CZECH UNIVERSITY OF LIFE SCIENCES

Faculty of Economics and Management

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DIPLOMA THESIS
Estimation of Vodafone's Stock Value

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DIPLOMA THESIS ASSIGNMENT

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Economics and Management

Thesis title

Estimation of Vodafone's Stock Value

Objectives of thesis

The main aim of the thesis is to determine factors affecting the price development on the UK stock market for the selected organization Vodafone. The research further aims towards understanding the stock market practices that can affect the stock prices of the Vodafone in long run of business performance.

The sub-objective of the current research is to identify and analyze different situations of the stock market that had been affecting the Vodafone stock prices.

Methodology

The research will be quantitative in nature. The review of the topic is based on a significant review of secondary data. The same will be collected from Vodafone Group's annual reports, magazines and publications. In addition, the information collected from the database of various departments is used to supplement the current literature of enriching secondary published data to reach a conclusion. Thesis has focused the past and the current performance of Vodafone Stock. For the purpose the period from 2008 to 2018 was chosen.

The data is collected from Vodafone Group plc, Vodafone UK, S&P 500 Index, London Stock Exchange and Financial Conduct Authority (FCA) UK.

The qualitative data to be used in the study comprises dividend discount model, graham model, ratio analysis, the market rate of return, earnings per share, and book value method to analyze the stock market performance of Vodafone.

The proposed extent of the thesis

60 - 80

Keywords

Stock market, Telecommunication, Vodafone, Interest rate, Inflation rate, Exchange rate, Stock variations

Recommended information sources

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Declaration

I declare that I have worked on my diploma thesis titled "Estimation of Vodafone's Stock Value" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 28th March, 2019 _____

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Abstract

In the most recent times, the telecommunication sector had gone through many radical changes in the terms of technological advancement implications. These changes in the technologies of communication had positively affected the process of sharing information. The current research is been conducted for understanding the practices of a telecommunication company that is based in the United Kingdom and performs the operations required for conducting the effective telecommunication. The research also identifies the stock market value of the communication industry. The current dissertation is been developed for focusing on the estimating the stock value of the Vodafone PLC which is one of the leading telecommunications organizations in the globe. It will be quantitative research in nature. The review of the topic is based on a significant review of secondary data. The data will be collected from Vodafone Group's annual reports, magazines and publications. Thesis has focused the past and the current performance of Vodafone Stock. For the purpose of research, data have been included the period from 2008 to 2018 for past and present trends which includes analysis stock value and financial ability of the selected company. During the analysis, the researcher has applied graham model, ratio analysis, earnings per share and book value method to measure Vodafone PLC performance. The data is collected from Vodafone Group plc, Vodafone UK, S&P 500 Index, London Stock Exchange and Financial Conduct Authority (FCA) UK. In the end of the thesis, the results were concluded in a manner that can support the decision making of the investors in making their investment in the Vodafone PLC.

Keywords: Telecommunication, Stock market, London Stock Exchange (LSE), Capital Asset Pricing model (CAPM), Vodafone (VOD) PLC, Stock variations, financial markets etc.

Abstraktní

Telekomunikační sektor prošel v poslední době mnoha radikálními změnami, pokud jde o důsledky technologického pokroku. Tyto změny v technologiích komunikace pozitivně ovlivnily proces sdílení informací. Současný výzkum je prováděn za účelem porozumění praktikám telekomunikační společnosti se sídlem ve Spojeném království a provádí operace potřebné pro provádění efektivní telekomunikační služby. Výzkum také identifikuje tržní hodnotu komunikačního průmyslu. Současná disertační práce je zaměřena na odhad hodnoty akcií Vodafone PLC, která je jednou z předních telekomunikačních organizací na světě. Výzkum bude kvantitativní povahy. Přezkum tématu je založen na významné revizi sekundárních dat. Data budou shromažďována z výročních zpráv, časopisů a publikací Vodafone Group. Práce se zaměřila na minulost a současný výkon společnosti Vodafone Stock. Pro účely výzkumu byla data za období 2008 až 2018 zahrnuta za minulé a současné trendy, které zahrnují analýzu hodnoty akcií a finanční způsobilosti vybrané společnosti. Během analýzy výzkumník aplikoval graham model, poměrovou analýzu, zisk na akcii a metodu účetní hodnoty pro měření výkonnosti Vodafone PLC. Data jsou shromažďována od Vodafone Group plc, Vodafone UK, S&P 500 Index, London Stock Exchange a Financial Conduct Authority (FCA) UK. V závěru práce byly závěry uzavřeny způsobem, který může podpořit rozhodování investorů o investování do Vodafone PLC.

Klíčová slova: Telekomunikace, akciový trh, London Stock Exchange (LSE), Model oceňování kapitálu (CAPM), Vodafone (VOD) PLC, Variace akcií, finanční trhy atd.

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List of Abbreviation

VOD   Vodafone

LSE   London Stock Exchange

DDM   Dividend Discount Model

ROA   Return On Asset

ROE   Return On Equity

GDP   Gross Domestic Product

EPS   Earnings Per Share

DPS   Dividends Per Share

IR   Interest Rate

CAPM   Capital Asset Pricing Model

APT   Arbitrage Pricing Theory

NYSE   New York Stock Exchange

ROCE   Return On Capital Employed

D/E   Debt To Equity Ratio

BT   British Telecom

1 – Introduction

Telecommunication can be discussed as that electronic process of exchanging and sharing the information between the two people who are separated by their geographical boundaries. In the current technological age, the communication conducted through telecom medium is considered as the most important part of business life. This is because; the technology had changed the major business activities around the globe. Further, the technologies that are considered for conducting the telecommunication process had been changed in the previous 50 years. This type of changes had brought a shift in the requirement of individuals who are conducting communication. In previous years, the telecommunication processes were performed majorly by the Government that had governed the practices of general post offices (GPO) in the UK (Sakamoto *et al*., 2018. pp.39-56). The process of GPO in the country had the sole proprietary for the government until the commercial communication processes did not start to work their functions most appropriately.

1.1, About Vodafone

One of the major commercial telecommunications introduced in the year of 1991 at the heart of London was the Vodafone. Before that time, it was known and had operated in London as the Racal Telecom. The Vodafone group had been ranked as the 4th major communication operating service of UK that had provided its telecommunication practices (Verbeke, *et al*., 2012. pp.211-229). Vodafone Group (Vodafone) is one of the world's leading network service providers in mobile telecom sector. The group provides mobile voice and data communication services to consumers and enterprise customers. The group has global operations spanning Europe, the Middle East, Africa, Asia Pacific and the US. It is headquartered in Berkshire, the UK and employs 84,990 people.

The group recorded revenues of £44,472 million ($70,992.4 million) during the financial year ended March 2010 (FY2010), an increase of 8.4% over FY2009. The operating profit of the group was£9,480 million ($15,133.3 million) in FY2010, an increase of 61.9% over FY2009. Its net profit was£8,645 million ($13,800.4 million) in FY2010, compared to net profit of £3,078 ($4,913.5 million) in FY 2009 (VOD, 2012).

Vodafone Group's Europe segment includes its principal mobile subsidiaries located in Germany, Spain and the UK, a principal joint venture in Italy, as well as the group's principal

fixed-line telecom business. Other businesses in the European region comprise Albania, Greece, Ireland, Malta, the Netherlands and Portugal, as well as its associated undertaking in France. Vodafone provides a range of products and services such as voice, messaging, data and fixed-line solutions and devices. The group offers mobile handsets in partnership agreements with leading companies, including RIM, Samsung and Google. It also offers Vodafone branded handsets. Voice is the group's core service offered to customers. It's voice services create the revenue for national, international and roaming calls. The group offers messaging services including short message service (SMS) and multimedia message (MMS) both on mobile handsets and various other devices (VOD, 2018).

Vodafone provides a range of data products, including PC connectivity, internet services, and applications and roaming. Vodafone also provide PC connectivity services which are available from Vodafone Mobile Broadband devices and certain handsets to provide mobile internet access for a laptop, netbook and PC users. The group's internet services enable users to access the internet on their mobile handset. Data roaming allows customers to use Vodafone's services on a mobile network when travelling abroad (Foubert, Neus, Van Biesen, and Rolain, 2012. pp.896-902). The group also offers fixed broadband, provided mainly through DSL technology, and fixed-line voice, which enables consumer and corporate customers to make fixed line voice calls using Vodafone as their main communications service provider. The group also provides a range of value-added services, including Vodafone 360, Vodafone Money Transfer, and other applications, to customers.

Now, Vodafone 360 is a new internet service launched for mobile, PC and Mac users. It brings phone, email, chats and social network contacts together in one place. Vodafone 360 provides customers with access to games, music and thousands of applications as well as browsing the internet. The group's range of total communications solutions provide customers with integrated office and mobile voice and data services, such as Vodafone Always Best Connected, an internet connection management software tool which manages connections across all network connection types including Mobile Broadband, Wi-Fi and LAN (Becker, Mladenowa, Kryvinska, and Strauss, 2012. pp.650-657). It also offers Vodafone PC Backup and Restores, which enables users to remotely store data securely and automatically via their internet connection. The group offers total communications solutions for a range of enterprise customers from small businesses to large multinational companies. Its enterprise service offerings include Vodafone One Net, Vodafone Unified Communications, the business

managed services, and machine-to-machine (M2M) offerings (Nuseibah, and Wolff, 2014. p.145).

1.2, Research Motivation

The Vodafone group services had been described the one the leading telecommunication services that had the headquarters in London and had their regional offices at Berkshire, and Newbury, England. After performing the successful operations in the United Kingdom (UK), the group had expanded their operations in many countries around the globe like Australia, Egypt, Germany, etc. The Vodafone had been providing the telecommunication services to the globe in the most successful manner. Vodafone had a great share market presence in the London Stock Exchange (LSE). It had been discussed by the market researchers that there are many takeovers and mergers among the telecommunication organisations. The whole telecommunication sector had been in competitive pressure due to such increased mergers and business takeovers (Whalley, and Curwen, 2012. pp.222-236). Due to such important mergers and introduction of the new communication technologies, the researchers in performing their research on the chosen topic. This type of research will be helpful in describing the original practices of the London Stock Exchange for the big companies like Vodafone.

1.3, Background of the study

The Vodafone group services had been described the one the leading telecommunication services that had the headquarters in London and had their regional offices at Berkshire, and Newbury, England. After performing the successful operations in the United Kingdom (UK), the group had expanded their operations in many countries around the globe like Australia, Egypt, Germany, etc. The Vodafone had been providing the telecommunication services to the globe in the most successful manner. Vodafone had a great share market presence in the London Stock Exchange (LSE). It had been discussed by the market researchers that there are many takeovers and mergers among the telecommunication organisations. The whole telecommunication sector had been in competitive pressure due to such increased mergers and business takeovers (Whalley, and Curwen, 2012. pp.222-236).

1.4, Problem Statement

As the telecommunication sector of the UK had been experiencing most of the business mergers and other takeovers; it had been established by the organisations that the mergers and

other business acquisitions are performed for the betterment of the sector on the whole. It had also been discussed that the European Union and Britain are experiencing the increased competition in the telecommunication sector that had also negatively impacted the share prices of many telecommunication organisations like Vodafone. This problem was identified by Rupert Hargreaves in October 2018. According to him the Vodafone share price reduced by 30% in comparison of previous activities of the business (Hargreaves, 2018). It had also been discussed that the drop in the share price of Vodafone had increased the overall dividend yield of 8.6% that was twice the previous year. This had become a problem for the finance department of the Vodafone. The current study will be designed to discuss the experienced problem and to think about different techniques that can be helpful in determining effective solution practices for coming out of such a difficult situation. For addressing the developed problem experienced by the business of Vodafone, the current research had designed certain research aim and objectives that can help the business in preparing the solution for handling the share prices of the Vodafone in a manner that it does harm the overall business in future (Mazzarol, and Soutar, 2012. pp.717-737).

1.5, Significance of the study

The only significance of the current study is in the reference of the effectiveness for the market practices that had shaped the share prices of the telecommunication sector in respect of Vodafone. Many businesses like Vodafone are working in the target for gaining extra market share. This extra share can be achieved through an effective technique of analysing the share market practices. Therefore, the current research is making a share market analysis for one of the telecommunication market leaders, Vodafone (Kwenin, Muathe, and Nzulwa, 2013. pp.13-20).

1.6, Limitation of the study

The main limitation of the study is that the current study is only conducted in respect of one telecommunication organisation named Vodafone. A further limitation of the study is in connection of the topic of research, that is, the research is only conducted for analysing the share market practices of Vodafone instead of doing a complete analysis of Vodafone practices (Kwenin, Muathe, and Nzulwa, 2013. pp.13-20).

