There is a consensus that future free cash flows need to be discounted using the required rate of return on assets (Damodaran, 2012; Koller, Goedhart, & Wessels, 2010; Petersen & Plenborg, 2012). However, some authors argue that the value of the tax shields should be discounted using the company's cost of debt (Damodaran, 2012), while others argue in favor of the return on assets as well (Koller, Goedhart, & Wessels, 2010; Petersen & Plenborg, 2012; Ruback, 2002; Harris & Pringle, 1985). The latter theory is based on the argument that interest tax shields have the same systematic risk as the company's underlying cash flows (Fernández, 2003). This thesis follows this more recent stream of thought and uses the return on assets to discount the value of tax shields.

Finally, Monte Carlo simulations will be used in order to estimate the value of *Vodafone*. The reason for this is the uncertainty that is inherent in estimating future developments and company performance. Monte Carlo simulations account for this uncertainty by calculating firm value using probability functions as inputs, instead of static values. Consequently, the output will not consist of a single number, but rather of a probability distribution as well, which shows the mean and the most likely value, as well as all other theoretical results and the respective likelihood that those are the true values. According to recent academic literature, the use of Monte Carlo simulations in valuations is very useful, as it improves the level of information and transparency significantly (Edner & Paulsson, 2013).

4. Presentation of Vodafone Group

A valuation of a business is impossible without a general understanding of the company and its background. It is therefore crucial to provide a brief overview over *Vodafone*'s past and some of the company's key milestones achieved to date. Subsequently, the mega-deal with *Verizon* in February 2014 is described shortly, as it had a major impact on the group's value. Lastly, *Vodafone*'s business structure will be analyzed, and its current operating markets are summarized, before the strategic analysis will be conducted.

4.1 Historical Overview

The history of *Vodafone* dates back to the year 1984 where it was incorporated as *Racal Strategic Radio Limited*, a subsidiary of *Racal Electronics*. The company launched the first cellular network call in the UK in 1985. It changed its name to *Racal Telecom* in 1988 and was partially listed on the London and New York Stock Exchanges in the same year (Vodafone, 2014D).

It was only in 1991 that the company and the brand name *Vodafone* were created, after the demerger from *Racal Electronics*. The name is the acronym for "voice data phone", and was chosen by the firm to "reflect the provision of voice and data services over mobile phones" (Vodafone Ireland, 2014). In the same year, *Vodafone* and *Telecom Finland* made the world's first international roaming call.

The company's internationalization started two years later, with the foundation of *Vodafone Group International*, which was to acquire licenses and supervise overseas interests. In the following years, partnerships were concluded with operators in various countries, such as Germany, France, South Africa, Hong Kong, and Australia. The group also was the first company worldwide to offer pre-pay mobile service packages in 1996, a decision that would change the mobile telecommunications market considerably (MarketLine, 2014).

The years 1999 and 2000 mark several key milestones in the corporate history. In 1999, the firm merged with the US company *AirTouch Communications*, and *Verizon Wireless* was founded, a joint venture in which *Vodafone* held a 45% stake. The company then acquired the German *Mannesmann AG* in 2000, one of the largest acquisitions in the history of business, hereby doubling the group's size. At the end of the year 2000, *Vodafone* was the fourth-largest company in the world (BBC, 2000).

In the following years, the group acquired – and also sold – stakes in telecommunication companies around the world. Countries in which *Vodafone* had interests during that period include Japan, Mexico, Switzerland, France, Turkey, India, South Africa, and Sweden. In the same period, the firm also signed various partner agreements with other network operators and mobile phone producers around the globe. By 2011, *Vodafone* had disposed of its interests in many markets, such as Japan, France, Sweden, and China (MarketLine, 2014; Vodafone Ireland, 2014). An overview over the group's current operating markets is provided in chapter 4.3.1.

Starting in the late 2000s, *Vodafone* started diversifying its portfolio and entered into business areas other than network operations. For instance, the group acquired Danish *ZYB*, a firm operating a social networking and online management tool, in 2008, and Swedish *Wayfinder Systems*, a provider of location based services, in 2009. It also partnered with several other companies to develop and launch new products, e.g. with *Bosch* to integrate their respective machine-to-machine (M2M) platforms in 2010, with *Visa* to enable customers to pay with their phones in 2012, and with *ICICI Bank* and *MoneyGram* to develop and launch the firm's mobile money transfer and payment service *M-Pesa* in 2013 or 2014, respectively.

Additionally, *Vodafone* founded *Vodafone Global Enterprise* (VGE) in 2007, a subsidiary that provides telecommunications and IT solutions to (mainly large) companies. The firm has been highly successful until today, and signed contracts with firms like *Oracle*, *Deutsche Post DHL*, *Volkswagen Group*, *BAE Systems*, *ThyssenKrupp*, but also with public organizations, such as the New Zealand Police. The success of VGE was further strengthened by the acquisition of *Cable & Wireless Worldwide* in 2012 (MarketLine, 2014).

Lately, *Vodafone* also entered the cable TV market in its major countries. In September 2013, the group acquired *Kabel Deutschland* in Germany, and in March 2014 it agreed to purchase *Ono* in Spain. These acquired companies are, or were, the largest cable TV and broadband communication service providers in their respective countries (Vodafone, 2014).

4.2 The Verizon Deal

As stated earlier, just about three months before the date that is chosen as the valuation date in this thesis, *Vodafone* sold its 45% stake in *Verizon Wireless*, for a total consideration of USD 130bn. This has been the third biggest corporate deal of all time (Badkar, 2014). As *Vodafone* is said to have lost about half of its value with this disposal (Reedy, 2014), this deal is of specific interest to this thesis.

This deal, which was sought after by *Verizon* since at least 2004, is a logical consequence of Vittorio Colao's, CEO of *Vodafone* since 2008, efforts to quit joint ventures where the group does not have full control (Moritz & Thomson, 2013). A part of the deal was also the sale of *Verizon*'s stake in *Vodafone Italy* to *Vodafone*, giving the group 100% control over all its European subsidiaries.

The total amount of USD 130bn comprises of USD 58.9bn in cash, USD 60.2bn in *Verizon* shares, USD 5bn in the form of *Verizon* loan notes, USD 3.5bn in the form of *Verizon*'s stake in *Vodafone Italy*, and USD 2.5bn through the assumption of net liabilities relating to the US Group (Vodafone, 2013).

Vodafone distributed USD 84bn (71%) of the total consideration to its shareholders; they received all *Verizon* shares and USD 23.9bn in cash as a special dividend. With the remaining proceeds, *Vodafone* was able to acquire big companies (*Kabel Deutschland* and *Ono*) and the firm announced a heavy investment program, "Project Spring", with the target to increase the group's capital expenditures in the years 2014/2015 and 2015/2016 to a total of GBP 19bn. All of these plans will play an important role in the subsequent forecasting and valuation sections in this thesis.

4.3 Vodafone Today

As of March 31st, 2014, *Vodafone* is still one of the largest telecommunication companies in the world. The group has 434 million mobile customers around the globe. It operates in 27 countries, and has mobile network partners in 48 further countries. Additionally, it has nine million fixed broadband customers in 17 different markets. *Vodafone*'s "core purpose is to empower our customers to be confidently connected [...] wherever and however they choose", and the firm is "aiming to differentiate ourselves from our competitors, by having the best network, providing the best customer experience and having the best integrated worry-free solutions" (Vodafone, 2014).

The following sub-chapters intend to give a brief overview over the group's business structure, its main products and markets, and also its major corporate governance issues as of today.

4.3.1 Vodafone's Products and Markets

All of *Vodafone*'s operations are grouped in one single division: supply of communications services and products. Its main operations, thus, are the supply of mobile phone calls, text messages, and data services over the firm's networks. The services offered are either part of contracts (usually two years of length, with enterprise contracts being longer), or via prepaid options. *Vodafone*'s products and services mainly include personal solutions, VGE, and branded phones and devices.

The personal solutions are offered to individuals and include landline, mobile phone, broadband, and TV services. They also include all services offered to customers travelling abroad, which are facilitated by the firm's more than 650 international agreements. VGE comprises most business solutions. They include a range of integrated office and mobile voice and data services, cloud-based collaboration services, mobile e-mail and security solutions, as well as business global communications management, mobility and M2M technology. In addition, *Vodafone* now offers its own branded phones and tablets (MarketLine, 2013).

The group's business is split across two geographic regions; Europe and AMAP (Africa, Middle East and Asia Pacific). *Vodafone* is number one or two mobile operator in almost all of its markets with market shares of around 25%-40% in Europe and around 20%-50% in AMAP. Its European countries include Albania, Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Malta, The Netherlands, Portugal, Romania, Spain, and the UK. AMAP includes Australia, Egypt, Fiji, Ghana, India, Kenya, New Zealand, Qatar, Turkey, and the *Vodacom Group*, which includes The Democratic Republic of Congo, Lesotho, Mozambique, South Africa, and Tanzania. The group has fixed broadband operations in all its European markets except Albania and Hungary, as well as in six of its AMAP markets. The company identifies Germany, Italy, Spain, the UK, *Vodacom*, and India as its most important markets, and has market shares of 34%, 33%, 28%, 25%, 52%, and 20% in these countries, respectively.

4.3.2 Corporate Governance

Vodafone Group is a public limited company listed on the London Stock Exchange and is a constituent of the FTSE 100 Index (London Stock Exchange, 2014). Furthermore, *Vodafone* shares are traded in the USA on the NASDAQ in the form of American Depositary Shares (ADS), each representing ten ordinary shares of the firm.

The average amount of shares outstanding in the financial year 2013/2014 was 26,472 million. As of March 31st, 2014, only one shareholder owned a stake of more than 3% of all outstanding shares: The investment

management corporation *Black Rock, Inc.* owned 6.9% of *Vodafone*'s shares. All other shares are distributed amongst the 513,672 registered shareholders, none of whom has a significant stake and, thus, power over the group's decisions (Vodafone, 2014).

As of the date of the publication of its last financial statements, May 20th 2014, *Vodafone* has the typical European two-tier board, consisting of three members from the executive board (CEO Vittorio Colao, CFO Nick Read, and CTO Stephen Pusey), ten independent non-executive directors, and the chairman Gerard Kleisterlee. The majority of the board members have been in their roles for seven years or more. Almost 25% of the board is represented by women, and the board members are of seven different nations, making *Vodafone*'s board very diversified.

With the exception of Nick Read, who was appointed as Group CFO on April 1st, 2014, after Andy Halford left this position after eight years of duty, the other top managers have been in their current positions for several years. Most of them have been employed by *Vodafone* for more than ten years. Especially Vittorio Colao, who is CEO for six years and in other executive roles since 2001, is assessed to be a very skilled manager with great knowledge and insights of both the firm and the telecommunications industry in general.

After this brief introduction to *Vodafone*, its history, products, and markets, the necessary background information is provided that is needed to conduct a thorough and meaningful analysis of the company and its business environment. These analyses will be the objective of the following chapters.

5. Analysis of Vodafone and Its Business Environment

Following the outline and the frameworks provided in the methodology section, this chapter comprises the qualitative analysis of *Vodafone* and its environment. Firstly, the external analysis will be conducted, consisting of the analysis of both the firm's macro- and micro-environment. Subsequently, the internal analysis will deal with the company's resources and capabilities. The results of this chapter will be summed up in a SWOT analysis in the end, and will be of importance in subsequent sections of this thesis.

5.1 Strategic Analysis of Macro-Environment

This analysis will describe and explore the trends and factors that influence mobile network operators, and particularly *Vodafone* and its operations, on a macro-environmental level. This section consists of four subsections which together form the so called PEST-analysis: Political, Economic, Social, and Technological. Since a complete analysis of all macro-environmental factors in all of *Vodafone*'s markets would be extremely vast, the focus in this chapter will only be on the key factors and the firm's most important and biggest markets. The ultimate aim is to answer the first part of the research sub-question: Which strategic

factors, both on macro and micro level, are relevant to *Vodafone*, and how do they affect the valuation of the company?

5.1.1 Political

This sub-section analyzes the major political trends and influences that affect *Vodafone* or might affect it in the future. The most relevant factors are: EU roaming regulations, regulatory framework for electronic communications in the European Union, spectrum liberalization, and tax disputes.

European Union roaming regulations:

The EU roaming regulations regulate the limit and the general imposition of roaming charges within member states of the European Union. They apply to both the prices that network operators can charge their sub-scribers for using their services abroad, and the wholesale rates that network operators can charge each other for allowing their customers access to the other operator's network (European Union, 2007). Since Europe is *Vodafone*'s biggest market in terms of revenues and profit, the firm is heavily affected by these regulations.

Proposed in 2006 and coming into force on August 30th, 2007, the regulations reduced the charges step by step. While the price cap for outgoing calls to any member of the European Economic Area was 49 eurocents per minute between August 2007 and August 2008, the price cap is as low as 19 eurocents per minute starting from July 1st, 2014: a decrease of more than 60%. Similarly, the wholesale cap was 30 eurocents per minute in the first year of the regulation, and is 5 eurocents per minute from July 1st, 2014 onwards: a decrease of more than 80%. There are further price caps for incoming calls, sending and receiving text messages, and data usage. The price caps from July 2014 will be valid for a minimum of three years (retail charges), or eight years (wholesale charges), respectively (European Union, 2012).

Further parts of the regulation require more transparency in the interest of consumer protection. This includes welcome messages when traveling abroad, informing the subscriber about roaming charges, information messages when a certain threshold of data usage is reached (80% of the agreed limit), etc. Additionally, when a customer reaches the agreed roaming limit, the regulation forces the network operators to cease providing and charging the customer for further services, until the customer requests the continued provision of these services (European Union, 2007). All these regulations have had a significant impact on *Vodafone*'s revenue and profitability, as roaming has been a large revenue stream for the company. Since the price caps are lowered again in July 2014, but are supposed to stay constant for at least the three following years, an impact on revenues can be expected at least in the first forecasted year.

Regulatory framework for electronic communications in the European Union:

In 2002, the EU released and implemented the "Regulatory framework for electronic communications in the European Union" which was revised and updated in 2009. The ultimate goals of this regulation are to encourage and promote free and fair competition in the electronic communication industry throughout all member states, and to improve the functioning of the single market. Similar to the roaming regulations, one of the driving forces behind this framework was consumer protection. Thus, consumers would be the "ultimate beneficiaries" (EUbusiness, 2009).

The EU framework has had a significant impact on *Vodafone*'s financials. The company had to lower its mobile termination rates (MTR²) step by step, but considerably. In Germany, for instance, the MTR decreased from 14.32 eurocents per minute before December 2004 (Vodafone, 2006) to 1.79 eurocents per minute after December 2013 (Bundesnetzagentur, 2013): a decrease of 87.5%. Similarly, MTRs in Italy were lowered from 14.95 eurocents per minute before September 2005 (Vodafone, 2006) to 0.95 eurocents per minute after July 2013 (AGCOM, 2011): a decrease of almost 94%. Since every EU member state implemented national laws following the EU framework, the development of MTRs looks similar across the continent. However, most countries (especially *Vodafone*'s large markets) reached their target MTR level already, or will reach it within the next few years. The EU framework will therefore only have a moderate impact on revenues in the forecasted period.

Spectrum liberalization:

This topic has been an ongoing concern in many countries for several years. The idea behind spectrum liberalization is that markets, rather than governments or other regulatory bodies, are better suited to decide on the most efficient use of the spectrum (Mobile Europe, 2007). This topic is also part of the revised EU regulatory framework mentioned above. Therein it says: "In the interests of flexibility and efficiency, national regulatory authorities may allow spectrum users freely to transfer or lease their usage rights to third parties. This would allow spectrum valuation by the market" (European Commission, 2009). As a result, *Vodafone* will have easier and faster access to additional spectrum, if needed in the future.

Tax disputes

As most international companies are trying to keep their tax bills as low as possible in all their operating countries, there always is the risk of tax disputes with authorities in governments in various jurisdictions. These potential claims of tax authorities can be small and irrelevant to a large conglomerate as such. However, in some cases, these claims can also be significant with a huge potential impact on the group's financial statements. *Vodafone* is currently in such a situation: the company is subject to a range of tax

² The Mobile Termination Rate (MTR) is the charge that one mobile telecommunications operator can charge to another operator for terminating calls on its network.

claims across a number of countries. The most material claim is from the Indian tax authority and amounts to a total sum of GBP 1.4bn (Vodafone, 2014). Since the final outcome of those disputes is uncertain, it is difficult to account for them in the financial statement forecasting. If the group loses its case, however, the impact on the overall profitability will be significant.

Political risk:

Few industries are regulated as strongly as the telecommunications industry. Network operators, therefore, always face the risk of potential further regulations in the future, but they need to take more factors into consideration when it comes to political risk. Contract enforcement law, government organization, and political stability are further crucial elements that need to be monitored closely.

After a military junta in Myanmar dissolved in 2011, the new government was looking to increase the number of mobile operators and therefore offered two network licenses in a bidding process. *Vodafone* and *China Mobile* jointly took part in the bidding process (Garside, 2013). However, the firms withdrew their bid a few weeks later. As a reason it was stated that those investments might not pay off, due to "a lack of clarity in regulations, government red tape, and the limited infrastructure when rolling out networks" (Phneah, 2013).

As a result, it can be stated that the political risk in most of *Vodafone*'s current markets consists mainly of regulatory risks. When it comes to expanding to new markets in the future, however, the company has to carefully consider whether political influences could have a negative impact, even though the market potential might be huge.

5.1.2 Economic

This sub-section analyzes the economic environment and circumstances in which *Vodafone* operates. Information about these factors is crucial for management to be able to plan future operations, and take necessary precautions and actions. The major topics in this sub-section are: Gross Domestic Product (GDP), exchange rates, and the rising mobile telephone density.

Gross Domestic Product

Figure 5.1 shows the development of the GDP in *Vodafone*'s single most important markets (Germany, Italy, UK, Spain, India, and the *Vodacom Group*, which consists of South Africa, Lesotho, Mozambique, Tanzania, and The Democratic Republic of Congo), and its other operating markets grouped together in "Other Europe" and "Other AMAP".

Figure 5.2 shows the real growth in GDP for two of *Vodafone*'s biggest markets, UK and India, for the EuroZone (as a proxy for the operations in Germany, Italy, Spain, Ireland, Netherlands, Portugal, Malta, and Greece), and for Sub-Saharan Africa (as a proxy for the operations in Ghana and the entire *Vodacom Group*).



Figure 5.1: GDP (in Million GBP)³

Source: Own creation, based on data from Euromonitor International (2014).



Figure 5.2: Real GDP Growth

Source: Own creation, based on data from Euromonitor International (2014).

As the graphs show, due to the global financial crisis of 2007-2008 and the subsequent Euro crisis, GDP growth in almost all regions decreased in some of the most recent years – even below 0% in Europe, leading to decreasing total GDPs. However, the growth rate is expected to stay positive in the future, and relatively

³ This figure shows the Total GDP, in current prices, nominal, using year-on-year exchange rates measured in million GBP

constant from 2016 onwards: about 2% for Europe, and between 5% and 7% for the developing countries in Sub-Saharan Africa and India. India's GDP is expected to grow so quickly that it will be bigger than the UK's in less than ten years from now. These numbers play an important role in estimating future revenues, especially in the terminal period, which assumes constant growth.

Exchange rates

Since *Vodafone* has operations all around the world, it has significant amounts of monetary flows in other currencies than its "domestic" currency, GBP. For instance, the firm has major inflows in Euro (EUR), Indian Rupees (INR), and South African Rand (ZAR). Apart from the company's USD debt, *Vodafone* also used to have massive inflows of USD due to its stake in *Verizon Wireless*, which was disposed of in February 2014. Similarly, EUR and USD account for the largest share of money outflows apart from GBP. Therefore, *Vodafone* is exposed to exchange rate risk. The firm hedges against this risk with derivatives. Nevertheless, the group stated GBP 4.1bn foreign exchange translation differences, and further GBP 1.5bn foreign exchange losses transferred to the income statement in its 2013/2014 consolidated statement of comprehensive income. This was mainly due to the strengthening of GBP vis-à-vis both INR and ZAR. The future development of exchange rates is hard to foresee, but it has the potential to have a significant impact on the company's financials.

Mobile telephone density

In this thesis, mobile phone density is defined as the ratio of mobile phone subscriptions to population. Hence, a mobile phone density of 100% means that – on average – every inhabitant of the respective country has one mobile phone subscription.

Figure 5.3 shows the development of the mobile telephone density over time in *Vodafone*'s major markets. This figure shows that today all European markets and Other AMAP have mobile telephone densities above 100%, meaning that there are more mobile phone subscriptions than inhabitants. This clearly illustrates how mature these markets are, and that it is almost impossible to grow in these countries by acquiring new customers. The customer base can almost only grow through acquiring customers from competitors. However, the graphs also show that the mobile telephone density in Europe is still expected to grow slightly in the future.

On the other hand, there is an immense growth potential in India and in the countries that form the *Vodacom Group*. There, the mobile telephone density increased from 3.2% and 12.5% in 2003 to 71.1% and 75.4%, respectively. Until 2024, these numbers are expected to increase to 101.4% in India and to 88.8% in the *Vodacom* countries. This means that only for India, it is expected that more than 560 million people will become customers of mobile network operators. As the second biggest player in the Indian market with a

market share of 15.1% as of 2012 (behind *Bharti Airtel* with 18.8% market share), this demonstrates an immense growth potential for the years in the forecasting period (MarketLine, 2013D).



Figure 5.3: Mobile Telephone Density

Source: Own creation, based on data from Euromonitor International (2014).

5.1.3 Social

This sub-section deals with the macro-environmental factors from a social point of view. The factors most relevant to *Vodafone* are: rising disposable income, population growth in the emerging markets, and urbanization.

Disposable income

It can be argued that the amount of money which customers spend on (wireless) communications is a certain fraction of their disposable income. This would mean that a high level of income growth represents an opportunity for network operators to achieve higher revenues.

Figure 5.4 shows the development of the growth rates of the disposable income per person in the markets in which *Vodafone* operates. With most growth rates being negative in 2014 (except in the UK), but expectations of only positive growth rates thereafter (except Italy in 2015), it is a reasonable assumption that customers will spend more money on communication services in the future. The graphs also show that long term growth rates in Europe are around 2-3%, while the disposable income in India is expected to grow at rates above 7%, even 8% from year 2023. These findings correlate with the fact that the wireless

communication market in Europe is highly saturated already, while in India and other developing countries the industry is growing rapidly.



Figure 5.4: Disposable Income Growth

Source: Own creation, based on data from Euromonitor International (2014).

Population Growth

While just more than a decade ago a mobile phone used to be a product for the rather affluent people, this situation changed completely in the most recent years. Phones, and also SIM cards and service charges, have become cheaper across the globe, both in developing and in developed countries. This development is also expressed in the number of subscribers to mobile phone services. In 2008, there were only 3,050.8 million subscribers worldwide, and in 2012, this number has grown to 4,865 million subscribers, representing a compound annual growth rate of 12.4% in this period (MarketLine, 2013).

The number of subscribers is expected to grow at high rates also in the future, as experts agree on the fact that almost every person in the world will own a mobile phone in the long run (Suciu, 2013). As described earlier, the mobile telephone density in Europe and other developed nations is above 100%, meaning that people possess more than just one phone (e.g. one work phone, and one private phone), and this trend is expected to continue, too.

All in all, it seems obvious that the number of mobile phone subscribers depends to a large extent on the population on this planet. Figure 5.5 illustrates the population growth in the countries in which *Vodafone* operates. Although the growth rate is based on the total population and, thus, also includes infants, etc., this is still assumed to be a good proxy, as there has been a trend that teenagers get or buy their first mobile phone at an ever younger age. At the same time, also older people are getting more used in using technology and utilize mobile phones today. Furthermore, it is assumed that people do not stop using their mobile phones. Since this analysis is conducted in order to be able to make expectations for the future, this means that for instance the 50-year-olds of today who own a mobile phone, will be the group of 60-year-olds in 2024, which is the age group that might not have a phone today.





Source: Own creation, based on data from Euromonitor International (2014).

As can be seen from the graphs, the total population is expected to decrease in Spain and the "Rest of Europe" (i.e. Albania, Czech Republic, Hungary, Romania, Greece, Ireland, Malta, Netherlands, and Portugal) in all future years, and in Germany from 2018 onwards. However, these negative growth rates are minimal (in all cases above -0.4%), and the decrease in population is expected to be compensated by the increasing mobile telephone density rates in the respective countries.

On the other hand, all other countries are expected to have a growing total population until at least 2024. The growth rates are decreasing over time, though they are still as high as 2% or more in the case of *Vodacom*.

Also India's population is expected to increase at rates between only 1% and 1.5%. However, in absolute numbers this still means an increase of more than 15 million people each year.

As a result, figure 5.5 demonstrates a huge potential to acquire more customers in the future, with a strong focus on the developing countries in Africa and Asia. Population growth will have a positive effect on the revenue forecasts.

Urbanization

The worldwide population is not only estimated to continue growing in the future, but is also expected to live increasingly in urban areas. This trend is relevant for network operators for several reasons. Firstly, when expanding to new markets or regions, urban areas are the first where networks are made available. Only a relatively small area needs to be covered in order to reach a relatively high number of people. Secondly, for the same reason, big cities are also preferred when it comes to improving services. This does not only include the installment of better and faster networks, but also the opportunities for customers to interact with their network providers. It is a lot easier to buy new phones, sign new contracts, return hardware for warranty reasons, etc. in urban areas, where more shops are found compared to rural areas. Finally, and most importantly, quick access to data networks is available either in urban areas first and then rolled out to rural areas, or – in some countries – it is available only in big cities. This is of specific importance to *Vodafone*, as its voice revenue has been decreasing throughout the last years, while its data revenue has been growing significantly.





