EQUITY RESEARCH REPORT

SUMMER TRAINING PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE POST GRADUATE DIPLOMA IN MANAGEMENT
AT

JAIPURIA INSTITUTE OF MANAGEMENT, LUCKNOW

BY

KARIKEYA

JL19PG062

FACULTY GUIDE: PROF. RASHMI CHAUDHRY

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Summer Project Study Report, Titled Equity Research Report submitted by Mr. Kartikeya as partial fulfilment of requirement of the two-year PGDM (2019-20121) is a bonafide work carried out by the student at our Institute.

This Summer Project Study is his/her original work and has not been submitted to any other University/Institute.

Prof. Rashmi Chaudhary	**Prof. Puneet Rai**
Faculty Guide	**Program Director- PGDM**

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All successful work needs large number of hands to accomplish any work. I acquire this opportunity with much pleasure to thank all people who have helped me through the course of my journey towards this project.

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1) EXECUTIVE SUMMARY

My project titled "Equity Research" studies the wealth creation prospects of investing in Equity Shares of the companies which helps an investor in making investment decisions easily. In this Project, I have performed fundamental and technical analysis of ONGC Ltd. and Oil India Ltd. to help investors decide where to invest their money in Indian Oil and gas Industry. Major weightage in this report is given to fundamental analysis which is performed by Economy, Industry and Company (EIC) Analysis.

The analysis was done using data from secondary sources. The method that I followed for my study includes the combination of charts, graphs, multiple linear regression, financial ratios and quoting analysis of other research reports. The company analysis was done on 10 broad parameters using a scoring model created on MS-Excel which can give a score every parameter and its sub parameters on a common scale of 0 to 5 so that a layman can even understand and compare different companies using the scores obtained.

The Economy Analysis included a brief description of Indian economy, Impact of various Economic factors on Indian stock market, Evaluating the growth prospects of Indian economy and its relation with growth of Indian Oil and gas Industry.

The Industry Analysis included a brief description of Indian Oil and Gas Industry, Analysis of Revenue sources/costs/products of its different subsector, Analysis of Macro-economic environment of the industry using PESTEL analysis, Analysis of competitiveness and attractiveness of industry using Porter's 5 forces, Analysis of impact on industry due to changes in factors affecting Indian economy and showing the future growth prospects of industry using various forecasts by research reports and drawing insights from all other analysis done before.

The Company Analysis included overview of both the companies, their major products/revenue sources, details about their subsidiaries and business diversification, SWOT analysis and showing detailed company analysis and scoring of both the companies on 10 broad parameters. These parameters are Corporate Sustainability, Solvency and Liquidity, Profitability, Efficiency, Industry specific factors, Valuation, Growth prospects, Corporate Governance and Management, Risk, Technical analysis. These parameters were analyzed using various information from annual reports, sustainability reports, share price data and credit rating reports, etc. which includes financial ratios, financial statements, historical share prices and various qualitative and quantitative research and forecasts.

In Economy Analysis I found out that Indian economic growth may be negative in FY 2021 as per various research reports but I will recover soon after he pandemic eases. Though various sectors especially manufacturing is struggling in this situation due to lockdowns and decrease in consumption but there are various sectors in Indian Economy which may grow during this pandemic like healthcare, tyres, petrochemicals, hygiene products. There are various factors which are benefiting he economy in this situation like fall in crude oil price which can help to recover balance of payments and strengthen foreign exchange reserves also various opportunities have emerged after this as the world is adjusting to new normal and government is promoting startups by providing easy loans, reduction in interest rates and introduction of 20 lakh crore package will help in promoting a balanced economic growth.

In Industry Analysis I found out that the Oil and Gas industry is suffering due to pandemic as demand for Crude Oil and Natural Gas has fallen greatly due to lockdown and slowdown of manufacturing activities as manufacturing sector is the biggest buyer of products of Oil and Gas industry. Also curbing of transportation has reduced retail demand. The Upstream companies are facing losses as crude oil and natural gas prices has fallen below the cost of production for some time and it is hovering very near to its production price due to reduction in demand but this problem is estimated o be short term problem and industry will recover after the pandemic when demand will return to normal as per the forecasts. Also, various steps taken by industry bodies like OPEC to cut the production of crude oil will help in making production profitable. The industry has low regulations and India has excess of unexplored sedimentary area which can be exploited to increase he production of crude oil and natural gas also it has high domestic demand as most of consumption is catered by importing crude oil and natural gas from other countries. As cost of production of middle east countries from conventional sources are going up due to over-exploitation and as technology is progressing, the cost of production by using unconventional sources which were earlier mostly financially unviable like Shale, Coal Bed Methane, Ultra Deep-Water Drilling and Gas Hydrates, etc. are becoming financially viable so India can have huge opportunity in future to increase its supply. The midstream and downstream sector can also expand due to increasing demand of PNG and CNG as natural gas is a cleaner fuel compared to other sources so with increased environmental consciousness and regulations more and more cities will need CNG pipelines and fueling stations.

In Company Analysis I found out that overall Oil India Limited is better company as compared to ONGC Limited for investment as it has scored higher on the overall scores and shows better wealth creation prospects. It has higher valuations, growth prospects and lower overall risks. Its target price which is fair price calculated by valuation is 49.14% higher than the market price compared to ONGC whose target price came only 11.76% higher than market price as on 02/06/2020.

Overall based on all the analysis I had given buy recommendation for Oil India Limited shares and Sell for ONGC Limited shares with rationale of the recommendation.

2) INTRODUCTION

2.1) EQUITY RESEARCH:

Equity Research is the study of Equity shares of companies whose main objective is to provide guidance to investors which can help them take investment and trading decisions in equity shares. Equity research reports help investors in knowing the wealth creation prospects of investing in a share as it informs them about the risk and return prospects of a stock and helps them set their target price for buying and selling a stock. Equity research is performed by Equity Research Analysts by analyzing various qualitative and quantitative factors related to a company.

This project is an equity research report on ONGC Ltd. and Oil India Ltd., Equity research has two approaches:

I. **Fundamental Analysis:** Fundamental analysis is the technique to study the risk and return of investing in a business based on its financials, management quality, ability to deal with contingencies and favorable macro-economic factors effecting the business. Fundamental analysis is done using both qualitative and quantitative analysis. The objective of fundamental analysis is to access whether security is undervalued or overvalued in the market and what are the potential risk and return of that security. However, there are few criticisms of fundamental analysis like:
   - Information unavailability: Fundamental analysis relies on information about company's fundamental, this information may not be fully disclosed by the company or it may be deceiving due to window dressing by accounting policies. Also, some information related to macro-economic factors may be unpredictable or unreliable. This makes it difficult to know the precise fundamental position of a company.
   - Efficient markets: It is believed that markets are efficient i.e., The market price of securities already reflect the fundamentals of a company. This argument is widely supported by believers of Efficient Market Hypothesis (EMH). They believe that as soon as any information related to fundamentals of a company is available to the public the market price starts reflecting it so it is impossible to get a stock at discounted price.

   Though fundamental analysis has some criticisms but still it is widely followed practice for equity research as the believers of fundamental analysis believe that markets misprice securities in short run due to excessive fear, lack of knowledge/information or fear of missing out (FOMO) but fundamentals are reflected in market price in long run. So, the value which fundamentals show will be reflected in long run as the markets attempt to bring securities to its fair price. Fundamental analysis is generally done by Economy, Industry and Company (EIC) analysis.

II. **Technical Analysis:** Technical analysis is technique of forecasting the direction in which price can move in future. It is done by studying patterns in previous market prices and volume. Technical analysts believe that market activities can be judged by various indicators of price trends which can be used to forecast direction and magnitude of market movement.

In this report we will we doing technical as well as fundamental analysis, however more weightage will be given to fundamental analysis as it is believed that technical analysis works only for short time period till some strong fundamental information does not influences the price. However, in such a dynamic world new fundamental information's come at rapid pace so technical analysis may not be relevant for investors in long run so I would be focusing more on fundamental analysis.

2.2) EIC ANALYSIS:

EIC Analysis stands for by Economy, Industry and Company Analysis it is the pathway of doing fundamental analysis. EIC analysis pathway has 3 check points in their respective order which can be followed from top to bottom or boom to top these three checkpoints of EIC analysis are:

1. **Economy analysis**
2. **Industry analysis**
3. **Company analysis**

If all these three checkpoints support a company then a company has good wealth creation prospects.

EIC analysis is generally performed using two approaches:

i. **Top-down approach:** In this approach macro factors are studied first then industry is analyzed then the company is analyzed. This approach is typically used when the motive is to find the best investment and it helps in screening the industries and companies which can give good returns.

ii. **Bottom-up approach:** In this approach the company is analyzed first then industry and economy are analyzed. This approach is taken when we come to know financials of a company are favorable or if we want to analyze only a specific set of companies and we want to analyze whether Industry and Economy supports it or not.

In this report the companies are already decided so we would not be screening the companies by Top-down approach instead we would be researching about the company's growth and wealth creation prospects by analyzing the company and the respective industry and sector.

2.2.1) Economy Analysis: It is concerned with analyzing whether the factors related to domestic/global economy conditions support the industry and company. In economy analysis economic factors influencing stock market and its impact on different industries of an economy are analyzed to know about the growth prospects of economy as a whole and various sector of an economy separately. In economy analysis various factors of economy like GDP, IIP, Exchange Rate, Money Supply, Inflation, etc. are analyzed using their current figures historical trends and future forecasts to decide whether to invest in an economy or not and to find which sectors can grow under that economic conditions.

2.2.2) Industry Analysis: It is concerned with analyzing whether the industry will prosper in future or not and which factors can help a company to succeed in the respective industry. It helps in understanding the factors effecting an industry, its competitive dynamics, attractiveness for business, structure, revenue sources and growth prospects, etc. It is done using various quantitative as well as qualitative tools like PESTEL Analysis, Porter 5 forces, trend analysis and doing analysis of its value chain, opportunities, threats, subsectors and revenue sources.

2.2.3) Company Analysis: It is concerned with analyzing whether the company has potential to grow and create wealth by its micro economic factors by analyzing the Financial Statements, Management, Corporate Governance, Sustainability, Risk, Ongoing projects, research and development and Business Model, etc. of a company.

2.3) PROBLEM STATEMENT:

Problem statement of this Equity Research report is as follows:

- Investment decisions in equity shares are tough to make for an individual who is not well versed with financial analysis, it requires deep analysis about economy, industry and company. industry in such a way that an investor can take buy and sell decision based on his/her return expectations and risk appetite. In this report we have to help investors make investment decision to invest in ONGC Limited or Oil India Limited for this I needed to identify the wealth creation prospects of both the companies.
- Analyzing and comparing different companies is a lengthy and difficult task for a analyst and due to huge numbers of parameters which are required for analysis of a company also for an investor, it is difficult for human mind to interpret each and every parameter based on actual financial figures ratios and qualities and use that data collectively to come to a conclusion. So, to make comparison and analysis of companies easier we have to use some other quantitative measure which can show how a company has done on that parameter. So, for solving this problem there is need to create a model which can make it easier to analyze, interpret and make decision making among different stocks of same sector.

2.4) OBJECTIVES OF THE STUDY:

- To provide analysis which can help a person who may not be a finance professional to take investment decisions to solve this problem, In this project my objective is to provide analysis of companies in Indian Oil and Gas Industry.
- Devise a scoring model which can score companies belonging to same sector on different parameters on a scale of 0 to 5 so that it is easier for a equity research analyst to evaluate companies on a common scale by putting data required in the model and also easier for a layman to interpret results and make decision based on scores obtained by the companies.

3)DATA AND METHODOLOGY

DATA COLLECTION

Secondary sources of data refer to the set of data not collected by the researcher. We have collected information through secondary sources. We have extracted all the information from through various websites like RBI, Money Control, Yahoo Finance, BSE India, Economic Times, US EIA, credit rating report of Moody's Official website and annual reports of ONGC and Oil India, etc.

SAMPLING DESIGN

Simple Random Sampling design was used to make this research report as the industry and both the companies were randomly chosen for analysis.

METHODOLOGY ADOPTED:

The detailed methodology adopted for different parts of this equity research is as follows:

3.1) Economy analysis methodology:

In Economy analysis data was collected from secondary sources and analysis was made according to the results given in various research reports and economy news articles. Based on the analysis of these articles and research reports by various institutions, financial news agencies and credit rating agencies the results are interpreted to show its relation with economy and different sectors of the economy.

The Overview of Indian economy was given on the basis of Data collected from RBI and various other reports. Times of India report on Impact of COVID on IIP was analyzed to show its impact on Indian stock market.

Impact of Inflation and Interest rate on Indian stock market was analyzed using RBI Governor remarks on the present situation and historical the trend of interest rate.

For Forecast of GDP growth outlook and various sectors of Indian economy "CRISIL report on India GDP growth outlook for fiscal 2021" was used.

Analysis of impact of Factors effecting Indian Economy on Indian Oil and Gas Industry using Multiple Linear Regression was done by taking monthly closing data from January 2013 to December 2019 of various macro-economic factors as dependent variable and S&P BSE Oil and Gas Index as dependent variable after their log natural return transformation on 83 months data. This analysis was done by running regression on IBM SPSS Statistics software. The Log natural transformation was done to make data more stationery as it's a time series data of long duration. The objective of this analysis was to find impact of Factors effecting Indian Economy on Indian Oil and Gas Industry. Its objective was not to create a prediction model so I only tested he significance of variables and showed the magnitude and direction of relationship between dependent and independent variables.