2 – Objectives and Methodology

2.1, Objectives

The current research is aimed towards making an effective analysis of the share market of the UK for the selected organization Vodafone. The research further aims towards understanding the share market practices that can affect the share prices of the Vodafone in long run of business performance. The main objective of the current research is to identify and analysis different situations of the share market that had been affecting the share price of the chosen organization of Vodafone. Other objectives of the current research are listed below.

Objective#1: Developing a trend analysis that can explain the market trend of complete telecommunication industry.

Objective#2: Developing reasons that had brought a reduction in the stock prices of the Vodafone.

2.2, Research Questions

Question#1: What are the market trends of Vodafone stock in recent years?

Question#2: Is it good to invest in the Vodafone stock for the long term?

Question#3: How possible are the chances for Vodafone stock to keep itself in competition with other companies of the market?

2.3, Methodology

The research will be quantitative in nature. The review of the topic is based on a significant review of secondary data. The same will be collected from Vodafone Group's annual reports, magazines and publications. In addition, the information collected from the database of various departments is used to supplement the current literature of enriching secondary published data to reach a conclusion. Thesis has focused the past and the current performance of Vodafone Stock. For the purpose of research, I have included the period from 2008 to 2018 for past and present trends.

The data is collected from Vodafone Group plc, Vodafone UK, S&P 500 Index, London Stock Exchange and Financial Conduct Authority (FCA) UK. The qualitative data to be used in the study comprises dividend discount model, graham model, ratio analysis, the market rate of

return, earnings per stock, and book value method etc. to analyse the stock market performance of Vodafone.

Through which, the company's performance was analysed and evaluated so that any conclusions can be reached with recommendations for better evaluation, based on current trends. Any problem areas that need to focus on various evaluation measures and the telecommunications sector have been researched so far.

2.3.1, Methodological Approach

The methodological approaches that can be used for the current research of estimating the stock prices of Vodafone are listed below:

- Dividend discount model,
- Graham model,

$$\text{Graham Model} = \sqrt{(22.5*\text{earning per share}*\text{book value per share})} \tag{1}$$

- Ratio analysis,
    - Return On Capital Employed (ROCE)

$$ROCE = \frac{Operating\ Profit}{Total\ Assets - Current\ Liabilities} * 100 \tag{2}$$

    - Gross Margin Ratio

$$Gross\ Margin = \frac{Operating\ Profit}{Sales} * 100 \tag{3}$$

    - Current Ratio

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities} \tag{4}$$

    - Quick Ratio

$$Quick\ Ratio = \frac{Current\ Assets}{Current\ Liabilities - Stocks} \tag{5}$$

    - Debt To Equity Ratio

$$Debt\ To\ Equity = \frac{Debt}{Equity} * 100 \tag{6}$$

- The market rate of return,

- Earnings per share,

$$EPS = \frac{Net\ income\ after\ tax}{Total\ number\ of\ outstanding\ shares} \qquad (7)$$

- Book value methods.

$$Book\ value = \frac{Total\ assets - Total\ liabilities}{total\ outstandind\ shares} \qquad (8)$$

The abovementioned methodological approaches of performing the analysis will help the researchers in capturing the actual estimate of the stock price of the Vodafone that will also help the future practices of the organisation in moving towards success. The developed methodological approaches also help the researchers in accumulating the information that will help the investors in making an investment decision. Moreover, the current research will also practice comparison of the stock prices of Vodafone and other organisations who are working within the telecommunication industry (Konchitchki, and O'Leary, 2011. pp.99-115).

2.4., Data Collection

According to Auberlet, et al. (2014) there are two types of data collection techniques (i) Primary & (ii) Secondary. Primary sources are based on interviews, surveys, public opinion polls and others. Secondary data collection is based upon the already researched topics and studies based on the topic which gives a researcher about what those researches have concluded and what they will be able to conclude based on those researches. To perform the research on the topic of Strategic Sustainability Development, the primary data collection source was used as the whole investigation will be based upon survey questionnaires, interviews and case studies. This primary data collection offered the use of a mixed system of research design (qualitative and quantitative). To justify the research the data has been collected from Vodafone Group's annual reports, magazines and publications. Also, the other information collected from the database of various departments is used in literature published earlier data to reach a conclusion. Thesis has focused the past and the current performance of Vodafone Stock from 2008 to 2018. The data is collected from Vodafone Group plc, Vodafone UK, S&P 500 Index, London Stock Exchange and Financial Conduct Authority (FCA) UK for analysis of telecom industry and Vodafone PLC stock valuation.

2.4.1, Data Collection Methods

In every research that is conducted for any topic, there are two types of data collection techniques. The first type of data collection technique can be described as the Primary data collection. The primary data can be said as the data that had been collected only for the purpose of completing the current research, and it had never been collected before. The primary data can be collected through the help of questionnaires and interviews. The primary data can be collected for both qualitative and quantitative studies. The interviews are used for making the collection of the qualitative data whereas the developed questionnaires are filled out for quantifying the collected responses (Taylor, Bogdan, and DeVault, 2015).

Another type of data collection technique that can be used in the collection of required data for research can be described as the secondary data collection technique. The secondary data collection can be of both qualitative and of qualitative manner. The secondary data can be described as the data which had been made available by the previous research articles and other business reports. The secondary data for the current research can be collected from the annual report of the chosen business and other literature articles that are published on different websites like Emerald Insight and Science Direct (Matthews, and Ross, 2010). Further, different published books and magazines can also be helpful in collecting the secondary data.

2.5, Conclusion

The current had been developed for understanding the importance of developing a methodology for the current research. The current chapter develops the research philosophy that was based on the critical realism approach that can help the researchers in attaining their target of recording the estimation of the stock value of Vodafone. The chapter develops the methods for collecting and analysing the data for the current research that will help the current researchers in reaching the results of the dissertation.

3 – Literature Review

It had been discussed in the previous chapters that the telecommunication can be discussed as the electronic process of exchanging and sharing the information between the two persons who are separated through their geographical boundaries. It was also discussed in the previous chapter that the telecommunication sector had been improved in many folds since its start in the industrial work. The practices performed in the telecommunication department had drastically changed over time, and they had inflicted the modern society in a great manner. The current chapter will be developing the studies that are generally related to the telecommunication industry of the UK.

3.1, Research Literature

The history of the research for telecommunication had been developed in a very detailed manner. The researchers had discussed that the technology that had been supported for using the telecommunication practices around the globe. The use of the technologies in the telecommunication practices around the globe had been supporting the growth in a great manner. The telecommunication organisation of the UK named Vodafone had been selected for understanding the impact of the telecommunication practices that had been supported the market of shares. It had been discussed by the researchers that the share market of the telecommunication industry is greatly increasing around the globe. The Vodafone had been in the telecommunication industry for a past twenty years for serving the clients. Vodafone also had its presence in the share market since the time of inception (Marasco, Picucci, and Romano, 2016. pp.49-62).

In making an effective estimation of Vodafone's stock value of the Vodafone, certain macroeconomic factors are considered important. These factors are in a relation to the practices that are followed by the economy of the selected country. The factors include the exchange rate, inflation rate, stock market returns, and interest rate of the economy. Different market researchers had considered the stock market practices as the important market that can help the different market performers in understanding the actual performance of the chosen organisation (Boohene, and Agyapong, 2010. p.229). Apart from the factors mentioned above, the share market practices of many organisations around the globe who are working in the telecommunication sector, these factors are money supply; Tobin's Q theory; Capital asset pricing model (CAPM); and Arbitrage pricing theory (APT). The above techniques of studying

the estimation of Vodafone's stock value can be effectively performed and, these techniques are discussed in the current literature so that their impact on the estimation of Vodafone's stock value in respect of Vodafone can be performed (Karaçuka, ÇAtıK, and Haucap, 2013. pp.334-344).

3.1.1, Inflation Rate

The stock market analysis can be started with the activities in the stock market that is in connection of the inflation rate faced by the economy of the country where the company is performing those duties. For Vodafone, the inflation rate that will be analysed for the country will be the United Kingdom (UK). The inflation rate in the stock market of UK usually goes along with the developed consumer price index (CPI) on a monthly basis. This is because the CPI can be affected by the change in the prices of products that are offered in the market. Different researchers had also described that the main relationship of the inflation rate and the stock market activities that are performed by the organisation are in the negative relation (Hussin, Muhammad, Abu, and Awang, 2012. p.1). This type of negative relation is generally observed between the amount of inflation that had been carried out in the society and the stock market activities that are generally affected. Financial market researchers had observed this sort of result in the stock price analysis of the telecommunication sector. The increase in the rate of inflation in the stock market is the reason in the market that leads to the decrease in the level of investments (Bekaert, and Engstrom, 2010. pp.278-294).

Further, it had been analysed by the researchers that h inflation rate generally decreases the value of money that is regulating in the stock market. This decrease in the value of money directly results in the decrease in the investment made in the stock of the company. The developed inflation rate in the stock market had displayed some negative results for the stock market. Another factor that affects the results developed from the stock market analysis for the organisation with the likes of Vodafone is said as the exchange rate (Esfahanipour, and Aghamiri, 2010. pp.4742-4748).

3.1.2, Exchange Rate

The exchange rate can be discussed as that rate which is used by the stock exchanges around the globe for comparing their currency unit with other foreign currencies in which they want to trade. The exchange rate of the currencies had a positive impact on the market activities of the stock exchange. This can be said for the chosen organisation of Vodafone that the developed

stock market prices of the telecommunication industry are also not so differently affected by the change in the exchange rate of the market. Still, different researchers had tried to develop a negative relationship between the change in the exchange rate and change in the stock market activities (Basher, Haug, and Sadorsky, 2012. pp.227-240). This type of negative feedback on the exchange rate was devised after the study of the economic practices that are affected by real exchange practices. That is when the countries are making import and exports with other countries and if their currency is experiencing a lower rate of exchange in other countries, then they can obtain a loss of trade by trading more of their currency for less product that requires consumption. This factor will leave the economy in the stir of organisations that would leave an overall negative impact on the economy (Ciner, Gurdgiev, and Lucey, 2013. pp.202-211).

Further, there had been different researches around the globe that had explained the mixed effect of the exchange rate on the overall practices of the stock exchange. These mixed impacts had been experienced by the chosen organisation, Vodafone. That is, in some countries where Vodafone operates, like India and Australia, the Vodafone had to experience heavy losses when the income generated from these regions are exchanged against British Pound Sterling. Instead, when the collection of Vodafone are made from the countries like the USA, the losses are very much minimum in response to the trade made in Australia and India. Another stock market factor that is attached to the analysis of the stock market practices can be discussed as the interest rate (Reddy, Nangia, and Agrawal, 2014. pp.56-67).

3.1.3, Interest Rate

The calculation of the interest rate had been the major aspect of the stock market activities. This is because the interest rates of the stock market usually used for adjusting the impact of the inflation within the society so the different organisations can easily perform the stock market activities. Further, different researchers had explained the fact that the stock market activities are generally negative. That is, this negative relationship had been in the relation of different investment opportunities that are in connection of business structure. That is when the interest rises, the investors reduce their investment in the stocks of the organisation that in return reduces the stock prices of different organisations who are performing their services (Grant, 2016). This reduction in stock prices also leads to reducing the returns attained by the investors. This reduces the overall profit earning capacity for the investors that eventually results in the decrease in the overall market practices.

Further, different researchers had established the overall positive impact of the interest rates on the stock market activities. They had explained this fact in the light of the increase of the interest rate at a slower pace (Arouri, and Nguyen, 2010. pp.4528-4539). That is when the economy of the country is growing at the steady pace, and the organisations are also growing positively, then the increase in the interest rate can also benefit the stock market in performing its functions more effectively. The major benefits drawn from the increase in the interest rates increase the financial institutions that usually govern the market of financial activities for the economy. These financial institutions help the economy in developing the money supply (Alt, and Puschmann, 2012. pp.203-215).

3.1.4, Money Supply

The development of money supply is considered as the crucial part for any economy around the globe. The money supply helps the stock market in performing their activities in a significant manner. The increase in the money supply helps the stock price to increase at eh great rate and reduces the interest rates in the economy. There are certain researchers that had acclaimed that the increase in the money supply can also lead to a decrease in the actual worth of the monetary unit that revolves in the overall economy. This causes the impact of inflation on stock prices. The increased money supply can also become the reason for delivering the negative impact on the stock market in the longer run. Therefore, the researchers had developed the Tobin's Q theory that develops the relationship between the stock market practices and the stock assets of the organisation (Iglesias, 2015. pp.1-8). An increase in the supply of money typically lowers interest rates, which in turn, generates more investment and puts more money in the hands of consumers, thereby stimulating spending. Businesses respond by ordering more raw materials and increasing production. The increased business activity raises the demand for labour. The opposite can occur if the money supply falls or when its growth rate declines (Ogunmuyiwa, and Ekone, 2010. pp.199-204).