Source: Own creation, based on data from Euromonitor International (2014).

Figure 5.6 shows the percentage of the population that is living in urbanized areas for the countries in which *Vodafone* operates. The graphs illustrate that the percentage of urban population has been growing for the last ten years and this trend is expected to continue in the future. While Europe is urbanized already to a large extent, with percentages of 65%-80% today, the numbers for developing countries are significantly lower, with India being the lowest at around 32% today and "Rest of AMAP" being the highest at around 54% (mainly due to the fact that Australia belongs to this group with a percentage of about 90%).

Since data becomes increasingly important for *Vodafone*, this trend is very promising for the company in the future. Especially in India, where data networks are not available everywhere, and the big cities are being upgraded from 2G to 3G, there is a massive potential for future revenues with more people moving to urban areas, getting access to faster data networks, and using bigger amounts of data per month.

5.1.4 Technological

Due to the nature of the industry *Vodafone* is operating in, technological factors have a significant impact on the company. The most relevant variables are described, and their impact is analyzed in this subsection: improvement of existing technology, development of new technology, and malicious hacking.

Improvement of existing technology

Existing technologies are improved or being made redundant at an ever increasing speed. The most prominent example of this technological progress is Moore's Law which states that (hardware) chip performance doubles approximately every two years (Moore, 1965). Accordingly, the performance of mobile phones improves constantly, but also the performance of networks, antennas, etc.

The development of networks, for example, made it possible to transfer voice and data with a faster speed and better quality. The Global System for Mobile Communications (GSM) standard was implemented in the early 1990s, and since then has been improved by high-speed data transmission techniques, such as GPRS ("General Packet Radio Service"), EDGE ("Enhanced Data Rates for GSM Evolution"), or most recently LTE ("Long Term Evolution"), which is the current standard for fourth generation (4G) wireless communication (Scharnhorst, Hilty, & Jolliet, 2006).

On the one hand, this means that customers have access to faster data networks and consequently will pay higher charges for data packages, leading to higher revenues for network operators. On the other hand, this ongoing development requires operators to constantly upgrade their base stations and antennas. In the case of *Vodafone*, this is a significant cost factor, as the company owns more than 260,000 base stations worldwide (Vodafone, 2014). However, recent developments also allow network operators to support multiple mobile

communication standards on one single network. This technology is called singleRAN ("single Radio Access Network"), was developed by *Huawei*, and resulted in significantly decreased network update investments by operators (Huawei, 2011).

The development of handsets that are able to fully utilize the latest network speeds goes hand in hand with the advancement of network standards. Hence, the majority of new phones that have been released in recent years are capable of connecting to 3G, or even 4G networks. This, and the fact that smartphones with ever bigger screens are replacing the traditional desktop computer for many people, lead to a rapidly increasing demand for data services on the mobile phone. Figure 5.7 shows the percentage of customers with a mobile phone subscription that also have a mobile internet subscription for the last ten years and the countries that *Vodafone* operates in.



Figure 5.7: Share of Mobile Internet Subscriptions to Mobile Telephone Subscriptions

Source: Own creation, based on data from Euromonitor International (2014).

The graphs clearly indicate a rising demand for data services in the developed countries, such as Europe and "Other AMAP" (as this includes Australia and New Zealand). However, countries such as Germany and Italy still have percentages of less than 50%, and India's population only recently started to adopt mobile internet subscriptions. The demand for data is therefore expected to grow even faster in the next few years, on a worldwide level. As a consequence, *Vodafone*'s data revenue will continue to increase rapidly in the coming

years, whereas its voice revenue is estimated to decline. For the years 2013 to 2017, global data revenue is set to grow by USD 128bn, whereas voice revenue is set to decline by USD 38bn (Vodafone, 2014).

Development of new technology

Apart from the continuous improvement of current technologies, the mobile telecommunications industry is naturally, like every other industry, impacted by new, sometimes disruptive technologies. Although it is nearly impossible to make any expectations about products that have not been invented yet and their impact on a company's financial statements, one area of technological progress needs to be mentioned in this section: machine-to-machine (M2M) communication.

Although the general idea behind M2M communication is not new per se, there are certain products or technologies which are only starting to become ready for the market at present or in the near future. One example is the communication between cars. Current research projects focus on vehicle-to-vehicle communication with the long term goal to have a network of multiple cars sending information to each other, such as speed, distance, etc. With the current amount of cars worldwide and the number of car accidents that are caused by human error, this technology is very promising and constitutes a huge opportunity for wireless communication services providers such as *Vodafone* (Bielsa, 2012).

Other technologies that are new and might have an impact on the profitability of mobile network operators are, for instance, cloud computing and cloud communication, mobile payments, mobile health solutions, etc.

Malicious hacking

With the rise of the internet, the era of cyber-crime started. Potentially, every major website is exposed to the threat of an attack by hackers. While the effect might be minor for small sites, the consequences can be tremendous for major websites and databases, especially when they contain personal data or even credit card and bank account information.

There have been several hacking attacks that made it to the headlines, including targets such as *Citibank*, NASA, the US military, etc. (Goodchild, 2012). Sometimes, victims of hacking attacks make huge losses due to these incidents. When *Sony*'s PlayStation Network was hacked and millions of customers' credit card data were stolen in 2011, the firm estimated a loss of about USD 170m (Tassi, 2011).

Also, *Vodafone* was the target of a cyber-attack already. In 2013, *Vodafone Germany* was hacked and about two million sets of customer data (including bank account information) were stolen (Spiegel, 2013). Apart from the costs related to fixing the lacks of security, the company also faced a negative impact on its brand and reputation, one of its major competitive advantages.

In conclusion, companies owning a great amount of confidential data, like global network operators, will always be potential victims of hacking attacks. In order not to lose customer trust and brand reputation, it is of outmost importance to ensure high technical and IT security standards.

5.2 Strategic Analysis of Wireless Telecommunications Industry

The last chapter described the macro-environmental variables that can have an impact on the telecommunications industry in general. In this subsection, the focus will shift towards micro-environmental factors that influence this industry.

As argued for in the methodology chapter three, the framework that will be used here is Porter's Five Forces framework, one of the best-known and most used for micro-environmental analyses. Various competitive forces and their underlying causes will be analyzed in details, with the goal to determine the competitive intensity and the general attractiveness – in terms of industry profitability – of the market. The ultimate aim is to answer the second part of the research sub-question: Which strategic factors, both on macro and micro level, are relevant to *Vodafone*, and how do they affect the valuation of the company?

5.2.1 Buyers

In general, wireless telecommunication services providers have two types of customers: individuals and corporate. While the buyer power of one individual customer is extremely low (e.g. *Vodafone* has 434 million customers worldwide (Vodafone, 2014)), the opposite is true for the buyer power of a country's population at large and for big corporate buyers. Since losing one such customer could have a significant impact on the company's revenues, large corporate clients with financial strength can have great buyer power by negotiating on price decreases, etc.

Furthermore, especially in mature markets such as the European countries, network operators are facing fierce competition coupled with consumer's demand for better features, more minutes and data, for a lower price. In these concentrated markets, firms try to decrease their costs and pass on these benefits to the customers by offering price cuts. This so called value pricing increases buyer power for the entirety of individual customers in a country at large.

As the demand for communication services in general is inelastic (and consequently weakening buyer power), the industry can expect to be rather protected against the consequences of major economic downturns. People will still make their phone calls and use their mobile phones, and therefore generate revenue for the network operators. The guaranteed revenues of mobile phone contracts are the reason why most firms try to increase their number of customers on a postpaid plan. However, under uncertain economic conditions, many people rather decide for prepaid services. Salanave & Kalmus (2007) found that over a five

year period the share of prepaid customers in the EU stayed at a constant level around 61%, and can be expected to stay on this level in the future. Apart from the fact that prepaid customers generate unstable revenues, they can also switch their operator more easily, thus leading to higher churn rates and an increased level of buyer power.

Related to this situation is the weakened brand loyalty in situations of economic distress. This is especially relevant to *Vodafone*, as their major markets are the European countries which are still affected by the Euro crisis. Although its brand is among the strongest in the world, reduced brand loyalty will increase the number of customers switching to operators offering the best deals available, which strengthens buyer power considerably.

Switching costs depend on the country the customer is living in. Across countries, there are significant differences in the difficulties and costs of quitting a long-term contract early or the charges of getting a locked SIM card unlocked (MarketLine, 2013). However, as the products offered by competitors are basically the same, network operators are competing mainly on value pricing, quality, functionality, reliability and brand awareness. This again increases buyer power.

All in all, buyer power in the wireless telecommunication services industry is assessed to be moderate.

5.2.2 Suppliers

There are several types of suppliers which play a major role in the wireless telecommunications industry. On the one hand, there are producers of handsets (such as *Apple, Samsung*, and *Nokia*), of network infrastructure (such as *Huawei, Ericcson*, and *Alcatel-Lucent*), of software and of all kinds of services. On the other hand, national governments or their regulatory authorities also play a crucial role as suppliers, due to the fact that they are the sole suppliers of bandwidth and the permission to use spectrum available in the country. Given the nature of regulatory authorities, their monopolistic position in this market, and the substantial amounts that are paid for spectrum licenses (*Vodafone*, for instance, spend GBP 2.2bn in their financial year 2013/14 on acquiring and renewing spectrum licenses in India, Romania, New Zealand, and the Czech Republic (Vodafone, 2014)), the supplier power of governments is strong.

Handset producers have a significant supplier power, too, since there only exist relatively few, and the majority are large, global manufacturers. *Vodafone*, as one of the largest network operators with a global presence however, also has a significant purchasing power. Coupled with the fact that the firm started to produce and sell its own branded devices (Vodafone, 2014A), the supplier power of mobile phone manufacturers is decreasing slowly.

Similar to the situation with handset producers, network operators also depend on very few, but large, international network infrastructure suppliers. While this, again, would mean great supplier power, it needs

to be relativized, as these infrastructure suppliers in turn depend on only a limited number of network operators as customers who also tend to be large in size and buyer power. In the case of *Vodafone*, the negotiation power seems to be on the buyer's side today and also in the next few years. After the company sold its 45% stake in *Verizon Wireless*, a substantial amount of the proceeds were allocated to "Project Spring", the largest network investment program in the firm's history. The company plans to invest GBP 19bn in the next two years (Vodafone, 2014). These numbers make telecom-equipment vendors "hungrily eye *Vodafone*'s CAPEX budget" (Mehta, 2014), and *Ericcson*'s Chief Financial Officer (CFO) Jan Frykhammar said Project Spring would make it "fun to be a vendor and investor in Europe" (Sandle, 2013). This suggests that in the near future these firms are interested in closing deals with *Vodafone* that might be beneficial for *Vodafone*, reflecting its currently strong buyer power.

Additionally, *Vodafone*'s negotiation power is strengthened by its centralized strategic procurement unit. Based in Luxembourg, the *Vodafone Procurement Company (VPC)* is responsible for the overall operation effectiveness of the firm's supply chain operations across all categories and geographies (Vodafone, 2014C). With an annual managed spend of about EUR 10bn which is expected to increase rapidly in the near future, almost one third of the group's cost of sales is spent by the *VPC* (KPMG, 2014A). Therefore, the company is able to achieve even larger economies of scale than the single operating markets would be able to achieve, and an increased negotiation power vis-à-vis its suppliers.

Overall, although supplier power can be assessed as strong for players in the wireless telecommunication services industry in general, it is rated only moderate for *Vodafone*.

5.2.3 New Entrants

New entrants are unlikely to appear in the wireless telecommunications industry. In order to set up a new network, a massive capital outlay is required, as the infrastructure (base stations, antennas, etc.) needs to be installed across the entire country of interest. Economies of scale play an important role. Apart from building a new network infrastructure, a potential new entrant also needs to set up operational support systems and facilities, and big marketing and advertising campaigns need to be run, as a large customer base is needed in order to be profitable as a network operator. However, since the market is highly saturated and dominated by just a few big players in many countries, new entrants would need to enter the market at a large scale and with relatively low prices just to be able to compete. Therefore, the attractiveness of entering the market as a new network operator is rather low.

However, entering new markets through the acquisition of a firm with an already existing network might be a more cost effective solution. This is especially the case in countries in which the telecommunications industry is not highly saturated yet, and the network infrastructure is underdeveloped. One example for this way of entering a market is how *T-Mobile* entered the Eastern European countries: for instance in Macedonia through the purchase of *Makedonski Telekom* (MarketLine, 2013).

Another option of entering the industry that is associated with lower costs is to operate as a mobile virtual network operator (MVNO), rather than as a facility based network operator, such as *Vodafone*. An MVNO does not own the network infrastructure that it uses to offer its services, but rather purchases access to the network of a network operator at wholesale rates, while setting the retail price for its customers independently. This seems to be a popular option to enter the telecom market, as there exist numerous MVNOs in most countries (e.g. 140 in Germany, 123 in the UK, 45 in Spain, etc. (MVNOdynamics.com, 2014). Although this generally increases the threat of new entrants, the effect on facility based network operators is only moderate, as the latter might lose customers to MVNOs, but in turn are in a position to charge fees for the usage of their networks.

Another major factor that impacts the threat of new entrants is (governmental) regulation. Being the sole supplier of spectrum bandwidth, the government has significant power over the market, and has influence on the level of competition and concentration in the industry. Furthermore, as a highly regulated industry, the telecommunications industry is subject to regulations which not only discourage firms from entering the market, but may even forbid them to do so. MarketLine (2013) describes the example of *Apple*, whose iPads were briefly banned in 2010 in Israel. This illustrates that regulations potentially can reduce the threat of new entrants to a large extent.

Lastly, brand can be considered a crucial factor. As *Vodafone* has a very well-known brand in all markets it operates in (it is market leader or second in the majority of countries (Vodafone, 2014)), a new competitor would need to spend a significant amount of resources on creating and establishing a brand that is able to compete. This is less the case, however, when a competitor with a renowned brand abroad enters a market through acquisitions, as described in the *T-Mobile* example above.

All in all, the threat of new entrants is assessed low.

5.2.4 Threat of Substitutes

One of the main substitutes for mobile communication is fixed-line telephony. However, switching to fixed-line usually brings no benefits. On the contrary, wireless communication initially was developed as a substitute for fixed-line telephony. The success of this substitute was analyzed earlier: the mobile telephone density has been growing significantly all over the world in the last decade, while at the same time the number of fixed-line phones has decreased slowly (Salanave & Kalmus, 2007).

The other major substitutes are data communication, and VoIP (Voice over Internet Protocol⁴) telephony in particular. The main benefit of these substitutes is the lower price compared to mobile telecommunication. Especially VoIP services, such as *Skype*, offer great advantages for calls across countries and continents. More and more players in the telecom industry, however, started to diversify their services and began to offer a wider range of communication services, including fixed-line, broadband and cable TV services. *Vodafone* increasingly focuses on a broader range of services, too, which explains e.g. its purchase of *Kabel Deutschland* in Germany and its takeover offer for *Ono* in Spain, two broadband and cable TV service providers. Therefore, network operators are offering their customers potential substitutes to its original product, wireless communication.

Finally, as mentioned earlier, the demand for data on the mobile phone is growing significantly, too. This includes the usage of VoIP services on handsets. The result for network operators might be a lower demand for voice services, but an ever increasing demand for data services.

In summary, the threat of substitutes is assessed to be rather low, as most big network operators are offering the substitute products themselves.

5.2.5 Degree of Rivalry

The degree of rivalry is different depending on the geographic region. On the one hand, the European mobile telecommunications market is very mature and highly saturated, resulting in a high level of competition. In emerging markets such as India, on the other hand, competition is also strong, but it is still possible for firms to acquire new customers without decreasing the customer base of competing companies. However, as the market saturation and competition in emerging markets is increasing, it can be expected that the peaceful co-existence of players will change to a more intense rivalry in the long run, too.

On a global level, the mobile telecommunications market is foreseen to further grow in the future. However, growth rates are expected to be significantly lower than in the last decade. This can be seen as one of the reasons why many mobile network operators diversified their product offerings and included e.g. fixed-line telephony or broadband services, or are currently in the process of doing so. However, the low level of product and service differentiation in the traditional wireless telecommunications market has led to a strong competition on factors such as brand awareness, quality measures, functionality and value pricing (MarketLine, 2013).

Furthermore, as mentioned before, the existence of an increasing number of MVNOs is intensifying the degree of rivalry. Their development has triggered a stronger downward pressure on consumer prices, which

⁴ Voice over Internet Protocol is a technology of voice communication via the internet, also known as internet telephony.

resulted in a continuous decline of the Average Revenue per User (ARPU). The level of competition could potentially increase even further if new mobile network operators entered the market by acquiring licenses to use additional spectrum. However, given the current degree of rivalry and the associated costs, this scenario is rather unlikely, especially in the developed markets in Europe and North America.

The global wireless telecommunications industry is characterized by very large and international players, benefiting greatly from economies of scale. According to MarketLine (2013), the four biggest companies in terms of market share in 2012 were *China Mobile*, *Vodafone*, *America Movil*, and *Bharti Airtel*, with market shares of 14.7%, 7.9%, 5.4%, and 5.3%, respectively. *China Mobile* operates only in China, its Special Administrative Region Hong Kong, and in Pakistan through its subsidiary *Zong* (China Mobile, 2014; Zong, 2014). *America Movil* is based in Mexico and has subsidiaries in the USA, in Central and South America, as well as in the Caribbean (America Movil, 2014). Since *Vodafone*'s disposal of its 45% stake in *Verizon Wireless*, the company has no operations on the American continent anymore. Finally, *Bharti Airtel* is based in India and owns subsidiaries in other Asian countries and in Africa (Bharti Airtel, 2014). Its only common markets with *Vodafone* are India, Ghana, and Tanzania and the Democratic Republic of Congo as part of *Vodafone* in this thesis. This is due to the fact that these three companies make all or the largest part of their revenues in countries and regions in which *Vodafone* does not operate. They face a completely different set of macro-environmental factors which does not allow sound and informative one-to-one comparisons.

With *Vodafone*'s key markets being in Europe, this thesis treats *Telefónica*, *Orange*, and *T-Mobile* as its closest rivals. All four companies are among the 15 biggest telecom operators in the world (Gillet, 2013).

Telefónica

Originally a Spanish company, the firm has four major brands today: *Telefónica*, *Movistar*, *O*₂, and *vivo*. Although its focus is on Spanish speaking countries, i.e. Spain and South American countries, the firm is one of *Vodafone*'s biggest competitors in Spain, the UK, Germany, Italy, and the Czech Republic. At the end of 2013, *Telefónica* had more than 320 million customers worldwide, out of which almost 255 million (79%) were mobile customers (Telefónica, 2014). The remaining customers purchased fixed telephony, internet, and pay TV services.

Orange

Based in France, the firm has operations in 30 countries in Europe, Africa, and the Middle East. The common markets with *Vodafone* include the UK (where *EE* is a 50:50 joint venture between *Orange* and *Deutsche Telekom*), Spain, Romania, Egypt, and parts of the *Vodacom* countries. Today, *Orange* has more than 239 million customers worldwide and also offers internet, fixed telephony, and TV services (Orange, 2014).

T-Mobile

T-Mobile is a subsidiary of *Deutsche Telekom* and acts as a holding company for all of the firm's mobile communications companies. Based in Germany, it has operations in various other European markets, the USA, and Puerto Rico. Despite the fact that *Vodafone* does not operate in the US anymore, *T-Mobile* still is one of *Vodafone*'s biggest competitors in Germany, Greece, Czech Republic, Hungary, The Netherlands, and the UK, where *T-Mobile* is the joint venture partner of *Orange* in *EE*. The total number of mobile customers of *T-Mobile* is about 143 million, while *Deutsche Telekom* also has 31 million landline phone, and 17 million internet customers. With *T-Systems*, one of the largest European IT services companies is also part of *Deutsche Telekom* (Deutsche Telekom, 2014).

All in all, the degree of rivalry is assessed as moderate to high, depending on the markets. However, as also the emerging markets are becoming more mature and saturated in the near future, competition can be expected to become even more intense.

5.3 Strategic Analysis of Vodafone

In the previous chapters, the factors that impact *Vodafone* on a macro and on a micro level have been analyzed. Most of the relevant external factors have, thus, been described. This chapter focuses on the firm itself. The first part constitutes the internal analysis and aims at discovering sustainable competitive advantages of *Vodafone*. The second part sums up the insights gained in a SWOT analysis, pointing out the strengths, weaknesses, opportunities and threats of the company.

5.3.1 Strategic Analysis of Vodafone's Sustainable Competitive Advantages

This internal analysis aims at detecting *Vodafone*'s core competences: those that could be the source of a sustainable competitive advantage. To unveil these resources and competences, the VRIO framework was chosen. The idea behind this framework is to ask four questions about a firm's resources and capabilities. If all four questions can be answered with "yes", then the respective resource or capability can be considered to be a sustainable competitive advantage. According to Barney & Hesterly (2012), these four questions are:

- 1. The question of **Value**: Does this resource enable the firm to exploit an environmental opportunity, and/or neutralize an environmental threat?
- 2. The question of **Rarity**: Is this resource currently controlled by only a small number of competing firms?
- 3. The question of **Imitability**: Do firms without this resource face a cost disadvantage in obtaining or developing it?
4. The question of **Organization**: Are the firm's other policies and procedures organized to support the exploitation of its valuable, rare, and costly-to-imitate resources?

The framework can also be used to describe on which level the economic performance of the analyzed resource or capability will be. Resources that are not valuable lead to economic performances below normal. Valuable, but not rare resources lead to normal economic performances, while the other resources lead to economic performances above normal. The basic concept of the framework is depicted in figure 5.8.

Is the resource valuable?	Is the resource rare?	Is the resource costly to imitate?	Is the resource exploited by the firm?	Competitive implications	Economic performance	
No	-	-	No	Competitive disadvantage	Below normal	
Yes	No	-	1	Competitive parity	Normal	
Yes	Yes	No	•	Temporary compe- titive advantage	Above normal	
Yes	Yes	Yes	Yes	Sustained compe- titive advantage	Above normal	

Figure 5.8: The VRIO Framework

Source: Own creation, based on Barney & Hesterly (2012).

The ultimate goal of this analysis is to answer the research question: What are *Vodafone*'s sustainable competitive advantages?

5.3.1.1 Tangible resources

This sub-section analyzes *Vodafone*'s main tangible resources, including its financial and physical resources, as well as its global footprint.

Financial resources

As a listed company, *Vodafone* is able to raise capital through the sale of its own securities, thus securing the company easy access to funds if a need arises. Furthermore, the firm can borrow money at comparably good rates, as all three big rating agencies attest the firm investment grade in long-term credit rating, and also high grades in the short term ratings (Vodafone, 2014B). However, the firm has had substantial capital in recent years. Since 2011, *Vodafone* has had cash & cash equivalents higher than GBP 6bn every year. In its financial year 2013/2014, after its disposal of its 45% stake in *Verizon Wireless*, the company was able to increase this amount to more than GBP 10bn while repaying debt of GBP 9.8bn and repurchasing shares for

more than GBP 1bn at the same time (Vodafone, 2014). Furthermore, the group achieved profits for the year above GBP 7bn every year since 2010, except in 2013, due to high impairment losses. This demonstrates the strong financial resources of the firm which can be used to take advantage of promising opportunities, to invest in R&D, to improve the customer service, to invest in better networks, or to acquire other companies in order to increase market share or diversify product offerings.

This resource is not rare in the sense that some of *Vodafone*'s biggest, multinational competitors also have substantial capital or can raise cash at will. However, compared to the many national network operators, new entrants, or MVNOs, the firm has a considerable advantage as those usually are not equipped with a comparable amount of capital. The financial resources of *Vodafone* are therefore valuable and rare to a certain limit, meaning that the company has competitive parity, and a competitive advantage over its smaller competitors.

Physical assets

Physical assets include all kind of properties, buildings, plants and facilities, machinery and equipment, and most importantly base stations and antennas. As *Vodafone* is operating in many countries, the firm owns a number of office buildings, and thousands of shops and base stations all around the world. Rather than on the location as such, this chapter focuses solely on the number and the presence of physical assets.

All of *Vodafone*'s multinational competitors also own office buildings and shops in various countries. Hence, this is no source of a competitive advantage. The amount of base stations and its effect on geographic reach or network quality, however, is worth pointing out. In the end of March 2014, *Vodafone* owned more than 263,400 mobile base stations, making it one of the largest mobile operators in the world by this variable (Vodafone, 2014). And due to Project Spring, a GBP 19bn investment program in the firm's network in the next two years, the group will be able to increase this number and to upgrade the current base stations to the latest technological standards faster than any other competitor. Some goals, for instance, are to cover 90% of the European population with the high speed 4G network and 95% of the Indian urban population with 3G by the year 2016. By following the firm's vision to offer "the best network" to customers, *Vodafone* might attract new customers, reduce the current churn rate, and increase customer satisfaction.