3.2) Industry analysis methodology:

In industry analysis the analysis was made based on secondary data which includes forecasts and data and facts related to Indian oil and gas industry. First a overview of Indian Oil and Gas industry was given so that investor can know more about the industry. Then data were analyzed under different heads of analysis like PESTEL analysis, Porter 5 forces, Analysis of subsectors and revenue sources/products, major players in Indian oil and gas industry and major economic factors effecting industry, Future growth prospects of the industry.

The information related to industry, products and subsectors were taken mostly from various government websites like analysis about industry from Petroleum Planning and Analysis Cell of Ministry of Petroleum & Natural Gas and Industry analysis, forecasts about Indian oil and gas industry from India Brand Equity Foundation and Forecasts of crude oil and natural gas prices and its consumption and production by United States Energy Information Administration – EIA.

I have analyzed the economic effect of changes in factors of Indian economy on Indian Oil and Gas Industry by using correlation plots with regression line made using IBM SPSS Statistics software. These data were summed up and analysis from PESTEL and Porter 5 forces were further analyzed by me to find the various factors which can led to overall growth of this industry in future like favorable regulatory environment, increase in expected margins and demand, reduction in costs, ability to survive in competition and while renewable energy sources are being adopted at a rapid pace.

3.3) Company analysis methodology:

The company analysis was done by using both qualitative and quantitative data obtained from various secondary sources. The data included quantitative data like Financial ratios and Financial statements and qualitative data like sustainability, management quality qualitative risks and growth factors from annual reports of companies, forecasts by various institutions and credit rating reports. The company analysis has two parts:

- Introduction to Company (ONGC and Oil India): This included a brief description of individual companies to help investor know more about the company and its business model. It started with company overview then a easy to comprehend KYC (Know Your Company) chart which covers key information about the respective company in tabular chart, then a pie chart showing major revenue sources/ major products of the respective companies are shown followed by details about its subsidiaries/ joint ventures and associates were given which included their introduction and stake of respective companies in it. At last a SWOT analysis of respective companies was done to show the strength, weakness, opportunities and threats of the company.
- Company analysis and scoring on different parameters: In this part each company was be rated on a scale of zero to five on each parameter and its sub-parameter on which they will be analyzed in order to make it easier for the readers to comprehend the analysis quickly. The analysis was done on 10 qualitative as well as quantitative parameters and then the analysis was summed up to arrive at final investment decision.

Scoring Methodology: The scoring methods for different parameters and their sub parameters are as follows:

1. **Valuation:** The valuation parameter was evaluated based on percentage difference between estimated fair price of a company by different valuation methods and its current market price as on 02/06/2020. 6 companies were relatively valued and they were ranked by undervaluation in the market as compared to their fair market price.

   The valuation parameters were evaluated on 3 sub parameters which is basically the method used for valuation, it includes valuation based on price/earnings, price/ book value and EV/ EBITDA.

   Formula used for scoring sub para meters of valuation: This excel formula was used for scoring valuation sub parameters on a scale of 0 to 5- “=6-RANK.AVG(B24,$B$24:H24)” which basically equals to 6- Rank of company undervaluation from market price among 6 companies. This formula ranks the company’s valuation based on reverse ranking then from 0 to 5. For example, if Oil India has scored 5 in valuation based on P/E then it has secured the 1st best rank among 6 companies whose valuation has been done. Similarly, if Indian Oil

Corporation scores 0 in valuation it means its rank is last i.e. 6th among the 6 companies. Similarly other sub parameters were scored.
Formula used for scoring overall valuation parameter: Overall valuation was scored by taking average of scores of all sub parameters of valuation using excel formula like "=AVERAGE()". Example if ONGC has scored 2,3 and 1 in its sub parameters then its overall valuation score is average of 2,3 and 1 which is 2.

	ONGC Ltd	Oil India Ltd.	GAIL India Ltd.	Hindustan Oil Exploration Company Ltd.	Deep Industries Ltd.	Indian Oil Corporation Ltd.
Valuation based on P/E	2	5	3	1	4	0
Valuation based on PRICE/BV	3	5	2	0	4	1
Valuation based on EV/EBITDA	1	4	3	2	5	0
Overall Valuation	2.00	4.67	2.67	1.00	4.33	0.33

2. **Technical Analysis:** The technical analysis parameters were evaluated based on whether a stock technical analysis indicator is giving a bullish or bearish signal while a score of 5 is extremely bullish signal while 3 is neutral and 1 is extremely bearish.

1	2	3	4	5
Bearish		Neutral		Bullish

Technical analysis parameters have 2 broad sub parameters i.e. Oscillators and moving averages which further has many sub parameters.

Method used for scoring sub para meters of Oscillators: All sub parameters of oscillators were scored based on signal the value of oscillators is giving. For example, if RSI is between 30 to 70 then it is considered neutral so I will get a score of 3 and if stochastic RSI fast is between 90 to 100 it is very bearish so it is given a score of 1. Similarly, others were also scored.

OSCILLATORS	ONGC		Oil India	
Name	Value	Score	Value	Score
Relative Strength Index (14)	64.32	3	51.95	3
Stochastic %K (14, 3, 3)	87.16	2	85.75	2
Stochastic RSI Fast (3, 3, 14, 14)	100	1	100.00	1
Williams Percent Range (14)	−15.60	2	−8.75	2
Overall Oscillators		2		2

Method used for scoring sub para meters of Moving Averages: All sub parameters of moving averages were scored based on signal the crossovers of Exponential Moving Averages (EMA) over Simple Moving Averages (SMA) is giving. If EMA is above SMA of the same period then it is a bullish signal so based on the difference score of 4 or 5 is given, If EMA equals SMA of the same period then it gives a neutral signal so a score of 1 was given and if EMA is less than SMA of the same period then a score of 1 or 2 is given based on the difference. Similarly if market price is above Volume weighted average price then a score of 4 or 5 is given as it is a bullish signal and if it is below VWAP then a score of 1 or 2 is given as it is a bearish signal.

MOVING AVERAGES Name	ONGC Score	Oil India Score
EMA(5) above SMA(5)	5	5
EMA(10) above SMA(10)	5	5
EMA(20) above SMA(20)	5	3
EMA(30) above SMA(30)	5	3
EMA(50) above SMA(50)	5	5
EMA(100) above SMA(100)	2	1
EMA(200) above SMA(200)	1	1
MPS above VWAP	5	4
Overall Moving averages	4.125	3.375

Method used for scoring Overall Oscillators and Overall Moving Averages: The score of Overall Oscillators was arrived at by taking the arithmetic average of scores obtained on various sub parameters of Oscillators.
The score of Overall Moving Averages was arrived at by taking the arithmetic average of scores obtained on various sub parameters of Moving Averages.

Method used for scoring Overall Technical Analysis parameter: The score of overall technical analysis parameter was arrived at by taking arithmetic average of scores obtained on Overall Oscillators and Overall Moving Averages.

	ONGC Ltd	Oil India Ltd.
Overall Oscillators	2	2
Overall Moving averages	4.125	3.375
Overall Technicals	3.0625	2.6875

3. **Solvency and Liquidity:** Solvency and Liquidity was scored on its various sub parameters as follows:

Formula used for scoring sub para meters of liquidity: The Sub parameters of liquidity which include Current ratio and quick ratio was scored based on the value of respective ratio here a value of current and quick ratio of 2 is considered best as this industry is suffering losses so the should have double the liquidity then their obligations. For this the formula has been prepare o give highest score of 5 o a ratio of 2 and then decreases the score it it is less than 2 or more than 2.
The excel formula for scoring quick and current ratio is like "=IF(C3<=2,C3/2*5,0.9*5)". Which is basically "if current/quick ratio is less than

or equal to 2 then score = (current or quick ratio)*5/2" and "if it is more than 2 then score= .9*5"

Formula used for scoring sub para meters of Solvency: The scoring formulas of sub parameters of solvency are as follows:

- Interest coverage: The Interest coverage was scored comparative to the best interest coverage ratio in 5 years of the industry (both the companies) by using the following excel formula like "=5*C5/MAX($C$5:$M$5)" which basically means "Score = 5* (Latest Interest coverage of respective company) /(Maximum of interest coverage in 5 years of any of two companies)"
- Debt/ Equity: The debt/ equity is scored considering debt/equity above or equal to 1 as worst and below it as better as the industry is suffering losses it is better to keep it low. The excel formula is as follows "=IF(C6<=1,(1-C6)*5,0)" which basically equals to " score =0 of debt equity is more than or equal to 1" and "score = (1-debt/equity)*5". So, if company has zero debt it will get a score of 5.
- Improvement in Debt/Equity: The improvement in debt/equity score considers consistency and absolute improvement of debt /equity in 4 years For this following excel formula is used "=(IF(F6<G6,1,0)+IF(E6<F6,1,0)+IF(D6<E6,1,0)+IF(C6<D6,1,0)+AVERAGE(C6:G6)/C6)" this formula is basically " score = 1* (number of years the debt equity ratio has been reduced by the company)+[(Average of previous 5 years debt equity of industry)/(current debt/equity of the company).

Formula used for scoring overall Liquidity and Solvency: For scoring Overall Liquidity arithmetic average of scores of its sub parameters were taken similarly averages of sub parameters of solvency was also taken to score overall solvency. Then average of Overall Liquidity and Overall Solvency was taken to arrive at the score of Overall Liquidity and Solvency parameter.

		ONGC Ltd	Oil India Ltd.
Liquidity	Current Ratio (X)	1.75	3.63
	Quick Ratio	1.08	3.25
	Overall liquidity	1.41	3.44
Solvency	Interest Coverage	4.31	3.56
	Debt/Equity	2.65	3.15
	improvement in Debt/Equity	2.80	3.09
	Overall solvency	3.25	3.27
	Overall liquidity & solvency	2.33	3.35

4. **Industry Specific Parameter:** Industry specific parameter was scored on its various sub parameters as follows:

Formula used for scoring sub para meters of Growth in Oil and Gas production: Both the sub parameters of growth in Oil and Gas production was scored based on CAGR increase in production over the past 5 year, The Excel formula is like "=(IF(U14>0,3+U14*4,1)" which basically means "if CAGR growth in production of Crude Oil/Natural gas>0% then score =3+ (CAGR growth* 4) Else Score=1".

Formula used for scoring Maintenance of RRR over 1: This parameter is scored in such a way that it can score a company out of 5 based on number of years out of it has maintained its RRR over 1. The excel formula is as follows "=COUNTIF(B6:F6,"=YES")" which basically equals to "Score = number of years out of 5 in which RRR is over 1)".

Formula used for scoring Overall Industry Specific Parameters: The Overall Industry specific parameter scores were taken as average of scores obtained by the company on Growth in Oil and Gas production and maintenance of RRR>1.

		ONGC Ltd	Oil India Ltd.
Growth in Oil and gas production	Crude Oil Production(MMT)	1.00	1.00
	Natural Gas Production(BCM)	3.39	3.21
	Growth in Oil and gas production	2.19	2.11
Maintained RRR over 1	Reserve replacement ratio>1	5.00	5.00
	Overall industry specific Paramete	3.60	3.55

5. **Profitability:** Industry specific parameter was scored on its various sub parameters as follows:

   Formula used for scoring sub parameters of Return ratios: The sub parameters of return ratios was scored comparative to the best ratio in 5 years of the industry (both the companies) by using the following excel formula like "=5*C7/MAX($C7:$M7)" which basically means "Score = 5* (Latest return ratio of respective company) /(Maximum of that return ratio in 5 years of any of two companies)".

   Formula used for scoring sub parameters of Margin ratios: The sub parameters of margin ratios was scored comparative to the best ratio in 5 years of the industry (both the companies) by using the following excel formula like "=5* *$C3/MAX($C3:$M3)" which basically means "Score = 5* (Latest margin ratio of respective company) /(Maximum of that margin ratio in 5 years of any of two companies)".

   Formula used for scoring sub parameters of Improvement: The sub parameters of Improvement was scored based on percentage increase in past 5 years by using the following Excel formula "=(IF(H21>0,4+H21,1+H21" which means " if growth is positive score =4+% growth, else if growth is negative score = 1+ % growth)".

Formula used for scoring Overall Returns/Margin/Improvement: the overall returns/margin/improvement were scored as a average of score obtained by company on their sub parameters.

Formula used for scoring Overall Profitability: The overall profitability score was arrived at by taking average of scores obtained on Overall Returns/Margin/Improvement.

		ONGC Ltd	Oil India Ltd.
Return Ratios	Return on Networth/Equity (%)	5.00	4.00
	Return on Capital Employed (%)	5.00	3.65
	Return on Assets (%)	4.37	4.39
	Overall Returns	**4.79**	**4.01**
Margin Ratios	PBDIT Margin (%)	1.99	4.94
	PBIT Margin (%)	1.73	4.66
	PBT Margin (%)	1.65	3.47
	Net Profit Margin (%)	1.45	3.04
	Overall Margin	**1.71**	**4.03**
Improvement	EPS Growth	4.11	0.66
	Revenue from Operations/Share (Rs.)	4.78	0.77
	Growth in Cash EPS	0.82	0.60
	Overall Improvement	**3.24**	**0.68**
	Overall Profitability	**3.24**	**2.90**

6. **Efficiency:** Efficiency parameter was scored based on its various sub parameters as follows:

   Formula used for scoring on Asset turnover and Inventory ratio: The sub parameters of Efficiency was scored comparative to the best ratio in 5 years of the industry (both the companies) by using the following excel formula like "=5* B3/MAX($B3:$L3)" which basically means "Score = 5* (Latest asset or inventory ratio of respective company) /(Maximum of that ratio in 5 years of any of two companies)".