The money supply is the total stock of the currency and other liquid instruments that circulate in a country's economy at a given time. The money supply may also include cash, currencies and balances saved in checking or savings accounts. Economists does the analysis the money supply and they develop policies to control interest rates and swing the amount of money flowing into the economy. The money supply reflects the different types of liquidity that each type of money has in the economy. It is divided into different categories of liquidity or spending options (Caginalp, and Desantis, 2011. pp.849-861).

Data on the money supply are periodically collected, recorded and published, usually by the government or the central bank of the country. Analysis of the public and private sector is carried out because of the possible influence of the money supply on the price level, inflation and the corporate business cycle. The different types of money in the money supply are generally classified as Ms, such as M0, M1, M2 and M3, depending on the type and size of the account in which the instrument is stored. Not all classifications are widely used and each country can use different classifications (Hsueh, Hu, and Tu, 2013. pp.294-301).

For example, M0 and M1 are also called narrow money and include coins and banknotes in circulation and other money equivalents that can easily be converted into cash. M2 includes M1 and, in addition, short-term term deposits with banks and certain money market funds. M3 contains M2 in addition to long-term deposits. However, M3 classification is no longer included in the report by the Federal Reserve. MZM, or zero-term maturity, is a measure with financial assets with zero maturity and which are immediately due and payable at par (Kumar, Webber, and Fargher, 2013. pp.978-991). The Federal Reserve relies heavily on MZM data because its speed is a proven indicator of inflation. An increase in the supply of money in the market genrally lowers the interest rates, which return, more investment and puts more money in the hands of consumers for spending. Henceforth, the businesses respond by ordering more raw materials and increasing production for more supply. The increased business activity raises the demand for labour. The opposite can occur if the Economists analyse the money supply money supply falls or when its growth rate declines (Capie, and Webber, 2013).

Historically, the measure of money supply has shown that relationships exist between certain economic factors and inflation, which was used as a£ determinant of the future direction of price levels and inflation. However, from 2000 the relationships have proven unstable in reducing their reliability as a controller for monetary policy. Although money supply measuring steps are still extensively used, they become less useful than the wide range of economic data which economists and the Federal Reserve reviews (Kumar, 2011. pp.323-334).

3.1.5, Tobin's Q Theory
The Tobin's Q theory was developed to understand the impact of the money supply and interest rates on the stock assets of the organisation that had been working in the stock market for making its rightful place. The developed Tobin's Q value always displays the assets values of

the business that can affect the stocks of the organisation deeply. The value of Tobin's Q is determined to be "1.0". This means that the stock value of the organisation is in accordance with the assets recorded by the organisation. When the value of Tobin's Q is more than 1.0, then the company is said to be having more market value than its displayed stock in the stock market (Williams, and Naumann, 2011. pp.20-32). This higher value of Tobin Q model brings more investment in the market that provides different investment opportunities to the investors. In the case of Vodafone, the developed Tobin's Q value is around 0.27. When the business excludes their intangibles are excluded from the calculations, then the value of Tobin Q is around 0.39. It is then understood that the actual value of the Vodafone Tobin's Q value is under the value of 1.0 that means that the Vodafone is in need of more investment as the stock price of the Vodafone is lower than the actual asset price of the business assets. The overall business of the Vodafone had been suffering from lower market values in comparison of their assets. Therefore the use of the capital asset pricing model (CAPM) was suggested to the Vodafone for making their stock market analysis (Kang, Lee, and Huh, 2010. pp.72-82).

3.1.6, Capital Asset Pricing Model (CAPM)

The main purpose of practising the capital asset pricing model (CAPM) was to analyse the rate of return on the assets theoretically. The developed CAPM model was built for obtaining the diversified business portfolio that can help the telecommunication business around the globe for reducing the risks associated with the use of assets for building the effective set of pricing of stock. The CAPM also helps the investors in developing the actual risk of the organisation that had been experienced during the process of obtaining the risk premium in the offered assets for the organisations in the telecommunication sectors (Broussard, and Vaihekoski, 2012. pp.1188-1201).

The use of CAPM can also lead the organisations in evaluating the risk-free interest rate that can help them in attaining the money supply required for working effectively in the stock market. The stock market analysis of the organisation under CAPM also helps the organisation in performing their activities with the developed Beta (β) test. This type of β test in the CAPM helps the organisations in moving towards the risk management of the stock market most effectively. The development of the β test in CAPM was done for idealising the risk on the assets that can generate the desired return on the business (Yao, Ma, and He, 2014. pp.12-29). This generation of return had led the stock market analysis towards the understanding of the

pricing theory for financial assets. The developed theory was named as the arbitrage pricing theory (APT).

The Capital Asset Pricing Model (CAPM) describes the relationship between systematic risk and expected return on assets, particularly equities. CAPM is frequently used in the financial sector for the pricing of risky securities and the generation of expected returns on assets, given the risk of those assets and capital costs. Investors expect to be compensated for risk and the time value of money (Campbell, Giglio, Polk, and Turley, 2018. pp.207-233). The risk-free interest rate in the CAPM formula takes into account the time value of money. The other components of the CAPM formula ensure that the investor runs an extra risk. The beta of a potential investment is a measure of how much risk the investment will add to a portfolio that appears on the market. If a stock is riskier than the market, it will have a beta greater than 1. If a share has a beta of less than one, the formula assumes that this reduces the risk of a portfolio (Ho, Tsai, Tzeng, and Fang, 2011. pp.16-25).

The beta of a share is then multiplied by the market risk premium, the expected return of the market above the risk-free interest rate. The risk-free interest is then added to the product of the beta of the shares and the market risk premium. The result must give an investor the required return or discount rate that he can use to determine the value of an asset. There are several assumptions behind the CAPM formula that have been shown not to contain it in reality (Aslanidis, and Christiansen, 2014. pp.321-331). Despite these problems, the CAPM formula is still widely used, because it is simple and allows simple comparisons of investment alternatives. The inclusion of the beta in the formula assumes that the risk can be measured by the volatility of a share price. Price movements in both directions, however, are not as risky. The review period to determine the volatility of a share is not standard, because stock returns (and risk) are not distributed normally (Tsai, Chen, and Yang, 2014. pp.440-454).

The CAPM also assumes that the risk-free interest rate will remain constant during the discount period. In the previous example, assume that interest on US government bonds rose to 5% or 6% during the 10-year period. An increase in the risk-free rate also increases the cost of capital used in the investment and can make the shares look overvalued. The market portfolio used to find the equity risk premium is only a theoretical value and is not an asset that can be bought or invested as an alternative to the shares. Usually, investors will use a large equity index, such as the S & P 500, to replace the market, which is an imperfect comparison. The most serious

criticism of the CAPM is the assumption that future cash flows can be estimated for the discounting process. If an investor were able to estimate the future proceeds of a share with a high degree of accuracy, CAPM would not be necessary. The CAPM uses the principles of Modern Portfolio theory to determine whether an effect is valued in a fair way. It is based on assumptions about investor behaviour, risk and return distributions and market fundamentals that do not correspond with reality. The underlying concepts of CAPM and its efficient boundary can help investors understand the relationship between expected risk and reward when making better decisions about adding securities to a portfolio (Aslanidis, and Christiansen, 2012. pp.454-464).

3.1.7, Arbitrage Pricing Theory (APT)

The developed arbitrage pricing theory (APT) was developed for building a linear equation for denoting the returns generated on the financial assets. This linear function can easily help the businesses of the stock market in working with differently generated indices through the help of developed β-coefficient that was based on the CAPM. The main working assumption of the APT can be described as the process that distributes the assets' returns based on the arbitration value of their stock (Baker, Bradley, and Wurgler, 2011. pp.40-54).

Along with the research that had been discussed above, there had been many other fundamental evaluations that supported the analysis of the stock market with respect to any selected organisation. Still, it had been discussed that the stock market analysis could be difficult for many of the organisation that is working for getting to their targeted position. Further, the technical analysis of any share-market or the stock market can be started through following some simple steps. These simple steps can be distinguished as the qualitative evaluation of stocks, and the quantitative evaluation of stocks. One of the main qualitative evaluation of share prices of many organisations around the globe can be discussed as the Economy, Industry, and Company (EIC) analysis (Agrawal, Chourasia, and Mittra, 2013. pp.1360-1366).

During the EIC analysis, the financial researchers had explained that stock or share prices of the organisation are directly been connected with an increase in the gross domestic product (GDP); growth in business earnings, and lower amount of vitality in the share market. This type of estimation of Vodafone's stock value also gives critical decisions about the stock and other share activities that will and can easily survive different types of financial situations in the share market. This type of analysis was also supported through the introduction of five

forces of the market by Michael Porter in the year of 1985 that established the five different parts of the market that can help the organisation in successfully performing its activities in any market. These five forces can be described as (1) threats of new entrants; (2) threats of a substitute; (3) bargaining power of suppliers; (4) bargaining power of buyers; and (5) the level of competitive rivalry among the competitors of the business. These five mentioned forces could help the financial researcher in working through the information of the share market and can develop effective market analysis (E. Dobbs, 2014. pp.32-45).

The quantitative analysis of the share market activities can be in connection of the processes that are developed through the Securities and Exchange Commission (SEC) of the respective countries that perform different reports that are based on the annual reports and quarterly reports that help the investors in making decisions about the stocks of the selected organisation. The developed annual reports provide the closure of different financial activities related to the share market activities. The expectation of returns from the financial assets is a subject that covers numerous learning territories, for example, budgetary econometrics, business investment analysis, and other corporate funds that can be recorded in the share market. Particularly, the accompanying words were used in these inquiries: a) specialised analysis of shares; b) exchanging; c) expectation of shares' movement; d) stock forecast; e) stock exchanging framework; and f) securities exchange (Elo, *et al*., 2014. p.2158244014522633).

It had been discussed that the discussion made in the share market, from a scholarly point of view, must be incorporated in microeconomics at microstructural levels so that the returns on the financial assets can be considered as the abnormal trends of returns. Moreover, there remains an absence of research that characterises, sorts and arranges the ideas of making the effective estimation of Vodafone's stock value for the telecommunication industry. The papers that help in making an effective analysis of the estimation of Vodafone's stock value have added to the examination on the issue with their discoveries. A considerable lot of papers had found new models that can help in developing an effective market analysis of stocks and shares. These papers additionally conduct the effective markets speculation and the arbitrary walk hypothesis. Not just have we arranged investigations as indicated by productivity, yet we have additionally examined whether papers concentrating on specialised examination contemplate chance issues (Ordanini, Parasuraman, and Rubera, 2014. pp.134-149).

As exchange expenses and hazard can influence benefit, we have added to the investigation of two new classifications. One of the more noteworthy papers relating national bank intercession to that of abundance benefits utilising specialised examination is that by utilizing straightforward moving midpoints manages on two monetary standards (Deutsche Mark and Yen) against the Dollar; he found critical benefits of over 5% yearly. At that point rejected days in his information where official intercessions by the national bank occurred and discovered that the benefits were lessened altogether (Jalil, and Feridun, 2011. pp.284-291). This examination was supplemented by that of Glasserman, (2013) who enhanced the prior investigation by including mediations by the Deutsche Bundesbank and by including more specialised investigation rules. The outcomes are predictable with the discoveries where they likewise found multi-day of the week impact, where exchanging benefits are by and large higher on Fridays and Mondays, reliable with guesses in past investigations where news concerning intercession will, in general, be uncovered over ends of the week. Van Rooij, Lusardi, and Alessie, (2011. pp.449-472) adopted a marginally unique strategy in that he connected markets where specialised examination demonstrated productive to business sectors where national bank mediation exists.

3.2, Stock Variations

Shares are owned by a company, with each share representing a small piece of ownership. The more shares you own, the more you own of the company and the greater dividends you earn when the company makes a profit. In the financial world, the property is called equity. Stocks are divided in two primary classes. The one you select depends on what you want from a selected stock. Preference shares normally pay normal dividends, and investors who want income, especially from their shares, prefer it. Normal stock represents the ownership of a company and may offer more rights and privileges than preference shares. Despite some evidence of price inefficiencies, the speculative component of real equity prices is not significant in the same investment comparisons, implying that the short-term deviations from equity market efficiency do not have a significant impact on capital expenditures (Edwards, *et al.*, 2011. p.e15922).