In total, *Vodafone*'s physical resources are valuable, and rare in the sense that no competitor is able to offer a comparable network quality on a comparable geographic reach. And due to the current heavy investments, this "level of rareness" is expected to increase in the near future. Project Spring also demonstrates how costly it is to imitate *Vodafone*. The company's network, provided by its physical assets, can thus be named a sustainable competitive advantage.

Global footprint

Another advantage in various ways is *Vodafone*'s extensive global reach. While there exist hundreds of national network operators and telecommunication firms with a focus on one geographic region or continent, *Vodafone* is one of only a few telecom companies with a broad geographic footprint. With equity interests in 27 countries, the group covers four continents. Additionally, the firm has partners in over 50 further countries.

This equips *Vodafone* with several major advantages. Firstly, a large number of competitors who only operate in Europe have been facing significant revenue declines in recent years due to unfavorable macroeconomic conditions. *Vodafone*, however, has been able to partly offset these declines with its increased revenues in emerging countries, mainly India and South Africa. Secondly, the group is able to offer new products and services across a larger market, after they have proven successful in one or two initial countries. One example for this is its mobile money transfer solution *M-Pesa*, which was launched in 2007 in Kenya and Tanzania, and has since then expanded to South Africa, India, Mozambique, Lesotho, Egypt, and since March 2014 also to Romania (Vodafone, 2014). Furthermore, the size of the firm increases *Vodafone*'s bargaining power vis-à-vis suppliers, and its global reach has enabled the group to win many global contracts, thus strengthening its position in the enterprise business.

The firm's global footprint is valuable and rare in the industry. It is also costly to imitate, at least on a scale which is comparable to *Vodafone*. It is possible for competitors to enter new markets, e.g. through acquisitions. It is, however, unlikely that these competitors will be able to imitate *Vodafone* and gain market shares of 20%-50% in countries on four different continents in the foreseeable future. Therefore, *Vodafone*'s global footprint can be considered a sustainable competitive advantage.

5.3.1.2 Intangible resources

This sub-section analyzes *Vodafone*'s intangible resources that potentially could derive to a competitive advantage. The main resources involved and considered here are the company's human resources, its innovativeness, as well as its strong brand.

Human resources

Vodafone puts a lot of focus on its employees. The firm explicitly states that its "people are fundamental to [its] success" (Vodafone, 2014) and commits itself to offer opportunities to the employees to further develop themselves and their skills. Every year, thousands of workers attend trainings in *Vodafone*'s Technology Academy, and in Retail and Sales academies. These actions are required in order to attract and retain a high-level workforce. *Vodafone*'s success as an employer is expressed in the number of employees who desire to continue working for the firm and would recommend it as an employer to others: Close to 80% across all

markets for the last years. The group is constantly growing in terms of employees, not just through acquisitions, but also through the establishment of more shared service centers in countries such as Hungary and India. The average number of employees increased from 86,373 in 2012 to 92,812 in 2014, and even reached 97,721 at the end of the financial year 2013/2014.

The company's management is highly skilled, too. This can be affirmed by the many successful acquisitions in the past, as well as the stable profitability of the firm despite unfavorable macro-economic conditions in the group's major markets in Europe. Especially Vittorio Colao, CEO, who has been a *McKinsey* consultant for eleven years and has gained experience in the telecommunications industry for more than 20 years, and Andy Halford, CFO until the end of the financial year 2013/2014, who negotiated the USD 130bn deal with *Verizon Wireless*, can be considered very skilled and valuable to the firm (Vodafone, 2014).

All in all, *Vodafone*'s human resources are valuable. However, with more and more global companies focusing on their employees and their development, as well as on attracting high profile managers, this resource is not considered rare. Therefore, this resource is at competitive parity.

Innovation

Inventing new products and services is one core objective of *Vodafone*. The launch of the mobile money transfer solution *M-Pesa*, for instance, has been very successful, and the service is now available in various countries, resulting in an increasing percentage of revenues. Similar developments can be expected from *Vodafone Wallet*, a mobile paying solution that has been launched in several countries as well.

The company is also successful in utilizing new technologies when offering new products and services. After the invention of cloud computing, often considered a disruptive technology, *Vodafone* focused strongly on offering cloud solutions. This capability was strengthened through the acquisition of *Cable & Wireless Worldwide* in 2012. Today, the group is a successful supplier of cloud services to many large and international, as well as medium-sized businesses around the world. Furthermore, *Vodafone* engages in the M2M market, especially in the automobile industry, and on a collaboration with network suppliers to develop new solutions that improve the mobile network (Vodafone, 2014).

As innovations can always be very successful and represent potential opportunities for future growth, *Vodafone*'s track record and its future strive for innovation can be considered highly valuable. Since its main competitors also innovate in similar areas and are quick in following up by offering similar products, such as mobile payments, the resource cannot be considered rare. This also implicates competitive parity.

Brand

Vodafone's brand name is very valuable. As one of the world's largest telecommunication services providers, the company enjoys extremely high brand awareness, even outside the countries in which it

operates. According to Brand Finance (2014), *Vodafone* was the 13^{th} most valuable brand in the world, the third most valuable brand in the telecommunication industry (ranking only behind the US firms *Verizon* and *AT&T*), and the most valuable firm in the UK.

Vodafone is actively managing its brand. Throughout 2014, it will launch a new brand strategy across all its markets: *Vodafone Firsts*, which is supposed to "inspire people to do something remarkable for the first time using mobile technology" (Vodafone, 2014). The group has also been the title sponsor of McLaren's formula 1 team for the years 2007 to 2013, resulting in the name *Vodafone McLaren Mercedes* (Mulvenney, 2013). This sponsorship significantly increased the brand awareness globally. Furthermore, *Vodafone* also sells branded mobile phones: more than 2.2 million only in Europe in its financial year 2013/2014.

As a strong brand can be a major driver of purchasing decisions both for private consumers and for businesses, this resource is very valuable. To the extent of *Vodafone*'s brand value, it is also rare, especially in those countries in which the company operates. In addition to that, it also is extremely intensive in terms of time and resources to build up a brand that is as strong and valuable as *Vodafone*. Therefore, this resource can be considered one of the group's sustainable competitive advantages.

5.3.1.3 Organizational capabilities

Apart from tangible and intangible resources, competitive advantages can also derive from organizational capabilities. They could rest in combinations of a firm's tangible and intangible resources, or in a firm's processes and organizational systems. The three areas analyzed in the following are *Vodafone*'s standardization and cost efficiency, its centralized procurement, and its customer service.

Standardization and cost efficiency

Throughout the years, *Vodafone* has been quite successful in reducing its cost base and, therefore, increasing its cost efficiency. It has managed this in various ways. Firstly, the company is constantly standardizing and simplifying its processes and operations, e.g. its IT systems by implementing new, integrated platforms, or the logistics processes by upgrading retail points, etc. Standardized processes are outsourced to shared service centers which provide financial, administrative, IT, customer operations, and human resource services to all of *Vodafone*'s markets. The number of shared service center employees has increased from 9,500 in 2012 to over 13,300 at the end of the financial year 2013/2014, and is expected to reach 16,000 employees in 2016. The group states cash cost savings of GBP 180m in 2014 just through shared services (Vodafone, 2014).

Secondly, *Vodafone* is actively looking for ways to reduce its largest cost factor, its network investments. The firm has therefore entered into several infrastructure sharing agreements with other network operators in almost all of its markets. It also pursues opportunities to decrease power and energy costs, and is constantly

innovating and adapting technologies that increase the network efficiency or lower the network infrastructure's energy consumption (Vodafone, 2009).

Lastly, cost reductions can be achieved by the acquisition of companies with similar operations. For instance, as *Vodafone*'s and *Kabel Deutschland*'s network infrastructure was highly complementary, the firm was able to generate savings through network integration, from closing central DSL offices and reduced maintenance costs (Advanced Television, 2013).

Hence, standardization and cost efficiency are very valuable, though not rare. Most competitors are actively managing their cost base as well, especially when the macro-environment is unfavorable. Furthermore, they also benefit from infrastructure sharing agreements with *Vodafone*. All in all, this results in competitive parity.

Centralized procurement

In 2008, *Vodafone* created the *Vodafone Procurement Company* (*VPC*), the group's centralized strategic procurement function based in Luxembourg. By migrating more and more categories and local markets to *VPC*, the firm managed to increase its global spend amount to more than EUR 10bn in 2013/2014, and expects it to increase to more than EUR 15bn in the coming three years. *KPMG*, who has many procurement companies as clients, describes the strategy, processes, and achievements of *VPC* as "a dream coming true" (KPMG, 2014A) from a supply chain perspective. Additionally, *VPC* has won several supply chain excellence awards, procurement awards, and similar prices (Vodafone, 2014C).

The efficiency in procurement achieved through *VPC*, as well as the very high economies of scale and bargaining power, make this procurement setup a valuable capability. Its structure as a centralized, independent entity is also rare in the industry. However, it is not too costly to imitate, at least not in monetary terms. Category managers need to be hired, and a new office might need to be rented, none of which can be considered costly for firms of *Vodafone*'s size. With regards to the strategic planning and setting up appropriate processes and systems, however, it might be costly in terms of time. All in all, the group's procurement can be assessed as a temporary competitive advantage.

Customer Service

In a highly mature industry that is characterized by low levels of product differentiation, retaining customers is amongst the most crucial tasks for the players in that industry. Offering excellent customer service is one of the strategies that can help to achieve this task. *Vodafone* has been very aware of this. For years, the company's "business model is based on continued high levels of investment to build a superior telecommunications network and customer experience" (Vodafone, 2014). With around 14,500 *Vodafone* branded stores worldwide, the group offers personal service to its customers in more locations than the

majority of its competitors. In total, the satisfaction of the firm's customers with *Vodafone*'s products and services can be measured by the consumer net promoter score (NPS), which measures to what extent customers would recommend the company to friends and family. In 2013/2014, *Vodafone* has been able to increase the number of countries where it is ranked first in terms of NPS to nine, and the group aims at increasing this number in the near future.

Especially in the telecommunications industry, good customer service is very valuable. Although *Vodafone* might put more resources in delivering the best customer service than others, it is not a rare capability, as most players focus on improving their services. Hence, this implicates competitive parity.

Figure 5.9 sums up the results of the internal analysis. As depicted, *Vodafone* has several resources and capabilities that can be considered sustainable competitive advantages: Its physical assets and the resulting mobile network offered to customers, its global footprint, and its brand and reputation. These advantages could explain how *Vodafone* was able to outperform most of its competitors in the most recent years, both in terms of revenue development, and total profits.

Resource/ capability	Valuable?	Rare?	Costly to imitate?	Exploited?	Competitive implications	Economic performance
Financial	Yes	To an extent			Competitive parity	Normal
Physical	Yes	Yes	Yes	Yes	Sustained compe- titive advantage	Above normal
Global footprint	Yes	Yes	Yes	Yes	Sustained compe- titive advantage	Above normal
Human	Yes	No			Competitive parity	Normal
Innovation	Yes	No			Competitive parity	Normal
Brand	Yes	Yes	Yes	Yes	Sustained compe- titive advantage	Above normal
Standardi- zation	Yes	No			Competitive parity	Normal
Procurement	Yes	Yes	No		Temporary compe- titive advantage	Above normal
Customer Service	Yes	No			Competitive parity	Normal

Figure 5.9: Summary of the VRIO Analysis of Vodafone

Source: Own creation.

5.3.2 SWOT Analysis

The purpose of this chapter is to give a brief, holistic conclusion of the macro, micro, and internal analysis, and to provide a comprehensive overview that summarizes all major findings. The model used here is the SWOT framework. Its outcome is a matrix that includes the most relevant and important strengths, weaknesses, opportunities, and threats of *Vodafone*. The related detailed arguments and qualitative as well as quantitative analyses are presented in the previous chapters.

5.3.2.1 Strengths

Based on the internal analysis of *Vodafone*, the company's strengths are considered to be those resources and capabilities that were found to be the source of potential sustained competitive advantages. In particular, these are the firm's extensive global footprint, its physical assets resulting in a high-quality telecommunications network, and its brand.

With equity interests in 27 countries in Europe, Africa, and Australasia, *Vodafone* is one of the largest telecommunication services providers in the world. With its more than 50 partners in further markets, the group ensures that its customers enjoy the benefits of traveling and having easy access to the services of their respective home country network operator. A further strength in the global footprint rests in the fact that *Vodafone* is less dependent on the success in one specific market or geographic region. Additionally, the firm is either market leader or the second largest mobile operators in almost every country in which it operates. This strong market position, together with the company's size and global operations, allows *Vodafone* to achieve economies of scale and reap significant cost efficiencies.

One of the firm's major differentiator is its strong network. The group strives to offer the best network available in all its operating markets, to ensure its customers high quality voice phone calls and access to high speed internet. Therefore, *Vodafone* owns more than 260,000 base stations and antennas globally, and uses the latest technologies in order to constantly improve the network's efficiency.

Lastly, one of the company's most important strengths is its brand. The brand is well-known and trusted by many people all around the world. Due to global sponsorships of high-profile events and teams, such as *McLaren Mercedes* in the formula one, and global marketing campaigns, *Vodafone* is not just known by its customers and the people in its operating markets. Instead, its brand awareness is very high even in other countries, making *Vodafone* one of the most valuable brands in the world.

5.3.2.2 Weaknesses

Vodafone's weaknesses are mainly of financial nature. The most important ones are related to the fact that, in the last decades, growth in the wireless telecommunications industry has been mostly inorganic through acquisitions, and deal with the company's tax disputes with national bodies in some of its operating markets.

Vodafone's profitability has been impacted significantly by very high impairment charges in the most recent years. Since its financial year 2008/2009, the firm's impairment losses have added up to a total sum of GBP 32.5bn. Of these, by far the largest part is related to goodwill, while only a minor part is related to licenses and spectrum fees, and property, plant and equipment. This means that *Vodafone*'s acquisitions were overpaid for. However, as stated earlier, the global telecommunications industry is characterized by (sometimes large scale) acquisitions. Therefore, other firms have been struggling with high impairment charges, too. *Deutsche Telekom*, for instance, recorded charges of more than EUR 11bn only in 2012, and also *Orange* has faced total impairment losses of almost EUR 4bn in the most recent years. Nevertheless, none of the competitors analyzed in this thesis are recording impairment charges on a level similar to *Vodafone*, which highlights the company's investment choices (MarketLine, 2014).

Another weakness, as mentioned before, are the several tax disputes that *Vodafone* is facing, with the highest claims being made by the Indian Income Tax Department (ITD). The claims deal with the acquisition of *Vodafone India* in 2007, and the case has gone back and forth several times already. After the ITD initially demanded about USD 2bn, in 2012 the Indian Supreme Court concluded that *Vodafone* would not need to pay this amount. By now, however, amendments have been made to the Indian Income Tax Act, and the case was revived again. Additionally, the ITD now demands further payments for other tax issues and asked the group to deposit INR 2bn as an initial payment and to submit bank guarantees for the remaining amount by the end of 2014 (MarketLine, 2014). In total, the full amount claimed by the ITD sums up to GBP 1.4bn, including a penalty and accrued interests (Vodafone, 2014).

Although it is unsure whether *Vodafone* will have to make these payments in the end, this case could result in very high penalties, and potential further claims in the future could negatively impact the company's financial performance, as well as its brand.

5.3.2.3 Opportunities

Vodafone can look forward to several potential growth opportunities which can stem from various different sources. The major opportunities analyzed earlier will be summarized here: the firm's investment program named Project Spring, the ever increasing demand for data services, the acquisition of *Kabel Deutschland* in Germany and of *Ono* in Spain, as well as the company's focus on new technologies.

After its disposal of its stake in *Verizon Wireless* in early 2014, *Vodafone* dedicated a large part of the proceeds, GBP 19bn, to its investment program "Project Spring". It consists of large-scale investments in the company's network and network infrastructure in several operating markets. With the ultimate goal to offer the best available network to clients, *Vodafone* wishes to supply the biggest part of its geographical footprint with 3G or 4G services sooner than any of its competitors. While this, on the one hand, could lead to new

customers switching to *Vodafone*, the firm, on the other hand, hereby strengthens its most important revenue source: data services.

Related to this is the globally increasing demand for data. As analyzed in a previous section, global data revenue is set to grow by USD 128bn in the period from 2013 to 2017, whereas voice revenue is set to decline by USD 38bn (Vodafone, 2014). In 2013, a mobile phone with access to 4G generated 14.5 times as much traffic as a non-4G subscriber (MarketLine, 2014), which clearly demonstrates the growth opportunity in this area. *Vodafone*, with its strong network and especially with its Project Spring, is well positioned to seize this opportunity, especially in its emerging markets in India and Africa, where growth in data is expected to be the highest.

Another opportunity lies in the company's strategic acquisition of *Kabel Deutschland* and its planned acquisition of *Ono*, two TV and telecommunication service providers in Germany and Spain, respectively. Through these takeovers, *Vodafone* does not only further diversify its product portfolio (cable TV) in two of its major markets, but it also is expected to be able to significantly increase its cost efficiency. As described in section 5.3.1.3, *Vodafone*'s and *Kabel Deutschland*'s network infrastructure were highly complementary, which resulted in large savings. Furthermore, the group will now be able to offer the so called quadruple play services, meaning an integrated bundle including landline, mobile phone, television, and broadband services. These all-in-one packages are becoming increasingly popular.

Finally, a major opportunity for *Vodafone* presents itself in the new technologies the company is offering, or investing in. Examples of successful launches of new products are the mobile money transfer service *MPesa*, and the mobile paying solution *Vodafone Wallet*. Every month, more customers adopt these services, and they are launched in more and more markets. Furthermore, *Vodafone Global Enterprise* has established itself as a strong player in the market for cloud computing services. This market is expected to grow at a compound annual growth rate of 22% until 2017 globally (MarketLine, 2014), hence offering a promising growth opportunity. Lastly, the global M2M connectivity services market has been growing rapidly in the last years, and is expected to do so in the future. As *Vodafone* is an established player in this industry, the future demand for the various services and solutions of the group is expected to increase in the next years, thereby strengthening its market position.

5.3.2.4 Threats

Despite the various promising growth opportunities summarized above, *Vodafone* also needs to cope with potential threats that could harm the firm's profitability and market share. The major threats which the group is facing are regulations, the market maturity, unfavorable economic conditions in Europe, as well as the strong competition by other network operators and MVNOs.

As analyzed in previous chapters, the market penetration in the developed countries, specifically in Europe which represents nearly two third of *Vodafone*'s revenues, is extremely high, with mobile density rates above 100%. This makes it nearly impossible for mobile telecommunication services providers to grow through the acquisition of new customers. Furthermore, EU legislation and regulations have led to significant cuts in the mobile termination rates which has had a major impact on the revenues of network operators in Europe. The EU might further lower the MTRs in the future, thereby continuously impacting topline growth of companies like *Vodafone* negatively.

In addition to the regulatory circumstances, the current economic situation in many European countries leads the people to use prepaid services, rather than in-bundle services or long-term contracts, resulting in lower and less predictable revenue streams in the future. Coupled with the fact that the strong competition in Europe and the emergence of numerous MVNOs drive prices down, these developments could reduce *Vodafone*'s future market share and profitability in its major European markets.

Lastly, it is expected that voice revenues will decline strongly in the coming years, affecting all network providers negatively. However, this trend is offset by the fast growing demand for data services.

5.4 Sub-Conclusion

The preceding chapter aimed at analyzing *Vodafone* and its business environment, answering the first two research sub-questions. Therefore, an in depth analysis of the group's macro and micro environment was conducted in subsections 5.1 and 5.2, respectively, using the PEST analysis and the Five Forces framework. These sections were followed by an analysis of the company itself. First, some of its key sustainable competitive advantages were detected using the VRIO framework. Finally, *Vodafone*'s strengths, weaknesses, opportunities, and threats were described by summarizing the major findings of the previous sub-sections. The results of this high-level SWOT analysis are depicted in the matrix in figure 5.10.

Now that a brief historical overview over *Vodafone* was given, and a detailed analysis of its business environment was conducted, a foundation is formed which is required to be able to perform a firm valuation. While the previous chapters comprise qualitative research, the following chapter 6 deals with the historical financial analysis of the group. This is needed in order to recognize trends and developments in the company's financial performance, and will, together with the results of the qualitative part, be used to forecast the future performance in chapter seven.

Figure 5.10: SWOT Analysis of Vodafone



Source: Own creation.

6. Financial Analysis of Vodafone

The main goal of this chapter is to answer the research sub-question: How has *Vodafone* been performing financially in the most recent years? Therefore, financial data of the group's annual reports for the financial years 2008/2009 until 2013/2014 is used, as this period is assumed to be sufficiently long enough to show trends and business cycles.

For this purpose, the company's financial statements need to be reformulated. In section 6.3, analytical income statements and balance sheets will be prepared as described in Petersen & Plenborg (2012). Subsequently, the actual financial analysis will be conducted, following an extension of the classic and well-known DuPont-model.

6.1 Vodafone's Peer Group

Since the aim is not to give just a stand-alone overview of *Vodafone*'s current financial situation, the results of this analysis will be compared with results of some of *Vodafone*'s main competitors. The peer group which is used therefore was briefly introduced in chapter 5.2.5 and consists of *Telefónica*, *Orange*, and *T-Mobile*.

In order to get the most meaningful insights and information whether *Vodafone*'s success can be credited to the industry only or to the firm itself, the peer group should ideally be as similar to *Vodafone* as possible. As

argued earlier, this is not 100% possible, as none of the firm's competitors operates in exactly the same countries. Thus, they face different market conditions and risks. However, this peer group was chosen as all of these firms generate a major part of their revenues in Europe, and have other operations in developing countries (with the exception of *T-Mobile* which has a large subsidiary in the United States). While *Orange* is also operating in a number of African countries, *Telefónica* focuses on South and Middle America, and *Vodafone* has further operations in Africa and India (as well as in Australia and New Zealand). *T-Mobile* is a subsidiary of *Deutsche Telekom*. Hence, its financial statements are consolidated into the statements of the mother company which also include the financial results of its other businesses (e.g. of the IT services provider *T-Systems*). Nevertheless, since *T-Mobile* and wireless telecommunication services make up the largest part of *Deutsche Telekom*'s business, it will still be used as one of *Vodafone*'s peers.

6.2 Accounting Policies

In all annual reports analyzed in this thesis, *Vodafone* has reported in accordance with International Financial Reporting Standards (IFRS) as issued by the International Accounting Standard Board (IASB) and in accordance with IFRS adopted by the European Union. Throughout the years, the company has adopted some new or revised accounting standards. However, none of them are assumed to have a material impact that would be noteworthy for the following financial analysis.

The group's financial statements have been audited by *Deloitte* in each of the years considered. The auditors have not found anything to report and state that "the financial statements give a true and fair view of the state of the Group's and of the parent company's affairs [...] and of the Group's profit for the year" (Vodafone, 2014). Thus, it is assumed that *Vodafone*'s financial reports provide truthful information about the firm's current financial situation, and that all IFRS are met.

It is important to mention that for the financial years 2008/2009 until 2010/2011, the respective annual reports have been used to collect the financial information needed. For the following years, however, only the annual report for the financial year 2013/2014 was used and its included, restated financial data for the two prior years. The restated figures show the financial performance of *Vodafone* without its stake in *Verizon Wireless* which the company disposed of in February 2014. The reason for using the restated numbers is to discover trends and developments in the last three years on a ceteris paribus level, since the disposal of *Verizon Wireless* has had a significant impact on several financial items. Any considerable changes for the financial year 2011/2012 in the following financial analysis might therefore be attributed to this disposal.

For the same reason, the financial information of *Orange* of the first years analyzed is taken from the restated annual report of 2010.

Like *Vodafone*, all of its peers analyzed in this chapter report in accordance with IFRS as endorsed by the EU as well. Similarly, they also have adopted new or revised accounting standards, none of which are assumed to have a material impact. From an accounting standard perspective, all firms are therefore considered to be comparable.

6.3 Preparation of the Analytical Financial Statements

As mentioned above, the financial statements of the companies of interest need to be reformulated in order to be used as a basis for comparative financial analyses. This sub-section will, thus, present the analytical financial statements according to the NOPAT (Net Operating Profit After Tax) and invested capital method, described in Petersen & Plenborg (2012). The main objective is to separate operating activities from financing activities, so as to reveal the true value created by operational activities.

6.3.1 Analytical Balance Sheet

In order to obtain the analytical balance sheet, all balance sheet items need to be classified as part of either operations, or financing. While this classification is straightforward for most items, some other items need special attention. In the following, the latter will be analyzed in more detail, and other adjustments will be explained.

The first item that needs to be considered carefully is "cash and cash equivalents". The firms do not disclose which part of their cash is operating cash and which part is excess cash. Therefore, the results of Koller, Goedhart, & Wessels (2010) were used, who found that 2% of sales is a good proxy for working cash. The residual amount, "excess cash", will be classified as a financial, interest-bearing asset.

Although it sounds reasonable to classify the items "Trade and other receivables/payables" as operating assets or liabilities, respectively, the notes in *Vodafone*'s annual reports state that these include derivative financial instruments. Their value will be subtracted from the receivables/payables, and listed separately under interest-bearing assets/debt.

The item "other operating liabilities" mostly includes provisions and taxation liabilities for *Vodafone* and its peers.

Vodafone states the item "other investments" under both current and non-current assets. The notes reveal that those include the items "equity securities", "public debt and bonds", and "other debt and bonds". Hence, they will be classified as financial, interest-bearing assets.