   Formula used for scoring Overall Efficiency: The Overall Efficiency score was arrived at by taking the arithmetic average of scores obtained on Asset turnover and inventory turnover ratio by that company".

	ONGC Ltd	Oil India Ltd.
Asset Turnover Ratio	5.00	1.55
Inventory Turnover Ratio	3.95	3.72
Overall Efficiency	**4.47**	**2.64**

7. **Growth Prospects:** The Growth Prospects parameter was evaluated based on various factors which can impact growth of a company. The impact of these factors on growth were analysed using answers from various research reports.

Impact on growth	very bad		no impact		very good
	1	2	3	4	5

Method used for scoring various factors of growth: The score of 5 depict that the factor has very good impact on growth and 3 depits no growth will happen because of that factor and 1 depicts very bad impact on growth which can led to a negative growth.
Formula used for scoring Overall Growth prospects: The overall growth prospects were scored by taking arithmetic average of scores on various factors impacting future growth of the company.

Impact on Growth	ONGC	Oil India
Forecasted increase in crude oil price.	4	4
Forecasted increase in Natural gas price.	3	3
Forecasted consumption over production of crude oil	5	5
Increase in demand of Crude oil in future	4	4
Increase in demand of Natural gas in future	4	4
Probability of reduction in expenditure on exploration activities.	2	3
Potential to extract oil/gas from unconventional sources	5	4
Impact of adoption of renewable sources of energy	2	3
Overall Growth outlook	**3.63**	**3.75**

8. **Risk:** Risk parameter was scored based on its various sub parameter as follows:
Formula for scoring of systematic risk: The systematic risk (Beta) was scored to give higher score to lower risk company. The excel formula is as follows "=5*MIN(C11:D11)/C11" which means " score = 5* times minimum beta of any of two company is of the beta of respective company" so if beta of company being scored is much higher than beta of other company it will get lesser score and company with least beta value will get highest score of 5.

Formula for scoring of unsystematic risk: The unsystematic risk was scored to give higher score to lower risk company. Various factors of unsystematic risk were scored based on risk it is possessing to the company where 5 signifies very low risk and 0 signifies very high risk. These scores on various factors of unsystematic risk were averaged to arrive at overall systematic risk score.

Formula for scoring of overall risk: The scores of overall risk was arrived at by taking averae of Overall Systematic and Overall Unsystematic risk.

	Risk Factors	ONGC Ltd	Oil India Ltd.
Systematic Risk	Beta	4.11	5.00
	Overall Systematic risk	**4.11**	**5.00**
Unsystematic Risk	Debt/Equity	2.65	3.15
	DFL	4.95	3.79
	DOL	2.10	5.00
	Cash and cash equivalents(Liquidity risk)	0.42	5.00
	Risk of fall in crude oil price	2.50	2.50
	Risk of reduction in oil demand	4.50	4.50
	Risk of Alternative energy sources	3.50	4.50
	Moody's credit rating	2.50	2.50
	Overall Unsystematic risk	**2.89**	**3.87**
	Overall Risk	**3.50**	**4.43**

9. **Corporate Sustainability:** The Corporate Sustainability parameter was evaluated based on various factors which can impact sustainability of a company. The impact of these factors on growth were analysed using answers from various research reports, sustainability and credit rating reports of the companies.
In each of sub parameters of sustainability the comprising factors are scored by anwers from research reports on a scale of 1 to 5 where score of 1 shows bad sustainability managemnt ande 5 shows very good sustainability management. Then average of factors of each sub parameter are taken to arrive at overall Economic/Social/Environmental Sustainability score. Then these subparameter score were averaged to arrive at Overall Sustainability score.

	Risk Factors	ONGC Ltd	Oil India Ltd.
Economic Sustainability	Diversification across the value chain	5.00	5.00
	Geographical Diversification	3.50	3.50
	Extraction from Unconventional sources	4.00	3.00
	Diversification outside the value chain	3.00	4.00
	Overall Economic Sustainability	**3.875**	**3.875**
Environmental Sustainability	Green House Gases control measures	4.50	3.50
	Oil waste reduction	4.00	5.00
	Adoption of renewable energy	3.50	4.50
	Reduction in water pollution	4.00	4.00
	Overall Environmental Sustainability	**4**	**4.25**
Social Sustainability	CSR activities	4	4
	Employee wellness	5.00	4
	Overall Social Sustainability	**4.50**	**4.00**
	Overall Sustainability	**4.13**	**4.04**

10. **Management and Governance:** The Management and governance parameter was scored based on various factors which can impact sustainability of a company. The impact of these factors on growth were analysed using answers from News articles. annual reports and sustainability reports of the companies. The score of 5 was given when a factor has very good impact on management/governance and 3 depits no impact on management/governance because of that factor and 1 depicts very bad impact on management/governance. These score of factors were averaged to arrive at Overall Management and Governance score.

Management and Governance	ONGC	Oil India
Promoters Credibility	5	5
Governance	4	4
Management Decision speed	3	3
Management Illegal activities cases	3.5	4
Overall Management and Governance	**3.88**	**4.00**

4)DATA ANALYSIS AND FINDINGS

4.1) ECONOMY ANALYSIS:

4.1.1) Introduction to Indian Economy:

Indian economy is the fifth largest by nominal GDP according to IMF. Indian economy has enjoyed high growth rate in recent years. India is a emerging economy growing at very fast pace towards becoming a developed economy from developing country. India's economy has transitioned into a free market economy after the economic liberalization in 1991. It follows a mixed economy model to keep a keep a health control of government along with increasing production and consumption for a balanced economic growth. India ranked 118th by GDP (purchasing power parity) and 139th by GDP (nominal). Though India's GDP is fifth largest but its per capita income ranks 139th this is due to huge population of 1.35 billion people. India ranks second largest in terms of population. India ranks 63rd in World Bank's Ease of Doing Business 2020 report, compared to 2019 when it was ranked 77th an improvement of 14 ranks due to various economic reforms in recent years but it failed to achieve its target of achieving a rank of 50th place. According to NASSCOM, in 2019 India has retained its rank as the 3rd largest startup base in the world with more than 8,900-9,300 startups of which 1300 were founded in 2019. India is an agriculture-based country with most of population earning livelihood by agriculture but due to low earnings agriculture has only 16% share in GDP. The GDP is driven by service sector with more than 53% share of GDP followed by manufacturing which accounts for about 31% of total GDP. With growth in economy and improvement of various economic indicators the business opportunities in India also grows this led to increased demand, income, consumption and favors bulls in stock market. Growth in stock market often gauged by growth in stock indices like BSE SENSEX, NSE Nifty 50, BSE 100, BSE 500 and Nifty Next 50 acts as a proxy for economic growth and also to gauge the sentiment of investors towards future economic progress.

4.1.2) Economic factors affecting the Indian stock market

Economic factors are factors affecting the state of the economy. It acts as indicator for gauging the condition of the economy. Some major economic factors that influence the stock market are:

1. **Gross Domestic Product (GDP):** Gross Domestic Product (GDP) is the final value of goods and services produced in an economy within an accounting year. Increase in production led to increase in income and employment. So, we treat GDP as index of wellbeing of the people of the country. However, GDP may not reflect true picture of economic development as it does not show the distribution of income i.e. whether it is more uniform or concentrated in the hands of few, it does not reflect non-monetary exchanges and environmental and social well-being. It is still one of the most preferred quantitative indicators of well-being of the country. GDP is positively correlated to Business growth i.e. when GDP grows it shows increase in income, demand, consumption and business opportunities due to this there is a positive correlation between GDP and stock market. When forecast show a growth in economy investors sentiments also gets positive for growth in investment done in stocks.

2. **Crude oil and Natural gas price:** Crude Oil and Natural Gas prices affect the business in India since crude oil and natural gas act as fuel for most industries. An increase in cost of crude oil or natural gas can increase the fuel bill, transportation cost and cost of various petrochemicals and vice versa. Since 82% of oil in India

comes by import, so increase in oil price increases the import bill and vice versa. In 2018-19, Indian oil imports stood at $87 billion. So, condition of Economy of India is heavily influenced by crude oil and natural gas prices. Though different sectors respond differently to change in crude oil and natural gas prices but overall it has negative correlation with the stock market. Though Oil exploration and production industry is positively correlated to increase in crude oil and natural gas price as it increases their profit margin. Low crude oil price helps in strengthening the rupee by reducing the current account deficit.

3. **Index of Industrial Production (IIP):** Index of Industrial Production data or IIP is an index that is used to track production volume in different sectors of the economy. The IIP measures the variations in industrial production for the under-review period which is of a month. For the manufacturing sector IIP acts as a key economic indicator. IIP index is published six weeks after the reference month ends. IIP index is currently calculated using 2011-2012 as the base year.
IIP Index Components includes eight core sectors namely Electricity, crude oil, coal, cement, steel, refinery products, natural gas, and fertilizers that comprise about 40 percent of the weight of items included in the Index of Industrial Production. Mining, manufacturing, and electricity are the three broad sectors in which IIP components lye in. In the case of Index of Industrial Production India, IIP data is compiled and published by CSO every month. Central Statistical Organization operates or CSO under the Ministry of Statistics and Programme Implementation (MoSPI).
Since IIP is an indicator to gauge economic progress of manufacturing sector, it highly affects the Indian stock market as manufacturing sector accounts for 31% of the GDP. An increase in IIP index is a positive signal for increase in business activity and growth in Indian stock market and vice versa.

4. **Exchange rate:** Exchange rate is the price of one currency in terms of other currency. Exchange rates changes with change in demand and supply of the currencies. When a currency depreciates it makes imports expensive and increases the price in Indian currency this causes increase in exports and decrease in imports as it makes Indian products cheaper in terms of foreign currency, similarly when a currency appreciates it causes a decrease in exports and increase in imports as this makes Indian products expensive in terms of foreign currency. Appreciation in Indian Rupee makes foreign goods cheaper, especially oil which accounts for significant amount of imports. This leads to reduction in trade deficit of country the Since appreciation of exchange rate shows the increase in demand of rupee it shows the strength of economy is increasing therefore having a positive effect on stock market and vice versa.
5. **Monetary policy:** Monetary policy is a set of actions taken by central bank of a country to control money supply in the economy in order to promote growth and control inflation. In India monetary policy is controlled by the Reserve Bank of India (RBI). Major part of monetary policy includes tweaking the interest rates to maintain a balance between growth and inflation. If interest rates are high, business will have difficulty in borrowing money and credit creation will be low this causes economy to slow down whereas if interest rates are low it increases credit creation thus increases the ability of banks to issue more loans at a cheaper interest rate this causes economy

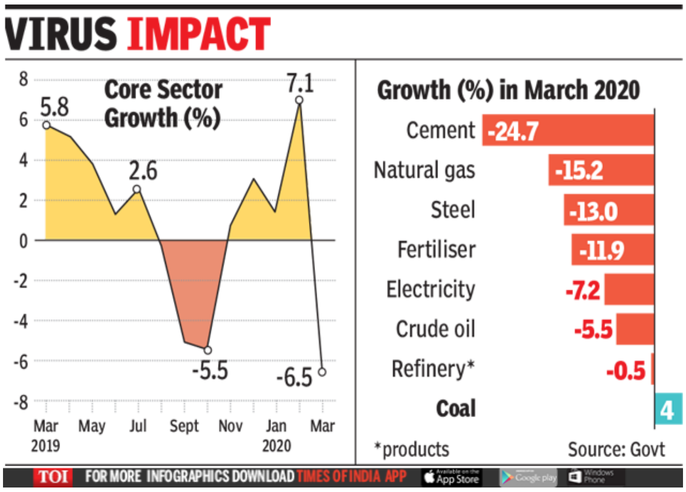
to grow faster. Credit creation is controlled by RBI using various monetary tools like repo rate, reverse repo rate, statutory liquidity ratio (SLR) and cash reserve ratio (CRR). RBI revises these rates every two months. Investors keep an eye on these numbers as it may signal the growth rate of Indian economy. Monetary policy is of two types i.e. Expansionary monetary policy and Contractionary monetary policy. Expansionary monetary policy is followed to increase economic activity in order to increase economic growth by decreasing interest rates whereas contractionary monetary policy is followed to decrease economic activity or to reduce inflation by increasing interest rates.

6. **Inflation:** Sustained increase in general prices of goods and services is called inflation. It reduces the purchasing power of money. Inflation is generally inevitable when an economy is growing but a high level of inflation can lead to loss in value of savings and is undesirable economically. Government and RBI tries to control inflation by Monetary policy and fiscal policy.
   Inflation is measured using various index. Increase in index shows increase in inflation by some percent and decrease in index shows decrease in inflation or disinflation. Inflation index are of two types:
   Wholesale price index (WPI)- WPI shows wholesale level movement in prices. The WPI measure shows inflation at an institutional level and thus it may not capture inflation experienced by the consumer.
   Consumer price Inflation (CPI)- CPI measures retail level movements in prices. For a consumer CPI matters more than WPI. CPI is calculated in a detailed manner by classifying it in various subcategories and categories and also rural and urban regions. CPI is published around second week of every month by the Ministry of Statistics and Programme Implementation (MOSPI).
   The RBI keeps a balance on Inflation and Interest rates. High inflation is bad for economy and negatively affects market sentiments thus inflation should be in control.