It is also expected that in the future abnormal gains can be earned through opportunities because there are many researchers who have proved the Efficiency Market (EMH) case time and time again decades ago. Because, Bever, *et al.*, (2010, pp.468-478) have always found a similar conclusion; it is not always the share price that responds or is sensitive to the information or

the news and the variation in share price can be reflected by the other factors. According to Bever, *et al.*, (2010, pp.468-478), there are other factors that can influence the share price. This means that the share price is influenced in particular by a number of factors, such as the book value of the company, dividend per share, earnings per share, price gain ratio and dividend cover. The authors also stated that the conditions may seem like the primary or secondary market. There are factors behind increases or decreases in the demand and/or supply of a certain share, including corporate fundamentals, external factors and market behaviour.

Earnings per share are one of the most used indicators for measuring the performance of a company. It is calculated by dividing the net result by the total number of outstanding shares. There are researchers who suggest that earnings per share are part of the share price and that raising or lowering earnings per share will be the same as the share price. The rationale behind the EPS and related is related to the fact that when an investor holds a share, he will also keep a part of the company income because of the ownership. That is why the price of the share will follow the course of the company's profit (Idawati, and Wahyudi, 2015. pp.79-91).

However, there are some researchers behind the 70s, doubting the relationship between the EPS and the share price, they conclude that other factors must be taken into account. Dividends are called the hard-core of the value of equity. The current study will try to identify the most influential factors in the securities markets. Some studies have concluded that corporate fundamentals, such as obtaining and valuation, are several important factors that influence stock prices. Others indicated that inflation, economic conditions, investor behaviour, market behaviour and liquidity are the most influential factors in stock prices (Chiha, Trabelsi, and Hamza, 2013. pp.35-47). The results of this study are consistent with most of the findings in the literature review and support the existence of a long-term relationship between the prices of shares and internal and external factors. The main influence factor is the EPS. This means that an increase in the demand for shares with higher revenues increases the prices of the shares and, consequently, the volume of transactions. The results point to a strong positive impact of EPS on share prices (Umar, and Musa, 2013. pp.21-33).

The two proposals were made with regard to the retained earnings and the ordinary share price for large listed companies. A large part of the retained earnings (EPS) is related to a higher price increase. The crucial factor is the profitable use of investors' money. The studies of the individual companies show that the mere fact of paying a low dividend does not guarantee an

excellent price increase. Increases in earning power must be accompanied by the increase in the book value resulting from undistributed profits if price appreciation is to be enjoyed (Chang, Liao, Lin, and Fan, 2011. pp.3998-4010).

In contrast to the common findings, some researchers found other results. In a study, the researchers investigate whether the scope of this relationship is (positively) correlated with the revisions in expected future income derived from a univariate time series model. They found that the gain does not support the excessive stock price volatility found by some previous researchers in stock market indices. In the context of their system model, which links different income and returns, they found no evidence that stock returns are particularly sensitive to earnings innovations. This is in line with the reasoning and evidence presented by other investigators who find no evidence of excessive volatility after deducting the assumption that aggregate dividends and stock prices are stationary and assess the volatility with respect to a relatively flawless series such as earnings instead of in relation to a smoothed series such as dividends (Al-Tamimi, Alwan, and Abdel Rahman, 2011. pp.3-19).

The relationship between stock performance (profit and dividend) and share price (and return) must be strong. The previous studies confirmed, using data from the western stock market, that the share price (and the return) are strongly correlated with the share performance. Another market case may not be the same, because people are not yet sufficiently educated about how, when and where they should invest their money in the stock market. People's decisions about this issue are usually determined by factors other than business performance. These factors included influence from friends and family, announcements from companies and governments and share price behaviour past (Rodrigues, *et al.*, 2011. pp.109-117).

The dividend is a part of the net result that is distributed in cash to the shareholders of the company. It is the share of corporate earnings paid to shareholders. When a company earns a profit or a surplus, that money can be used for two purposes: it can either be reinvested in the company, or it can be distributed to shareholders as a dividend. Many companies retain part of their income and pay the remainder as a dividend. A study examines whether cash value models, multiplier methods and market value-added approach presented in financial texts are useful instruments for predicting stock prices. Of all the financial variables considered in this study, the dividend and the highest effect are predictive stock values of the company (Khaksarian, F., 2013. pp.2549-2554).

In another study, researchers focus on whether the relationship between stock prices and dividends has changed. Instead of focusing on a long-term historical period, they examine the current value model by pooling individual companies over the past 20 years and using panel-co-integration estimation methods to test the long-term relationship between stock prices and dividends. They also apply panel co-integration tests and estimation methods to quarterly data for 84 companies over the period 1979-1999 to determine the long-term relationship between stock prices and dividends and to test the current value model. The results indicate that in the period studied there is an approximately one-to-one long-term relationship between share prices and dividends for large established companies. Furthermore, share prices explain more than a third of the dividend movements in the short term (McClellan, Stock, and of Child, 2013. pp.976-990).

There are results that show that variance-bound test results are consistent with the hypothesis of efficient markets when other cash benefits are included. The researchers use West's variance-bound test methodology (1988b) to test the hypothesis that the share price is not too volatile. Our data comes from the Toronto Stock Exchange (TSE) for the period from January 1950 to February 1991. They first analyse the monthly and annual series of regular cash dividends and find results comparable to those of West (1988b), i.e. the share price seem too volatile. The same test is then performed on a broadly defined series of monthly and annual cash flows, with the series comprising ordinary dividends and cash generated by the repurchase of shares and mergers and acquisitions in cash (Makori, and Jagongo, 2013. pp.248-256). The results indicate that the volatility of stock prices is consistent with the present value of expected dividends when differentiation is required to induce stationary.

Another study of testing the relationship between share prices and dividends using UK stock market data, and focus on the time series properties of aggregate price and dividend indices. This article uses the augmented panel unit root test augmented in the cross-section introduced by Pesaran (2005). The sample for the current study consists of 104 non-financial companies in the UK, for which full and continuous share prices and dividend series were available over an observation period of 34 years between 1970 and 2003 (inclusive). The results of the panel test largely support the current value model, which provides evidence of co-integration between real prices and dividends (Khan, Aleemi, and Qureshi, 2016. pp.204-216).

A significant positive effect on share prices is exercised if positive information about the profit is obtained after negative dividend information. There is also a significant negative impact on share prices if positive dividend information is followed by negative profit information. There is a direct relationship between dividend announcement and share price behaviour.

3.3, Stock Valuation Methods

The stock valuation approaches that can be used for the current research of estimating the stock prices of Vodafone are listed below:

- Dividend discount model,
- Graham model,
- Ratio analysis,
- The market rate of return,
- Earnings per share, and
- Book value methods

3.3.1, Dividend Discount Model

The dividend discount model or DDM can be described as the process of calculating the value of the chosen organisation based on the theory that the stocks of the organisations valued after the discounting of their future values. In other words, it can be discussed that the DDM of the chosen organisation can be evaluated after taking the net present value of all of its future dividends. These discounts in the future cash-flows are obtained practicing the risk-free discount rate so the actual cash-flowed to the shareholders can be explained in great detail. There are different types of dividend discount models (DDM); zero growth DDM, constant growth DDM, and variable growth DDM.

3.3.1.1, Zero Growth DDM

The Zero growth DDM assumes the fact that there is no growth in the practice of dividends. This also tends to the fact that the dividends' values are determined by dividing the annual dividends with the required rate of return.

3.3.1.2, Constant Growth DDM

The constant growth DDM is based on the assumption that the organisational dividends are grown by the specific percentage of growth over the year. This method is also known as the Gordon growth model.

3.3.1.3, Variable Growth DDM (Multi-stage DDM)

The variable growth DDM helps the dividend payments of the organisation to be exchanged in the varied discount rates for every year.

The DDM has it certain advantages and disadvantages. These advantages and disadvantages are discussed below.

3.3.1.4, Advantages of DDM

The use of dividend discount model (DDM) can help the financial analysts in determining the actual figure of future cash-flows as it only displays the mathematical calculations that are very much trusted by the financial analysts. It also displays the regular annual payment of the dividends that displays the actual growth. Further, the consistency in the payment of dividends is also assured by the determination of the DDM.

3.3.1.5, Disadvantages of DDM

The use of DDM can only be performed at the time when the companies are completely matured such as Vodafone, Facebook, etc. Secondly, the growth rate tends to change in the real economy that can affect the overall earning practices of the organisation. This can also said that the growth of dividends are based on the earning level of the dividend that may vary in future; so the use of the DDM can be mis-leading.

3.3.2, Graham Model

Benjamin Graham develops a stock valuation formula that can help the investors in making effective investment decisions. The developed model states that when the stock prices of the organisation are undervalued then the organisations are in great need for acquiring the investment opportunities. The model considers the earning per share and book value per share of the organisation. The formula is also mentioned above in methodology (1).

3.3.3, Ratio Analysis

Ratio analysis can be described as the quantitative analysis performed on the values provided in the financial statements. The ratio analysis describes different aspects of the organisation that describes the actual performance of the organisation. These ratios can be described as liquidity, solvency, efficiency, and profitability ratios. Ratio analysis can also help the financial analysts in performing actual business activities.

Ratio analysis compares relationships between financial statement accounts. Managers and investors use many different tools and comparison methods to identify if the company is doing well and that is suitable for investment.

The most commonly used analysis methods to determine a company's performance are horizontal analysis, vertical analysis, and ratio analysis. Horizontal and vertical analyzes compare a company's performance over a period of time and to set of standard performance numbers. This relationship between financial statements accounts will not only give the manager or investor a sense of how good a business is, and it will give them a thorough understanding of professional operations.

Below are few ratio types which have been focused during the research:
- Return On Capital Employed (ROCE)
- Gross Margin Ratio
- Current Ratio
- Quick Ratio
- Debt To Equity Ratio

3.3.3.1, Return On Capital Employed: (Profitability Ratio)

ROCE is a profitability ratio to measures how efficiently company generates profits from its capital employed by comparing a net operating profit to capital employed. In other words, return on capital employed explains the investors how many pounds in profits each pound of capital employed generates. ROCE is considered as a long-term profitability ratio. The basic formula to calculate ROCE ratio is explained in above chapter which is (2).

3.3.3.2, Gross Margin Ratio: (Profitability Ratio)

Gross margin ratio is also a profitability ratio to compare the gross margin of the company to the net sales. This ratio measures profitability of inventory or merchandise sold. In other words, the gross profit ratio is the percentage generated on merchandise from its cost. Generally, this is the profit from the sale of inventory that is used or will be used to pay operating expenses. Formula no (3) has been used to calculate this ratio as mentioned in above chapter.

3.3.3.3, Current Ratio: (Financial Strength)

The current ratio is a liquidity ratio that evaluates financial ability to pay short-term obligations or the dues within one year. It helps the investors and analysts to understand whether the company can maximize the current assets on its balance sheet to meet its current debt and payables. The formula no (4) as per above explanation has been used to find out current ratio in below practical part.

3.3.3.4, Quick Ratio: (Financial Strength)

The quick ratio is also company's short-term financial liquidity position and measures its ability to pay short-term obligations from its liquid assets. It shows the ability to use its near-cash assets (assets that can be converted to cash quickly) to pay down its current liabilities instantly, it is also called as the acid test ratio. This ratio can be obtained using formula (5) as mentioned in chapter above.

3.3.3.5, Debt To Equity Ratio: (Financial Strength)

The debt-to-equity (D/E) ratio is calculated by total liabilities and shareholder equity of a company from its financial statements. This ratio helps to measure a company's financial leverage. The D/E ratio is an important to measure how a company is financing its operations through its debt and its owned funds. Specifically, it reflects the ability of shareholder equity to meet all outstanding debts. D/E ratio can be obtained using formula (6) as provided in last chapter.

3.3.4, Market Rate of Return

The Market rate of return can be described as such rate of return that that is developed on the described interest rate for a specific type of transaction. The rate of interest usually varies among different industries. This is because the market rate of return is based on the economic conditions that describes the basis of working of the firms that are operating within the industry.

3.3.5, Earning Per Share

Earning per share or EPS is the most important financial measure that is used for identifying the actual profit level of any organisation. This type of value determination helps the investors in making their trade in the stock market. When the calculate EPS is higher than one then it is highly preferred to the investors for making investments in the organisation. The formula for EPS calculation is conducted using the formula (7) as mentioned above.