Finally, all four companies use operating leases. This is a form of off-balance-sheet financing that allows the lessees to keep assets and their corresponding debt off their balance sheets (Brealey, Myers, & Allen, 2011).

Only the amount of the rental expenses is provided in the notes to the income statement. This results in an undervaluation of both the firm's assets and its financial debt. As the undervaluation is material for all four companies, it is necessary to adjust the financial statements in this respect. However, since the present value of the leased assets is not disclosed, the asset values need to be estimated. This is done by the following equation (Koller, Goedhart, & Wessels, 2010):

$$Asset Value_{t-1} = \frac{Rental Expense_t}{r_d + \frac{1}{Asset Life}}$$

 r_d represents the cost of debt which can be estimated by applying the cost of secured debt. The cost of secured debt can be used, due to the fact that leases are collaterized by the underlying assets, which means that the implied risk is lower than for a company's unsecured debt. Therefore, as a proxy, Moody's Seasoned Aaa Corporate Bond Yields will be used. The arithmetic averages of the daily yields for the years of interest are calculated, and the result is shown in figure 6.1 as cost of debt (Federal Reserve Bank of St. Louis, 2014).

The leased assets include a mix of different objects, mostly plant and machinery, fixed line rentals, etc. Thus, the true asset life of specific leased assets is impossible to determine. Lim, Mann, & Mihov (2003) examined 7,000 firms over 20 years and calculated the median asset life to be 10.9 years. Due to the mix of assets leased, this number will be used.

	Company	'08(/09)	'09(/10)	'10(/11)	'11(/012)	'12(/13)	'13(/14)
Cost of debt	All	5.63%	5.31%	4.94%	4.64%	3.67%	4.23%
Asset life	All	10.9	10.9	10.9	10.9	10.9	10.9
0	Vodafone, m GBP	1,399	1,658	1,888	1,755	1,803	2,153
Operating	Telefónica, m EUR	914	1,068	1,083	1,033	1,159	947
ovnonco	Telekom, m EUR	2,000	2,100	2,200	2,300	2,800	3,200
expense	Orange, m EUR	1,144	1,054	964	1,010	1,055	1,101
Asset value	Vodafone, m GBP	11,202	13,030	12,433	13,053	16,759	16,171
	Telefónica, m EUR	7,535	7,641	7,288	8,177	6,681	6,681
	Telekom, m EUR	14,816	15,521	16,227	19,754	22,576	22,576
	Orange, m EUR	7,436	6,801	7,123	7,445	7,768	7,768
Imputed	Vodafone, m GBP	532	595	644	577	479	709
interest	Telefónica, m EUR	322	377	382	364	409	334
ovpopco	Telekom, m EUR	706	741	776	811	988	1,129
expense	Orange, m EUR	404	372	340	356	372	388

Figure 6.1: Capitalized Operating Leases

Source: Own creation.

All elements of the formula above are found. Figure 6.1 shows the calculated values which are used in the analytical financial statements. As the asset value depends on the following year's rental expense,

assumptions need to be made about the rental expense in 2014. All firms' rental expenses have been rather stable or increasing slowly throughout the years. Thus, the same rental expenses were assumed as for the year 2013(/2014), except for *Vodafone* where the rental expense as forecasted in chapter 7 was used. Note that *Vodafone*'s financial year ends on March 31st, while all its peers use the calendar year as their financial year. Hence, for example *Vodafone*'s financial year 2008/2009 is assumed to be similar to the financial year 2008 of its peers. Also note that *Orange* only states future minimum lease payments, but not the expenses paid during the year. As this number represents only the minimum amount and the company can sign more lease agreements throughout the following year, this number is usually lower than the rental expenses that are actually due. This implies that *Orange*'s assets and debt might still be slightly undervalued, even after this capitalization measure.

The asset value is now added to non-current, operating assets, and correspondingly to interest-bearing debt. The analytical balance sheets of *Vodafone* and its peers is presented in appendix 1.

6.3.2 Analytical Income Statement

The analytical income statements classify all accounting items either as part of operations, or as part of finance. This is due to the fact that investors consider operating profit as the main source of value creation. Therefore, the analytical income statements reformulate the items in a way that NOPAT can be calculated. To calculate NOPAT, the implied tax shield is subtracted from EBIT (Earnings before interest and taxes) in addition to the reported taxes, as those are already positively influenced by the firm's net financial expenses (Petersen & Plenborg, 2012). Although *Vodafone* states its adjusted effective tax rates, Brealey, Myers, & Allen (2011) advise to "always use the marginal corporate tax rate", which were taken for the respective countries (United Kingdom, Spain, Germany, France).

Financial year	'08(/09)	'09(/10)	'10(/11)	'11(/12)	'12(/13)	'13(/14)
Vodafone	30.0%	28.0%	28.0%	26.0%	24.0%	23.0%
Telefónica	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Deutsche Telekom	30.5%	30.5%	30.5%	30.7%	30.7%	30.7%
Orange	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%

Figure 6.2: Corporate Tax Rates

Source: Own creation, based on KPMG (2014).

The notes in most financial statements do not disclose whether "other financial income and expenses" are taxable, and if so at which rate. This thesis therefore follows Petersen & Plenborg (2012), and also uses the marginal tax rate for these items.

As mentioned in the previous chapter, the analytical statements include capitalized operating leases. This also affects EBIT, since the imputed interest expenses (see figure 6.1) are removed from operating costs. Both the operating lease interest expense and the implied tax shield are subtracted or added back, respectively, after the calculation of NOPAT in order to obtain the profit for the year.

It is worth mentioning that *Vodafone* and its competitors treat the item "Share of results of associates and joint ventures" differently. While *Vodafone* and *Orange* define it as part of operations, *Telefónica* and *Deutsche Telekom* treat is as financial income. In order to maintain comparability, it was chosen to list this item as a part of operations for all companies. This way of treatment is supported by the fact that the respective associated companies are mostly involved in activities related to telecommunications, too.

The analytical income statements for Vodafone and its peers are presented in appendix 2.

6.4 Profitability Analysis

To analyze the historical performance, first the operational results will be described, and afterwards the results are looked at from a shareholder's perspective. As mentioned before, an approach based on the DuPont model will be used, which is depicted in figure 6.3.



Figure 6.3: Key Financial Ratios Based on the DuPont Model

Source: Own creation, based on Petersen & Plenborg (2012).

All balance sheet ratios are based on averages, since this is considered to be the most accurate method, as it takes the development within the year into consideration (Petersen & Plenborg, 2012).

6.4.1 Return on Invested Capital

The operational result which is achieved by the firm's core business is best analyzed by the measure Return On Invested Capital (ROIC). It is calculated by the formula:

$$ROIC = \frac{NOPAT}{Average \ Invested \ Capital}$$

The development of ROIC for *Vodafone* and its peers is illustrated in figure 6.4. Since the average is used, the analysis starts with the financial year 2009(/2010).



Figure 6.4: ROIC

Source: Own creation, annual reports.

This figure shows that *Telefónica* has been outperforming the other three companies until the final year, where *Vodafone* took over the highest position after a rapid increase from -2.2% to 12.2%. Both *Vodafone* and *Deutsche Telekom* had negative NOPATs in 2012(/2013), resulting in negative ROICs. However, all peers show a similar development: After more or less stable years until 2011(/2012), their ROICs dropped in the following year, followed by an increase again in 2013(/2014).

Koller, Goedhart, & Wessels (2010) suggest comparing ROIC excluding goodwill, in order to compare the underlying operating results without the influence of acquisitions. Therefore, figure 6.5 shows the development of ROIC excluding goodwill and impairments on goodwill. Furthermore, since tax issues play a critical role, especially for *Vodafone*, figure 6.5 also uses the pre-tax ROIC which simply replaces NOPAT with EBIT.

Figure 6.5: Adjusted Pre-Tax ROIC



Source: Own creation, annual reports.

The difference between the figures clearly shows that *Vodafone* has only been able to achieve the highest after-tax ROIC in 2013/2014 due to its income tax credit of more than GBP 16.5bn. Furthermore, the adjusted ROIC shows that, without the effects of acquisitions and tax, ROIC has had a negative trend in the last five years.

However, ROIC alone does not explain whether the firm's operating profitability is driven by an improved revenue-to-cost relation or by a better utilization of capital. The DuPont model identifies two value drivers that, together, compose ROIC, namely profit margin and turnover rate (Petersen & Plenborg, 2012):

ROIC = *Profit margin* × *Turnover rate of invested capital*

The profit margin expresses the profitability of every GBP/EUR of sales, and the turnover rate shows the revenue for each GBP/EUR of invested capital, thus describing the firm's ability to convert invested capital to sales. All things being equal, a higher turnover rate of invested capital, and a higher profit margin are preferable. The ratios are calculated as follows (Petersen & Plenborg, 2012):

$$Profit margin \ before \ tax = \frac{EBIT}{Net \ revenue}$$
$$Turnover \ rate \ of \ invested \ capital = \frac{Net \ revenue}{Average \ invested \ capital}$$

Similar to the adjusted pre-tax ROIC, figures 6.6 and 6.7 show the turnover rate excluding goodwill, and the profit margin before tax excluding impairment charges. The reason for this is, again, to show the results

without the impact of acquisitions. The turnover rate including goodwill, and the post-tax profit margin (using NOPAT instead of EBIT) are presented in appendices 3 and 4.



Figure 6.6: Turnover Rate

Source: Own creation, annual reports.



Figure 6.7: Pre-Tax Profit Margin

Source: Own creation, annual reports.

Vodafone has clearly the lowest turnover rate by far. With rates between 43% and 60% it is significantly below the turnover rates of *Telefónica* and *Orange* which both have rates constantly above or close to 100%. One of the reasons for this had been the very high investment of *Vodafone* in *Verizon Wireless*. After its

disposal, the item "investments in associates and joint ventures" dropped more than GBP 45bn, leading to the first improvement of turnover rate in five years (from 43.1% in 2012/2013 to 46.3% in 2013/2014). At the same time, *Vodafone*'s revenues are constantly below those of its peers (except *Orange*), despite the fact that the group has by far more customers. The reason for this has been analyzed in previous chapters: *Vodafone* engaged heavily in value pricing and has its largest customer base in India, both factors that lead to a rather low Average Revenue Per User (ARPU).

On the other hand, *Vodafone* has always been first or very close second in terms of profit margin before tax (excluding impairment charges), up until the last financial year. The decline in the last years is attributable to restated financial statements that exclude *Verizon Wireless*' dividends to *Vodafone*. Furthermore, operating expenses as a percentage of revenue have also slowly increased throughout the years, leading to decreasing margins.

In general, both value drivers have developed very differently across the compared companies. In fact, the development of *Telefónica*'s and *Deutsche Telekom*'s profit margin has been almost exactly opposing. An industry trend can therefore not be identified.

6.4.2 Return on Equity

From a shareholder's perspective, the ultimate measurement for profitability is Return On Equity (ROE). Since shareholders are left with the bottom line profit, they are affected by all of a firm's financial positions. Therefore, ROE captures the results from both operational and financial activities.

There are various ways of calculating ROE, the most common formula being:

$$ROE = \frac{Comprehensive\ income}{Average\ total\ equity}$$

As this thesis follows the DuPont model depicted in figure 6.3, ROE has been calculated based on ROIC and other financial drivers (Petersen & Plenborg, 2012):

$$ROE = ROIC + (FLEV \times SPREAD)$$

where FLEV is the financial leverage of the firm, and SPREAD is the difference between ROIC and the net borrowing cost (NBC). Due to the fact that all four companies have minority interests (MI) on their balance sheets, this formula needs to be adjusted by the minority sharing ratio (MSR) (Nissim & Penman, 2001):

$$ROE = ROIC + (FLEV \times SPREAD) \times MSR$$

where MSR is calculated as:

 $MSR = \frac{Comprehensive\ income\ after\ MI}{Comprehensive\ income\ before\ MI} \Big/ \frac{Average\ shareholders' equity}{Average\ total\ equity}$

Since ROIC was calculated above, the remaining variables are calculated first, before ROE is finally derived.

The financial leverage explains how a firm's assets are financed through equity and debt. Figure 6.8 shows the financial leverage of *Vodafone* and its peers in their last financial years, computed by the following formula (Nissim & Penman, 2001):

$$FLEV = \frac{Average \ net \ interest \ bearing \ debt}{Average \ total \ equity}$$



Figure 6.8: Financial Leverage

Source: Own creation, annual reports.

As the figure clearly shows, *Vodafone* has continuously had the lowest financial leverage by far. Though it was slightly increasing year-on-year to 51.9% in 2012/2013, it decreased to 47.9% again in 2013/2014, after the company repaid almost GBP 10bn of debt in the aftermath of it's *Verizon Wireless* disposal. Its peers have significantly more debt than equity, with *Telefónica* and *Deutsche Telekom* reaching leverage ratios of above 200%. The low leverage of *Vodafone* is even more surprising, since the capitalization of operating leases has a large impact on the leverage ratio by increasing net debt, and *Vodafone*'s capitalized leases are higher than the ones of *Telefónica* and *Orange* together. High leverages mean high levels of debt that require interest payments. Therefore, firms that are highly leveraged need to be profitable enough to cover these interest claims. This explains the similar result of FLEV and ROIC calculated before, where *Telefónica* achieved the highest ratios, while *Vodafone* ranked rather low.

As mentioned earlier, SPREAD is the difference of ROIC and NBC, thus:

$$SPREAD = ROIC - NBC$$

wherein NBC (including capitalized operating leases) is calculated as:

$$NBC_{after tax} = \frac{Net \ financial \ expenses \ after \ tax + Operating \ lease \ interest}{Average \ net \ interest \ bearing \ debt}$$



Figure 6.9: SPREAD

Source: Own creation, annual reports.



Figure 6.10: ROE

Source: Own creation, annual reports.

The calculated SPREAD shown in figure 6.9 uses the after tax ROIC including goodwill and impairment expenses as shown in figure 6.4. The graphs show volatility for all companies, with *Vodafone* being the most volatile. In 2011/2012 and the following year, *Vodafone*'s SPREAD was negative which implies that

shareholder value is destroyed when the leverage is increased. However, it is important to note that NBC does not equal the firm's borrowing rate, as it is affected by the difference between lending and deposit rates, and it includes the item "other financial items" (Petersen & Plenborg, 2012).

Now, all variables needed to calculate ROE are known. Figure 6.10 shows the development of ROE for the analyzed firms in the last five years. By comparing figures 6.4 and 6.10, the strong correlation between ROIC and ROE becomes obvious. The graph indicates clearly that *Telefónica* has been outperforming its peers in terms of ROE in the last years. The only competitor to achieve a higher ROE was *Vodafone* in the last year. Similar to ROIC, the development for all companies is rather the same, except that *Telefónica* has not been able to increase its ROE again after the decline in 2012(/2013). An industry wide trend that could be used to predict future performance cannot be identified, due to the volatility in the last three years.

6.5 Sub-Conclusion

The objective of this chapter has been to analyze *Vodafone*'s financial performance in the last five to six years, and to compare it with its peer group. The peer group was chosen to consist of *Telefónica*, *Deutsche Telekom*, and *Orange*, as these firms are considered to be the closest match to *Vodafone* both geographically and by size.

Due to unfavorable macro-economic circumstances and heavy MTR cuts in Europe, where all companies have a large portion of their revenues, the industry appears to be characterized by declining ROICs and ROEs. However, *Vodafone* is the only company that has been able to achieve a higher ROE in 2013/2014 than in 2009/2010, hereby even overtaking *Telefónica* which had constantly outperformed all three competitors in the years before. By analyzing the underlying drivers for these ratios, it was found that *Vodafone* only achieved the lowest turnover rate, but on the other hand could register the highest profit margin by far in most years. Also in terms of financing, *Vodafone*'s leverage has constantly been far below its peers, demonstrating significantly lower default risk.

After this chapter has provided an overview of *Vodafone*'s current financial situation, the following chapter will focus on the expected future development of the company's financials.

7. Forecasting

The main objective of this chapter is to forecast *Vodafone*'s future financial performance and thereby to answer the research sub-question: How is *Vodafone* expected to perform in the future? This consideration is instrumental to the valuation process, as the actual valuation, followed in the next chapter, rests on the results of this forecasting. The forecasted numbers are based on the findings and conclusions of the previous

chapters, both the strategic and the financial analysis of the firm, its recent financial performance, and the macro and micro-environment in which the group operates.

As has been argued for in chapter 3, the forecast period is selected to be five years, as this is assumed to be long enough for *Vodafone* to reach a steady state of growth. The main reasons for this selection relate to the fact that the group's largest markets are located in Western Europe, a region characterized by a very high degree of maturity already, and the finding of Petersen & Plenborg (2012). They write that "there is a clear tendency that an atypically high or low revenue growth rate [...] is quickly followed by more normal growth rates. After no more than three or four years, sales growth converges towards a long-term average value". Combining this with the very high level of uncertainties related to forecasting individual items in the further future makes the forecast period of five years seem appropriate.

The next sub-sections present the forecasted pro forma income statements, balance sheets and cash flow statements of *Vodafone*, and explain the rationale behind the expected developments of the individual financial items. An overview of the complete value driver set up, including the past six financial years, is provided in figure 7.1.

7.1 Pro Forma Income Statement

The pro forma income statement is built up in the same way as the reformulated analytical income statements of the last financial years as described in the previous chapter and presented in appendix 2. In this way, NOPAT can be calculated easily, which in turn will serve as a basis for the cash flow statements used for valuation purposes.

7.1.1 Revenues

Revenue is the only financial item that is broken down in more detail. This is due to the fact that it is extremely difficult to estimate future sales for the group as a whole, as sales may decline in some countries, but may be growing in various other countries. The revenue growth rates shown in figure 7.1 are a result of this breakdown, which is presented in appendix 5 in full detail. Note that the numbers for the financial years 2011/2012 and 2012/2013 are based on the restated numbers from the latest annual reports.

All European growth rates in the terminal period are very low, owed to the fact that those markets are very mature. There are, however, certain differences in the first five years. Germany is expected to see comparably high growth rates in the next years after *Kabel Deutschland* is integrated into the group, and more customers subscribe to cable TV or the triple play and quadruple play services offered by *Vodafone*. In the long run, the firm is expected to achieve a low growth rate of only 0.5%. This development is similar to the one in Spain. Wireless telecommunication revenues have been declining significantly in recent years.

Figure 7.1: Value Driver Map and Forecast Assumptions

Value Driver Man & Forecast Assumption	nns											
Vodafone Group Plc (f in millions)	'00	'10	'11	'12	'13	'17	150	160	'170	'180	100	Terminal
Fiscal Year ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	renninai
Growth Drivers	ST IVIUI	SI WIGI	SI WIGI	ST WIGH	ST WIGH	ST WIGH	SI WIGI	JI WIUI	ST WIGH	ST WIGH	ST WIGH	
Organic growth	-0.4%	-2.3%	2.8%	2.2%	-1 4%	-3 5%						
Revenue growth	15.6%	8.4%	3.2%	-15.4%	-2.0%	0.8%	13,1%	3.4%	3.1%	2.7%	2.0%	1.4%
Cost drivers	co. 00/	66.00/	67 0 0/	70 404	60.00/	70.00/	70 50/	TO 00/	70 50/	70.00/	-4 -04	74 50/
Cost of sales as % of revenue	63.0%	66.2%	67.2%	70.1%	69.8%	72.9%	/3.5%	/3.0%	72.5%	72.0%	/1.5%	71.5%
Selling and distribution expenses as % of revenue	6.7%	6.7%	6.7%	7.1%	7.5%	7.9%	8.3%	8.2%	8.1%	8.0%	8.0%	7.9%
Administrative expenses as % of revenue	11.6%	12.0%	11.6%	10.4%	10.9%	11.1%	11.5%	11.5%	11.5%	11.5%	11.5%	11.5%
share of result of equity accounted associates and joint ventures as % of revenue	10.0%	10.7%	11.0%	2.9%	1.5%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Other income and expense as % of revenue	0.0%	0.3%	0.0%	9.5%	1.2%	-1.9%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%
EBIT margin	15.6%	22.7%	13.6%	16.0%	-4.5%	-8.4%	1.8%	9.2%	9.8%	10.4%	10.9%	11.0%
Tax rate	30.0%	28.0%	28.0%	26.0%	24.0%	23.0%	21.0%	20.0%	20.0%	20.0%	20.0%	20.0%
NOPAT margin	11.7%	22.0%	12.4%	13.2%	-6.6%	34.1%	1.2%	8.6%	9.2%	9.8%	10.3%	10.4%
Investment drivers												
Intendible assets as % of revenues	182 7%	167.0%	1/10 /1%	120.0%	116.0%	171 8%	109.0%	107.0%	105 0%	103 0%	102.0%	101 0%
Property plant and equipment as % of revenue	16 9%	167.0%	140.470	11 2%	16.0%	59.6%	67.0%	71 0%	70.0%	70.0%	69.0%	69.0%
Investments in associates and joint ventures	40.570	40.470	44.070	41.270	40.270	33.070	07.070	/1.0/0	70.076	70.078	05.070	05.070
as % of revenue	84.6%	81.8%	83.0%	122.8%	122.1%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Operating lease rentals as % of revenue	3.4%	3.7%	4.1%	4.5%	4.7%	5.6%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Non-current assets as % of revenue	343.1%	326.8%	307.9%	322.5%	335.9%	277.6%	261.0%	261.3%	256.8%	253.4%	250.3%	248.7%
Net working capital												
Inventories as % of revenue	1.0%	1.0%	1.2%	1.0%	0.9%	1.2%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Trade and other receivables as % of revenue	19.6%	21.3%	24.2%	27.0%	25.8%	25.3%	25.0%	24.5%	24.0%	23.5%	23.0%	22.5%
Taxation recoverable as % of revenue	0.2%	0.4%	0.6%	0.7%	1.0%	2.1%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
Trade and other payables as % of revenue	33.6%	32.5%	32.6%	34.1%	37.2%	41.5%	41.5%	42.0%	42.5%	43.0%	43.5%	44.0%
Other operating liabilities as % of revenue	29.5%	25.3%	21.3%	25.1%	27.1%	9.1%	20.4%	20.4%	20.4%	20.4%	20.4%	20.4%
Net working capital as % of revenue	-40.3%	-33.0%	-26.0%	-28.4%	-34.5%	-20.0%	-33.1%	-34.1%	-35.1%	-36.1%	-37.1%	-38.1%
Einancing drivors												
NIBD as % of invested capital excluding	80.0%	70 7%	68.8%	52.2%	59.8%	51.8%	58.0%	58.0%	58.0%	58.0%	58.0%	58.0%
Net financial expenses as % of NIBD	4.2%	2.0%	-9.3%	4 1%	3.0%	5.0%	4 5%	4 5%	4 5%	4 5%	4 5%	4 5%
	7.2/0	2.070	5.570	7.1/0	5.070	5.070	4.570	7.370	4.570	7.570	4.370	-1.J/0
Depreciation as % of last year's PPE		23.1%	21.2%	18.1%	22.7%	23.0%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%
Amortization as % of last year's intangible assets		4.6%	4.7%	4.5%	6.5%	8.0%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%

Source: Own creation, Vodafone's annual reports.

However, Vodafone agreed to purchase Ono, also the country's leading cable company. Thus, it is assumed that total revenues in Spain grow again (a significant 9% in the first year following the integration of Ono) though at decreasing rates subsequently. In the UK, after the integration of *Cable and Wireless* and primarily driven by the success and the growth opportunities of *Vodafone Global Enterprise*, revenues can be expected to continue to grow. In the long run, however, UK's mobile communication market is said to grow at rates close to 0% as well. Hence, terminal growth is set to 0.8% only because the group is expected to grow its enterprise business continuously. Italy is a special case, as Vodafone acquired the remaining stake in the country only in the most recent financial year. The statutory revenues reported have only been minimal in 2013/2014, and zero in the years before. For the first forecasted year, reported earnings are expected to amount to GBP 3.8bn, 11.9% below the earnings of 2013/2014 on a management basis. Also for the subsequent years, declining revenues are expected, as Italy is one of Vodafone's most competitive markets characterized by value pricing and heavy MTR cuts. Since MTRs are not expected to be reduced much more in the future, it is not expected that growth rates decline even further. In the terminal period, minimal growth of 0.1% seems a reasonable expectation. Similar developments can be foreseen in the other European markets. MTRs are unlikely to be further reduced in the future, and the introduction of Vodafone's mobile money services in Eastern Europe will increase revenue growth to positive growth rates again and lead to a rate close to 1% in the terminal period.

In AMAP, the highest growth rates are expected to occur in India. The forecasted rates are higher than the reported growth rates of the last three years. However, this is owed to the fact that the reported rates include losses on currency exchanges, which have not been included in the future due to the high uncertainty and speculation involved. As one of the biggest beneficiaries of the infrastructure investments of Project Spring, *Vodafone* in India is expected to attract many new customers and achieve tremendous growth in data services in the future. *Vodacom*'s revenue growth is forecasted to be stable around 2%-3%. The high growth in countries like Mozambique and Tanzania is offset by lower growth in South Africa. For the other countries of AMAP, relatively high growth rates are expected in the near future, driven mainly by favorable developments in Ghana and Turkey. In the terminal period, revenues are expected to grow at a slower rate than in India or South Africa, as Australia's and New Zealand's mature markets will pull the growth rates down.