7. **Fiscal Policy:** Fiscal policy is the policy which guides the government to decide how it should shape its revenue and expenditure in order to achieve sustainable economic growth. It works by influencing aggregates demand and aggregate supply in the economy by use of government spending which is expenditure and taxation which is revenue to influence economic growth. Government revenue and expenditure are managed appropriately to cater to different sectors of economy for balanced growth. When the expenditure exceeds revenue, it is called deficit financing this policy is expansionary policy which is used to stimulate growth of the economy. When revenue exceeds expenditure, it is called surplus financing this policy is used in order to control rising inflation and unhealthy growth. Indian economy is financed by deficit to make it grow at a rapid pace. Fiscal policy is not only a tool to promote growth but also very effective for balanced growth. Government plans taxes, borrowings and expenditure to be done in different sectors according to the need of sectors and it promotes well-being of all sections of the society.
   Fiscal policy has different impact on different sectors of stock market as it effects every sector differently. However, deficit financing and low taxes help in creating more positive market sentiment and it can make the market bullish.

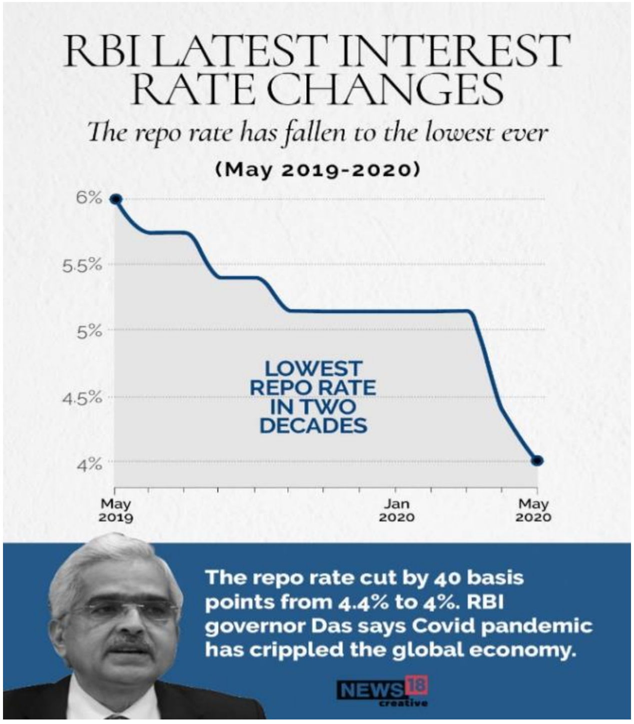
4.1.3) Analysis of Indian Economy and its impact on Indian Stock Market and different sectors of the economy:

The analysis of Indian Economy and Its impact on growth of stock market and various sectors of the economy is as follows:



- The Manufacturing sector is suffering due to lockdown of factories, problems in supply chain and low consumption. Due to COVID-19 pandemic IIP has fallen as factories were closed and demand was low due to lockdown. As Manufacturing sector accounts for 31% of the GDP it will have a very negative impact on stock market. Recovery in IIP to post COVID levels will boost recovery in Indian Stock market.

- Inflation is predicted to be uncertain due to COVID-19 pandemic and also due to lack of CPI data for April and May 2020 due to lockdown field survey could not be conducted. NR Bhanumurthy, economist at National Institute of Public Finance and Policy said “Many factors that are pulling CPI in both directions makes estimation difficult. Services component should come down but food inflation might spike but not across the basket.” He said that predicting inflation rate now would be an injustice to the numbers. So, inflation’s impact on stock market is largely unpredictable as Inflation cannot be forecasted during this pandemic.



- RBI has cut interest rates to its lowest since two decades in order to boost the economy. In May 2020 MPC meeting RBI has bought down the repo rate by 40 basis points to 4% and reverse repo rate to 3.35%. Earlier this year in march also RBI has reduced the interest rates by a sharp 75 basis points. RBI has reduced interest rates so sharply due to reduced business activity amid COVID-19 pandemic and also before that economy was going through a slowdown. RBI is taking a expansionary move to kick start the economy as the lockdown eases but this move is not showing desired outcome as the transmission of rate cuts is not happening due to lockdowns and also reduced consumption people are not taking benefit of low interest rates. This has made it difficult to revive the growth of economy during COVID-19 pandemic so rate cuts do not bring positivness in investor sentiment during this pandemic.

- Lower crude oil price will help in strengthening the rupee by reducing the current account deficit also it will help the transportation sector, petrochemicals sector and textiles manufacturing sector.

- The recent announcement of Rs. 20 Lakh Crore package and various economic reforms to stimulate economy that is adversely impacted by COVID-19 pandemic is also helping in stimulating the growth of Indian stock market.

- GDP growth is forecasted to be negative for FY 2021 as per CRISIL report on India GDP growth outlook for fiscal 2021. This will have a negative impact on growth of stock market as majority of sectors will be hit. However, some sectors can grow like agriculture sector which employs majority of Indians is expected to grow due to a good monsoon and low impact of lockdown, Tyre sector can grow due to recent import restrictions by the government and expected increase in demand of small vehicles and 2 wheelers due to the pandemic as people are fearing to travel in public transport which can also led to growth of two-wheelers sector, Health care sector has already grown and can continue to grow due to increased awareness and fear caused by pandemic, Increased Hygiene and personal care habits will led to growth of these two sectors and also the growth of other sectors like textiles, FMCG, specialty chemicals, etc.

4.1.4) Analysis of impact of Factors effecting Indian Economy On Indian Oil and Gas Industry using Multiple Linear Regression:

To find out the impact of macro-economic factors on Indian Oil and Gas Industry, Multiple Linear Regression on monthly closing data from January 2013 to December 2019 of various macro-economic factors were used as dependent variable and S&P BSE Oil and Gas Index as dependent variable after their log natural return transformation on 83-month data. The Regression results were obtained using IBM SPSS softwaere. Following are the results of Regression analysis:

Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	Sig.
1	(Constant)	.006	.008		.391
	Exch Rate $	-1.056	.303	-.371	.001
	S&P BSE India 10 Year Sovereign	-.720	.438	-.191	.104

Bond Index				
IIP Index	.064	.106	.064	.551
Money Supply (M1)	-.014	.130	-.011	.913
CPI Combined Base 2012-100	1.695	.943	.188	.076
Crude Oil (Rs)	-.049	.066	-.083	.456
Gold Prices (Rs)	-.365	.137	-.291	.009
Fdi (Rs. In Crores)	.010	.011	.088	.385

The regression result showed that exchange rate (Re./$) and Gold prices have significant impact on oil and gas sector and both are negatively correlated to S&P BSE Oil and Gas Index and all other variables were found to be insignificant.
As both the dependent variable and independent variable(s) are log-transformed variables, the relationship is commonly referred to as elastic relationship. In a regression analysis, we interpret the elasticity as the percent change in y (the dependent variable), while x (the independent variable) increases by one percent. For this analysis I would conclude the following

- For every 1.056% decrease in Exchange rate (Re./$) the S&P BSE Oil and Gas Index will increase by 1% and vice versa.
- For every 0.365% decrease in Gold prices (Rs.) the S&P BSE Oil and Gas Index will increase by 1% and vice versa.

4.2) INDUSTRY ANALYSIS:

4.2.1) Introduction to Indian Oil and Gas Industry:

The Indian Oil and Gas Industry is a very important industry for every sector of the Indian economy. Oil which is commonly regarded as the 'Black Gold' has been instrumental in development of civilizations and industries from ages. Oil and Gas acts as a raw material for most of the other industries and an important fuel source for every person. Even though technology has progressed we are making use of more and more renewable sources of energy but still Oil and Gas can't be replaced and its demand is forecasted to increase in near future. Most of the demand of Oil and Gas in Indian Oil and Gas Industry comes from manufacturing sector. Oil and Gas are used not just for energy but also as a raw material in form of petrochemicals, Lubricants and other products. Due to this when the price of Oil and Gas increases the cost of producing other goods also goes up and vice versa. Indian Oil and Gas Industry has a surplus of demand but it cannot cater to all demand due to unavailability of financially viable exploration reserves. This excess demand is catered by foreign Oil and Gas companies generally from middle east which can produce Oil and Gas at low cost thus delivers at a competitive price. Though India's Oil and Gas production capacity is low, its refining capacity is in surplus and it also exports various refinery products.

Indian Oil and gas Industry have a huge potential to increase its crude oil and natural gas supply as demand is high within India but it can only happen when the technology to explore unconventional reserves become financially viable. Also, the increase in demand of natural gas and setup of city gas distribution pipe lines and CNG filling centers can boost the revenues for oil and gas companies.

Following are some important facts of Indian Oil and Gas Industry:

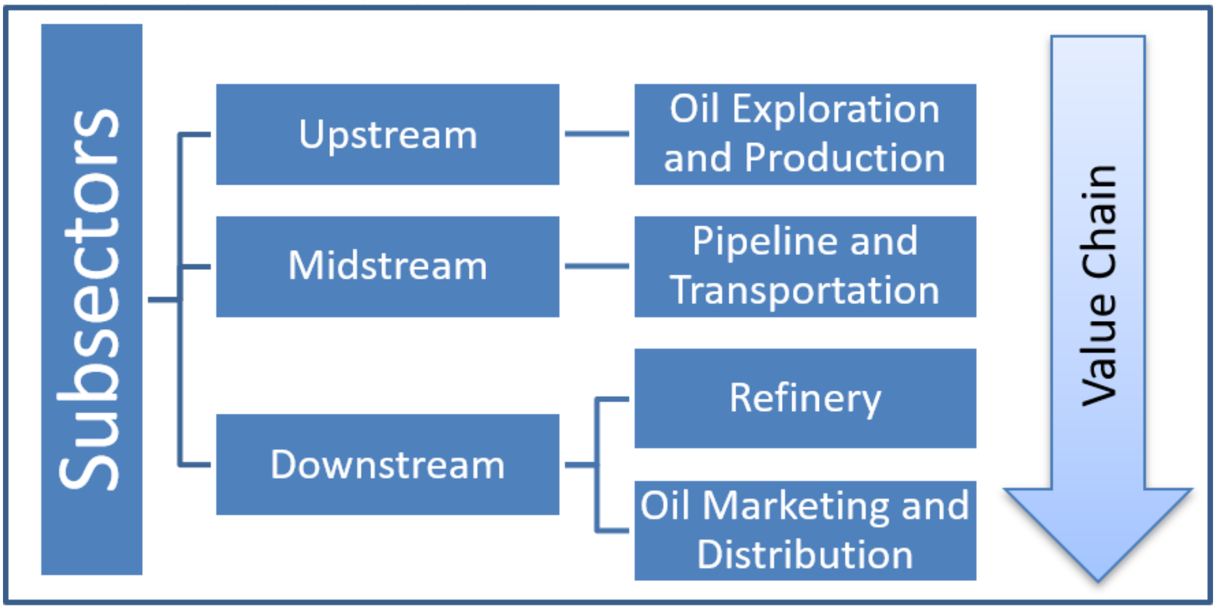
- It is the second largest refiner in Asia as on March 1,2020 with a refining capacity of 249.4 million tonnes.
- India is one of the largest exporters of refinery products due to the presence of various refineries. The country had the fourth largest oil refining capacity and fourth largest refinery throughput globally in 2017.
- The government is planning to invest US$ 2.86 billion in the upstream oil and gas production to double the natural gas production to 60bcm and drill more than 120 exploration wells by 2022
- 78% of country Sedimentary area is yet to be explored.
- India was third largest consumer of oil (2018)
- Fourth largest LNG importer
- 100% Foreign Direct Investment (FDI) in Upstream and Private sector refining projects. Also, for public sector refining companies the FDI limit is raised to 49% without any dilution or disinvestment of domestic equity.

4.2.2) Analysis and Findings of Indian Oil and Gas Industry:

The analysis of Indian Oil and Gas Industry is as follows:

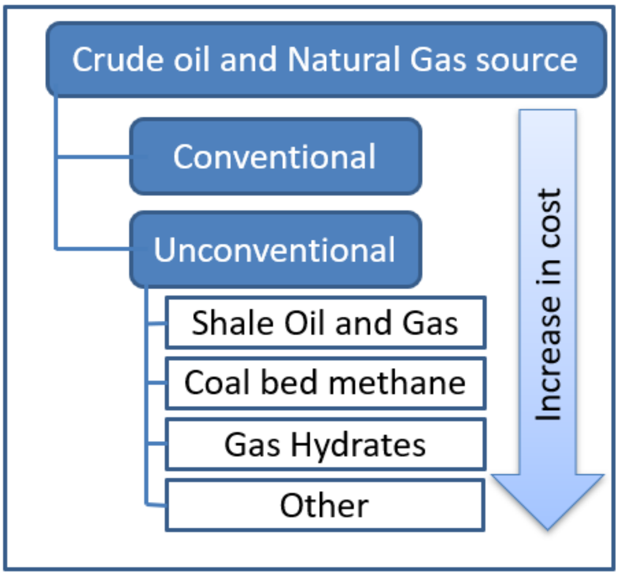
4.2.2.1) Subsectors of Oil and gas Industry and their major products/revenue sources:

The Oil and Gas Industry has been classified into three subsectors based on the part of value chain they belong to. Many companies have operations in all subsectors they are called **Integrated Oil and Gas companies**. All subsectors have different revenue sources and their demand and supply depends on different factors due to limited control on pricing and limited availability of resources.