3.3.6, Book Value Methods

The book value of the organisation can be described as the value calculated after netting the total assets by deducting the intangible assets and liabilities. The determined value serves as the total value of the company that will be described to the shareholders for measuring their investment in the company. The other book value method that can be used for determining the actual worth is said as recording and converting the bond value into stock value. The book value formula (8) is used to calculate as explained in last chapter. The above-mentioned methodological approaches of performing the analysis will help the researchers in capturing the actual estimate of the stock price of the Vodafone that will also help the future practices of the organisation in moving towards success. The developed methodological approaches also help the researchers in accumulating the information that will help the investors in making an investment decision. Moreover, the current research will also practice comparison of the stock prices of Vodafone and other organisations who are working within the telecommunication industry (Konchitchki, and O'Leary, 2011. pp.99-115).

3.4, Summary of Literature

The current literature has been developed for understanding the share market practices concerning the telecommunication organisation named, Vodafone. It had also been discussed in the current literature that the share market activities are the main essence for every organisation who is performing their activities at the global level. It was discussed in the literature that the estimation of Vodafone's stock value in the telecommunication sector could be performed by following different stock market factors for analysing the situation of the business. It is also discussed in the literature that the use of techniques like inflation rate, interest rate and the exchange rate of the country where the country is performing its duties can affect the amount of return obtained by the specific organisation. It was also discussed in the literature that following different approaches like CAPM can also affect the valuation technique of the organisational assets that can lead towards the successful determination of stock measurement (Hassani, Soofi, and Zhigljavsky, 2010. pp.2023-2034).

4 – Practical Part

Vodafone Group plc is one of the world's leading British multinational telecommunications company, headquarters in London. Started in 1982, joint venture of Racal Strategic Radio Ltd subsidiary of Racal Electronics and Millicom called 'Racal'. In 1991, Racal Telecom was demerged from Racal Electronics as Vodafone Group. Vodafone operates in around 30 countries and partner networks in over 50 countries with more than 500 million customers worldwide.

In the previous chapters of the dissertation, the feasibility of the organisation named Vodafone was discussed in great detail. The previous chapters had discussed that the stock values portray solutions to the investors in making business investment decisions. The stock values analysis also helps the stakeholders for making the effective decision about the different organisational performance.

4.1, Vodafone Dividend History

The current chapter will make the analysis of the stock prices of Vodafone that will help the researchers in developing the effectiveness of stock-price. The current topic will also help the researcher to understand Vodafone divided history and its growth in past years. The performed fundamental financial analysis of the stock values investigation cannot give a quick estimate since stock value changes are caused by different elements, which are depicted in the structure of crowd brain research. The central investigation does not consolidate that factors by any means.

**Table 1: Yearly Dividend paid 2013 - 2018**

Dividend History		
Year	*Dividend* (£)	*Growth%*
2013	10.19	2
2014	11	2
2015	11.22	2
2016	14.48	2
2017	14.77	2
2018	15.07	2

(Source: VOD, 2018)

The above developed table and the graph are been generated from the data collected through VOD, 2018[b]. Researcher has considered dividend data from 2013 to 2018 to study consistency in the growth of the dividend paid. The data more that this period gave fluctuating result which may confuse the investor to take a decision. The data displayed that the dividends are paid on the annual basis with the annual growth rate of 2%. The developed graph from the above table is discussed below:

Figure 1: Annual Dividend Growth
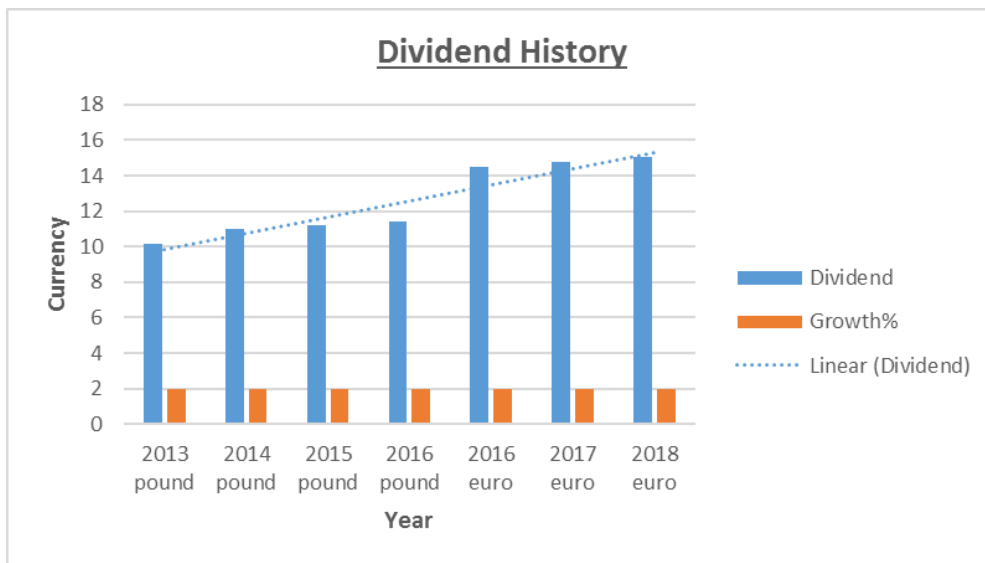
(Source: VOD, 2018)

Making a medium-term estimate, it is demanded request settling because the dimension of business movement is resolved with changes of receipts preferably and uses over changes of limit (Tsai, Lin, Yen, and Chen, 2011. pp.2452-2459). The likelihood of real changes of limit is too low. Financial changes are generally caused by changes in receipts, uses and benefits, changes in financial and money related strategy. The medium-term estimate is caused by financial powers acting inside the commercial structure. Therefore, the investors had put pressure on calculating the intrinsic value of the stock (Richardson, Tuna, and Wysocki, 2010. pp.410-454).

4.2, Ratio Analysis

To perform different ratio analysis, below is the required data to calculate ratios. The Ratio Analysis theory has been discussed in the above chapter earlier. The financial reports of the Vodafone PLC for year 2016 to 2018 are mentioned as per below table:

Table 2: Financial Report 2016 - 2018

Statistics	2016 (£)	2017 (£)	2018 (£)
Operating Profit	-190	2792	3878
Total Assets	169107	154684	145611
Total Liabilities	85782	82484	77971
Current Assets	31938	25542	24131
Current Liabilities	42235	42389	39024
Sales (Revenue)	46571	47631	49810
Stock	4796	4796	4796
Equity	67640	72200	83325
Debt	39978	41637	51578

(Source: Investing.com, VOD 2018)

The researcher has considered financial reports from 2016 to 2018 to calculate ratio analysis to make sure this analysis gives accurate understanding of company's financial performance and liquidity recent years. Short term calculation is also very important to determine what is current financial position of the company and the company is in position to offer dividend on long term investment or not.

4.2.1, Return On Capital Employed: (Profitability Ratio)

ROCE is considered as a long-term profitability ratio and the ratio is calculated based on formula mentioned in (2):

Table 3: ROCE 2016 - 2018

Year	Operating profit (£)	Total Assets (£)	Current Liabilities (£)	ROCE %
2016	-190	169107	31938	-0.14
2017	2792	154684	25542	2.16
2018	3878	145611	24131	3.19

(Source: Investing.com, VOD 2018)

The above table has been created based on the formula of Return on capital employed from 2016 to 2018. This table shows that how many pounds in profits each pound of capital employed was generated. 2017, Vodafone PLC had 2.16% ROCE where in 2018 ROCE was 3.19 with the growth of 1.03% from last year.

4.2.2, Gross Margin Ratio:

Gross Margin ratio is also known as profitability ratio and the ratio is calculated based on the formula (3) in theoretical part:

Table 4: Gross Margin Ratio 2016 - 2018

Year	Operating profit (£)	Sales (£)	Gross Margin Ratio %
2016	-190	46571	-0.41
2017	2792	47631	5.86
2018	3878	49810	7.79

(Source: Investing.com, VOD 2018)

Gross margin ratio table has been generated to measure the profitability of Vodafone PLC from year 2016 to 2018. Gross margin profit is the profit generated or will be generated from sales of the inventory which can be used to pay operating expenses of the company. In 2016, gross margin ratio was -0.41%, 2017 it was 5.86% where in 2018 the ratio was 7.79%.

4.2.3, Current Ratio:

It is a liquidity ratio that helps to measure financial ability to pay short-term obligations or the dues within one year. The ratio is calculated basis on the formula (4) as mentioned in the earlier chapter:

Table 5: Current Ratio 2016 - 2018

Year	Current Assets (£)	Current Liabilities (£)	Current Ratio
2016	31938	42235	0.76
2017	25542	42389	0.60
2018	24131	39024	0.62

(Source: Investing.com, VOD 2018)

The table 6 shows the current ratio calculation using Vodafone PLC's current assets and current liabilities from 2016 to 2018. It shows company's short-term liquidity to pay obligations or dues within one year of the financial year. In 2016, the ratio was 0.76 which was dropped to 0.60 in 2017. In 2018, the ratio was 0.62 with no major changes in the ability to pay short-term debts or dues.

4.2.4, Quick Ratio:

It shows the company's ability to use its assets to quick-cash to pay down its current liabilities instantly. This shows the financial ability of the company and important to measure its effectiveness. The calculation of the ratio is as following as per (5) formula explained in last chapter:

Table 6: Quick Ratio 2016 - 2018

Year	Current Assets (£)	Current Liabilities (£)	Stock (£)	Quick Ratio
2016	31938	42235	4796	0.85
2017	25542	42389	4796	0.68
2018	24131	39024	4796	0.71

(Source: Investing.com, VOD 2018)

The quick ratio table has been created for the year 2016 to 2018. This table explains the financial ability of Vodafone PLC to short-term obligations from its liquid assets which can be quickly converted to cash. In 2016, quick ratio was 0.85, 2017 it was 0.68 where in 2019 it was 0.71.

4.2.5, Debt to Equity Ratio:

This ratio helps to measure a company's financial leverage. Specifically, it reflects the ability of shareholder equity to meet all outstanding debts. The calculation for debt to equity ratio is as below:

Table 7: Debt to Equity Ratio 2016 - 2018

Year	Debt (£)	Equity (£)	D/E %
2016	39978	67640	59.10
2017	41637	72200	57.67
2018	51578	83325	61.90

(Source: Investing.com, VOD 2018)

This table shows the calculation of debt to equity ratio. The ratio is also very important for investors to check the financial leverage of the company. This helps investors to understand how company is using its own funds to clear its debt and how does it finance the operations also. 59.10 was the debt to equity ratio in 2016, 57.67 was in 2017 and 61.90 ratio was in 2018 for Vodafone PLC.

4.3, Vodafone's Earning Per Share (EPS)

The earning per share is most critical and important method to determine share price of a given company. The investor is able to understand the value of the stock in terms of how much the market is ready to pay for each euro/pound of earning. Below graph shows the net annual income of Vodafone PLC from 2014 to 2018 basis on the financial reports published by the company.