For the forecasted years, the above considerations result in a compound annual growth rate (CAGR) of total revenues of 2.5%. This seems reasonable compared to the forecasted CAGR for the European telecommunication services industry of 0.6% until 2017 (MarketLine, 2013B). *Vodafone*'s growth is expected to be higher for several reasons: its significantly higher growth in its non-European markets, its diversification into the cable TV industry in its major markets, its success and favorable outlook in the enterprise business, its investments of Project Spring, and its growth opportunities in new technologies (mobile money, M2M, etc.).

7.1.2 Cost of Sales and Other Income Drivers

Cost of sales as a percentage of revenues has been increasing in most of *Vodafone*'s past financial years. This driver is expected to slightly increase further in the first forecast year. Afterwards, however, it is estimated to decrease by half a percent every year. As the *Vodafone Procurement Company* is expected to migrate more local markets and spend categories into its centralized purchasing activities, it seems reasonable to assume that the company will be able to achieve higher economies of scale and increase its annual savings.

Selling and distribution expenses, and also administrative expenses as a percentage of revenues are estimated to increase slightly in the first year, following the trends of the last three years. In the further future, however, selling and distribution expenses are expected to slowly decrease over time, as a result of the cost savings associated with the integration of *Kabel Deutschland* and *Ono* (see chapter 5.3.1.3).

The share of result of associates and joint ventures is estimated to stay on the same level as in the last financial year, as it is assumed that *Vodafone* will not enter new joint venture agreements, invest in, or dispose of its associates. Lastly, other income and expenses as a percentage of revenues is hard to forecast precisely. Thus, it is decided to take the average of the last two years (2011/2012 seems to be an outlier) as an estimate for future years.

The calculation of the operating lease interest expense is explained in more detail in chapter 7.2.1.

7.1.3 Impairment

Impairment charges are difficult to forecast by nature. However, given the track record of *Vodafone*'s losses on impairment (GBP 32.5bn in the last six years), it is hard to imagine that the firm will not incur further impairment losses in the future. *Vodafone* acquired several companies in the most recent years, some of them for billions of GBP. Instead of an increasing amount of goodwill on its balance sheets, the group however stated lower amounts of goodwill every year. Since potential acquisitions that have not been announced yet are not considered in the present forecasts, goodwill is assumed to stay on the same level as it is currently. However, given the acquisition of *Ono* for GBP 6bn in the first forecasted year, *Vodafone* is expected to incur impairment charges in this year again, in order to continue the trend of goodwill development.

Thus, it is assumed that the firm will report impairment losses of GBP 3bn in year one, a number significantly below the average loss of GBP 5.4bn in the last six years. Given the fact that the European economies are expected to stabilize again in the close future, further impairment charges are not assumed after this.

7.1.4 Tax

According to KPMG (2014), the UK lowered the corporate tax rate to 21% as of April 1st, 2014, and intends to lower it further to 20% one year later. The tax rate is assumed to stay on this level in the subsequent years.

However, in terms of income tax credit or expense, respectively, it is expected that *Vodafone* does not pay income tax in the forecasted years. On the one hand, it has deferred tax assets of more than GBP 20bn on its balance sheet, an amount almost five times as high as the theoretical cummulated tax expenses in the explicit forecast period (using the expected tax rates on EBIT). On the other hand, *Vodafone* has further GBP 28.1bn of tax loss carryforwards against which deferred tax assets can be recognized. GBP 26.3bn (94%) of them do not expire at any time (Vodafone, 2014). Furthermore, the group has structured its businesses in a way that it could reap advantages of differences in international tax regimes, ultimately leading to very low tax bills (Whalley & Curwen, 2014).

All in all, it is thus deemed a fair assumption to say that the company will not incur tax expenses in the forecasted future. Tax loss carryforwards should be accounted for individually in the valuation process by adding their value to the enterprise value (Koller, Goedhart, & Wessels, 2010). However, since it is expected that *Vodafone* will recognize deferred tax assets against these losses in the future and will therefore be exempted from tax expenses, these tax loss carryforwards are included already in the valuation of the future cash flows. Hence, their value will not be added in the end, in order to avoid double valuations.

7.1.5 Non-Operating Items

The non-operating income and expenses incurred by *Vodafone* have been very volatile in the last six years. However, except for one extreme value in 2010/2011, it was always rather close to zero. As there is no note disclosing what kind of income or expense is meant in particular, this item is ignored herein by assuming it to be zero in the future.

Instead of forecasting investment income and financing costs individually, the value driver net financial expenses as a percentage of net interest-bearing debt (NIBD) is used. This driver has also been rather volatile in the past. As most numbers were close to 4-5%, the value 4.5% is assumed to be a fair estimation for the future. Compared to the yield to maturity of *Vodafone*'s bonds (Morningstar, 2014), the number seems to be a fair reflection of the company's borrowing rate.

The complete forecasted income statements for *Vodafone*, based on figure 7.1 and the assumptions made in this chapter, can be found in appendix 6.

7.2 Pro Forma Balance Sheet

The pro forma balance sheet is built up in the same way as the reformulated analytical balance sheets of the last financial years described in the previous chapter and presented in appendix 1. All items are classified either as part of operating or as part of financing, and the latter consists of equity and NIBD.

7.2.1 Investment Drivers

Following the arguments of chapter 7.1.3 about impairment and goodwill, intangible assets as a percentage of revenues are assumed to drop down to 109% in year one, and then continue to decline towards 101% in the terminal period. By choosing these percentages, net intangible assets increase only slowly over time, driven by "other intangible assets" rather than by goodwill which is assumed to stay constant.

Property, plant and equipment (PPE) as a percentage of revenues are expected to increase drastically to 71% in the first two years, followed by a stable development until the terminal period. This is due to the fact that *Vodafone* will acquire PPE from *Ono* in year one, and furthermore, the company announced capital expenditures (CAPEX) of GBP 19bn in the next two years (Project Spring).

Both depreciation and amortization as a percentage of last year's net PPE or intangible assets, respectively, are expected to be stable on the average level of the past two years (22.8% depreciation and 7.2% amortization). An overview of the development of PPE, depreciation, intangible assets, amortization, and CAPEX is provided in appendix 7. The sum of CAPEX in the first two years is above GBP 19bn, since the increase in net PPE following the acquisition of *Ono* is not included in Project Spring's target investments.

As stated in chapter 7.1.2, it is assumed that *Vodafone* will not invest in new associates or joint ventures. The item investments in associates and joint ventures is therefore estimated to stay on the same level as in the most recent financial year (0.3% of revenues).

The operating lease rentals as a percentage of revenues are also expected to stay stable at 5%, the average of the last three years. Using the formula provided in chapter 6.3.1 and the average cost of debt of the last six years as a proxy for the future, this implies capitalized asset values and imputed interest expenses as shown in appendix 8.

The value of deferred tax assets is estimated to remain unchanged in the future for the reasons mentioned in chapter 7.1.4.

7.2.2 Working Capital

Except trade payables and trade receivables, all items that form *Vodafone*'s working capital have been rather stable throughout the last six years, if calculated as a percentage of revenues. Therefore, it is also expected that the company will maintain approximately the same level of efficiency in the future, and stable percentages for all items are forecasted until the terminal period.

While the average of the last six years was calculated as a proxy for the future for inventories and taxation recoverable, the average of only the last three years has been used for other operating liabilities, in order to put more weight on the most recent development, which indludes a drop from 27% to 9% in 2013/2014.

Trade receivables as a percentage of revenues have been declining continuously throughout the last three years, while trade payables as a percentage of revenues have been increasing constantly. This is a result of *Vodafone*'s active working capital management and the ever improving payment terms that the *Vodafone Procurement Company* is able to negotiate. As stated before, it is assumed that the latter will gain even more bargaining power in the future, which is quantified by slowly increasing the percentage of trade payables and decreasing the percentage of trade receivables, both by 0.5% per year.

7.2.3 Financing Drivers

Except for the financial year 2012/2013, *Vodafone* has been able to significantly lower its share of NIBD as a percentage of invested capital (excluding tangibles; goodwill is assumed to stay constant in the forecasting period); most recently due to the repayment of a large portion of debt with the proceeds of the disposal of the group's stake in *Verizon Wireless*. This led to the very low financial leverage, compared to the peer group, as calculated in chapter 6. For the next year, an increase in the share of NIBD is assumed again, as the company plans to acquire *Ono* in Spain by taking on more debt. For the subsequent years, the firm is expected to be able to keep the same level of NIBD and therefore to maintain comparably low debt-to-equity ratios.

According to Petersen & Plenborg (2012), the adjusted present value approach "rests on the assumption that cash surplus is paid out as dividends or reinvested in projects that yield a net present value of zero". Since *Vodafone* states in its latest annual report that it intends to pay out dividends every year in the future, this is deemed a fair assumption. Therefore, total equity changes every year by the amount of profit or loss for the year and the amount of dividends paid, as is calculated in the following chapter.

The complete forecasted balance sheets for *Vodafone*, based on figure 7.1 and the assumptions made in this chapter, can be found in appendix 9.

7.3 Pro Forma Cash Flow Statement

The expected cash flow statement is probably the most important result of the forecasting phase, as it calculates the free cash flows to the firm (FCFF) which will ultimately be discounted in order to value the firm. FCFF is defined as (Koller, Goedhart, & Wessels, 2010):

FCFF = NOPAT + Noncash operating expenses - Investments in Invested Capital

For *Vodafone*, noncash operating expenses consist of depreciation and amortization, impairment losses, and the changes in working capital. The investments in invested capital contain CAPEX, investments in intangible assets, the changes in capitalized lease obligations, and the change in investments in associates and joint ventures. The resulting FCFF will be used in the next chapter for valuation purposes.

If the net financial expenses, changes in NIBD, and the imputed interest expense on capitalized operating leases are subtracted or added back to FCFF, respectively, the free cash flow to equity holders is calculated (Koller, Goedhart, & Wessels, 2010; Petersen & Plenborg, 2012). This is the amount that is assumed to be paid out as dividends.

The complete forecasted cash flow statements for *Vodafone*, based on figure 7.1, appendices 5 through 9, and the assumptions made in the previous chapters, are presented in appendix 10.

7.4 Sub-Conclusion

In this section, the financial statements of *Vodafone* were forecasted using the sales-driven approach. All items were therefore forecasted in relation to revenue, either directly or indirectly. As has been argued before, the explicit forecast period is five years, followed by the terminal period which is assumed to be in a steady state. The resulting pro forma income statements, balance sheets, and cash flow statements are presented in appendices 6, 9, and 10, respectively, and will be used to value the business in the next chapter.

Vodafone is expected to achieve high growth rates in the first years, due to the acquisitions of *Kabel Deutschland* and *Ono*, as well as the full consolidation of revenues in Italy in year one. In the terminal period, a relatively low growth rate is assumed, which is in line with the assumptions about the future development of the wireless telecommunication industry.



Figure 7.2: Forecasted Financial Ratios and Free Cash Flows

Source: Own creation, annual reports.

Following the forecasts made throughout this section, the future developments of the main ratios analyzed in chapter 6 can be projected, together with the expected FCFF. Figure 7.2 shows these ratios for the period 2009/2010 until the terminal period.

The figure shows that FCFF increases every year with only a low growth rate in the terminal period. In the first forecasted years, FCFF is comparably low, mainly due to the heavy investments of Project Spring. As average values are used, *Vodafone* will be able to further decrease its financial leverage in the first forecast year, following the repayment of a large amount of debt in 2013/2014. Subsequently, the leverage will increase again after the acquisition of *Ono* using debt. The resulting, stable leverage of about 43-44% continues to be extremely low when compared to its peers.

To exclude a distorted value of ROIC and profit margin due to the extremely high income tax credit in 2013/2014, the pre-tax ratios are shown, using EBIT instead of NOPAT. As the tax expense is forecasted to be zero, the expected future pre-tax and after tax ratios would be very similar anyhow. After negative EBITs in the last two years, ROIC is expected to increase again to a level of 4-5%, similar to its level in the prior years. As the cost drivers are expected to develop stably, the profit margin is expected to increase rather slowly from 2016 onwards and to be slightly above the level of the years before the negative EBITs occured. The turnover rate is expected to increase in the first year due to the strong revenue growth in this period. Thereafter, it only improves slowly, owed to the stable amount of invested capital, compared to the slight revenue growth. Lastly, after a significant drop in the first forecasted year due to the high outlier value of 2014, ROE is expected to increase again slightly every year until it reaches ratios above 4%, comparable to the year 2012.

With the findings and the results of this chapter, the foundation is laid for the valuation of *Vodafone*. This will be the objective in the following chapter.

8. Valuation

This chapter will answer the main research question: What is the enterprise value and the fundamental value of one share of *Vodafone Group* as of May 20th, 2014? The answer builds upon the findings of all previous chapters, the analyses, forecasts and estimations, in order to find a fair value of the company.

As stated before, this thesis will use the adjusted present value methodology to estimate the value of *Vodafone*. The reasons, mainly the benefit of valuing the benefits of the tax shields separately, have been explained in more detail in chapter 3.

In the adjusted present value model, all future cash flows to the firm and the values of the tax shields are estimated and discounted, so that their present values can be obtained. As argued earlier, the appropriate discount rate used for the individal cash flows and the tax shields is the required rate of return on assets. The estimation of this rate is crucial, but can be difficult, as several assumptions and estimations need to be made. The calculation of the return on assets will therefore be discussed in the following sub-chapter.

As described in the methodology section of this thesis, the two stage model will be used to estimate *Vodafone*'s value. Therefore, the cash flows and tax shields for the first five forecasted years will be discounted individually, then the terminal value will be discounted as a perpetuity, assuming constant growth in the subsequent years. This is based on the Gordon Growth model, and requires that *Vodafone* will stay an ongoing company that will be able to compete in perpetuity (Valuation Academy, 2014). However, given the analyses and forecasts above, this is assessed to be a fair assumption. The basic formula, excluding e.g. mid-year adjustments, to calculate the enterprise value (EV) of a firm is then (Petersen & Plenborg, 2012):

$$EV_0 = \sum_{t=1}^n \frac{FCFF_t}{(1+r_a)^t} + \frac{FCFF_{n+1}}{r_a - g} \times \frac{1}{(1+r_a)^n} + \sum_{t=1}^n \frac{TS_t}{(1+r_a)^t} + \frac{TS_{n+1}}{r_a - g} \times \frac{1}{(1+r_a)^n}$$

where FCFF is the free cash flow to the firm, r_a the required rate of return on assets, g the assumed growth rate in the terminal period, TS the tax shield on net interest-bearing debt, and n the number of years forecasted in the explicit forecast period.

The required rate of return on assets is calculated using the Capital Asset Pricing Model (Petersen & Plenborg, 2012):

$$r_a = r_f + \beta_a \times (r_m - r_f)$$

where r_f is the risk-free rate of return, β_a the unlevered beta (see chapter 8.1.2 for an explanation), and r_m the market return, meaning that $(r_m - r_f)$ equals the market premium.

It becomes obvious that many of the variables above cannot be calculated with certainty, but need to be estimated, or guessed. However, some of these variables are crucial and have a significant impact on the final result of the valuation. The terminal value, for instance, mostly accounts for up to 80% of the enterprise value (Petersen & Plenborg, 2012), indicating the importance of estimating the final growth rate g carefully. Therefore, as mentioned in chapter 3, Monte Carlo simulations will be implemented into the valuation process. By substituting single point estimates with probability distributions, the level of information will be increased, as uncertainty will – at least partially – be accounted for.

The variables that will be replaced by probability distributions are those variables that are deemed to have the largest impact on the final result, or that include the highest level of uncertainty. In this case, these will be the terminal growth rate g, the risk-free rate r_f , the unlevered Beta β_a , and the market premium $(r_m - r_f)$. The characteristics of their individual probability distributions will be described in detail in the following sub-sections that deal with determining all necessary variables.

8.1 Cost of Capital

As stated before, the cost of capital used in the adjusted present value approach is the required rate of return on assets. The above formula shows that the return on assets depends on the risk-free rate, the unlevered beta, and the market premium.

8.1.1 Risk-Free Rate

The risk-free rate describes the return which an investor can earn without incurring any risk. In almost all cases, the effective rates of government bonds are used, as the risk of default for those is nearly non-existent. The United Kingdom Debt Management Office (2014) states "that the British Government has never failed to make interest or principal payments [...] as they fall due".

Ideally, every cash flow should be discounted with the rates of government bonds that have the same maturity. As this adds a significant amount of complexity to the valuation, The method of Koller, Goedhart, & Wessels (2010) and Petersen & Plenborg (2012) is followed, in which the authors state that it is common practice to use 10-year zero-coupon bonds that are issued in the same currency as the cash flows. Although *Vodafone* faces cash flows in several currencies, as a British company, all cash flows of the group are ultimately reported and consolidated in pound sterling. Hence, the nominal UK government spot interest rate for 10 years is used, which by definition would be the yield to maturity of a nominal zero-coupon bond (Bank of England, 2014).

For several reasons, this rate has not been stable throughout the years, as is shown in appendix 11. Therefore, it has been decided to use the risk-free rate as one of the inputs in the Monte Carlo simulation. The probability distribution chosen for this variable is a normal distribution. The arithmetic average of the daily data of the risk-free rates for the five years prior to May 20th, 2014, will be used as the mean. The standard deviation of the data for the same period of observations will also be used as the standard deviation in the probability distribution. Thus, the mean is 2.97%, and the standard deviation is set to 0.8% (Bank of England, 2014A).

8.1.2 Beta

Beta is a variable that measures the sensitivity of a specific security to market movements (Brealey, Myers, & Allen, 2011). In the adjusted present value calculation, the variable beta needed to calculate the return on assets is β_a , known as the asset beta, the company's operating beta, or most commonly as the unlevered beta. This beta is supposed to be equal for firms operating in the same industry, assuming that they share the same operating characteristics (Koller, Goedhart, & Wessels, 2010). However, when calculating β_a for *Vodafone*

and its peer group using the following formula, the results differ, which explains why it has been decided to use beta as another variable input in the Monte Carlo simulation:

$$\beta_a = \frac{\beta_{levered}}{1 + (1 - T) \times \frac{D}{E}}$$

where T is the tax rate, and D and E are the values of debt or equity, respectively. This formula for calculating the unlevered beta has been taken from Damodaran (1994) and assumes the beta of debt to be zero. For simplicity reasons, this seems a fair assumption, as the beta of debt tends to be very low due to the fact that debt claims have first priority (Koller, Goedhart, & Wessels, 2010).

The value of β_{levered} can be calculated easily by comparing a firm's historical stock performance to the performance of the market. This was done by Damodaran (2014B) in January 2014. His results will be used as inputs.

Ideally, market values are used for the values of both debt and equity. Since all companies in the peer group are listed, the market value of equity is easy to determine. However, given the difficulties in estimating the market value of debt and the constraint of page space, the market value of debt is only estimated for *Vodafone*, while the book value of net interest-bearing debt (NIBD) is used as a proxy for its peers. Koller, Goedhart, & Wessels (2010) state that "in most cases, book value reasonably approximates current market value".

To estimate *Vodafone*'s market value of debt, the weighted average bond price has been calculated, which equals 106.5% of par value (see appendix 12 for an overview of the company's bonds and their prices). With a total book value of bonds outstanding of GBP 16,979m, the estimated market value of bonds is GBP 18,083m. Of the remaining part of *Vodafone*'s NIBD (GBP 26,447m – GBP 16,979m = GBP 9,468m), the book value is added, resulting in a total estimated market value of debt of GBP 27,551m.

The tax rates used in the calculations of beta are the marginal tax rates of the most recent financial year for the respective companies, as used in figure 6.2.

The table in figure 8.1 shows the results of the calculations for the four companies in the peer group. In addition, the unlevered betas for the telecom industry have been added, as estimated by Damodaran (2014). Due to the fact that there are quite some differences in the unlevered betas, it was decided to use this variable as an input variable in the Monte Carlo simulations. A normal distribution is not appropriate here, as too few samples are known on which the standard deviation could be based in a reasonable way. Instead, a triangular distribution with the arithmetic average of 0.69 has been chosen as the most likely value. The two extreme values have been excluded, in order to avoid impacts of potential outliers. Thus, the minimum value will be set to 0.46 and the maximum value to 0.85.
Figure 8.1: Estimation of Unlevered Beta

	Vodafone	Telefónica	Telekom	Orange		
Levered beta	0.64	2.22	0.94	1.63		
Market value of debt, m GBP/m EUR	27,551	44,692	69,387	43,714		
Shares outstanding in Mio.	26,472	4,520	4,370	2,649		
Share price, May 20th, 2014, GBP/EUR	2.05	12.03	12.30	12.06		
Market value of equity, m GBP/m EUR	54,347	54,350	53,751	31,946		
Tax rate	23.0%	30.0%	30.7%	33.3%	Telecom (Wireless)	Telecom. Services
Unlevered beta	0.46	1.41	0.50	0.85	0.35	0.57

Arithmetic average of unlevered beta 0.69

Source: Own creation, based on the companies' annual reports, Damodaran (2014B), Yahoo Finance (2014), and KPMG (2014).

8.1.3 Market Risk Premium

The market risk premium quantifies the difference between the expected return on a market portfolio and the risk-free rate. The historical market premium can easily be obtained and should be the same for all investors or analysts as it is based on actually observable data from the past. However, the forward looking expected or required market premium is a much debated issue in finance, and its value varies between different investors, analysts, or even finance professors.

As the future market premium cannot be estimated as a single point value with certainty, this variable will also be used as an input in the Monte Carlo simulation. The probability distribution used will be a normal distribution, and its characteristics are based on the findings of Fernández, Aguirreamallao, & Corres (2011). They surveyed almost 20,000 finance and economics professors, analysts, and managers about which market risk premiums they used to calculate required rate of returns. For the UK, they received 112 answers with 5.3% being the arithmetic average value, associated with a standard deviation of 2.2%. Those persons being surveyed were also asked to state the sources on which they based their numbers, and most of the answers to this question refered to individuals or companies who are renowned experts in the area of valuation (e.g. Aswath Damodaran, Brealey & Myers, *McKinsey & Company*, etc.). Thus, these inputs are deemed appropriate parameters for the normal distribution used in the Monte Carlo simulation.

8.1.4 Required Rate of Return on Assets

All inputs for the cost of capital have been found in the previous sub-sections. Although the inputs will be probability distributions rather than singple point estimates, the most likely required rate of return on assets – based on the expected input values – will be:

$$r_a = 2.97\% + 0.69 \times 5.3\% = 6.63\%$$

8.2 Terminal growth

The terminal period comprises the second part of the two-stage forecasting period. It is assumed that *Vodafone* has reached a steady state by then, hence its value will be calculated as a perpetuity of FCFF and therefore depends on a long term growth rate. As noted before, the present value of the terminal period usually accounts for the largest part of the final enterprise value. Thus, the terminal growth rate needs to be chosen with care. Due to the high uncertainty involved and the impact it has on *Vodafone*'s business value, it has been decided to use the terminal growth rate as the last variable input in the Monte Carlo simulation.

The financial items of the terminal period are depicted in the forecasted financial statements in the respective appendices. In the terminal period, both revenues and FCFF are growing at rates close to 1.4%. As argued before, this is a fair assumption compared to the expected development of the telecommunications industry in the world. Therefore, the value 1.4% has been used as the mean of a normally distributed probability function of the terminal growth rate. As the standard deviation, the value 0.5% has been chosen to make sure that the terminal growth rate will be between 0.4% and 2.4% with a 95% likelihood. Rates below or above these values, respectively, are assumed to be very unlikely.

8.3 Adjusted Present Value Calculation

All the information necessary to calculate the enterprise value, equity value, and share value of *Vodafone* have been compiled. Figure 8.2 summarizes this information, and illustrates the adjusted present value calculation, using the static, most likely values for all variables of the Monte Carlo simulation. All inputs that are not impacted by any of these variables, either directly or indirectly, are shaded in gray. These are only the values of the FCFF and TS in the forecast period, the current market value of debt, and the number of shares outstanding.

The required discount rate is stated as the per annum value. Since it has been assumed that all cash flows take place at the end of *Vodafone*'s financial years (31^{st} of March), but the date of the valuation is May 20^{th} , 2014, the discount factor needs to be adjusted slightly:

Discount factor =
$$\frac{1}{(1+r_a)^{(n-50/365-0.5)}}$$

where n represents the forecast year, 50/365 is the adjustment for the 50 days between March 31st and May 20th, and 0.5 represents the mid-year adjustment factor. The latter assumes that all cash flows come in halfway through the year, thus averaging out all cash flows that take place earlier and later in the year (Valuation Academy, 2014). The present value (PV) of every FCFF or TS is then calculated as:

$$PV = Discount \ factor \times Future \ value$$

Figure 8.2: Adjusted Present Value Calculation with Static Inputs

Valuation

Vodafone Group Plc. (in m£, except share data) Fiscal Year ended on	'15e 31-Mar	'16e 31-Mar	'17e 31-Mar	'18e 31-Mar	'19e 31-Mar	Terminal
Free cash flow to the firm Tax shield on net interest-bearing debt	471 258	809 272	3,661 284	4,011 285	4,897 286	4,966 284
Required discount rate p.a.	6.63%	6.63%	6.63%	6.63%	6.63%	6.63%
Discount factor	0.977	0.916	0.859	0.806	0.756	
Present value of FCFF	461	742	3,146	3,233	3,702	
Present value of tax shield	252	249	244	229	216	
Present value of FCFF in forecast period	11,282					
Present value of FCFF in terminal period	71,811					
Estimated market value of operations (A)	83,094					
Present value of tax shield in forecast period	1,191					
Present value of tax shield in terminal period	4,107					
Estimated market value of tax shield (B)	5,298					
Estimated enterprise value (A + B)	88,391					
Estimated market value of NIBD	27,551					
Expected market value of group equity	60,841					
Estimated market value of minority interest	830					
Expected market value of equity	60,011					
Shares outstanding	26.472					
Expected share value	2.27					

Source: Own creation.