The subsectors of Oil and Gas industry can be categorized in following 3 categories:

1. **Upstream:** The Upstream sector consists of Oil and gas Exploration and production companies. This involves searching for crude oil and natural gas reserves, drilling wells and extracting crude oil and natural gas from the reserves. Oil and Natural Gas Corporation (ONGC) Limited has the biggest market share in Indian upstream oil and gas companies, other prominent players are Oil India Limited, Cairn and Reliance Industries Limited. The revenue of upstream oil and gas companies comes from selling raw crude oil and natural gas so it depends on demand and price of crude oil, the higher the prevailing price is for crude oil and natural gas and lower the cost of extraction, more will be their profits and vice versa.



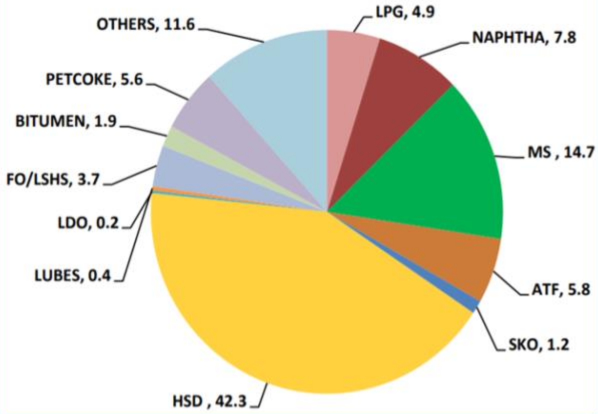
   Indian oil exploration and production have excess of demand but they do not have enough conventional source of crude oil and natural gas which involves lesser cost of exploration and production. They face competition with various companies from middle east which have excess of conventional sources of crude oil and natural gas. Conventional sources are easy to extract and can be as simple as water is extracted from well whereas in unconventional sources the extraction process becomes complex thus expensive due to which cost of extraction is higher and technology required is more sophisticated. With progress in technology Unconventional sources are also becoming cheaper to extract from thus this can bring huge opportunity to tap unconventional sources in order to increase production.

2. **Midstream:** This subsector includes transportation and storage of crude oil and natural gas from the wells to the refineries which may be located at very far away distance. Transportation is generally carried out with pipelines, ships and trucks. Indian Oil Corporation Limited (IOCL) has the biggest market share in this subsector

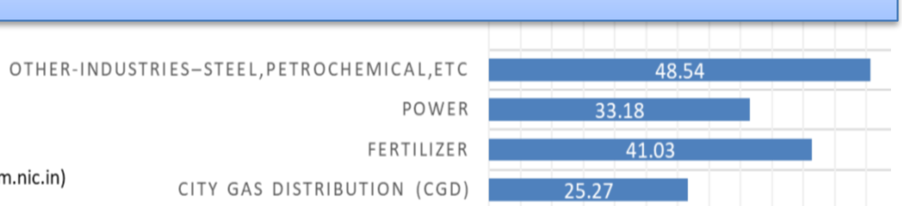
accounting for around 30% of the market share followed by other big players like Bharat Petroleum Corporation Limited (BPCL), HPCL-Mittal Energy Limited (HMEL), Oil India Limited and ONGC, etc.
The revenue of midstream Oil and Gas companies mainly comes by transportation of crude oil and natural gas. So, more the demand of Crude Oil and natural gas by the refineries and other Industries the more will be their revenue.

3. **Downstream:** The Downstream sector consists of following two subsectors:
   i. **Crude oil refining and Natural gas purification sector**: This subsector includes refineries which filters and process raw materials like crude oil and natural gas to make it more valuable for consumption. Crude oil is filtered into various different sub products which are used for different purposes. As on 1st December, 2019 IOCL had largest domestic refinery capacity of 69.2MMT which is about 29% of total India's refining capacity this was followed by reliance industries with 28.58% share in India's total refining capacity.
   The revenue source for oil refining and natural gas purification companies is selling processed products of oil and gas to oil marketing and distribution companies and also various manufacturing companies like fertilizer companies, Steel companies, Paint and dyes, etc. Their revenue depends on the demand by retail customers and also major part of revenue comes from manufacturing sector.

Percentage share of POL products production by refineries(2019 – 2020)
(source: ppac.gov.in)



Sector-wise gas consumption in FY 2018-19 are as under (Figures are in MMSCMD)



(Source: petroleum.nic.in)

   ii. **Oil and Gas marketing and distribution sector:** These companies sell and distribute the products of refineries to factories and retail customers by using their widespread distribution channel and sales network. As on March 1,2019 IOCL had the largest network of retail outlets in India accounting for 27,702 outlets followed by HPCL accounting for 15,440 outlets and BPCL accounting for 14802 outlets.
   The revenue source for oil marketing and distribution companies is through selling finished oil and gas products like petroleum products, LNG, CNG,

kerosene, Lubricant oils, asphalt, naphtha, aviation fuel, etc. to retail customers so it mainly depends mainly on the retail demand.

4.2.2.2) Major players/Competitors in Indian Oil and Gas Industry:

Following are some of the major players in Indian Oil and Gas Industry:

1. **Indian Oil Corporation Limited:** Indian Oil Corporation Limited (IOCL) is a Maharatna PSU which is an integrated oil and gas company having operations across the value chain. It is ranked 117th in Fortune's 'Global 500' 2019 listing among the largest corporates in the world. IOCL has the largest midstream, refinery and oil marketing and distribution market share among Indian oil and gas companies. Its automotive and industrial lubricant brand Servo the largest selling automotive and industrial lubricant brand in India. IOCL is also the second largest players in natural gas in India.
   IOCL became India's most profitable state-owned company consecutively for the second year in May 2018 with a record profit of Rs. 21346 crores in 2017-18.
2. **Oil and Natural Gas Corporation Limited:** Oil and Natural Gas Corporation Limited (ONGC) was incorporated in the year 1994 when the government was liberalizing the economy by making disinvestment in various sectors, this led to conversion of Oil and Natural gas Commission which belonged to the government into a public limited company. In 2010, ONGC got Maharatna status in 2010. It is ranked 160th in Fortune's 'Global 500' 2019 listing among the largest corporates in the world .It is a Large Cap company operating in Oil and gas sector having its majority operations in the upstream sub sector though it is an integrated Oil and gas company as it has operations in all part of value chain through its various joint ventures and subsidiaries. Its major revenue sources are crude oil accounting for 70.74% of its total sales, natural gas accounting for 17.18% of its total sales. It has the largest production share in Indian Upstream sector accounting for 69% of Indian crude oil and 70% of Indian natural gas production.
3. **Reliance Industries Limited:** Reliance Industries was started in 1966 as a small textile manufacturer now having expanded its operation to oil production and exploration, refinery, oil and gas marketing, petrochemicals, textiles, special economic zone (SEZ) development, retail and telecom. Reliance Industries limited is the highest ranked Indian company in Fortune's 'Global 500' 2019 listing among the largest corporates in the world securing a rank of 106. Reliance Industry ltd. branded itself as Oil and gas conglomerate but with success of Jio and fall in oil and gas revenue from 2020 it is in process of branding itself as a software company. Jamnagar refinery owned by reliance is the world's biggest oil refinery with a capacity of 1.24 million barrels per day. Its Krishna-Godavari basin was the first discovery by a private player in India

4. **GAIL India Limited:** GAIL (India) Ltd is a pioneer natural gas processing and distribution company in India. Now it is diversifying its business as an integrated oil and gas company by increasing its operations in petrochemicals and Oil exploration and production. It is also increasing its power generation business. It is the youngest PSU to get Maharana status in India. It was incorporated under the Ministry of Petroleum & Natural Gas (MoP&NG) in August 1984 as a Central Public Sector Undertaking (PSU). The company was started with the responsibility of construction, operation & maintenance of the Hazira - Vijaypur - Jagdishpur (HVJ) pipeline Project which was one of the largest cross-country natural gas pipeline projects in the globe and it laid the foundation for development of natural gas market in India.
5. **Hindustan Petroleum Corporation Limited:** HPCL is a Maharatna company established in 1974. It owns and operates two major refineries which are producing a huge variety of petroleum fuels & specialties, one in Mumbai with a capacity of 7.5 MMTPA and the other in Visakhapatnam, of 8.3 MMTPA capacity. It also owns and operates the largest Lubricants Refinery in the country producing International standard Lube Base Oils, with a capacity of 428 TMT. HPCL has the second largest share of product pipelines in India with a pipeline network of more than 3370 kms for transportation of petroleum products and a vast marketing network consisting of 14 Zonal offices in major cities and 128 Regional Offices facilitated by a Supply & Distribution infrastructure comprising Terminals, Pipeline networks, Aviation Service Stations, LPG Bottling Plants, Inland Relay Depots & Retail Outlets, Lube and LPG Distributorships.
6. **Oil India Limited:** Oil India Ltd. (OIL) is a Navratna PSU incorporated in the year 1959, it is a Mid Cap company operating in Oil and Gas Industry having its majority operations in the upstream sub sector though it is an fully integrated oil and gas company as it has operations in all part of the value chain. Its key revenue sources include crude oil which accounted for 79.76 % of total sales, natural gas which accounted for 12.36 % of total sales in 2019 apart from this its business operation also includes transportation of crude oil and natural gas, production of LPG, Refineries and generation of electricity. Its diversification into the alternate energy sources was a strategic decision under the Company's Strategic Plan to make it more sustainable when renewable energy will dominate. In a recent CRISIL-India Today survey, OIL India Limited was adjudged as one of the five best major PSUs and one of three best energy sector PSUs in the country.

4.2.2.3) Analysis of Macro factors affecting the industry using PESTEL Analysis:

PESTEL analysis is used as a tool to analyze the macro factors affecting a industry. The PESTLE factors of Indian Oil and Gas Industry are as follows:

1. **Political Factors:**

The Indian Oil and Gas Industry has moderate exposure to political influence as Oil and Gas sector has moderate political risk in the markets of not just India but in foreign too. Political factors relating to India as well as foreign countries both affect the industry. Indian Oil and Gas Industry can be influenced by the following political factors:

- Tax rate
- Pricing of Petroleum Products
- Allotment of land
- Political sentiment to import or to produce
- Pricing restrictions and regulations
- Political stability in the country
- Intellectual property protection mechanism
- Employee salary and benefits regulations
- Environmental safety and pollution regulations

2. **Economic Factors:**

Since most of crude oil and natural gas products are used for industrial purposes so this industry is highly dependent on the economy. So due to the current economic crisis which led to slowdown in economy of India and caused economy of globe to crash the demand of crude oil and natural gas products reduced significantly. Global economic trouble due to COVID-19 pandemic has made Oil and Gas Industry to suffer as lockdown as reduced both industrial as well as retain demand for not only India but for the whole world. So major economic Factors effecting oil and gas industry of India are:

- GDP (India as well as other countries)
- IIP
- Crude Oil price
- Natural Gas Price
- Exchange rates
- Per Capita Income.
- Employment Rate.
- FDI
- Fiscal Policy
- Monetary Policy

3. **Social Factors:**

Following are the social factors impacting Oil and Gas Industry:

- Change in lifestyle
- Switching to clean fuel
- Increasing expenditure on transportation
- Increased energy consumption

4. **Technological Factors:**

Technological improving may force Indian oil and gas industry to adopt new production, refining and distribution methods in order to reduce cost to compete in the market as oil and gas industry has low control on pricing and is filled with many big global players using advanced technologies to achieve economies of scale so cutting cost using technology is necessary. Following technological factors affect the Indian oil and gas industry:

- Technology for feasible extraction of oil from unconventional sources
- Oil exploration technologies
- Technological innovation decreasing cost of other energy sources
- Practical and feasible e-vehicles or vehicles running on other fuels.

5. **Environmental Factors:**

As consumers are becoming environment conscious, they may switch to other sources of energy which are cleaner and renewable. Crude oil face risk due to environmental factors which can affect its demand when alternative solution are available at feasible price and is practical. Though, Natural gas is a comparatively cleaner product but it still faces risk due to environmental factors. Some of key environmental factors affecting the Indian oil and gas industry are:

- Green House gas emissions
- Pollution
- Acquisition of land for building infrastructure related to oil and gas Industry.
- Oil spills

6. **Legal Factors:**

Following Legal factors affects the Indian oil and gas industry:

- Emission Norms
- Penalties and legal suits for Environmental damage
- Regulations for acquiring oil exploration blocks.
- Investment regulations.

4.2.2.4) Analysis of Industry Attractiveness and competition by Porter 5 forces:

The Porter five forces model is an outside-in business unit strategy tool that is used to make an analysis of the attractiveness (value) of an industry structure. Application of this model can be helpful to understand the competition faced by industry and to determine the industry attractiveness.

Threats of new entrants

- Threat Factor: Economies of scale
  Level of threat: Low
  Implication: Economies of scale is essential to bring down cost in order to generate profits by increased managerial and operational efficiency. Economies of scale can be achieved by high capital and capturing huge market share so that the scale of business becomes large. There is low threat of any new entrant to capture large market share in initial years and invest as much capital as required to operate in oil and gas industry and compete in the current market since the capital requirement is huge to achieve economies of scale.
- Threat Factor: Technology

Level of threat: Low
Implication: Oil and Gas companies try to minimise their cost by leveraging latest technologies, especially Oil and gas exploration and production companies and refinery companies .There are huge opportunities in exploration of new oil and gas fields but it requires highly advanced technologies and equipment's to screen the economically viable fields which can be a profitable source for setting up oil and gas rigs. Also, the refining costs are a major barrier for entry as most of big companies in the industry have developed efficient technologies to refine oil and gas at very low cost which is difficult for new players.