Figure 2: Net Annual Income

(Source: Thomson, VOD 2018)

The above-mentioned graph is been developed from the online stock portal of Thomas Reuters. This graph was based on information provided in the annual reports of the organisation acquired from their website. For the current diploma research, the earning per share of the Vodafone is been calculated through the following formula (7) as mentioned in earlier chapter:
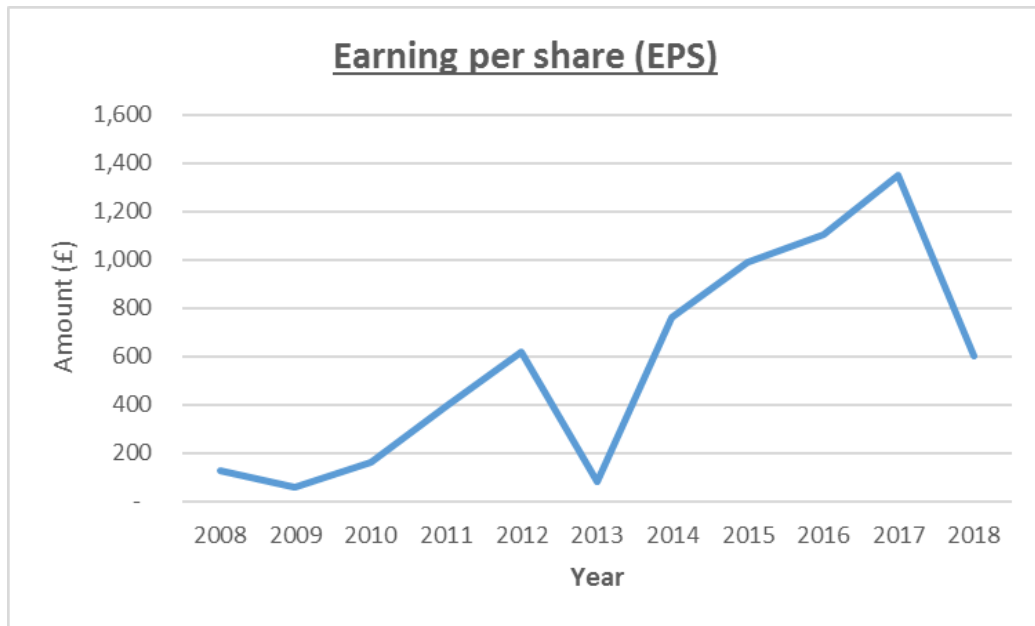
Table 8: Earning Per Share (EPS) 2008 - 2018

Earning per share (EPS)			
Year	*Number of outstanding shares*	*Net Income (£)*	*Earning per share (£)*
2008	5,31,09,000	6,62,80,00,000	125
2009	5,25,95,000	3,08,00,00,000	59
2010	5,27,37,000	8,61,80,00,000	163
2011	2,00,00,000	7,87,00,00,000	394
2012	1,12,67,676	6,99,40,00,000	621
2013	78,71,102	65,70,00,000	83
2014	78,03,608	5,94,20,00,000	761
2015	59,75,792	5,91,70,00,000	990
2016	46,29,123	5,12,20,00,000	1,106
2017	45,11,061	6,07,90,00,000	1,348
2018	46,25,445	2,78,80,00,000	603

(Source: Market watch, Vodafone Group PLC)

Based on above table, EPS has been generated from net income after tax divided by the total number of outstanding shares in current financial year. The highest EPS was 1348 per share in 2017 where in the lowest EPS was 59 per share in 2009. The EPS wroth was noted after the launch of the 4G network installation process which helped Vodafone to improve their network stability and services. This installation process helped Vodafone to create credibility towards its financial ability and expected future dividends to the investors.

Figure 3: Earning Per Share (EPS) Growth Chart

(Source: Market watch, Vodafone Group PLC)

From the above table and developed chart from the values observed, it can be discussed that the earning per share (EPS) of the Vodafone had steeply drop in the year 2018 after the increment of EPS in the year 2017 since the competitor company EE also launched 4G LTE services after 2012 and started to share their networks services with other network providers.

Vodafone Group PLC or only Vodafone can be discussed for measuring the results of the stock values that can help the organisation in making progress in actual performance. The stock value analysis of Vodafone is based on the activities on the share price activities that are performed for the year 2008 – 2018. The Vodafone (VOD) had observed the increase from the year 2008 till the year 2018 as it is displayed in the graph below:

Table 9: VOD Stock Prices 2008 - 2018

Vodafone PLC			
Year	Average Stock Price (£)	Year High (£)	Year Low (£)	Annual % Change
2008	20.6609	27.6991	12.4861	-42.18%
2009	16.3746	20.0009	12.1486	20.06%
2010	20.1433	24.7195	15.5803	21.08%
2011	24.8951	26.6717	22.4869	14.38%
2012	26.8698	29.7142	24.8352	-4.76%
2013	32.0748	41.8043	24.758	64.56%
2014	28.6527	41.7192	23.1922	-35.13%
2015	28.0573	31.3483	25.3245	-1.00%
2016	25.5209	28.8727	21.2745	-20.34%
2017	25.2508	29.6549	21.3796	38.52%
2018	23.8663	30.3422	18.0846	-34.92%

(Source: Marcotrends, VOD, 2008-2018)

The above analysis of stock prices for the Vodafone established earlier described fact that the VOD stock value is continuously observing fluctuations in all the essential stock markets of London and New York. The lowest stock values in the stock markets of London was £12.48 in the year of 2008, and the highest value of stock in the year 2008 was UK £27.69 in London Stock Exchange and was £20.66 was the average stock price for the same year. The lowest stock value in the New York stock market was in USD 18.10. The average stock values of the Vodafone for the next 10 years, i.e. 2008 till 2018, is been shared on the next page.

Figure 4: LSE – VOD Stock Price 2008 - 2018
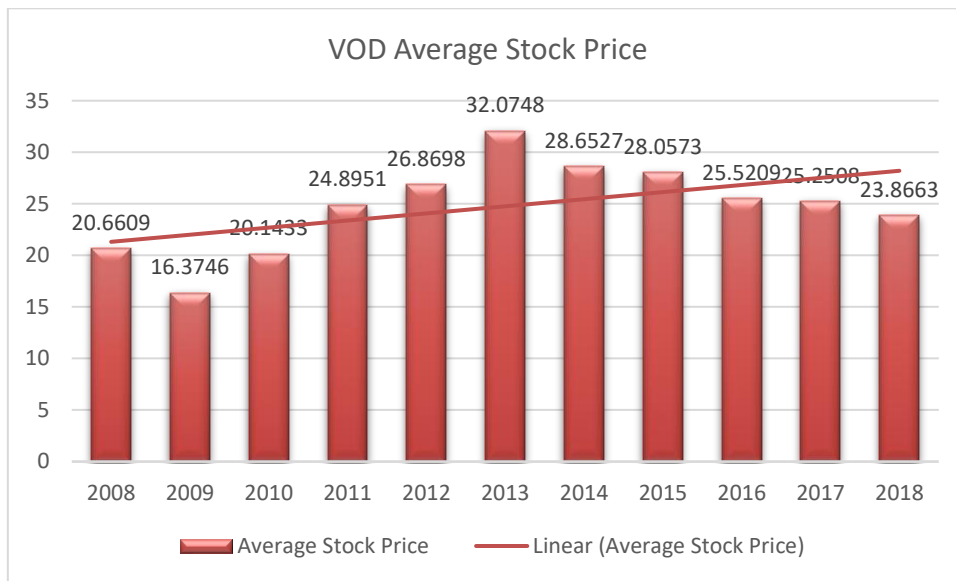
(Source: Marcotrends, VOD, 2008-2018)

Based on the above price details from 2008 to 2018 the average high price of Vodafone stock was £29.39 and average low price was £19.88.

Frome above shared table and average stock price chart of the stock values of the Vodafone for the time period of 2008 – 2012 displays the fact that the stock value of the Vodafone starts to reduce in the year 2009, i.e., the value of stock in the year 2009 was UK £16.37 which was £4.39 less than the amount in the year 2008 for same stock exchange. Further, the stock value of Vodafone moved a little in the year 2010 with the value of £3.84 in the London Stock Exchange (LSE) and reached average price of £20.14. This reduction in the stock prices of the organisation was because the organisation was experiencing a specific reduction in the capital of the organisation due to certain activities of business consolidation with other businesses (Luo, Raithel, and Wiles, 2013. pp.399-415). Further, the stock value of Vodafone starts to increase from the year 2011 with the value of UK £4.75 and recorded £24.89 during that year. This increase in the stock value of Vodafone was continued in the next year or 2012. This increment in the stock value observed an increase in the coming years of 2013 and 2014 as shown in the table on the paragraph.

As the table displays, the fact that the stock price of the Vodafone in the year 2016 was reduced in comparison of 2015 in the LSE from £28.05 to £25.52. Further, in the year 2017, the stock value was remained almost same and was recorded £25.25. since then the stock price continued

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to reduce by £2 average annually every year. The stock price dropped by the value of £1.39 for the year 2018 with the value of £2.40 with lowest price of £18.08 and highest stock price of £30.34 in 2018.

The above-calculated values of the stock prices can be discussed as the values calculated through the use of basic financial analysis. The term of doing basic financial analysis can be described as the analytical process that provides the forecasting information to the investors of the different organisations. This type of information must also be used by stockholders, brokers, financial managers, and other related people connected with the organisation like Vodafone. The currently performed fundamental analysis on the stock values estimation provides economic help to the stockbrokers and other investors in successfully making their business-related decisions. The main purpose of fundamental analysis of stock values of the Vodafone Group is to figure the inborn estimation of stock and to make a determination for the trends of the stock value (Karthik, Nishanth, and Manikandan, 2016. pp. 21-26).
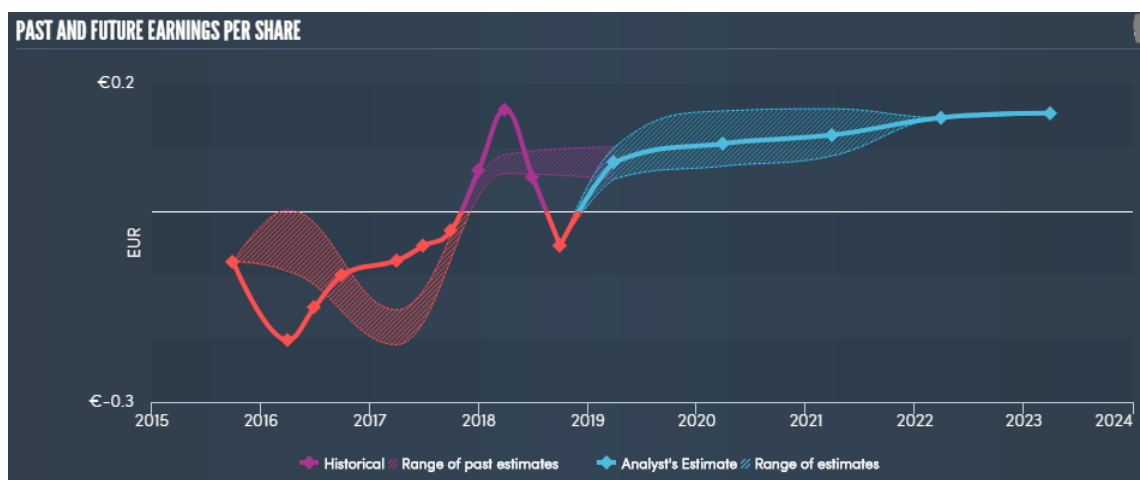
The performed fundamental financial analysis of the stock values investigation cannot give a quick estimate since stock value changes are caused by different elements, which are depicted in the structure of crowd brain research. The central investigation does not consolidate that factors by any means. Making a medium-term estimate, it is demanded request settling because the dimension of business movement is resolved with changes of receipts preferably and uses over changes of limit (Tsai, Lin, Yen, and Chen, 2011. pp.2452-2459). The likelihood of real changes of limit is too low. Financial changes are generally caused by changes in receipts, uses and benefits, changes in financial and money related strategy. The medium-term estimate is caused by financial powers acting inside the commercial structure. Therefore the investors had put pressure on calculating the intrinsic value of the stock (Richardson, Tuna, and Wysocki, 2010. pp.410-454).

Further, the financial researchers had forced their point of view through the implication of the intrinsic value calculations. The intrinsic value of the stock was the determination of the justified price for the actual stock been offered by the organisation like Vodafone. Different investors use different techniques for measuring the intrinsic value of the stock for the chosen organisation. These different techniques are related to the use of the dividend discount model; profit model; or both. All of the models used in the determination of the intrinsic value of a stock are in a relation of Gordon Model based on the increase or decrease of the stock value

patterns (Spierdijk, Bikker, and van den Hoek, 2012. pp.228-249). Analysts had explained the reliance between the original stock values and estimated intrinsic value of stocks for the Vodafone Group PLC. They break down information with single month time span with the data acquired from London Stock Exchange (LSE) for the time of 2018-19. The original estimation of a stock is evaluated by profit markdown show, which depends on an expected 30-year moving equity premium and relating cost of value joined with an ideal premonition of profits.

Therefore, different investors had performed the calculation for the stock value estimation through many financial investors and stockbrokers had converted the intrinsic estimate to actual stock values. For doing this, they had referred to the fact the computation of value to price ratio. The original estimation for the stock value of the Vodafone PLC is performed (Imam, Chan, and Shah, 2013. pp.9-19). The developed graph is shared on the next for the consideration.

Figure 5: Expected Future EPS

PAST AND FUTURE EARNINGS PER SHARE

Historical Range of past estimates   Analyst's Estimate Range of estimates

(Source: S&P, VOD 2018)

From the above graph, it can be observed that the estimated value of stock prices of the Vodafone will increase and will vary between the values of £0.0 to £0.2. This estimation of the stock value can be changed with the subject of different political situations and other economic factors that are impacting the economic activities of the United Kingdom.