The market value of minority interest is estimated by using *Vodafone*'s estimated market-to-book ratio. In the case of static inputs, this ratio equals 58,282 / 71,781 = 0.81 (Petersen & Plenborg, 2012).

Figure 8.3: Monte Carlo Simulation Input Variables and Their Parameters

Variable	Distribution	Mean	Standard	deviation		
Terminal growth	Normal	1.4%	0.5	5%		
Risk-free rate	Normal	2.97%	0.80%			
Market premium	Normal	5.3%	2.2	2%		
Variable	Distribution	Exp. value	Min. value	Max. value		
Beta	Triangular	0.69	0.46	0.85		

Source: Own creation.

When using Monte Carlo simulations, the result will not be a single number as in figure 8.2. Instead, the result is a probability distribution which shows the likelihood of various potential output values. This is due to the uncertainty involved in forecasting, and the fact that many input variables can take on various values, instead of one certain value. Figure 8.3 summarizes the different input variables used and their specific parameters.

To obtain the results of the Monte Carlo simulation, the software @*Risk* from *Palisade⁵* has been used, as it is the world's leading risk and decision analysis software (Palisade, 2014). The number of iterations was set to 10,000. This is the maximum number allowed by this software, and the decision to use this amount accounts for the risk of getting inconclusive results due to a too small sample. Figure 8.4 shows the probability distribution of *Vodafone*'s expected share value. The distribution for the expected market value of equity (which looks the same, but the numbers are multiplied by the amount of shares outstanding) and the distribution for the expected enterprise value can be found in appendices 13 and 14.



Figure 8.4: Probability Distribution of Vodafone's Expected Share Value

Source: Own creation.

The value with the highest likelihood, ca. GBP 2.23, is similar to the calculated value in the static example in figure 8.2. Compared with the actual stock price of *Vodafone*, which fell from GBP 2.1715 to GBP 2.053 on May 20th, 2014, this means that the market priced the company's share relatively fair, though slightly below

⁵ Note that software outputs of @*Risk* in this thesis use the German format of decimal marks and thousands separators.

the result of this calculation. These values, however, are significantly below the mean value of the expected share price, GBP 2.478. Provided that all assumptions made in this thesis are true, this result demonstrates that the probability of an expected value above the actual stock value as priced by the market is much more likely than a lower one (69.2% vs. 30.8%). Thus, it is more likely that one *Vodafone* share on May 20th, 2014, was actually undervalued, rather than overvalued. The result also shows that, although the probability is vanishingly low, the expected share price could be as low as GBP 1.09, and as high as GBP 11.26.

Similarly, the enterprise value with the highest likelihood is about GBP 87.5bn. The mean is GBP 94.1bn. Theoretically, *Vodafone*'s enterprise value could also be as low as GBP 56.8bn, and as high as GBP 329.8bn, illustrating its strong upward potential.

8.4 Sensitivity Analysis

According to Petersen & Plenborg (2012), "a valuation should always be accompanied by a sensitivity analysis that examines the valuation consequences of changing some of the key value drivers." In a valuation with static inputs, this means that an analysis should be conducted, in which the change in the enterprise value or share value is calculated, in dependency of a change of one or more static input variables. Since it has been decided to use Monte Carlo simulations to estimate *Vodafone*'s enterprise value and share price, there are no static variables that could be changed, since all major input variables consist of probability distributions, and already take the form of uncountable potential values. However, given the uncertainty of these inputs and the distribution characteristics described above, it is possible to calculate the effect that the individual variables can have on the final result. Hence, the following sensitivity analysis evaluates how *Vodafone*'s enterprise value or share price might deviate from the calculated mean due to the input variables deviating from their respective most likely values. Figure 8.5 shows the impact of the four input estimates on the share price in the form of a so called tornado chart.

As depicted, the risk-free rate has the largest impact on the valuation of one *Vodafone* share. This is surprising, as the parameters for the probability distribution of the risk-free rate are not estimates, but based on actual UK government zero-coupon bond rates (see appendix 11). This analysis illustrates the importance of choosing the risk-free rate carefully when valuing businesses.

The second largest impact on share value is due to the terminal growth rate, followed closely by the unlevered beta. The market risk premium, despite the standard deviation of 2.2% and thus being relatively variable, has the lowest effect on share value.

The tornado charts for enterprise value and market value of equity are presented in appendices 15 and 16.

Expected share value





8.5 Comparative Multiples as Sanity Check

A valuation based on the discounted cash flow model can only be as accurate as all the estimated forecasts, inputs, and variables. A quick and often used method to compare the results with competitors and, thus, to put the result into perspective is the multiples analysis.

It is important to mention, however, that multiples only make good sense when companies are mutually compared that share the same characteristics: they should share the same growth forecast, have similar costs of capital and profitability, and use the same accounting rules (Petersen & Plenborg, 2012). Although this will hardly be the case for all companies included in the following analysis, comparability is nevertheless assumed, given the fact that all firms operate in the telecommunications industry and make most of their revenues with wireless telecommunication services.

The following table sums up the most commonly used multiples, EV/Revenue, EV/EBITDA, and EV/EBIT, for *Vodafone*, its peer group identified in the chapters before, and six further network operators that are among the biggest players worldwide. The data is taken from Thomson One Banker (2014), using the latest available results. Furthermore, the implied multiples for *Vodafone* are added, based on the results of the valuation in this thesis.

Company	End date of last period	EV/Revenue	EV/EBITDA	EV/EBIT
Vodafone Group Plc.	31-Mar-14	1.7	19.4	Neg.
Vodafone, implied	31-Mar-14	2.4	20.9	Neg.
Telefónica S.A.	31-Dec-13	1.9	5.8	11.9
Deutsche Telekom AG	31-Dec-13	1.7	6.4	22.0
Orange S.A.	31-Dec-13	1.4	4.8	10.7
BT Group Plc.	31-Mar-14	2.0	6.7	12.9
TeliaSonera AB	31-Dec-13	2.9	8.0	13.7
América Móvil S.A.	31-Dec-13	1.9	6.4	11.1
Telenor ASA	31-Dec-13	2.6	7.9	13.4
Verizon Communications Inc.	31-Dec-13	2.0	4.9	7.4
AT&T Inc.	31-Dec-13	2.0	5.2	8.2
Harmonic mean		2.0	6.9	11.3
Median		2.0	6.4	11.9
Low		1.4	4.8	7.4
High		2.6	19.4	22.0

Figure 8.6: Comparative Multiples, and Implied EV and Share Value

Implied Value

Harmonic mean	EV/Revenue	EV/EBITDA	EV/a.EBITDA
Enterprise Value (in mGBP)	75,400	30,141	96,007
Share value (in GBP)	1.78	0.07	2.56
Telefónica S.A.	EV/Revenue	EV/EBITDA	EV/a.EBITDA
Enterprise Value (in mGBP)	72,857	25,267	63,547
Share value (in GBP)	1.68	-0.12	1.33
Deutsche Telekom AG	EV/Revenue	EV/EBITDA	EV/a.EBITDA
Deutsche Telekom AG Enterprise Value (in mGBP)	EV/Revenue 65,188	EV/EBITDA 27,881	EV/a.EBITDA 70,121
Deutsche Telekom AG Enterprise Value (in mGBP) Share value (in GBP)	EV/Revenue 65,188 1.39	EV/EBITDA 27,881 -0.02	EV/a.EBITDA 70,121 1.58
Deutsche Telekom AG Enterprise Value (in mGBP) Share value (in GBP) Orange S.A.	EV/Revenue 65,188 1.39 EV/Revenue	EV/EBITDA 27,881 -0.02 EV/EBITDA	EV/a.EBITDA 70,121 1.58 EV/a.EBITDA
Deutsche Telekom AG Enterprise Value (in mGBP) Share value (in GBP) Orange S.A. Enterprise Value (in mGBP)	EV/Revenue 65,188 1.39 EV/Revenue 53,684	EV/EBITDA 27,881 -0.02 EV/EBITDA 20,911	EV/a.EBITDA 70,121 1.58 EV/a.EBITDA 52,591

Source: Own creation, based on Thomson One Banker (2014).

It is clear that the EV/Revenue and the EV/EBITDA multiple are relatively similar across all companies, except *Vodafone*'s EV/EBITDA multiple. There are significant differences in the EV/EBIT multiple, however, with *Vodafone* even having a negative result, due to a negative EBIT. The implied values, thus, do not show the results for EV/EBIT, as negative EVs and share values do not make sense. Instead, implied values have been calculated using an adjusted EBITDA which excludes *Vodafone*'s heavy impairment charges. Thomson One Banker (2014) includes impairment in EBITDA, which explains both the high

EV/EBITDA multiple of 19.4 for *Vodafone*, as well as the extremely low implied EV and share values for the same multiple.

All in all, the implied values of *Vodafone*'s peer group as used in previous chapters indicate that the present thesis might value *Vodafone* relatively high, or they are an indication of *Vodafone*'s outperformance of these competitors. However, the results of the valuation in this thesis are in line with the implied values using the EV/Revenue and EV/adjusted EBITDA multiple, when using the mean of all companies' multiples that are included in the list compiled above. The harmonic mean is used as the aforementioned mean, as Baker & Ruback (1999) find that it generates more accurate value estimates than multiples that are based on the arithmetic average or the median.

9. Conclusion

In this section, the findings of this thesis are concluded and final answers are given to the main research question, as well as the various sub-questions that have been posed initially.

Following a general introduction, the formulation of a research question, and the methodology section, *Vodafone* was introduced briefly, as the company of interest in this thesis. The historical development from the company's foundation in 1984 until its mega-deal in February 2014, the disposal of its 45% stake in *Verizon Wireless*, was described, and an overview over the firm's business division – the supply of telecommunication services – as well as its geographical reach in Europe and the AMAP regions was provided.

Subsequent chapters comprise an analytical part, and analyzed *Vodafone*'s macro-environment, the wireless telecommunication industry, and the company's resources and capabilities. The group's sustainable competitive advantages were found to be its network (based on its physical assets), its global footprint, and its strong brand. Some weaknesses of financial nature could be identified, namely the company's extremely high impairment charges and the pending tax disputes amounting to billions of GBP. *Vodafone* has several promising opportunities, especially due to its investment program "Project Spring", the massive increase in demand for data, its strategic acquisitions of leading cable TV companies, and the future of new technologies such as mobile payment solutions, cloud computing, and M2M. The company's major threats comprise the strong competition on a global level, regulatory pressures, and the decline in voice revenues.

The financial analysis of the last years showed that *Vodafone*, compared to its peers, has constantly had the highest profit margin, and by far the lowest financial leverage. Although it was outperformed by *Telefónica* in terms of ROIC and ROE in most years, the company managed to rapidly increase these ratios in the latest financial year and take over the first position by this measure as well.

The conducted analyses allowed to make expectations about *Vodafone*'s future financial performance. In a chapter dedicated to forecasting, pro forma balance sheets, income statements, and cash flow statements for the next five years and a terminal period were created. Both revenues and FCFF are projected to increase year by year. While revenues will grow at declining rates, FCFF is increasing rapidly in the first three years and thereafter reaching a more stable growth. The terminal period growth rate is set to be close to 1.4%.

Finally, the main research question was answered by calculating the company's share and enterprise value, using the adjusted present value method and Monte Carlo simulations. While the most likely values were found to be GBP 2.23 and GBP 87.5bn, respectively, the means were calculated to be GBP 2.48 and GBP 94.1bn, which indicates a strong upward potential. Compared with the share price as observed in the markets on May 20th, 2014, which fell to GBP 2.05, it was concluded that *Vodafone* shares were undervalued, if all assumptions made in this thesis hold true. A sensitivity analysis showed that the calculated values are most sensitive to changes in the risk-free rate, followed by the terminal growth rate, the unlevered beta, and the market premium. Lastly, a multiples analysis implied that the valuation of *Vodafone* in this thesis is fair in comparison to the mean of all companies considered in the analysis, but might overvalue the company when compared only to its peer group.

10. References

- Advanced Television. (2013, June 24). *Vodafone buys Kabel Deutschland*. Retrieved October 9, 2014, from http://advanced-television.com/2013/06/24/vodafone-buys-kabel-deutschland/
- AGCOM. (2011, November 17). Approvato nuovo percorso di riduzione tariffe terminazione mobile. Retrieved September 18, 2014, from http://www.agcom.it/documents/10179/539699/Comunicato+ stampa+17-11-2011/32466ffb-f446-45da-8363-420842a3cd06?version=1.0
- America Movil. (2014). *Subsidiaries & Affiliates*. Retrieved October 7, 2014, from http://www.americamovil.com/amx/en/about/footprint?p=28&s=31
- Amir, E., & Lev, B. (1996). Value-relevance of nonfinancial information: The wireless telecommunications industry. *Journal of Accounting and Economics*, 22, pp. 3-30.
- Badkar, M. (2014, February 13). The 16 Biggest Corporate Mega-Deals Of All Time. Retrieved September 23, 2014, from Business Insider: http://www.businessinsider.com/16-biggest-acquisitions-of-alltime-2014-2
- Baker, M., & Ruback, R. S. (1999). Estimating Industry Multiples. Harvard University: Working Paper.
- Bank of England. (2014). *Notes on The Bank of England UK Yield Curves*. Retrieved October 24, 2014, from http://www.bankofengland.co.uk/statistics/Documents/yieldcurve/notes%20on%20the%20bofe%20u k%20yield%20curvesV2.pdf
- Bank of England. (2014A). *Yield Curves*. Retrieved October 24, 2014, from http://www.bankofengland.co.uk/statistics/Pages/yieldcurve/archive.aspx
- Barney, J. B., & Hesterly, W. S. (2012). *Strategic Management and Competitive Advantage*. Pearson Education Inc.
- BBC. (2000, February 11). Vodafone seals Mannesmann deal. Retrieved October 31, 2014, from http://news.bbc.co.uk/2/hi/business/630293.stm
- Bharti Airtel. (2014). About Bharti Airtel. Retrieved October 7, 2014, from http://www.airtel.in/about-bharti/about-bharti-airtel
- Bielsa, A. (2012, October 16). *Smart Cars: a practical implementation of M2M communications is becoming a reality ever closer*. Retrieved September 23, 2014, from Libelium: http://www.libelium.com/es/ smart_cars_m2m_accident_prevention/
- Brand Finance. (2014). *The World's Most Valuable Brands*. Retrieved October 10, 2014, from www.brandirectory.com
- Brealey, R. A., Myers, S. C., & Allen, F. (2011). Principles of Corporate Finance. New York: McGraw-Hill.
- Browning, J., & Campbell, M. (2012, April 23). Vodafone Agrees to Buy Cable & Wireless for \$1.7 Billion. Retrieved September 23, 2014, from Bloomberg: http://www.bloomberg.com/news/2012-04-23/vodafone-agrees-to-buy-cable-wireless-for-1-7-billion.html
- Bundesnetzagentur. (2013, July 19). Bundesnetzagentur gibt endgültige Mobilfunk-Terminierungsentgelte bekannt. Retrieved September 18, 2014, from http://www.bundesnetzagentur.de/SharedDocs/ Pressemitteilungen/DE/2013/130719_MobilfunkTerminierungsentgelte.html
- Campbell, M., & McCracken, J. (2013, November 1). *AT&T Said to Explore Vodafone Deal as Soon as Next Year*. Retrieved September 23, 2014, from Bloomberg: http://www.bloomberg.com/news/2013-10-31/at-t-is-said-to-explore-vodafone-takeover-as-soon-as-next-year.html
- China Mobile. (2014). *About China Mobile*. Retrieved October 7, 2014, from http://www.chinamobileltd.com/en/about/overview.php

- Cool, K. (2013). How to Achieve Market Leadership in Eco-Systems. INSEAD & Madinah Institute for leadership and entrepreneurship, presentation on February 25th, 2013.
- Damodaran, A. (1994). Damodaran on Valuation. New York: John Wiley and Sons.
- Damodaran, A. (2012). Investment Valuation: Tools and Techniques for Determining the Value of Any Asset. Hoboken: Wiley.
- Damodaran, A. (2014). *Betas by Sector*. Retrieved October 25, 2014, from http://www.stern.nyu.edu/ ~adamodar/pc/datasets/betas.xls
- Damodaran, A. (2014B). *Beyond Inputs: Choosing and Using the Right Model*. Retrieved November 6, 2014, from http://people.stern.nyu.edu/adamodar/pdfiles/model.pdf
- Damodaran, A. (2014C). *The Data Page*. Retrieved October 25, 2014, from http://people.stern.nyu.edu/ adamodar/
- Deutsche Telekom. (2014). *Konzernprofil*. Retrieved October 7, 2014, from http://www.telekom.com/ konzern/konzernprofil/92462
- Edner, G., & Paulsson, A. (2013). Increased Transparency in Valuation: Extending the DCF Model with Monte Carlo Simulation. Copenhagen Business School: Master Thesis.
- EUbusiness. (2009, September 7). *Regulatory framework for telecoms in the EU today*. Retrieved September 18, 2014, from EUbusiness.com: http://www.eubusiness.com/topics/telecoms/homepage/framework
- Euromonitor International. (2014). Various data and reports about countries, industries, etc.
- European Commission. (2009). Regulatory framework for electronic communications in the European Union.
- European Union. (2007, June 29). REGULATION (EC) No 717/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC. *Official Journal of the European Union*.
- European Union. (2012, June 30). REGULATION (EU) No 531/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 June 2012 on roaming on public mobile communications networks within the Union. *Official Journal of the European Union*.
- Federal Reserve Bank of St. Louis. (2014). *Moody's Seasoned Aaa Corporate Bond Yield*. Retrieved October 17, 2014, from http://research.stlouisfed.org/fred2/series/DAAA#
- Fernández, P. (2003). Levered and Unlevered Beta. IESE Business School: Working Paper.
- Fernández, P., Aguirreamallao, J., & Corres, L. (2011). *Market Risk Premium Used in 56 Countries in 2011:* A Survey With 6,014 Answers. IESE Business School: Working Paper.
- Forbes. (2014, May). *The World's Biggest Public Companies*. Retrieved September 23, 2014, from http://www.forbes.com/global2000/list/
- Garside, J. (2013, April 4). Vodafone and China Mobile join Burma telecoms race. Retrieved September 18, 2014, from The Guardian: http://www.theguardian.com/business/2013/apr/04/vodafone-china-mobile-burma-telecoms
- Gillet, J. (2013, July 4). *Top 20 global mobile operator groups by connections and revenue*. Retrieved October 7, 2014, from Mobile World Live: http://www.mobileworldlive.com/top-20-global-mobile-operator-groups-by-connections-and-revenue-q1-2013
- Goodchild, J. (2012, May 16). *10 hacks that made headlines*. Retrieved September 23, 2014, from Techworld: http://features.techworld.com/security/3358062/10-hacks-that-made-headlines/
- Grant, R. M. (2010). Contemporary Strategy Analysis. Hoboken: Wiley.

- Grundy, T. (2006). Rethinking and reinventing Michael Porter's five forces model. *Strategic Change 15*, pp. 213-229.
- Harris, R. S., & Pringle, J. J. (1985). Risk-Adjusted Discount Rates-Extensions from the Average-Risk Case. *Journal of Financial Research* 8, pp. 237-244.
- Huawei. (2011). Why SingleRAN is becoming ubiquitous. Retrieved September 23, 2014, from http://www.huawei.com/ilink/en/about-huawei/publications/communicate/
- Johnson, G., Scholes, K., & Whittington, R. (2008). *Exploring Corporate Strategy*. Harlow: Pearson Education.
- Kirchfeld, A., Thomson, A., & Rahn, C. (2013, June 24). Vodafone Reaches Deal to Buy Kabel Deutschland. Retrieved September 23, 2014, from Bloomberg: http://www.bloomberg.com/news/2013-06-23/vodafone-said-to-reach-preliminary-deal-with-kabel.html
- Koller, T., Goedhart, M., & Wessels, D. (2010). Valuation: Measuring and Managing the Value of Companies. McKinsey & Company. Hoboken: Wiley.
- KPMG. (2014). *Corporate tax rates table*. Retrieved October 14, 2014, from http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx
- KPMG. (2014A, February 21). Procurement Operating Models: Independent Procurement Company. Retrieved September 24, 2014, from http://www.kpmg.com/global/en/issuesandinsights/ articlespublications/exec-talks/pages/independent-procurement-company.aspx
- Lim, S. C., Mann, S. C., & Mihov, V. T. (2003). *Market Evaluation of Off-Balance Sheet Financing: You can run but you can't hide*. EFMA 2004 Basel Meetings Paper.
- London Stock Exchange. (2014). *FTSE 100*. Retrieved November 4, 2014, from http://www.londonstockexchange.com/exchange/prices-and-markets/stocks/indices/summary/summa ry-indices-constituents.html?index=UKX
- MarketLine. (2013). Global Wireless Telecommunication Services.
- MarketLine. (2013B). Wireless Telecommunication Services in Europe.
- MarketLine. (2013C). Wireless Telecommunication Services in Germany.
- MarketLine. (2013D). Wireless Telecommunication Services in India.
- MarketLine. (2013E). Wireless Telecommunication Services in Italy.
- MarketLine. (2013F). Wireless Telecommunication Services in South Africa.
- MarketLine. (2013G). Wireless Telecommunication Services in Spain.
- MarketLine. (2013H). Wireless Telecommunication Services in the United Kingdom.
- MarketLine. (2014). Vodafone Group Plc: Company Profile.
- Mehta, S. N. (2014, February 10). *Vodafone is ready for its closeup*. Retrieved September 24, 2014, from Fortune: http://fortune.com/2014/02/10/vodafone-is-ready-for-its-closeup/
- MindTools. (2014). *PEST Analysis*. Retrieved November 6, 2014, from http://www.mindtools.com/ pages/article/newTMC_09.htm
- Mobile Europe. (2007, January 31). *Mobile Regulation*. Retrieved September 18, 2014, from http://www.mobileeurope.co.uk/Features/7587
- Moore, G. E. (1965, April 19). Cramming More Components onto integrated cicuits. *Electronics*.
- Moritz, S., & Thomson, A. (2013, September 3). *Verizon Agrees to \$130 Billion Vodafone Deal*. Retrieved September 23, 2014, from Bloomberg: http://www.bloomberg.com/news/2013-09-02/verizon-agrees-to-130-billion-vodafone-deal.html

- Morningstar. (2014). Vodafone Bonds Outstanding. Retrieved October 18, 2014, from http://quicktake.morningstar.com/stocknet/bonds.aspx?symbol=vod
- Mulvenney, N. (2013, March 14). Vodafone to end McLaren sponsorship deal. Retrieved October 10, 2014, from Reuters: http://uk.reuters.com/article/2013/03/14/uk-motor-racing-vodafoneidUKBRE92D0CH20130314
- MVNOdynamics.com. (2014). *EU MVNO Companies*. Retrieved September 26, 2014, from http://www.mvnodynamics.com/mvno-companies/eu-mvno-companies/
- Naik, G., & Raghavan, A. (2000, February 4). Vodafone, Mannesmann Set Takeover At \$180.95 Billion After Long Struggle. Retrieved September 23, 2014, from The Wall Street Journal: http://online.wsj.com/ articles/SB949581016407171705
- Nell, P. C. (2011). Industrial organization and industry analysis. Strategic Management course of MSc FSM, Copenhagen Business School, Fall 2011, presentation slides.
- Nissim, D., & Penman, S. H. (2001). Ratio Analysis and Equity Valuation: From Research to Practice. *Review of Accounting Studies*, pp. 109-154.
- Orange. (2014). Orange at a glance. Retrieved October 7, 2014, from http://www.orange.com/en/ about/Group/Orange-at-a-glance
- Palisade. (2014). *Software for Risk and Decision Analysis*. Retrieved October 29, 2014, from http://www.palisade.com/
- Petersen, C. V., & Plenborg, T. (2012). *Financial Statement Analysis: Valuation, Credit analysis, Executive compensation.* Pearson Education.
- Phneah, E. (2013, June 3). *Vodafone, China Mobile withdraw Myanmar license bid*. Retrieved September 18, 2014, from ZDNet: http://www.zdnet.com/vodafone-china-mobile-withdraw-myanmar-license-bid-7000016236/
- Plenborg, T. (2002). Firm valuation: comparing the residual income and discounted cash flow approaches. *Scandinavian Journal of Management 18*, pp. 303-318.
- Porter, M. E. (1979). How Competitive Forces Shape Strategy. Harvard Business Review 57, pp. 137-145.
- Reedy, S. (2014, February 21). Verizon Gets Its Freedom From Vodafone. Retrieved October 31, 2014, from LightReading: Networking the Telecom Community: http://www.lightreading.com/servicesapps/mobile-services/verizon-gets-its-freedom-from-vodafone-/d/d-id/707864
- Ruback, R. S. (2002). Capital Cash Flows: A Simple Approach to Valuing Risky Cash Flows. *Financial Management 31*, pp. 85-103.
- Salanave, J., & Kalmus, P. (2007). Telecoms in Europe 2015 A Report for the Brussels Round Table.
- Sandle, P. (2013, November 20). Ericsson says Vodafone's investment boost will make Europe 'fun'. Retrieved September 24, 2014, from Reuters: http://www.reuters.com/article/2013/11/20/usericsson-europe-idUSBRE9AJ0YX20131120
- Scharnhorst, W., Hilty, L. M., & Jolliet, O. (2006). Life cycle assessment of second generation (2G) and third generation (3G) mobile phone networks. *Environmental International*, pp. 656-675.
- Spiegel. (2013, September 12). Insider-Angriff: Hacker erbeutet Bankdaten von Millionen Vodafone-Kunden. Retrieved September 23, 2014, from Spiegel Online: http://www.spiegel.de/netzwelt/ netzpolitik/vodafone-hacker-stehlen-daten-von-millionen-kunden-a-921790.html
- Suciu, P. (2013, May 9). UN Agency Predicts More Mobile Phones Than People. Retrieved September 22, 2014, from redOrbit.com: http://www.redorbit.com/news/technology/1112842375/cell-mobilephones-world-population-international-telecoms-union-050913/