Conclusion: Oil and Gas industry has low threats from new entrants as it is a capital-intensive business dominated by large and established players possessing advanced cost cutting technologies and economies of scale.

Threat of Substitutes

- Factor: availability of substitute
  Level of threat: Moderate
  Implication: Though various substitutes of oil and gas industry products are available in market but still the economic viability, performance and reliability of substitutes is less. Various substitutes like solar energy, coal, Bio gas, ethanol, etc are available. Though presently these substitutes are not viable and reliable for majority of uses for which oil and gas is used but with government efforts and technological change some environmentally friendlier and cheaper substitutes can replace oil and gas products usage.

Conclusion: There are few Substitutes in the market and Oil and Gas industry has moderate threat.

Bargaining power of the customers:

- Factor: Pricing by competitors
  Level of threat: Low
  Implication: the products of Oil and Gas industry have very low price competition and the pricing is regulated by government for various products so it is not possible for customer to negotiate for price.
- Factor: Differentiation of products
  Level of threat: Low
  Implication: The product differentiation for the products of the industry is almost non-existent so buyers cannot negotiate prices.

Conclusion: As the products of different companies in oil and gas industry is not differentiated and pricing is regulated by the government so the level of threat, due to bargaining power of buyers is low.

Bargaining power of the suppliers

- Factors: Cost of switching raw material supplier.
  Level of threat: Moderate
  Implication: The crude oil and natural gas composition extracted from different fields and by different process have different composition this is to dealt by refineries by changing process of refining in order to get the desired finished output with consistent quality this results in huge costs, operation and technical difficulties in manging the process the suppliers especially global oil producers often try to influence price of crude oil by forming supplier groups like OPEC to increase price of crude oil.
  Conclusion: There will be moderate threat as switching cost for raw material are high.

Competitive Rivalry

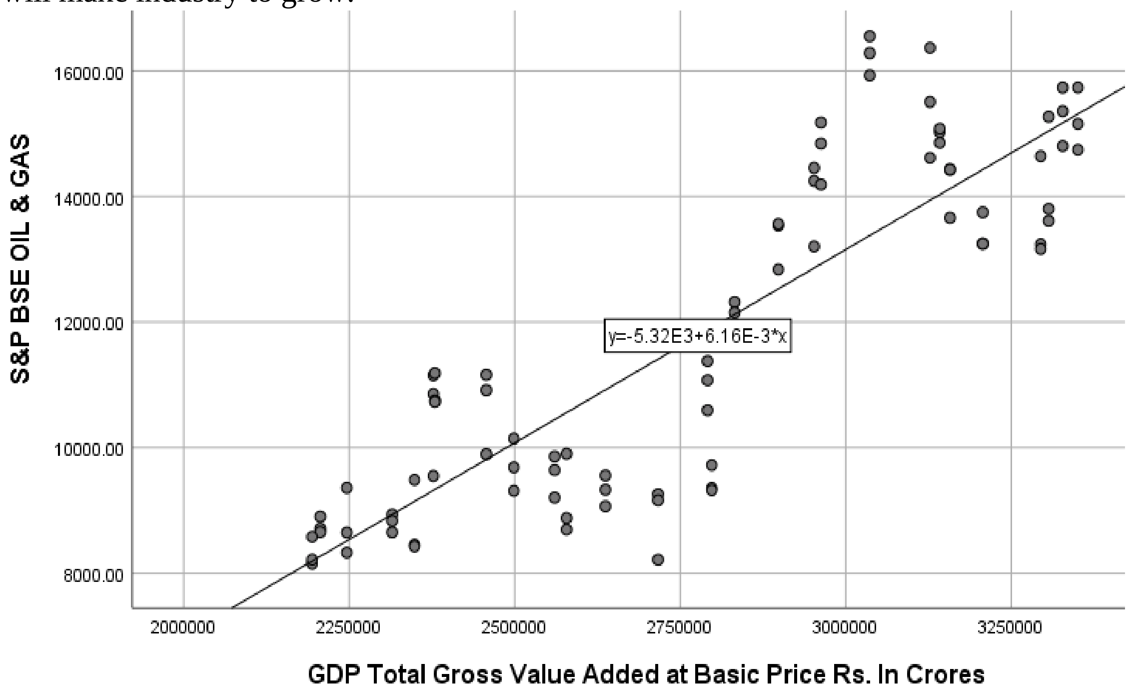
- Factors: Market Share
  Level of threat: moderate
  Implication: Few of players have captured huge market share in Oil and gas industry and this allows them to overpower small players by leveraging economies of scale by decreasing cost but they still cannot have enough influence in terms of pricing power as it is regulated by government so the threat is not high.
- Factors: Growth
  Level of threat: Low
  Implication: A positive Industry growth means that the competitors are less likely to involve in type of competitive actions Oil and gas industry has been growing at a good rate so the competitive rivals do not try to indulge in decreasing others market share.

Conclusion: The industry has low competitive rivalry as the Growth of industry is good and the market share is dominated by few large companies but they do not have pricing power.

4.2.2.5) Major Economic factors affecting Indian Oil and Gas Industry:

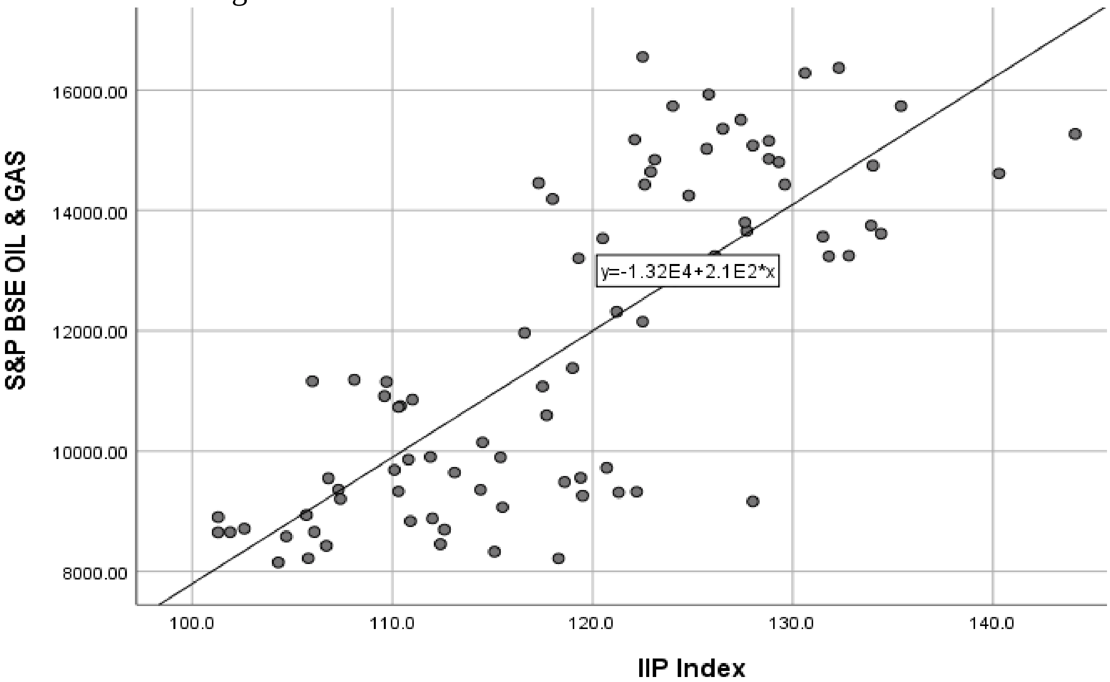
The Major Economic factors affecting Indian Oil and Gas Industry are as follows:

- **Gross Domestic Product (GDP):** Almost every industry is directly or indirectly dependent on crude oil and natural gas prices as it acts as a fuel for transport, energy generation and raw materials for various products, so as the production and consumption increase the demand for products of Crude oil and Natural gas will increase and vice versa. So, increase in GDP can increase demand for Oil and Gas industry products this will make industry to grow.



- **Price of Crude Oil and Natural Gas:** Upstream Oil and gas industry is positively correlated to increase in crude oil and natural gas price as it increases their profit margin due to increase in selling price. However other subsectors of oil and gas industry like midstream and downstream remain unimpacted from this. Overall due to growth of upstream oil and gas sector the industry can grow if price of crude oil and natural gas increases.

- **Exchange rate:** The Exchange rate of Indian Rupee have a significant impact on Oil and gas Industry. As depreciation it increases the import price of Oil and Gas due to this domestic upstream oil and gas companies can get higher selling price for their products in India and vice versa. Also, domestic refineries benefit by depreciation of Rupee as they can get more rupee for exporting their finished products.
- **Index of Industrial Production (IIP):** As IIP is an index that is used to track production volume in different sectors of the economy and it acts as a key economic indicator for manufacturing sector as most of demand of oil and natural gas comes from Manufacturing sector also most of demand of refinery and finished products also comes from manufacturing sector.



4.2.2.6) Growth prospects of Indian Oil and Gas Industry:

The growth prospects of Indian Oil and Gas Industry are as follows:

- The Oil and Gas industry is estimated to grow as the demand forecast of Crude Oil and Natural gas is showing a positive increase from and current reduction in demand of petroleum products, fuel and natural gas will return to normal after India gets rid COVID-19 pandemic.
- The government is planning to invest US$ 2.86 billion in the upstream oil and gas production to double the natural gas production to 60bcm and drill more than 120 exploration wells by 2022.
- 78% of country Sedimentary area is yet to be explored which can be used to increase the production by the industry.
- 100% Foreign Direct Investment (FDI) allowed in Upstream and Private sector refining projects. Also, for public sector refining companies the FDI limit is raised to 49% without any dilution or disinvestment of domestic equity. This can bring more investments in this sector easily.

- The demand of Natural gas may increase in future by a great extent as world is getting environmentally conscious and stricter emission norms are being implemented as it is a cleaner fuel as compared to other non-renewable fuels. The increase in demand of natural gas and setup of city gas distribution pipe lines and CNG filling centers can boost the revenues for oil and gas companies.
- The production cut by Organization of Petroleum Exporting Countries (OPEC) and many of non-OPEC countries have also agreed to cut crude oil production in order to increase crude oil prices and make it profitable for upstream companies to operate. This move along with recovery and future in demand and various government initiative will drive the growth of the industry.
- As most of conventional reserves are getting exploited especially that of middle east countries the cost of production for these countries may go up due to decrease in their Oil and Gas reserves this can make it more profitable to extract crude oil and natural gas from unconventional sources which are not as financially viable today because of higher cost of extraction.

4.3) COMPANY ANALYSIS:

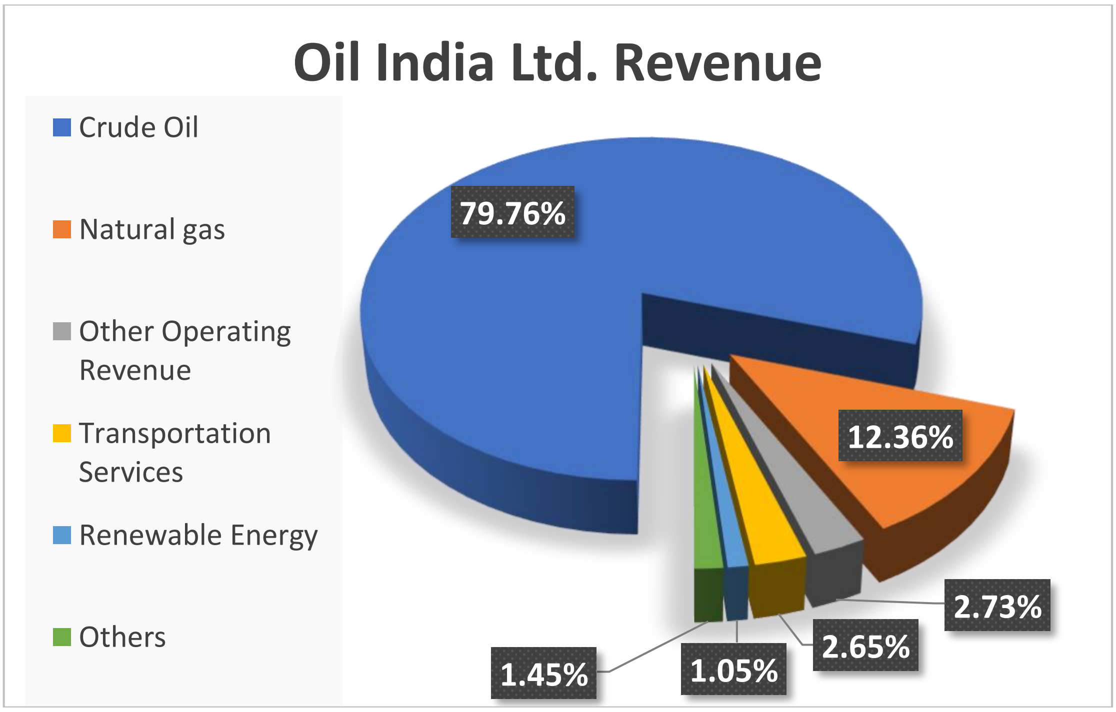
4.3.1) INTRODUCTION TO OIL INDIA LIMITED:

Oil India Ltd. (OIL) is a Navratna PSU incorporated in the year 1959, it is a Mid Cap company operating in Oil and Gas Industry having its majority operations in the upstream sub sector though it is a fully integrated oil and gas company as it has operations in all part of the value chain. Its key revenue sources include crude oil which accounted for 79.76 % of total sales, natural gas which accounted for 12.36 % of total sales in 2019 apart from this its business operation also includes transportation of crude oil and natural gas, production of LPG, Refineries and generation of electricity. Its diversification into the alternate energy sources was a strategic decision under the Company's Strategic Plan to make it more sustainable when renewable energy will dominate. In a recent CRISIL-India Today survey, OIL India Limited was adjudged as one of the five best major PSUs and one of three best energy sector PSUs in the country.