4.4, Book Value Method

For creating the Graham Model, the things that are required are the earning per share of the organisation for the selected year and the book value of the selected organisation. The EPS of the Vodafone PLC had been developed in the chapter earlier. The book value of the Vodafone for year 20186 to 2018 is calculated through the formula (8) as mentioned in earlier chapter:

So, the book value of the Vodafone PLC is for the year 2016, 2017 and 2018 as follows:

$$2018, Book\ value = \frac{4,567,000,000}{4,625,445} => 987.3644$$

Based on the value of total assets minus total liabilities from Vodafone PLC annual report and the total has been divided by the total number of outstanding shares of the company, we get book value of the stock for the year 2018. The book value for 2018 is 987.3666 euros.

$$2017, Book\ Value = \frac{154684 - 88484}{4511061} => 1467.5039$$

Based on same formula, we have obtained book value for year 2017 which is 1467.50 euro.

$$2016, Book\ Value = \frac{169107 - 85782}{4629123} => 1800.0169$$

The book value for year 2016 is 1800.01. From above calculations, we can see that the number of outstanding shares were fluctuation in last three years. And, the book value of the stock has been reduced around 54% which is a huge difference. In order to obtain most recent book value history of stock per unit, the value is calculated from 2016 to 2018 only. This will help the investors to check if the book value is performing good or not in comparison of the actual stock price.

4.5, Graham Model Formula

Moving further, based on the book value of the company we have also determined the expected value of the stock price using Graham model formula. Based on Graham number theory, if the stock price of the company is undervalued from Graham number formula then it is worth to invest in the stock and also give a positive signal for of long-term investment possibility.
The Graham model formula for the current work is obtained from the formula (1) as mentioned in theoretical part above:

$$2018,\ Graham\ model = \ \sqrt(22.5 * 603 * 987.3644)$$

$$Graham\ model = \sqrt{13396067.2973}$$

$$2018,\ Graham\ model = 3660.0638$$

As per Graham model formula, the value of Vodafone PLC stock is 3660.06 for year 2018. Which is overvalued of the stock value of the company.

$$2017,\ Graham\ model = \ \sqrt(22.5 * 1348 * 1467.5039)$$

$$Graham\ model = \sqrt{44509393.29}$$

$$2017,\ Graham\ model = 6671.5360$$

Based on the book value from 2017 year, again the stock value of the company is over estimated for the year 2017 which is 6671.53.

$$2016,\ Graham\ model = \ \sqrt(22.5 * 1106 * 1800.0169)$$

$$Graham\ model = \sqrt{44793420.56}$$

$$2016,\ Graham\ model = 6692.7887$$

The calculated Graham model value displays the fact that the share price of the Vodafone PLC for year 2018, 2017 and 2016 is \$3660.0638, \$6671.5360 and \$6692.7887 per share respectively which means that the determined share price of the Vodafone PLC is undervalued and the Vodafone stock is worth to invest. The difference amount can be considered to invest for a long-term. Overall, this method helps managers and investors to decide the possibilities for an investment in the company. Due to higher result values obtained from EPS and book value of the stock, the result of the Graham model is very high in comparison of original value of the stock. In general scenarios, difference between Graham and original share prices do not have a huge difference.

4.6, Competitor Overview - British Telecom (BT)

BT is the world's oldest communication company, which came back to incorporated The Electric Telegraph Company in 1846. It was the first company to develop nationwide communications network. The company is engaged in selling various communications services including fixed voice services, broadband, mobile and television products and services, as well as phone and broadband managed network information technology (IT) solutions and cyber security. Basically, the Company operates in five different segments: BT Global Services, BT

Business, BT Consumer, EE, BT Wholesale and Openreach. The Company competes with Alternative Networks, Azzurri, Colt Group, Daisy Group, Gamma, KCOM Group, O2, TalkTalk, Unicom, Virgin Media, Vodafone, XLN, Computacenter, Dimension Data, Kelway, Logicalis, SCC, Softcat, AT&T, Orange Telecommunications Group Ltd, Verizon, Sky, Three, Tesco Mobile, CityFibre, Hyperoptic and Gigaclear.

BT is a public limited company in Telecommunication industry worldwide. BT is United Kingdom based company with the headquarter in London. Total revenue is £23.746 billion in 2018. BT has operating income of £3.381 billion and net income of £2.032 billion as per the financial statements in 2018. BT is multinational telecom company with 106,400 employees worldwide.

Table 10: Financial Performance BT (£) 2008 – 2018

Year ending 31 March	Turnover (£m)	Profit/(loss) before tax (£m)	Net profit/(loss) (£m)	Basic eps (p)
2,008	20,704	1,976	1,738	21.5
2,009	21,390	-134	-81	3.2
2,010	20,911	1,007	1,029	13.3
2,011	20,076	1,717	1,504	19.4
2,012	19,307	2,421	2,003	23.7
2,013	18,017	2,501	2,091	26.7
2,014	18,287	2,827	2,018	25.7
2,015	17,851	3,172	2,135	26.5
2,016	18,909	3,473	2,588	33.2
2,017	24,082	2,354	1,908	19.2
2,018	23,746	2,616	2,032	20.5

(Source: Reuters, BT 2018)

Based on the above table, it is seen that the turnover and net profit and loss of the company was fluctuating every year. However, the researcher has focused on basic EPS which also has variations from 2008 to 2018. During this years, highest EPS was 33.2 in 2016 wherein lowest EPS was 3.2 in 2009. From the above table, we can see that EPS was dropped from 33.2 to 19.2 in 2017. In 2018, it was increased to 20.5 with value of 1.3.

Table 11: Dividend History BT 2013 - 2018

Dividend History (£)		
Year	*Dividend*	*Growth%*
2013	9.5	1.2
2014	10.9	1.4
2015	12.4	1.5
2016	14	1.6
2017	15.4	1.4
2018	15.4	0

(Source: Stockopedia, BT 2018)

Based on divided history mentioned above, BT has obtained 1.18% average divided growth from 2013 to 2018. However, there was no growth in 2018 in dividend provided to the stockholders. The above developed table been generated from the data collected through BT, 2018. The data displayed that the dividends are paid on the annual basis with the annual growth rate of 1.18%.

Figure 6: BT Dividend Trend BT 2013 - 2018
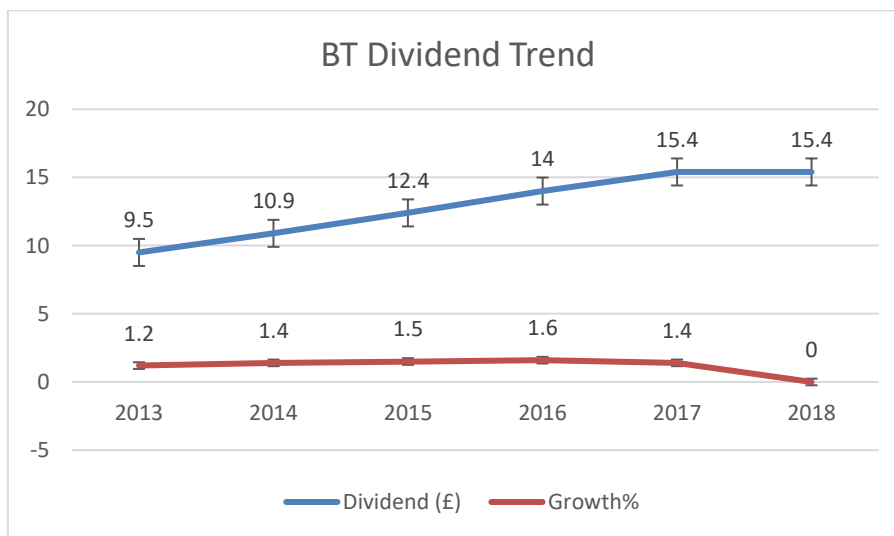
(Source: Stockopedia, BT 2018)

According to the chart displayed above, the trend of the dividend paid by BT was stable but below 2% compared to dividend paid by Vodafone. The average growth of dividend on BT was 1.18% from 2013 to 2018. The table and chart have been generated from BT 2018.

Table 12: Average Stock Price BT 2008 - 2018

BT Group (£)			
Year	Average Stock Price	Year High	Year Low	Annual % Change
2008	11.1432	16.3781	5.4347	-58.89%
2009	6.0201	8.4426	3.2644	11.59%
2010	7.5374	10.2583	5.5307	37.05%
2011	10.8113	11.8868	9.4349	8.48%
2012	13.0292	15.0589	11.2615	33.28%
2013	19.3554	25.1224	14.8481	70.71%
2014	25.5021	27.7568	23.5286	1.04%
2015	28.3689	31.2654	23.9958	14.74%
2016	24.193	30.1851	19.011	-30.91%
2017	17.2287	21.4664	14.661	-16.61%
2018	14.7827	17.4142	12.515	-9.41%

(Source: Marcotrends, BT 2008-2018)

The above analysis of stock prices for the BT established earlier described fact that the BT stock value is continuously observing fluctuations in all the essential stock markets of London. The lowest stock values in the stock markets of London was £5.43 in the year of 2008, and the highest value of stock in the year 2008 was UK £16.37 in London Stock Exchange and was £11.14 was the average stock price for the same year. Wherein 2018, the highest stock price was £17.41 and the lowest price was £12.51. Considering the table above, the trend of the BT stock price is mostly reducing since 2015. The trend is resulting side in stock price from £28.36 in 2015 to £14.78 per unit in 2018.

Figure 7: LSE – BT Stock Price 2008 – 2018

BT Average Stock Price
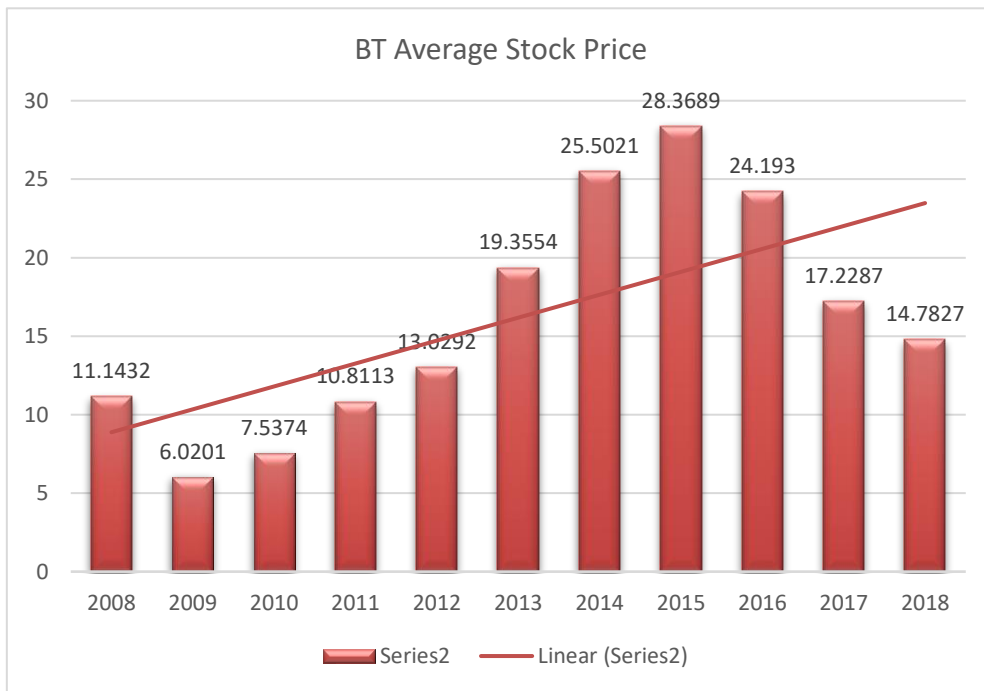
(Source: Marcotrends, BT 2008-2018)

According to the above chart, the average lowest stock values in the stock markets of London for BT was £6.02 in the year of 2009, and the average highest value of stock in the year 2015 was £8.36 in London Stock Exchange. Considering the figure above, the trend of the BT stock price is mostly reducing since 2015. The trend is resulting downside in average stock price from £28.36 in 2015 to £14.78 per unit in 2018.

4.7, Dividend Comparison Vodafone and BT

In order to get better understanding for making a decision for investors to invest in stock market for long term a comparison with the competitors. Hence, the study has also considered dividend paid to stockholders along with worth chart comparison of both Vodafone and BT. This analysis will help investors to take decision before investing in long run.