- Sutherland, E. (2014). Lobbying and litigation in telecommunications markets reapplying Porter's five forces. *Info 16*, pp. 1-18.
- Tassi, P. (2011, May 23). Sony Pegs PSN Attack Costs at \$170 Million, \$3.1B Total Loss for 2011. Retrieved September 23, 2014, from Forbes: http://www.forbes.com/sites/insertcoin/2011/05/23/sony-pegs-psn-attack-costs-at-170-million/
- Telefónica. (2014). Results January December 2013.
- Thomson One Banker. (2014). Various company data and multiples.
- United Kingdom Debt Management Office. (2014). *Gilt Market*. Retrieved October 24, 2014, from http://www.dmo.gov.uk/index.aspx?page=Gilts/About_Gilts
- Valuation Academy. (2014). *Mid-Year Discounting*. Retrieved December 22, 2014, from http://valuationacademy.com/mid-year-discounting/
- Vodafone. (2006). Vodafone Group Plc Annual Report 2006.
- Vodafone. (2009). *Cost reduction and innovation*. Retrieved October 9, 2009, from http://www.vodafone.com/content/annualreport/annual_report09/business/tech_and_resources/cost_r eduction.html
- Vodafone. (2013, September 2). Vodafone to realise US\$130 billion for its 45% interest in Verizon Wireless. Retrieved October 31, 2014, from http://vodafone.com/content/index/media/vodafone-groupreleases/2013/vodafone_to_realiseus130billionforits45interestinverizonwireless.html
- Vodafone. (2014). Vodafone Group Plc Annual Report 2014.
- Vodafone. (2014A). *Branded phones & devices*. Retrieved September 24, 2014, from http://www.vodafone.com/content/index/about/what/devices.html
- Vodafone. (2014B). *Credit ratings*. Retrieved October 8, 2014, from http://www.vodafone.com/ content/index/investors/debt_investors/credit_ratings.html
- Vodafone. (2014C). *Discover supply chain*. Retrieved September 24, 2014, from http://www.vodafone.com/ content/index/about/about-us/suppliers/discover_supply_chain.html
- Vodafone. (2014D). *History of the group*. Retrieved October 31, 2014, from http://www.vodafone.com/ content/index/investors/about_us/background_history/history_of_the_group.html
- Vodafone Ireland. (2014). *Company history*. Retrieved October 31, 2014, from http://www.vodafone.ie/ aboutus/vfirl/history/
- Whalley, J., & Curwen, P. (2014). Managing tax by organizational means: the case of Vodafone. *Public Money & Management*, pp. 371-178.
- Yahoo Finance. (2014). Various Data About Stocks and Companies. Retrieved from http://finance.yahoo.com/
- Zong. (2014). Zong Pakistan. Retrieved October 7, 2014, from http://www.zong.com.pk/about-zong/zong-pakistan

Annual reports:

Annual reports 2008-2013, Deutsche Telekom AG, link: http://www.telekom.com/investor-relations

- Annual reports 2008-2013, Orange S.A., link: http://www.orange.com/en/finance/nbsp2/investors-and-analysts/all-consolidated-results
- Annual reports 2008-2013, Telefónica S.A., link: http://www.telefonica.com/en/about_telefonica/ html/publications/historico_informes_anuales.shtml
- Annual reports, 2009-2014, Vodafone Plc Ltd., link: http://www.vodafone.com/content/index/investors.html

11. Appendices

Appendix 1: Analytical Balance Sheets

<u>Vodafone</u>

Analytical Balance Sheet						
Vodafone Group Plc. (£ in millions)	'09	'10	'11	'12	'13	'14
Fiscal Year ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar
Non-current assets						
Intangible assets	74.938	74.258	68.558	46.578	44.139	46.688
Property, plant and equipment	19.250	20.642	20.181	16.008	17.584	22.851
Capitalized operating leases	11.202	13.030	12,433	13.053	16.759	16.171
Investments in associates and	,		,	,		
ioint ventures	34,715	36.377	38.105	47.682	46,447	114
Deferred tax assets	630	1.033	2.018	1.894	2.848	20.607
Total non-current assets	140,735	145,340	141,295	125,215	127,777	106,431
Current assets						
Operating cash	820	889	918	776	761	767
Inventory	412	433	537	375	353	441
Trade and other receivables	8.024	9.487	11.091	10.484	9.818	9.713
Taxation recoverable	77	191	281	275	397	808
Total current assets	9,333	11,000	12,827	11,910	11,329	11,729
Non-interest hearing debt						
Trade and other payables	13,774	14,438	14,954	13,224	14,138	15,914
Other operating liabilities	12,100	11.245	9,789	9.729	10.313	3.479
Total non-interest-bearing debt	25,874	25,683	24,743	22,953	24,451	19,393
Invested capital (net operating assets)	124,195	130,658	129,379	114,173	114,655	98,767
Fauity						
Total equity beginning of period	76 471	84 777	90 810	87 561	78 202	72 488
Comprehensive income	13 037	8 312	3 567	2 383	604	56 711
Dividends	(4 179)	(4 187)	(4 796)	(6 959)	(5 185)	(40,850)
Other changes in equity	(552)	1.908	(2.020)	(4,783)	(1,133)	(16,568)
Total equity, end of period	84,777	90,810	87,561	78,202	72,488	71,781
Borrowings	/11 373	39 795	38 281	33 11/	39 70/	29 201
Canitalized operating leases	11 202	13 030	12 /133	13 053	16 759	16 171
Other interest-bearing debt	675	697	635	1 181	1 681	1 465
Interest bearing debt	53.250	53.522	51.349	47.348	58.144	46.837
			0_,0			
Other investments	7,060	7,979	2,055	2,113	6,123	7,972
Excess cash and cash equivalents	4,058	3,534	5,334	6,275	6,770	9,367
Other interest-bearing assets	2,715	2,162	2,142	2,990	3,084	2,478
Assets held for sale	0	0	0	0	0	34
Interest-bearing assets	13,833	13,675	9,531	11,378	15,977	19,851
Net-interest-bearing debt	39,418	39,848	41,818	35,971	42,167	26,986
Invested Capital	124,195	130,658	129,379	114,173	114,655	98,767
Cook and each aminute sta	4.070	4 400	C 252	7 054	7 534	10 124
cash and cash equivalents	4 X / X	// // / / /	b /b/	7 1151	/ 541	10134
Thoroof operating sack	-,070	4,423	0,232	7,031	7,551	
Thereof operating cash	820	4,425 889	918	776	761	767

<u>Telefónica</u>

Analytical Balance Sheet

Telefónica S.A. (€ in millions)	'08	'09	'10	'11	'12	'13
Fiscal Year ended on	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Non-current assets	18 373	10 566	20 582	20 107	27 963	23 131
Other intangible assets	15,323	15,500	25,362	29,107	27,903	18 5/18
Property plant and equipment	30 545	31 000	25,020	24,004	35 021	21 0/0
Capitalized operating loases	7 525	7 6 4 1	00C F	33,403 77 0	55,021 6 691	51,040
Invostments in associates and joint ventures	7,535 דדד ר	7,041	5 212	5,177	2 469	2 /2/
Other non-current associates and joint ventures	6.091	4,930 5 976	5,212	5,005	2,408	6 276
Total non-current assets	82 082	85 964	108 603	0,423	101 519	88 503
	02,002	03,304	100,003	100,233	101,515	00,000
Current assets						
Operating cash	1,159	1,135	1,215	1,257	1,247	1,141
Inventory	1,188	934	1,028	1,164	1,188	985
Trade and other receivables	9,315	10,622	12,426	11,331	10,711	9,640
Tax receivables	970	1,246	1,331	1,567	1,828	1,664
Total current assets	12,632	13,937	16,000	15,319	14,974	13,430
Non-interest bearing debt	2.576	2 002	6.074	4 720	4 700	2.002
Deferred tax liabilites	3,576	3,082	6,074	4,739	4,788	3,063
Trade and other payables	14,768	15,272	21,555	19,947	19,230	16,922
Other operating liabilities	8,802	8,722	9,362	11,243	11,237	9,774
Total non-interest-bearing debt	27,146	27,076	36,991	35,929	35,255	29,759
Invested capital (net operating assets)	67,568	72,824	87,612	87,689	81,238	72,174
Equity shareholders' funds	17,231	21,734	24,452	21,636	20,461	21,185
Non-controlling-interests	2,331	2,540	7,232	5,747	7,200	6,297
Total equity	19,562	24,274	31,684	27,383	27,661	27,482
Non surrent interest bearing debt	45 000	47 07	F1 2FC			F1 170
Non-current interest-bearing debt	45,088	47,607	51,350	35,059	10 245	51,172
Conitalized operating leases	8,100	9,184	9,744	10,052	10,245	9,527
Liabilities associated with assots hold for sale	7,555	7,041	7,200	8,177	0,081	0,081
Liabilities associated with assets herd for sale	60 722	64 422	60 200	74 400	72 529	922 69 202
interest bearing debt	00,723	04,432	00,300	/4,400	73,536	08,502
Financial assets	9,592	7,894	8,980	11,303	11,211	9,892
Excess cash and cash equivalents	3,118	7,978	3,005	2,878	8,600	8,836
Assets held for sale	7	9	475	1	150	4,882
Interest-bearing assets	12,717	15,881	12,460	14,182	19,961	23,610
Net-interest-bearing debt	48,006	48,550	55,928	60,306	53,577	44,692
Invested Conital	(7 5(0	72 024	07 (1)	07 (00	01 220	70 174
	806,10	12,824	07,012	07,089	01,238	72,174
Cash and cash equivalents	7 777	0 112	1 220	A 195	0 0/7	0 077
Thereof operating cash	1 150	1 125	1 215	1 257	1 0/17	1 1/1
Thereof operating tash	1,109 0 110	1,100 7 070	2 OOF	1,237	1,241 0 ENN	1,141 0 006
111C1 CUI CALCOS LOSII	5,118	1,918	3,003	2,0/0	8,000	0,030

Deutsche Telekom

Analytical Balance Sheet

Deutsche Telekom AG (€in millions)	'08	'09	'10	'11	'12	'13
Fiscal Year ended on	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Non-current assets						
Goodwill	20,626	20,334	20,521	17,158	14,440	14,562
Other intangible assets	33,301	31,371	33,286	32,939	27,292	31,405
Property, plant and equipment	41,559	45,468	44,298	41,927	37,522	37,427
Capitalized operating leases	14,816	15,521	16,227	19,754	22,576	22,576
Investments in associates and joint ventures	3,557	147	7,242	6,873	6,726	6,167
Other non-current assets	6,803	5,703	5,527	5,684	5,042	5,262
Total non-current assets	120,662	118,544	127,101	124,335	113,598	117,399
Current assets						
Operating cash	1,233	1,292	1,248	1,173	1,163	1,203
Inventory	1,294	1,174	1,310	1,084	1,106	1,062
Trade and other receivables	7,393	6,757	6,889	6,557	6,417	7,712
Other current assets	1,592	1,531	1,813	1,666	1,360	1,441
Total current assets	11,512	10,754	11,260	10,480	10,046	11,418
Non-interest bearing debt						
Deferred tax liabilites	7,108	7,153	7,635	8,492	5,990	6,916
Trade and other payables	7,073	6,304	6,750	6,436	6,445	7,259
Other operating liabilities	14,001	13,587	13,480	13,260	13,061	13,192
Total non-interest-bearing debt	28,182	27,044	27,865	28,188	25,496	27,367
Invested capital (net operating assets)	103,992	102,254	110,496	106.627	98,148	101.450
Invested capital (net operating assets)	103,992	102,254	110,496	106,627	98,148	101,450
Invested capital (net operating assets) Equity shareholders' funds	103,992 39,997	102,254 36,354	110,496 38,016	106,627 35,294	98,148 25,920	101,450 23,879
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest	103,992 39,997 3,115	102,254 36,354 5,583	110,496 38,016 5,012	106,627 35,294 4,647	98,148 25,920 4,623	101,450 23,879 8,184
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity	103,992 39,997 3,115 43,112	102,254 36,354 5,583 41,937	110,496 38,016 5,012 43,028	106,627 35,294 4,647 39,941	98,148 25,920 4,623 30,543	101,450 23,879 8,184 32,063
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity	103,992 39,997 3,115 43,112	102,254 36,354 5,583 41,937	110,496 38,016 5,012 43,028	106,627 35,294 4,647 39,941	98,148 25,920 4,623 30,543	101,450 23,879 8,184 32,063
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt	103,992 39,997 3,115 43,112 36,386	102,254 36,354 5,583 41,937 41,800	110,496 38,016 5,012 43,028 38,857	106,627 35,294 4,647 39,941 38,099	98,148 25,920 4,623 30,543 35,354	101,450 23,879 8,184 32,063 43,708
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt	103,992 39,997 3,115 43,112 36,386 10,208	102,254 36,354 5,583 41,937 41,800 9,391	110,496 38,016 5,012 43,028 38,857 11,689	106,627 35,294 4,647 39,941 38,099 10,219	98,148 25,920 4,623 30,543 35,354 9,260	101,450 23,879 8,184 32,063 43,708 7,891
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Example and the first formula fo	103,992 39,997 3,115 43,112 36,386 10,208 14,816	102,254 36,354 5,583 41,937 41,800 9,391 15,521	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,227	106,627 35,294 4,647 39,941 38,099 10,219 19,754	98,148 25,920 4,623 30,543 35,354 9,260 22,576 22,576	101,450 23,879 8,184 32,063 43,708 7,891 22,576
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Eigeneid exects	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Exerce each and each equivalents	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,702	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 2,720	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 4,560	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,952	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Acapta held formate	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 424	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,730 6,527	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 426	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest bearing	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,730 6,527 12,237	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets Extended for sale Enterest-bearing assets Extended for sale Entereet for sale	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,740 3,730 6,527 13,997	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets Net-interest-bearing debt	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782 60,880	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,740 3,730 6,527 13,997 60,317	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678 67,468	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481 66,686	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874 67,605	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907 69,387
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets Net-interest-bearing debt	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782 60,880	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,730 6,527 13,997 60,317 103,254	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678 67,468	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481 66,686	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874 67,605	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907 69,387
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets Net-interest-bearing debt Invested Capital	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782 60,880 103,992	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,740 3,740 3,730 6,527 13,997 60,317 102,254	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678 67,468 110,496	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481 66,686 106,627	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874 67,605 98,148	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907 69,387
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing debt Interest-bearing debt Interest-bearing debt Interest-bearing debt	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782 60,880 103,992	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,740 3,740 3,730 6,527 13,997 60,317 102,254	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678 67,468 110,496	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481 66,686	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874 67,605 98,148	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907 69,387 101,450
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing debt Invested Capital Cash and cash equivalents	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782 60,880 103,992 3,026	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,740 3,740 3,730 6,527 13,997 60,317 102,254 5,022	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678 67,468 110,496 110,496	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481 66,686 106,627	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874 67,605 98,148 4,026	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907 69,387
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interest Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing debt Invested Capital Cash and cash equivalents Thereof operating cash	103,992 39,997 3,115 43,112 36,386 10,208 14,816 5,157 95 66,662 3,555 1,793 434 5,782 60,880 103,992 3,026 1,233	102,254 36,354 5,583 41,937 41,800 9,391 15,521 6,179 1,423 74,314 3,740 3,740 3,730 6,527 13,997 60,317 102,254 5,022 1,292	110,496 38,016 5,012 43,028 38,857 11,689 16,227 6,373 0 73,146 4,067 1,560 51 5,678 67,468 110,496 2,808 1,248	106,627 35,294 4,647 39,941 38,099 10,219 19,754 6,095 0 74,167 4,469 2,576 436 7,481 66,686 106,627 3,749 1,173	98,148 25,920 4,623 30,543 35,354 9,260 22,576 7,280 9 74,479 3,921 2,863 90 6,874 67,605 9 98,148 4,026 1,163	101,450 23,879 8,184 32,063 43,708 7,891 22,576 7,006 113 81,294 4,107 6,767 1,033 11,907 69,387

<u>Orange</u>

Analytical Income Statement

Orange S.A. (€ in millions)	'08	'09	'10	'11	'12	'13
Fiscal Year ended on	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Non-current assets						
Goodwill	29,914	27,797	29,033	27,340	25,773	24,988
Other intangible assets	14,009	9,953	11,302	11,343	11,818	11,744
Property, plant and equipment	25,826	23,547	24,756	23,634	23,662	23,157
Capitalized operating leases	7,436	6,801	7,123	7,445	7,768	7,768
Investments in associates and joint ventures	754	937	8,176	7,944	7,431	6,525
Other non-current assets	5,207	3,807	4,445	3,645	3,664	3,266
Total non-current assets	83,146	72,842	84,835	81,351	80,116	77,448
Comment and the						
Current assets	024	007	010	000	070	020
	934	897	910	906	870	820
Inventory	958	617	708	631	580	037
Trade and other receivables	6,117	5,451	5,596	4,905	4,635	4,360
Other current assets	2,825	2,3//	2,793	2,776	2,359	2,180
lotal current assets	10,834	9,342	10,007	9,218	8,450	7,997
Non-interest bearing debt						
Deferred tay liabilities	1 256	1 0/13	1 265	1 264	1 102	95/1
Trade and other payables	9,207	7 942	9,205	9 521	9 024	7 990
Other operating liabilities	9,707 8 264	7,542 8 1/15	10 120	10 144	0,034 0 160	6 553
Total non interest bearing debt	10 227	17 120	20 124	10,144	18 205	15 206
	15,227	17,130	20,134	19,939	10,505	13,350
Invested capital (net operating assets)	74,753	65,054	74,708	70,630	70,261	70,048
Invested capital (net operating assets) Equity shareholders' funds	74,753	65,054 26,864	74,708 29,101	70,630	70,261 24,306	70,048
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests	74,753 27,032 3,511	65,054 26,864 2,713	74,708 29,101 2,448	70,630 27,573 2,019	70,261 24,306 2,078	70,048 24,349 1,985
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity	74,753 27,032 3,511 30,543	65,054 26,864 2,713 29,577	74,708 29,101 2,448 31,549	70,630 27,573 2,019 29,592	70,261 24,306 2,078 26,384	70,048 24,349 1,985 26,334
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity	74,753 27,032 3,511 30,543	65,054 26,864 2,713 29,577	74,708 29,101 2,448 31,549	70,630 27,573 2,019 29,592	70,261 24,306 2,078 26,384	70,048 24,349 1,985 26,334
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt	74,753 27,032 3,511 30,543 32,471	65,054 26,864 2,713 29,577 31,809	74,708 29,101 2,448 31,549 34,042	70,630 27,573 2,019 29,592 34,469	70,261 24,306 2,078 26,384 32,907	70,048 24,349 1,985 26,334 31,797
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt	74,753 27,032 3,511 30,543 32,471 9,067	65,054 26,864 2,713 29,577 31,809 6,304	74,708 29,101 2,448 31,549 34,042 4,909	70,630 27,573 2,019 29,592 34,469 7,462	70,261 24,306 2,078 26,384 32,907 7,447	70,048 24,349 1,985 26,334 31,797 7,268
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases	74,753 27,032 3,511 30,543 32,471 9,067 7,436	65,054 26,864 2,713 29,577 31,809 6,304 6,801	74,708 29,101 2,448 31,549 34,042 4,909 7,123	70,630 27,573 2,019 29,592 34,469 7,462 7,445	70,261 24,306 2,078 26,384 32,907 7,447 7,768	70,048 24,349 1,985 26,334 31,797 7,268 7,768
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318	65,054 26,864 2,713 29,577 31,809 6,304 6,304 6,801 2,910 3,180 51,004	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202 7,108	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484 15,527	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119 6,557	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106 12,959	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139 9,181	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740 8,156
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets Net-interest-bearing debt	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202 7,108 44,210	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484 15,527 35,477	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119 6,557 43,159	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106 12,959 41,038	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139 9,181 43,878	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740 8,156 43,714
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing assets Net-interest-bearing debt	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202 7,108 44,210	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484 15,527 35,477	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119 6,557 43,159	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106 12,959 41,038	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139 9,181 43,878	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740 8,156 43,714
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing debt Interest-bearing debt Interest-bearing debt Interest-bearing debt Interest-bearing debt Interest-bearing debt	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202 7,108 44,210	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484 15,527 35,477 65,054	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119 6,557 43,159	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106 12,959 41,038	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139 9,181 43,878	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740 8,156 43,714 70,048
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing debt Invested Capital Cash and cash equivalents	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202 7,108 44,210 74,753 4,694	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484 15,527 35,477 65,054 	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119 6,557 43,159 74,708	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106 12,959 41,038 70,630	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139 9,181 43,878 70,262 8,321	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740 8,156 43,714 70,048
Invested capital (net operating assets) Equity shareholders' funds Non-controlling interests Total equity Non-current interest-bearing debt Current interest-bearing debt Capitalized operating leases Employee benefits Liabilities associated with assets held for sale Interest bearing debt Loans and other receivables Financial assets Excess cash and cash equivalents Assets held for sale Interest-bearing debt Invested Capital Cash and cash equivalents Thereof operating cash	74,753 27,032 3,511 30,543 32,471 9,067 7,436 2,344 0 51,318 1,620 1,526 3,760 202 7,108 44,210 	65,054 26,864 2,713 29,577 31,809 6,304 6,801 2,910 3,180 51,004 3,647 488 2,908 8,484 15,527 35,477 65,054 	74,708 29,101 2,448 31,549 34,042 4,909 7,123 3,642 0 49,716 1,666 1,254 3,518 119 6,557 43,159 74,708 74,708	70,630 27,573 2,019 29,592 34,469 7,462 7,445 3,581 1,040 53,997 2,159 1,556 7,138 2,106 12,959 41,038 70,630 8,044 906	70,261 24,306 2,078 26,384 32,907 7,447 7,768 4,937 0 53,059 1,084 507 7,451 139 9,181 43,878 70,262 8,321 870	70,048 24,349 1,985 26,334 31,797 7,268 7,768 4,933 105 51,871 1,875 445 5,096 740 8,156 43,714 70,048 5,916 820

Source: Own creation, based on various annual reports.