Know Your Company chart:

	Oil India Limited
Incorporated in	**1959**
ISIN	**INE274J01014**
Ticker Symbol	**OIL**
52 Week High MPS	**185.65**
52 Week Low MPS	**66**
Market price per share (02/06/2020)	**87.25**
SECTOR	**Oil Exploration and Production**
EPS (March 2019)	**28.60**
Debt/Equity	**0.37**
Book value/share (March 2019)	**267.19**
Price/Book (02/06/2020)	**0.32**
No of shares outstanding (in Crore)	**108.44**
Market Capitalization (02/06/2020) Crore Rs.	**9461.44**

Share of revenue from major products of Oil India Limited:



Subsidiaries/Joint Ventures/Associates of Oil India Limited:

1) **Oil India Sweden AB:** Oil India Sweden AB is Fully owned subsidiary of Oil India incorporated on 20th November, 2009 as a private limited Company (AB). The operations of the Company are to own stakes in other companies, perform administrative tasks and related activities, to incorporate, to participate in and to finance the companies or businesses etc.
2) **Oil India Cyprus Ltd.:** Oil India Cyprus Limited was incorporated as a private limited Company in Cyprus on 21St October, 2011 under the Cyprus Companies Law, Oil India holds 76% shares of the Company. The balance 24% of shares is held by Oil India Sweden AB. Its objective is to channelize investments into overseas E&P projects.
3) **Oil India (USA) Inc.:** Oil India (USA) Incorporation is a fully owned subsidiary of Oil India which is incorporated on 26th September, 2012 having its office located at Houston, USA. It holds 20% shares in Niobrara Shale Oil and Gas Asset in USA.
4) **Oil India International Limited (OIIL):** OIIL is a fully owned subsidiary of Oil India incorporated on 20th September, 2013. Since none of its objects associated with formation could be achieved, it was decided to wind up the Company. In this regard, approval of Niti Ayog/MoP&G has been obtained for its winding up on 20th May 2019 and winding up proceedings would be initiated shortly.
5) **Oil India International B.V (OIIBV):** OIIBV is a fully owned subsidiary of Oil India which was incorporated in Netherlands on 2nd May, 2014. The objective of the OIIBV is to channelize investments into foreign E&P projects.
6) **Oil India International Pte. Limited (OIIPL):** OIIPL is a fully owned subsidiary of Oil India, it was incorporated in Singapore on 6th May, 2016 as a Private Limited

Company. The operations of the Company are to act as investment holding Company and crude petroleum and natural gas production.

7) **Numaligarh Refinery Ltd (NRL):** NRL was incorporated in 1993. It is a Category -I Mini Ratna PSU having a 3 MMTPA capacity Refinery at Numaligarh, in Golaghat district of Assam. The Company is a subsidiary of Bharat Petroleum Corporation Limited. Oil India is holding 26% of the paid-up equity in NRL.
8) **Brahmaputra Cracker and Polymer Ltd (BCPL):** BCPL was incorporated on 8th January, 2007 with the motive of creating a gas cracker project complex at Lepetkata, Dibrugarh, Assam, inter alia, to process natural gas, naphtha or any petroleum product, distribute and market petrochemical products in India and foreign countries. The registered office of BCPL is located at Guwahati, Assam. Oil India holds 10% equity shares in BCPL.
9) **Suntera Nigeria 205 Ltd.:** Oil India acquired 25% equity stake in Suntera Nigeria 205 Ltd., Nigeria. Suntera Nigeria 205 Ltd. was incorporated with the main object to engage in the petroleum business including the prospecting exploration production and development of crude oil and natural gas. Its registered office is located at Lagos.
10) **DNP Ltd.:** DNP Ltd. was incorporated on 15th June, 2007. The main object of DNP Ltd. is acquisition, transportation and distribution of natural gas in all forms. The registered office of DNP Ltd. is situated at Guwahati, Assam. OIL holds 23% equity share capital of DNP Ltd.
11) **IndOil Netherlands B.V:** Oil India Sweden AB owns 50% of the shares in Indoil Netherlands B.V which in turn holds 7% equity shares in Petrocarabobo SA (joint venture Company), for Project Carabobo-1, Venezuela. The principal activity of the Company is making investment in companies engaged in exploration, production, marketing, trade, transport and extraction of oil, gas, hydrocarbons and minerals.
12) **WorldAce Investments Ltd.:** Oil India (through OIIBV) holds 50% share in World Ace Investments Ltd, a Company incorporated in Cyprus. World Ace Investments Ltd. holds 100% share in LLC Stimul-T, Russia which is the license holder for License 61, Tomsk Region, Russia.
13) **Vankor India Pte. Ltd.:** Oil India (through Oil India International Pte. Ltd) holds 33.5% stake in Vankor India Pte. Ltd. which was incorporated in Singapore on 20th May, 2016. The operations of the Company are to act as investment holding company and crude oil, petroleum and natural gas production. Vankor India Pte Ltd further holds 23.9% stake in JSC Vankorneft, Russia which has two producing licenses in Eastern Siberia, Russia.
14) **Taas India Pte. Ltd.:** Oil India (through Oil India International Pte. Ltd.) holds 33.5% share in Taas India Pte. Ltd. which was incorporated in Singapore on 23rd May, 2016. The operations of the Company are to act as investment holding Company and Crude Petroleum and Natural Gas Production. Taas India Pte. Ltd. holds 29.9% stake in LLC “TYNGD”, Russia which holds two producing licenses in Eastern Siberia, Russia.
15) **Assam Petro-Chemicals Limited:** Oil India signed Memorandum of Understanding (MoU) with APL and Government of Assam for 49% stake in 500 TPD Methanol & 200 TPD Formaldehyde projects of APL. The total estimated project cost is Rs. 1,337 crores.

16) **Indradhanush Gas Grid Limited:** To improve gas supply connectivity to all the State capitals of eight North Eastern States, namely, Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim, a Joint Venture Company named "Indradhanush Gas Grid Limited" (IGGL) has been incorporated on 10th August, 2018 by five Oil PSUs which Oil India, ONGC, IOCL, GAIL & NRL for construction of North-East Gas Grid Pipeline with each PSU holding 20% of stake in the Joint Venture Company. This Gas Grid Project will connect all North-East States to the National Gas Grid through Barauni-Guwahati Gas Pipeline being established by GAIL. The business of the Joint Venture Company shall be to develop, build, operate and maintain the Natural Gas Pipeline Grid connecting Guwahati to the major North-Eastern cities and major load centers, City Gas Distribution networks etc. including integrating it with gas producing fields, wherever feasible, in North East India.
17) **HPOIL Gas Private Ltd.:** HPOIL Gas Private Limited was incorporated as a JV Company on 30th Nov 2018 with 50:50 equity participation from Oil India & HPCL to develop City Gas Distribution network in Ambala-Kurukshetra and Kolhapur Districts. Total Capex of the Project for 5 years is estimated as Rs 641 crore for both the Geographical areas. The Company has its registered office at Mumbai and Project office at Ambala and Kolhapur. Project implementation work is already in progress. The commissioning of one CNG station at Ambala-Kurukshetra and Kolhapur is in final stage.

Oil India Limited SWOT Analysis:

Oil India Limited Strengths

Below are the Strengths in the SWOT Analysis of Oil India Limited:

1) **Strong R&D:** Its heavy investment and strong focus on R&D has resulted in it developing better exploration methods, like increasing the efficiency of MEOR (Microbial Enhanced Oil Recovery) processes, reducing flow problems etc., which has resulted in improved production from its oil wells and Oil sludge management which reduced oil wastage and pollution.
2) **Robust production capabilities**: Its production capability helps it to enhance its efficiency continuously, reduce cost and to improve processes, thereby helping it increase the reliability of order fulfillment and client satisfaction.
3) **Strong Financial performance and low debt:** Good financial performance and low debt provides financial stability to the company, which can be leveraged to seek more growth opportunity in the future.
4) **Competitive Edge:** Oil India strong acreage position coupled with its integrated business operations gives it a competitive edge over others in the market
5) **Good reputation:** Its extremely good market reputation due to recognition from industry on various fronts like CSR and corporate governance.
6) **Good Profit margin:** Its margin ratios are better than many of its peers in the subsector this shows good profitability on sales.

Oil India Limited Weaknesses

Here are the weaknesses in the Oil India Limited SWOT Analysis:

1) **Low Geographical Diversification:** Although it is present in a few foreign nations, the bulk of its operations are in India, which is a competitive disadvantage as its

exposure to local risks is higher than that of its competitors, which carry out a wider scale of operations.

2) **Low efficiency in use of Assets:** Oil India turnover ratios especially asset turnover is very low as compared to other companies in same subsector which shows it doesn't make optimum utilization of assets.
3) **Rising safety concerns:** Recent Oil India's well blowout at Baghjan Oilfield in Tinsukia district of Assam has caused irreparable damage to biodiversity of the eco-sensitive zone and has attracted many lawsuits against the company. This raised various concerns over safety and disaster management system of Oil India.

Oil India Limited Opportunities

Following are the Opportunities in Oil India Limited SWOT Analysis:

1) **Growing Demand of Crude Oil and Natural Gas:** Energy demand in global as well as the domestic Indian market is set to accelerate, due to growing oil, fuel demands and OIL India is well positioned to capitalize on it. The demand for natural gas is increasing at a fast rate as natural gas is a cleaner fuel as compared to LPG and fuels derived from crude oil.
2) **Cost of extraction of oil and gas from Unconventional sources becoming more financially viable:** Progress in technology has made it easier and cheaper to extract crude oil and natural gas from unconventional sources like Shale, ice hydrates, and coal bed methane. Also, over exploitation of reserves in middle eastern countries which have excess of conventional reserves is leading to increase in extraction cost from many conventional reserves this has given a competitive advantage to Oil India.
3) **Lower investment regulations**: The Navratna status conferred by government, which relieves it from taking the government's permission for investments and with its record of increasing revenue, it can soon get a Maharatna status which will permit it to make investments of INR 5 Billion without the permission of government. Also 100% Foreign Direct Investment (FDI) in Upstream and Private sector refining projects. Also, for public sector refining companies the FDI limit is raised to 49% without any dilution or disinvestment of domestic equity provides I opportunity to easily get more funds.

Oil India Limited Threats

The threats in the SWOT Analysis of Oil India Limited are as mentioned:

1) **Subsidy burden:** It faces subsidy burden due to GOI policies, can badly impact its cash flows due to delayed cash flows.
2) **A highly competitive market**, with numerous private players now in the fray, which have larger resources and asset bases, can erode its market share.
3) **Political and economic uncertainty:** The global economic scenario and political and economic uncertainty can result in sudden rapid fluctuations in demand and price of crude oil and natural gas therefore harming the company.
4) **Lawsuits and fines for environmental issues:** the recent oil well blowout in Assam and other environmental issues like oil spills can attract heavy penalties for the company.
5) **Rapid adoption of renewable energy:** Rapid adoption of renewable energy fueled by technological progress may cause demand of crude oil and natural gas to decrease in future.