Table 13: Dividend History VOD and BT

Dividend History				
Year	*VOD Dividend (£)*	*VOD Growth%*	*BT Dividend (£)*	*BT Growth%*
2013	10.19	2	9.5	1.2
2014	11	2	10.9	1.4
2015	11.22	2	12.4	1.5
2016	14.48	2	14	1.6
2017	14.77	2	15.4	1.4
2018	15.07	2	15.4	0

(Source: VOD and BT 2018)

Above is the table for dividend analysis to study yearly growth of the dividend paid by the company in telecom industry. Since, both the companies are major player in UK telecom sector, it is very important to compare its credibility among the investors. Annual average divined paid by Vodafone is 2% which is constant from 2013 to 2018. However, growth rate of dividend paid by BT was fluctuating every year with an average of 1.18%.

Furthermore, below is the chart for comparison analysis for better understanding of the growth between this two companies. The intention of the comparison is to study the market in telecom sector so that the investor know the best possible option based on the trend history. During the study, researcher has considered year from 2013 to 2018 for analysis as below:

Figure 8: Dividend Comparison VOD and BT
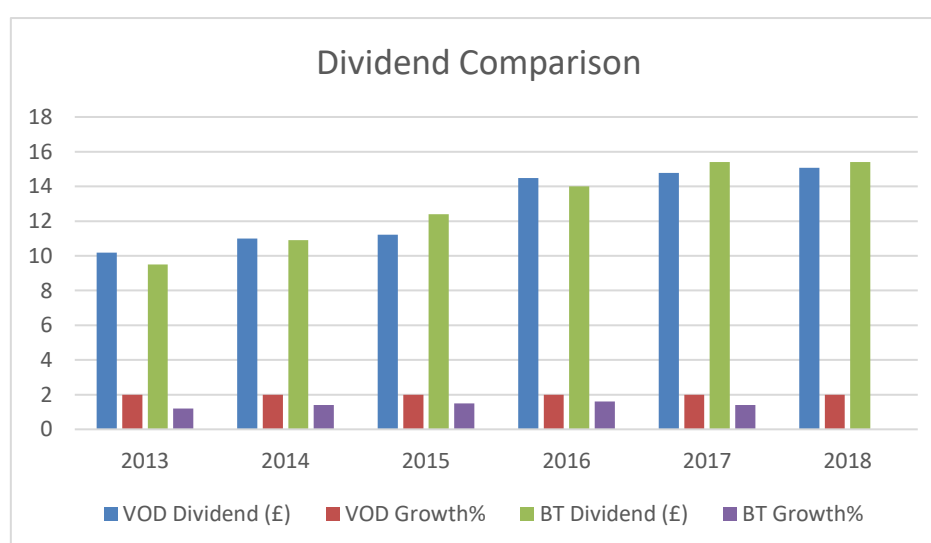
(Source: VOD and BT 2018)

Based on the above table, there is no big difference in the amount paid as dividend by both the company. In 2013, the value was £10.19 by VOD and £9.5 by BT with growth rate of 2% and 1.2% respectively. The growth of dividend paid by Vodafone was 2% which was steady and constant till 2018. Also, in 2018 there was no growth recorded by BT and actually it was reduced by 1.4% compared to last year. Considering the values from the analysis, Vodafone seems better option for the investors to invest for long term which has proved trend of growth in dividend.

5 - Results and Discussion

Vodafone Group PLC can talk about for estimating the after effects of the stock qualities that can help the association in gaining ground in genuine execution. The stock esteem examination of Vodafone depends on the exercises on the offer value exercises that are performed for the year 2008 – 2018. The stock cost of the VOD had at the base of UK £7.01 till the maximum of UK £32.07. The above examination of stock costs for the Vodafone set up before depicted truth that the VOD stock esteem is consistently watching vacillations in all the basic securities exchanges of London, New York, and Frankfurt. The least stock qualities in the financial exchanges of London was £23.36 in the time of 2007, and the most elevated estimation of stock in the year 2008 was UK £20.66 in London Stock Exchange and was $40.87 in New York Stock Exchange for that year. The most reduced stock an incentive in the New York securities exchange was in USD 18.10 (VOD, 2012).

The stock estimations of the Vodafone for the timeframe of 2008 – 2012 showcases the way that the stock estimation of the Vodafone begins to lessen in the year 2009, i.e., the estimation of stock in the year 2009 was UK £16.37 which was 3.77 not exactly the sum in the year 2008 for same stock trade. Further, the stock estimation of Vodafone decreased more in the year 2010 with the estimation of £20.14 in the London Stock Exchange (LSE). This decrease in the stock costs of the association was on the grounds that the association was encountering a particular decrease in the capital of the association because of specific exercises of business union with different organizations (VOD, 2015). Further, the stock estimation of Vodafone begins to increment from the year 2011 with the estimation of UK £24.89. This expansion in the stock estimation of Vodafone was proceeded in the following year or 2012. This augmentation in the stock esteem watched an expansion in the coming long stretches of 2013 and 2014 (VOD, 2015).

As the table shows the way that the stock cost of the Vodafone in the year 2016 was diminished in correlation of 2015 in the LSE from £28.05 to £25.52. Further, in the year 2017, the stock esteem was expanded to £25.25; after 2017, the stock value begins to drop to the estimation of £23.86 for the year 2018 with the estimation by £1.39 (VOD, 2015).

This sort of data should likewise be utilized by investors, agents, money related chiefs, and other related individuals associated with the association like Vodafone. As of now, performed crucial investigation on the stock qualities estimation gives monetary help to the stockbrokers

and different financial specialists in effectively settling on their business-related choices. The principle motivation behind central investigation of stock estimations of the Vodafone Group is to figure the inherent estimation of stock and to make an assurance for the patterns of the stock esteem (VOD, 2018).

Based on the data displayed that the dividends are paid on the annual basis with the annual growth rate of 2% by Vodafone PLC in last 6 years. Considering ratio analysis, return on capital employed from 2016 to 2018 explains that how many pounds in profits each pound of capital employed was generated. 2017, Vodafone PLC had 2.16% ROCE where in 2018 ROCE was 3.19 with the growth of 1.03% from last year. In 2016, gross margin ratio was -0.41%, 2017 it was 5.86% where in 2018 the ratio was 7.79%. Both mentioned ratios explain the profitability of the company and it has shown the improvement track from 2016 to 2018. This is also an indicator of the good investment move. In 2016, current ratio was 0.76 which was dropped to 0.60 in 2017. In 2018, the ratio was 0.62 with no major changes in the ability to pay short-term debts or dues. Quick ratio explains the financial ability of Vodafone PLC to short-term obligations from its liquid assets which can be quickly converted to cash which was 0.85, 2017 it was 0.68 where in 2019 it was 0.71. Earning per share is also one of most important tools to measure company's value. The highest EPS was 1348 per share in 2017 where in the lowest EPS was 59 per share in 2009.

The book value of the company was also shown positive trend of the stock per unit which also useful method for investors and managers. The book value for year 2016 was 1800.01, 2017 was 1467.5039 and for year 2018 was 987.3644. Furthermore, the Graham model value displays the fact that the share price of the Vodafone PLC for year 2018, 2017 and 2016 is $3660.0638, $6671.5360 and $6692.7887 per share respectively which means that the determined share price of the Vodafone PLC is undervalued and the Vodafone stock is worth to invest.

The researcher has also performed competitor analysis with British Telecom (BT) for better decision-making option for investors. Based on divided history mentioned above, BT has obtained 1.18% average divided growth from 2013 to 2018. However, there was no growth in 2018 in dividend provided to the stockholders. The trend of the dividend paid by BT was stable but below 2% compared to dividend paid by Vodafone.

5.1 Linking with the objectives

First objective of the research is developing a trend analysis that can explain the market trend of complete telecommunication industry. Considering the profitability and financial strength of Vodafone and BT, it has been seen that the trend has been fluctuating depending on the performance of the companies and credibility. Since Vodafone was able to maintain its dividend growth by 2% where in BT had swinging divided growth.

Second objective of the study was developing reasons that had brought a reduction in the stock prices of the Vodafone. Based on the study, we can see that the trend in the stock value of Vodafone have been fluctuating. Other reason in the change of the stock price was competition in the market and inefficiency of the company to maintain their financial ability to pay short term obligations. Vodafone PLC struggles to operation during 4G network installation after 2010. However, Vodafone managed to bring the operation in process based on their new strategy.

5.2 Recommendations

Vodafone (LSE: VOD) is a relatively high yield, but one of the biggest concerns of investors is its poor dividend cover. In fact, in the past year, profit dividend has fallen significantly below the level required for the payment, which means that their generous dividends are provided by the sale of new borrowings and property only. Due to its large project Spring Investment Program, free cash flow does not look very good. And although these big budget investments should help in improving the company's long-term growth prospects, these cash applications will put pressure on its mid-term dividend pricing. However, the telecom company still managed the dividend rate of 2% in the last five years and hopes to maintain the level of development of the dividend in the next few years. Vodafone has made attractive earnings; analysts have anticipated increasing the share price compared to the previous years. But despite the speed of development, dividends can still be covered by earnings for at least some years.

Conclusion

First objective of the research was developing a trend analysis that can explain the market trend of complete telecommunication industry. Considering the profitability and financial strength of Vodafone and BT, Vodafone PLC was able to maintain its dividend growth by 2% where in BT had swinging divided growth. This is a positive the trend of the company's performance in telecom industry.

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Furthermore, Vodafone PLC had seen the expansion from the year 1997 till the year 2000. The stock cost of the VOD had at the base of UK £7.01 till the maximum of UK £32.07. This base estimation of the stock was in the seasons of multi-decade for the association. The association's stock value sky-shook in the year 2000. Be that as it may, toward the finish of 2000, the stock esteem got diminished to the base estimation of UK £7.0. After the year 2002, there had been numerous changes in the stock estimations of the Vodafone. Also, the stock an incentive for November 2018 is settled at the UK £23.86 (VOD, 2018).

Based on the data displayed that the dividends are paid on the annual basis with the annual growth rate of 2% by Vodafone PLC in last 6 years. Considering ratio analysis, return on capital employed from 2016 to 2018 explains that how many pounds in profits each pound of capital employed was generated. 2017, Vodafone PLC had 2.16% ROCE where in 2018 ROCE was 3.19 with the growth of 1.03% from last year. In 2016, gross margin ratio was -0.41%, 2017 it was 5.86% where in 2018 the ratio was 7.79%. Both mentioned ratios explain the profitability of the company and it has shown the improvement track from 2016 to 2018. This is also an indicator of the good investment move. In 2016, current ratio was 0.76 which was dropped to 0.60 in 2017. In 2018, the ratio was 0.62 with no major changes in the ability to pay short-term debts or dues. Quick ratio explains the financial ability of Vodafone PLC to short-term

obligations from its liquid assets which can be quickly converted to cash which was 0.85, 2017 it was 0.68 where in 2019 it was 0.71. Earning per share is also one of most important tools to measure company's value. The highest EPS was 1348 per share in 2017 where in the lowest EPS was 59 per share in 2009.

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Vodafone PLC is a relatively good option for investment, but one of the biggest concerns of investors is its dividend cover. In fact, in the past year, profit dividend has fallen significantly below the level required for the payment, which means that their generous dividends are provided by the sale of new borrowings and property only. Due to its large project Spring Investment Program, free cash flow does not look very good. And although these big budget investments should help in improving the company's long-term growth prospects, these cash applications will put pressure on its mid-term dividend pricing. However, the telecom company still managed the dividend rate of 2% in the last five years and hopes to maintain the level of development of the dividend in the next few years. Vodafone has made attractive earnings; analysts have anticipated increasing the share price compared to the previous years. But despite the speed of development, dividends can still be covered by earnings for at least some years.
A great noteworthy feature of the Vodafone can be discussed as the oligopolistic market. While moving away from the concept of the monopolistic market of telecommunication services, an oligopolistic market is a place where creates where few businesses are dynamic and have a high level of association in the exercises of the majority of the members. Additionally, another

of Vodafone operations and performance can be described as the development of a position that can lead the organisation towards leading the overall telecommunication sector. That industrial leader can be empowering the forces to minimize or keep the improvement of a powerful rivalry in the applicable market, enabling it to for the most part carry on autonomously of its rivals, buyers and clients.

By examining the incomes of the Vodafone group in different countries around the globe, it is noticed that the incomes from the communication benefits in mobile communication are completely commanding, with the help of different incomes that are placed in total revenues of the organisation. The cell phones are the business' biggest development segment, and in numerous nations, both the Vodafone services and the mobile communication devices help the businesses in attaining the great level of revenues. In the communications industry, the company like Vodafone can easily increase the number of administrators is customarily restricted by limitations originating from a restricted electromagnetic range. By watching the whole market at a full-scale level, it is valuable to energize aggressiveness that would lower the costs of broadcast communications administrations, and thus the previously mentioned dispersal of data, which would bring the offered administrations closer to the created nations of the world.

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