Appendix 2: Analytical Income Statements

<u>Vodafone</u>

Analytical Income Statement						
Vodafone Group Plc. (£ in millions)	'09	'10	'11	'12	'13	'14
Fiscal Year ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar
Revenue	41,017	44,472	45,884	38,821	38,041	38,346
Cost of Sales	(25,842)	(29,439)	(30,814)	(27,201)	(26,567)	(27,942)
Gross Profit	15,175	15,033	15,070	11,620	11,474	10,404
Selling and distribution expenses	(2,738)	(2,981)	(3,067)	(2,755)	(2,860)	(3,033)
Administrative expenses	(4,771)	(5,328)	(5,300)	(4,031)	(4,159)	(4,245)
Share of results of equity accounted associates and joint ventures	4,091	4,742	5,059	1,129	575	278
Impairment losses	(5,900)	(2,100)	(6,150)	(4,050)	(7,700)	(6,600)
Other income/ (expense)	0	114	(16)	3,705	468	(717)
Add: Operating lease interest expense	532	595	644	577	479	709
EBIT	6,389	10,075	6,240	6,195	(1,723)	(3,204)
Income tax credit/ (expense)	(1,109)	(56)	(1,628)	(705)	(476)	16,582
Tax shield, net financial expenses	(500)	(226)	1,093	(383)	(307)	(312)
NOPAT	4,779	9,794	5,704	5,106	(2,506)	13,066
Non-operating income/ (expense)	(44)	(10)	3,022	(162)	10	(149)
Investment income	795	716	1,309	456	305	346
Financing cost	(2,419)	(1,512)	(429)	(1,768)	(1,596)	(1,554)
Net financial expenses before tax	(1,668)	(806)	3,902	(1,474)	(1,281)	(1,357)
Tax on net financial expenses	500	226	(1,093)	383	307	312
Net financial expenses after tax	(1,168)	(580)	2,809	(1,091)	(974)	(1,045)
Subtract: Operating lease interest expense	(532)	(595)	(644)	(577)	(479)	(709)
Group profit/ (loss) after tax from	3,036	8,608	10,892	3,277	(3,949)	11,163
continuing operations	-,	-,	-,	-,	(-//	,
Profit from discontinued operations	0	0	0	3,555	4,616	48,108
Profit for the year	3,036	8,608	10,892	6,832	667	59,271
Dirty Surplus	9,898	(63)	(7.511)	(4,482)	82	(2,569)
Total comprehensive income for the year	12,934	8,545	3.381	2.350	749	56,702
Total comprehensive meanie for the year	12,554	0,040	3,301	2,000	,45	30,702
Attributable to non-controlling interests	(103)	233	(186)	(33)	145	(9)
Comprehensive income, Vodafone	13,037	8,312	3,567	2,383	604	56,711

<u>Telefónica</u>

Analytical Income Statement

Telefónica S.A. (€in millions)	'08	'09	'10	'11	'12	'13
Fiscal Year ended on	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Total revenue	57,946	56,731	60,737	62,837	62,356	57,061
Supplies	(17,818)	(16,717)	(17,606)	(18,256)	(18,074)	(17,041)
Personnel expenses	(6,762)	(6,775)	(8,409)	(11,080)	(8,569)	(7,208)
Other income	1,865	1,645	5,869	2,107	2,323	1,693
Other expenses	(12,312)	(12,281)	(14,814)	(15,398)	(16,805)	(15,428)
EBITDA	22,919	22,603	25,777	20,210	21,231	19,077
Depreciation and amortization	(9,046)	(8,956)	(9,303)	(10,146)	(10,433)	(9,627)
Share of profit/ (loss) of investments accounted for by the equity method	(161)	47	76	(635)	(1,275)	(304)
Add: Operating lease interest expense	322	377	382	364	409	334
EBIT	14,034	14,071	16,932	9,793	9,932	9,480
		-	-	-		
Income tax credit/ (expense)	(3,089)	(2,450)	(3,829)	(301)	(1,461)	(1,311)
Tax shield, net financial expenses	(839)	(992)	(795)	(882)	(1,098)	(860)
NOPAT	10,106	10,629	12,308	8,610	7,373	7,309
Investment income	827	814	792	827	963	933
Financing cost	(3,648)	(3,581)	(3,329)	(3,609)	(4,025)	(3,629)
Exchange gains	6,189	3,085	3,508	2,795	2,382	3,323
Exchange losses	(6,165)	(3,625)	(3,620)	(2,954)	(2,979)	(3,493)
Net financial expenses before tax	(2,797)	(3,307)	(2,649)	(2,941)	(3,659)	(2,866)
Tax on net financial expenses	839	992	795	882	1,098	860
Net financial expenses after tax	(1,958)	(2,315)	(1,854)	(2,059)	(2,561)	(2,006)
Subtract: Operating lease interest expense	(322)	(377)	(382)	(364)	(409)	(334)
Total profit for the year	7,826	7,937	10,072	6,187	4,403	4,969
Dirty Suprlus	(4,328)	2,001	628	(1,774)	(2,863)	(5,799)
Total comprehensive income/ (loss) for the year	3,498	9,938	10,700	4,413	1,540	(830)
Attributable to non-controlling interests	-114	520	291	411	(112)	(396)
Comprehensive income/ (loss), Telefónica	3,612	9,418	10,409	4,002	1,652	(434)

Deutsche Telekom

Analytical Income Statement

Deutsche Telekom AG (€ in millions)	'08	'09	'10	'11	'12	'13
Fiscal Year ended on	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Revenue	61,666	64,602	62,421	58,653	58,169	60,132
Cost of Sales	(34,592)	(36,259)	(35,725)	(33,948)	(34,256)	(36,255)
Gross Profit	27,074	28,343	26,696	24,705	23,913	23,877
Selling expenses	(15,952)	(15,863)	(14,620)	(14,001)	(14,075)	(13,797)
General and administrative expenses	(4,821)	(4,653)	(5,252)	(5,279)	(4,855)	(4,518)
Other operating income	1,971	1,504	1,498	4,362	2,968	1,326
Other operating expenses	(943)	(974)	(2,137)	(773)	(805)	(1,120)
Impairment losses	(289)	(2,345)	(680)	(3,451)	(11,108)	(838)
Share of profit/ (loss) of equity accounted associates and joint ventures	(388)	24	(57)	(73)	(154)	(71)
Add: Operating lease interest expense	706	741	776	811	988	1,129
EBIT	7,358	6,777	6,224	6,301	(3,128)	5,988
Income tax credit/ (expense)	(1,428)	(1,782)	(935)	(2,345)	1,516	(924)
Tax shield, net financial expenses	(976)	(1,031)	(840)	(764)	(693)	(838)
NOPAT	4,954	3,964	4,449	3,193	(2,306)	4,225
Financing cost	(2,487)	(2,555)	(2,500)	(2,325)	(2,033)	(2,162)
Other financial income/ (expenses)	(713)	(826)	(253)	(162)	(225)	(569)
Net financial expenses before tax	(3,200)	(3,381)	(2,753)	(2,487)	(2,258)	(2,731)
Tax on net financial expenses	976	1,031	840	764	693	838
Net financial expenses after tax	(2,224)	(2,350)	(1,913)	(1,723)	(1,565)	(1,893)
Subtract: Operating lease interest expense	(706)	(741)	(776)	(811)	(988)	(1,129)
Total profit for the year	2,024	873	1,760	658	(4,858)	1,204
Dirty Surplus	(226)	(613)	3,742	(36)	(1,249)	(916)
Total comprehensive income/ (loss) for the year	1,798	260	5,502	622	(6,107)	288
Attributable to non-controlling interests	547	521	59	218	359	91
Comprehensive income/ (loss), Telekom	1,251	(261)	5,443	404	(6,466)	197

<u>Orange</u>

Analytical Income Statement

Orange S.A. (€in millions)	'08	'09	'10	'11	'12	'13
Fiscal Year ended on	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec	31-Dec
Total revenue	46,712	44,845	45,503	45,277	43,515	40,981
	((((((
Supplies	(19,511)	(18,748)	(19,375)	(19,638)	(19,100)	(17,965)
Personnel expenses	(8,468)	(9,010)	(9,214)	(8,815)	(10,363)	(9,019)
Other operating income	612	568	573	658	900	687
Other operating expenses	(2,045)	(2,211)	(2,532)	(2,463)	(2,578)	(2,225)
Gains/ (losses) on disposals of assets	(27)	(3)	62	246	158	119
Resructuring and related costs	(442)	(213)	(680)	(136)	(37)	(343)
Special items, cost	0	(964)	0	0	0	0
EBITDA	16,831	14,264	14,337	15,129	12,495	12,235
Depreciation and amortization	(6,704)	(6,234)	(6,461)	(6,735)	(6,329)	(6,052)
Income from associates	(94)	138	(14)	(97)	(262)	(259)
Impairment charges and revaluations	(279)	(518)	(300)	(349)	(1,841)	(636)
Add: Operating lease interest expense	404	372	340	356	372	388
EBIT	10,158	8,022	7,902	8,304	4,435	5,676
Income tax credit/ (expense)	(2,856)	(2,242)	(1,755)	(2,087)	(1,231)	(1,405)
Tax shield, net financial expenses	(961)	(735)	(667)	(678)	(576)	(583)
ΝΟΡΑΤ	6,340	5,045	5,480	5,540	2,628	3,688
Financing cost	(2,755)	(2,103)	(1,997)	(1,941)	(1,668)	(1,687)
Foreign exchange gains/ (losses)	(51)	(42)	56	(21)	(28)	(18)
Other financial income/ (expenses)	(78)	(61)	(59)	(71)	(32)	(45)
Net financial expenses before tax	(2,884)	(2,206)	(2,000)	(2,033)	(1,728)	(1,750)
Tax on net financial expenses	961	735	667	678	576	583
Net financial expenses after tax	(1,923)	(1,471)	(1,333)	(1,355)	(1,152)	(1,167)
Subtract: Operating lassa interact evenence	(404)	(272)	(240)	(256)	(272)	(200)
Subtract. Operating lease interest expense	(404)	(372)	(340)	(350)	(372)	(300)
Net income from continuing operations	4,014	3,202	3,807	3,828	1,104	2,133
Tetel we fit for the user	404	200	1,070	0	0	0
Total profit for the year	4,418	3,402	4,877	3,828	1,104	2,133
Dirty Surplus	(1,701)	100	1,697	(1,131)	(2)	(638)
Total comprehensive income for the year	2,717	3,502	6,574	2,697	1,102	1,495
	•	•	•	•	•	
Attributable to non-controlling interests	231	474	52	(171)	354	240
Comprehensive income, Orange	2,486	3,028	6,522	2,868	748	1,255

Source: Own creation, based on various annual reports.



Appendix 3: Development of Asset Turnover incl. Goodwill

Source: Own creation, annual reports.



Appendix 4: Development of Profit Margin After Tax

Source: Own creation, annual reports.

Appendix 5: Forecasted Revenue Growth by Country

Segmental Revenue Foreca	st										
Vodafone Group Plc. (£ in millions)	'10	'11	'12	'13	'14	'15e	'16e	'17e	'18e	'19e	Terminal
Fiscal Year ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	
Germany	7,959	7,847	8,193	7,826	8,252	8,665	9,098	9,371	9,558	9,654	9,698
Italy	5,985	5,688			521	3,800	3,610	3,466	3,396	3,396	3,401
UK	4,968	5,214	5,359	5,093	6,283	6,660	6,993	7,203	7,347	7,420	7,480
Spain	5,630	5,069	4,714	3,867	3,502	3,817	4,006	4,164	4,287	4,371	4,392
Other Europe	8,264	8,180	6,432	7,080	5,644	5,362	5,201	5,149	5,200	5,252	5,289
Total Europe	32,806	31,998	24,698	23,866	24,202	28,304	28,908	29,352	29,789	30,094	30,260
India	3,093	3,843	3,964	3,903	3,942	4,336	4,726	5,152	5,512	5,788	5,962
Vodacom	4,443	5,471	5,631	5,206	4,718	4,812	4,909	5,056	5,208	5,364	5,525
Other AMAP	3,496	3,944	4,158	4,585	4,800	5,088	5,342	5,610	5,834	6,009	6,159
Total AMAP	11,032	13,258	13,753	13,694	13,460	14,237	14,977	15,817	16,554	17,161	17,646
Non-controlled interests and common functions	634	628	370	481	684	821	944	1,038	1,090	1,123	1,145
Total Revenue	44,472	45,884	38,821	38,041	38,346	43,361	44,829	46,208	47,433	48,377	49,051
Growth rates											
Germany	2 3%	-1 4%	4 4%	-4 5%	5 4%	5.0%	5.0%	3.0%	2 0%	1.0%	0.5%
Italy	8.7%	-5.0%	-100.0%	113/0	5.170	5.670	-5.0%	-4.0%	-2.0%	0.0%	0.3%
	-6.9%	5.0%	2.8%	-5.0%	23.4%	6.0%	5.0%	3.0%	2.0%	1.0%	0.1%
Snain	-1 5%	-10.0%	-7.0%	-18.0%	-9.4%	9.0%	5.0%	4 0%	3.0%	2.0%	0.5%
Other Furope	-1 7%	-1.0%	-21 4%	10.1%	-20.3%	-5.0%	-3.0%	-1 0%	1.0%	1.0%	0.3%
Total Europe	0.2%	-2.5%	-22.8%	-3.4%	1.4%	010/0	0.070	2.070	2.070	110/0	
India	15.9%	24.2%	3.1%	-1.5%	1.0%	10.0%	9.0%	9.0%	7.0%	5.0%	3.0%
Vodacom	149.9%	23.1%	2.9%	-7.5%	-9.4%	2.0%	2.0%	3.0%	3.0%	3.0%	3.0%
Other AMAP	8.4%	12.8%	5.4%	10.3%	4.7%	6.0%	5.0%	5.0%	4.0%	3.0%	2.5%
Total AMAP	43.8%	20.2%	3.7%	-0.4%	-1.7%						
Non-controlled interests and common functions	5.7%	-0.9%	-41.1%	30.0%	42.2%	20.0%	15.0%	10.0%	5.0%	3.0%	2.0%
Total Revenue	8.4%	3.2%	-15.4%	-2.0%	0.8%	13.1%	3.4%	3.1%	2.7%	2.0%	1.4%

Source: Own creation, based on *Vodafone's* annual reports and MarketLine (2013B-H).

Appendix 6: Pro Forma Income Statement

Pro Forma Income Statement

Pro Forma Income Statement								
Vodafone Group Plc. (£ in millions)	'13	'14	'15e	'16e	'17e	'18e	'19e	Terminal
Fiscal Year ended on	31-Mar							
Revenue	38,041	38,346	43,361	44,829	46,208	47,433	48,377	49,051
Cost of Sales	(26,567)	(27,942)	(31,888)	(32,743)	(33,519)	(34,171)	(34,609)	(35,091)
Gross Profit	11,474	10,404	11,473	12,086	12,689	13,262	13,768	13,960
Selling and distribution expenses	(2,860)	(3,033)	(3,616)	(3,694)	(3,761)	(3,814)	(3,890)	(3,895)
Administrative expenses	(4,159)	(4,245)	(5,004)	(5,173)	(5,332)	(5,474)	(5,583)	(5,661)
Share of results of equity accounted associates and joint ventures	575	278	295	298	300	308	314	319
Impairment losses	(7,700)	(6,600)	(3,000)	0	0	0	0	0
Other income/ (expense)	468	(717)	(147)	(152)	(157)	(161)	(164)	(167)
Add: Operating lease interest expense	479	709	766	763	787	808	824	835
EBIT	(1,723)	(3,204)	767	4,128	4,525	4,930	5,270	5,392
Income tax credit/ (expense)	(476)	16,582	0	0	0	0	0	0
Tax shield, net financial expenses	(307)	(312)	(258)	(272)	(284)	(285)	(286)	(284)
NOPAT	(2,506)	13,066	509	3,856	4,241	4,645	4,983	5,108
Non-operating income/ (expense)	10	(149)	0	0	0	0	0	0
Investment income	305	346						
Financing cost	(1,596)	(1,554)						
Net financial expenses before tax	(1,281)	(1,357)	(1,228)	(1,360)	(1,422)	(1,423)	(1,431)	(1,420)
Tax on net financial expenses	307	312	258	272	284	285	286	284
Net financial expenses after tax	(974)	(1,045)	(970)	(1,088)	(1,138)	(1,138)	(1,144)	(1,136)
Subtract: Operating lease interest expense	(479)	(709)	(766)	(763)	(787)	(808)	(824)	(835)
Group profit/ (loss) after tax from continuing operations	(3,959)	11,312	(1,227)	2,004	2,316	2,699	3,015	3,137
Profit from discontinued operations	4,616	48,108						
Profit for the year	657	59,420	(1,227)	2,004	2,316	2,699	3,015	3,137

Source: Own creation.

Appendix 7: Depreciation and Amortization Schedule

Depreciation and Amortization Sche	dule							
Vodafone Group Plc. (£ in millions)	'13	'14	'15e	'16e	'17e	'18e	'19e	Terminal
Fiscal Year ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	
Tangible assets								
Net property, plant and equipment	17,584	22,851	29,052	31,829	32,346	33,203	33,380	33,821
Depreciation	3,637	4,038	5,220	6,636	7,270	7,388	7,584	7,625
Intangible assets								
Net Intangible assets	44,139	46,688	47,263	47,967	48,518	48,856	49,345	49,540
Amortization	3,024	3,522	3,378	3,420	3,471	3,511	3,535	3,571
Impairment	(7,700)	(6,600)	(3,000)					
Net capital expenditures	5,213	9,305	11,420	9,413	7,787	8,246	7,761	8,065
Investment in goodwill and intangible assets	585	6,071	3,954	4,124	4,022	3,848	4,024	3,765

Source: Own creation.

Appendix 8: Capitalizing Operating Leases

Capitalizing Operating Leases

Vodafone Group Plc. (£ in millions) Fiscal Year ended on	'13 31-Mar	'14 31-Mar	'15e 31-Mar	'16e 31-Mar	'17e 31-Mar	'18e 31-Mar	'19e 31-Mar	Terminal	'21e 31-Mar
Operating lease rentals payable Asset Value	1,803 16,759	2,153 16,171	2,168 16,112	2,241 16,607	2,310 17,048	2,372 17,387	2,419 17,629	2,453 17,875	2,487 0
Imputed Interest Expense	479	709	766	763	787	808	824	835	847
Input									
UK AA Corporate Bond	3.67%	4.23%	4.74%	4.74%	4.74%	4.74%	4.74%	4.74%	4.74%
Asset life	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9

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Source: Own creation.

Appendix 9: Pro Forma Balance Sheet

Pro Forma Balance Sheet								
Vodafone Group Plc. (£ in millions)	'13	'14	'15e	'16e	'17e	'18e	'19e	Terminal
Fiscal Year ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	
Non-current assets								
Intangible assets	44,139	46,688	47,263	47,967	48,518	48,856	49,345	49,540
Property, plant and equipment	17,584	22,851	29,052	31,829	32,346	33,203	33,380	33,821
Capitalized operating leases	16,759	16,171	16,112	16,607	17,048	17,387	17,629	17,875
Investments in associates and	46,447	114	129	133	137	141	144	146
Deferred tax assets	2.848	20.607	20.607	20.607	20.607	20.607	20.607	20.607
Total non-current assets	127,777	106,431	113,163	117,144	118,656	120,194	121,105	121,988
Current assets			-					-
Operating cash	761	767	867	897	924	949	968	981
Inventory	353	441	434	448	462	474	484	491
Trade and other receivables	9,818	9,713	10,840	10,983	11,090	11,147	11,127	11,037
Taxation recoverable	397	808	347	359	370	379	387	392
Total current assets	11,329	11,729	12,488	12,687	12,846	12,949	12,965	12,900
Non-interest bearing debt								
Trade and other payables	14,138	15,914	17,995	18,828	19,638	20,396	21,044	21,583
Other operating liabilities	10,313	3,479	8,852	9,152	9,433	9,683	9,876	10,014
Total non-interest-bearing debt	24,451	19,393	26,847	27,980	29,072	30,080	30,920	31,596
Invested capital (net operating assets)	114,655	98,767	98,804	101,850	102,430	103,064	103,150	103,292
Equity								
Total equity, beginning of period	78,202	72,488	71,781	68,911	70,598	71,161	71,623	71,943
Comprehensive income	604	56,711	(1,227)	2,004	2,316	2,699	3,015	3,137
Dividends	(5,185)	(40,850)	(1,643)	(317)	(1,753)	(2,237)	(2,696)	(2,964)
Other changes in equity	(1,133)	(16,568)						
Total equity, end of period	72,488	71,781	68,911	70,598	71,161	71,623	71,943	72,116
Net-interest-bearing debt	42,167	26,986	29,894	31,252	31,269	31,441	31,207	31,177
Invested Capital	114,655	98,767	98,804	101,850	102,430	103,064	103,150	103,292

Source: Own creation.

Appendix 10: Pro Forma Cash Flow Statement

Vodafone Group Plc. (f in millions)	'13	'17	150	'160	'170	'180	100	Terminal
Fiscal Vear ended on	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	31-Mar	reminar
	ST IVIUI	ST WIG	ST IVIUI	ST WIGH	JI WIU	JI WIGH	JT IVIUI	
NOPAT	(2,506)	13,066	509	3,856	4,241	4,645	4,983	5,108
Depreciation and amortization	6,661	7,560	8,598	10,056	10,741	10,899	11,119	11,195
Impairment losses	7,700	6,600	3,000	0	0	0	0	0
Changes in working capital	2,080	(5,458)	6,695	935	932	905	825	741
Cash flow from operations	13,935	21,768	18,801	14,846	15,914	16,449	16,928	17,044
Net capital expenditures	(5,213)	(9,305)	(11,420)	(9,413)	(7,787)	(8,246)	(7,761)	(8,065)
Investment in goodwill and other intangibles	(8,285)	(12,671)	(6,954)	(4,124)	(4,022)	(3,848)	(4,024)	(3,765)
Decrease/ (Increase) in capitalized lease obligations	(3,706)	588	59	(496)	(440)	(339)	(242)	(246)
Decrease/ (Increase) in investments in associates and joint ventures	1,235	46,333	(15)	(4)	(4)	(4)	(3)	(2)
Free cash flow to the firm	(2,034)	46,713	471	809	3,661	4,011	4,897	4,966
Net financial expenses after tax	(974)	(1,045)	(970)	(1,088)	(1,138)	(1,138)	(1,144)	(1,136)
Changes in NIBD	6,196	(15,181)	2,908	1,359	17	172	(234)	(31)
Adjustment for imputed interest expense of capitalized operating lease	(479)	(709)	(766)	(763)	(787)	(808)	(824)	(835)
Free cash flow available for equity holders	2,709	29,778	1,643	317	1,753	2,237	2,696	2,964
Dividends			(1,643)	(317)	(1,753)	(2,237)	(2,696)	(2,964)
Cash surplus			0	0	0	0	0	0

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Pro Forma Cash Flow Statement

Source: Own creation.

Appendix 11: Yields on UK Government 10-year Zero-Coupon Bonds



Source: Own creation, based on Bank of England (2014A).

Appendix 12: Vodafone Bonds Outstanding

Bond Name	Maturity Date	Amount in USD Mio.	Credit Quality	Bond price	Coupon %	Coupon Type	Callable	Rule 144A	Yield to Maturity
Vodafone Grp 7.875%	02/15/2030	75,000.0			7,875	FRN	No		
Vodafone Grp Plc New 6.15%	02/27/2037	1700		117.1	6,150	Fixed	No	No	4.88
Vodafone Grp Plc New 2.95%	02/19/2023	1600		97.5	2,950	Fixed	No	No	3.29
Vodafone Grp 4.65%	01/20/2022	1579.1		100	4,650	Fixed	No		4.65
Vodafone Grp 6.25%	01/15/2016	1579.1		100	6,250	Fixed	No		6.22
Vodafone Grp Plc New 1.5%	02/19/2018	1400		98.7	1,500	Fixed	No	No	1.9
Vodafone Grp Plc New 4.375%	02/19/2043	1400		96	4,375	Fixed	No	No	4.63
Vodafone Grp Plc New 5.625%	02/27/2017	1300		110.5	5,625	Fixed	No	No	1.12
Vodafone Grp Plc New 5.45%	06.10.2019	1250		113.9	5,450	Fixed	No	No	2.28
Vodafone Grp Plc New 1.25%	09/26/2017	1000		98.9	1,250	Fixed	No	No	1.64
Vodafone Grp Plc New 1.625%	03/20/2017	1000		100.9	1,625	Fixed	No	No	1.24
Vodafone Grp Plc New 2.5%	09/26/2022	1000		94	2,500	Fixed	No	No	3.37
Vodafone Grp 5.375%	12.05.2017	972.7		112.4	5,375	Fixed	No		2.11
Vodafone Grp 5%	06.04.2018	947.4		115.7	5,000	Fixed	No		0.62
Vodafone Grp Plc New 0.9%	02/19/2016	900		99.9	0.900	Fixed	No	No	0.94
Vodafone Grp Plc New 5.375%	01/30/2015	900	High	104.1	5,375	Fixed	No	No	0.53
Vodafone Grp Plc New 5.75%	03/15/2016	750	High	109.8	5,750	Fixed	No	No	0.76
Vodafone Grp Plc New 5%	09/15/2015	750	High	106.4	5,000	Fixed	No	No	0.62
Vodafone Airtouch 7.875%	02/15/2030	744.4		137.8	7,875	Fixed	No	No	4.48
Vodafone Grp 5.9%	11/26/2032	729.5		122.2	5,900	Fixed	No		4.13
Vodafone Grp 8.125%	11/26/2018	729.5		122.5	8,125	Fixed	No		2.32
Vodafone Grp Plc New	02/19/2016	700		100.1	0.000	FRN	No	No	
Vodafone Grp 5.375%	06.06.2022	631.6		124	5,375	Fixed	No		1.96
Vodafone Grp 5.125%	04.10.2015	631.6		103.3	5,125	Fixed	No		0.4
Vodafone Grp 4.75%	06/14/2016	631.6		107.2	4,750	Fixed	No		0.42
Vodafone Grp Plc New 2.875%	03/16/2016	600	High	104.4	2,875	Fixed	No	No	0.63
Vodafone Grp Plc New 4.375%	03/16/2021	500		107.1	4,375	Fixed	No	No	3.15
Vodafone Grp Plc New 4.625%	07/15/2018	500		110.4	4,625	Fixed	No	No	1.74
Vodafone Grp Plc New 3.375%	11/24/2015	500	High	104.1	3,375	Fixed	No	No	0.93
Vodafone Grp Plc New 6.25%	11/30/2032	495		116.9	6,250	Fixed	No	No	4.84
Vodafone Grp 5.625%	12.04.2025	405.3		119	5,625	Fixed	No		3.53
Vodafone Grp	12.01.2028	235.4		36.8	0.000	Fixed	No		
Vodafone Grp 2.15%	04.10.2015	27.3			2,150	Fixed	No		

Weighted average bond price: 106.50

Source: Own creation, based on Morningstar (2014).





Source: Own creation.





Source: Own creation.



Appendix 15: Sensitivity Analysis of Estimated Enterprise Value

Source: Own creation.



Appendix 16: Sensitivity Analysis of Expected Market Value of Equity

Source: Own creation.