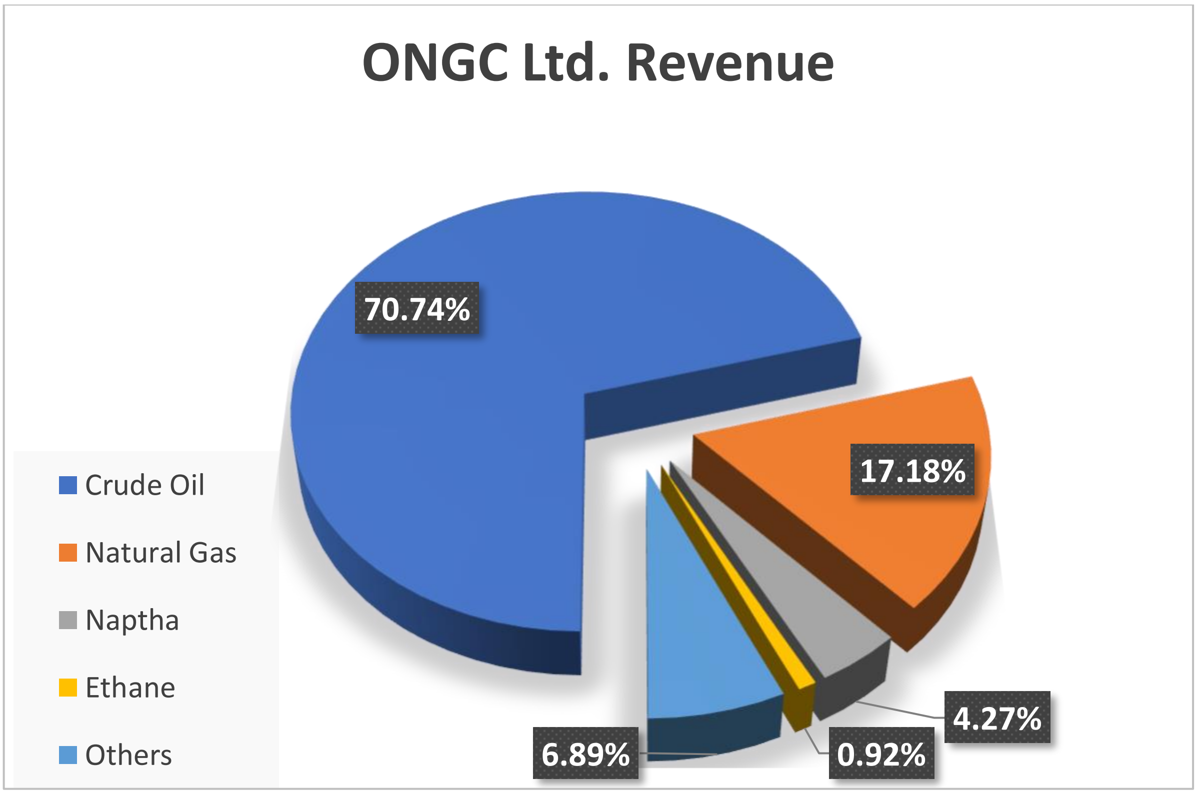
4.3.2) INTRODUCTION TO OIL AND NATURAL GAS CORPORATION LIMITED (ONGC):

Oil and Natural Gas Corporation Limited (ONGC) was incorporated in the year 1994 when the government was liberalizing the economy by making disinvestment in various sectors, this led to conversion of Oil and Natural gas Commission which belonged to the government into a public limited company. In 2010, ONGC got Maharatna status in 2010. It is ranked 160th in Fortune's 'Global 500' 2019 listing among the largest corporates in the world .It is a Large Cap company operating in Oil and gas sector having its majority operations in the upstream sub sector though it is an integrated Oil and gas company as it has operations in all part of value chain through its various joint ventures and subsidiaries. Its major revenue sources are crude oil accounting for 70.74% of its total sales, natural gas accounting for 17.18% of its total sales. It has the largest production share in Indian Upstream sector accounting for 69% of Indian crude oil and 70% of Indian natural gas production.

Know your company chart:

	ONGC Limited
Incorporated in	1993
ISIN	INE213A01029
Ticker Symbol	ONGC
52 Week High MPS	173.5
52 Week Low MPS	51.8
Market price per share (02/06/2020)	84.3
SECTOR	Oil Exploration and Production
EPS (March 2019)	23.81
Debt/Equity	0.47
Book value/share (March 2019)	187.79
Price/Book (02/06/2020)	0.44
No of shares outstanding (in Crore)	1258.03
Market Capitalization (02/06/2020) Crore Rs.	106051.75

Share of revenue from major products of ONGC Limited:



Subsidiaries/Joint Ventures/Associates of ONGC Limited:

1) **ONGC Videsh Limited (OVL):** ONGC Videsh Limited is the fully-owned subsidiary and overseas operations arm of Oil and Natural Gas Corporation Limited (ONGC), the flagship national oil company (NOC) of India. It is a Miniratna status Schedule "A" Central Public Sector Enterprise (CPSE) of the Government of India under the administrative control of the Ministry of Petroleum & Natural Gas. The primary business of ONGC Videsh is to carry out exploration and production activities outside India. ONGC Videsh owns Participating Interests in 41 oil and gas assets in 20 countries as of 2018-19. In terms of reserves and production, ONGC Videsh is the second largest petroleum company of India, next only to its parent ONGC.
2) **Mangalore Refinery and Petrochemicals Ltd (MRPL):** It is a subsidiary of ONGC and a 'Mini Ratna 1' status company, it is situated in the lush green glades of Dakshina Kannada District in Mangalore, strategically located on the West Coast of South India, close to Middle East & Far East crude and product markets. It has a 15MMTPA Refinery on west coast. Initially started as a joint venture company promoted by Hindustan Petroleum Corporation Ltd. (HPCL) and the Aditya Birla Group (ABG), MRPL got its lifeline once the ABG shareholding was bought over by Oil and Natural Gas

Corporation Ltd. (ONGC) in 2003. MRPL holds 51% in the share capital of OMPL and ONGC holds 48.99% and thus OMPL is a subsidiary of MRPL.

3) **<u>Hindustan Petroleum Corporation Limited (HPCL):</u>** HPCL is a Central Public Sector Enterprise (CPSE) with Navratna Status has its business operations spanning across the hydrocarbon value chain and has a strong market share in Refining and Marketing of petroleum products in the country. ONGC Board acquired 51.11% shareholding (778,845,375 equity shares) held by the President of India on January 2018 thus making HPCL a subsidiary of ONGC. It markets around 35.2 MMT of petroleum products accounting for a market share of about 21% and it is the number one lubricant marketer in the country. HPCL has its refineries located in Mumbai and Visakhapatnam and a joint venture refinery at Bhatinda. It owns the biggest Lubricants refinery in India and the second largest cross-country network of product pipeline of about 3500 km. HPCL has huge marketing network spread across the length and breadth of the country with terminals, depots, LPG bottling plants, Lubricant blending plants, aviation fuel stations and around 15000 retail outlets. It owns and operates LPG cavern at Visakhapatnam in joint venture with Total and have 16.96% equity stake in Mangalore Refining and Petrochemicals Ltd. HPCL also have other joint ventures in the areas of City Gas distribution, cross country pipelines, production and marketing of bitumen emulsions and bio fuels. HPCL is also building a state-of-the-art greenfield Refinery cum Petrochemical Complex of 9MMTPA capacity in Rajasthan and is expanding its existing refinery.
4) **Petronet MHB Ltd (PMHBL):** Petronet MHB Ltd. (PMHBL) is a joint venture of ONGC and HPCL with equity shareholding of 32.72% each and balance 34.56% of equity is being held by banks. PMHBL thus became the subsidiary of ONGC, post the acquisition of HPCL. PMHBL owns and runs a multiproduct petroleum pipeline to transport MRPL Refinery's products to different parts of Karnataka.
5) **ONGC Tripura Power Company Limited (OTPC):** OTPC is a JV company of ONGC, IL&FS Energy Development Company Ltd. and Government of Tripura, it is setting up a 726.6 MW capacity combined cycle gas turbine based Mega Power Project in the state of Tripura with the objective of generating revenue from gas which had been lying idle for want of adequate market in the region. The first unit of 363.3 MW capacity is set to commence commercial operations in January 2013. The project, combined with ONGC's upstream gas supply development project and associated 400 kV 650 km long Double Circuit transmission line from the project site in Palatana to Bongaigaon being implemented by a JV company of OTPC to evacuate the power generated from the project forms the single largest investment in the entire North East region.
6) **Mangalore Special Economic Zone Limited (MSEZL):** MSEZL is a Special Economic Zone which was incorporated on 24th February, 2006 promoted by ONGC with a stake of

26% , Infrastructure Leasing & Finance Corporation (IL&FS) having 50% stake, Karnataka Chamber of Commerce and Industries (KCCI) with 0.04% stake and Karnataka Industrial Area Development Board (KIADB) with 23% stake and OMPL with 0.96% stake. MSEZ is envisioned to be established in two phases. MSEZ Phase I, notified as a sector specific Petrochemical SEZ, is being established over an area of 1638 acres. Major Companies who are setting up their units in MSEZ Phase I are ONGC Mangalore Petrochemicals Ltd (OMPL), ISPRL, JBF Petrochemicals Ltd and Cardolite Specialties Chemicals Ltd.

7) **Dahej SEZ Limited (DSL):** DSl is a 50:50 JV between ONGC and Gujarat Industrial Development Corporation (GIDC), was incorporated on 24th Sept 2004. DSL is a multi-product Special Economic Zone being set up over an area of 1732 hectares and ONGC promoted OPaL is one of the major renters of DSL. ONGC's C2-C3 plant has also been set up in SEZ which will be providing the raw materials for OPaL. Other major industries situated in it are DIC Fine Chemicals, Pidilite industries, Torrent Pharmaceuticals, Rallis India Ltd, Godrej & Boyce etc. Dahej SEZ is strategically placed in the Western Coast with outstanding connectivity to the National Highways, State Highways, Broad Gauge Railways, State-of-the-art Ports in the neighbourhood and along the proposed Delhi-Mumbai Industrial Corridor (DMIC).

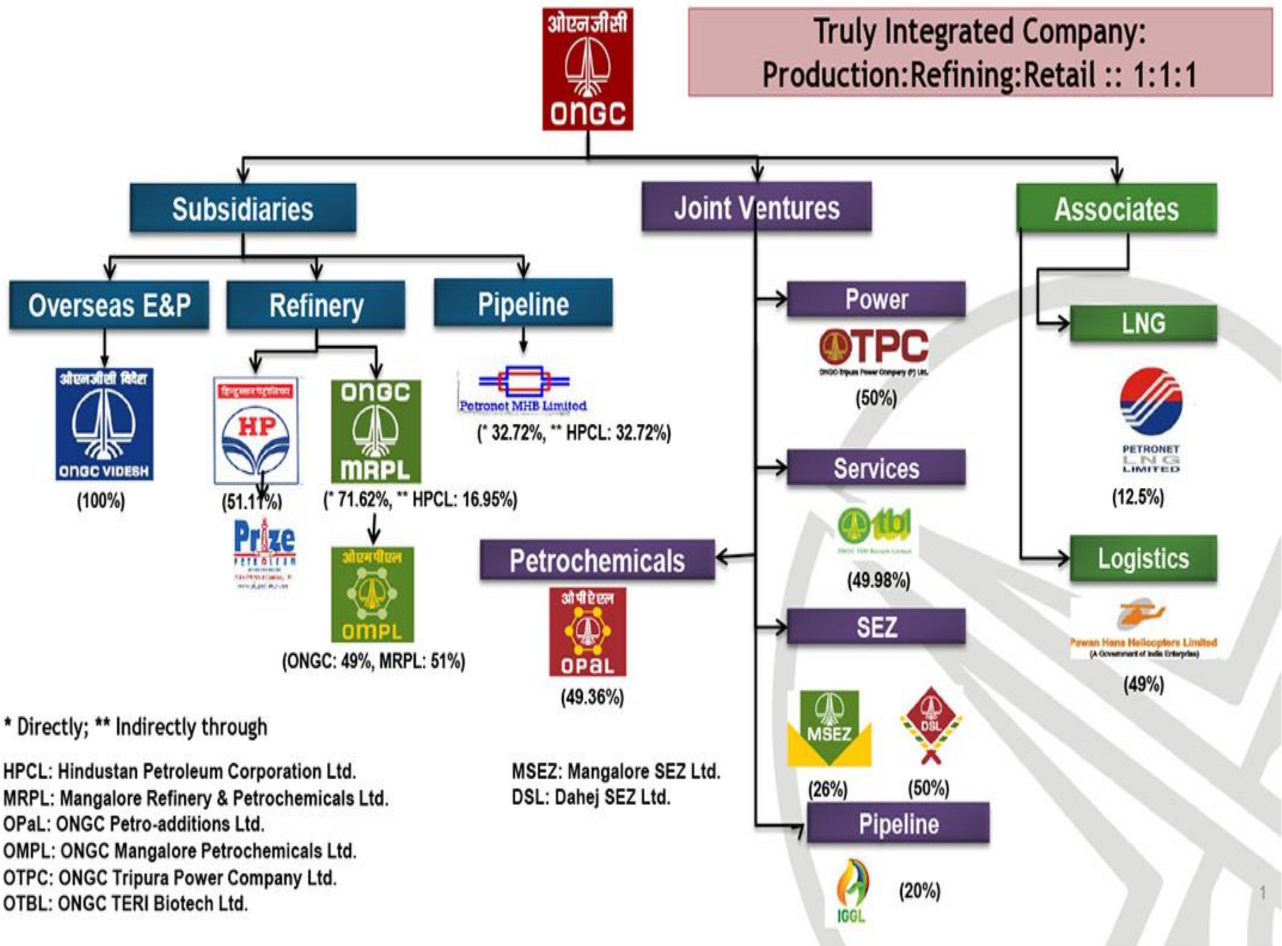
8) **ONGC TERI Biotech Limited(OTBL**): OTBL was co-promoted by Oil and Natural Gas Corporation Limited (ONGC) having 49.98% share and The Energy and Resources Institute (TERI) having 48.02%, share as a joint venture company in the year 2007 with an aim to generate revenue by the technologies developed, to find sustainable solutions and provide 'green' technology services to the oil and gas industries.

ONGC gives necessary support and also helps OTBL in marketing of specialized services of OTBL in India and foreign, TERI offers technology–specific microbial techniques and training to OTBL staff and also helps with technology up-gradation and introducing new technologies for field operations, from time to time. ONGC and TERI have transferred rights to use all technology / knowledge developed or patented in house to OTBL.

9) **ONGC Petro additions Limited (OPaL):** OPaL is a private joint venture company incorporated in the year 2006, by Oil and Natural Gas Corporation (ONGC) and Gujarat State Petroleum Corporation (GSPC), with 26 per cent and 5 per cent shares respectively. OPaL is a mega petrochemical project established in Dahej Special Economic Zone for employing in-house production of C2-C3 and Naphtha from the closer units of the Company. OPaL aims to provide world-class products and services across the globe by efficient use of technology, while also being delicate towards the environment at all time.

10) Pawan Hans Limited (PHL): PHL is an associate of ONGC which is holding 49% share was formed with the Government of India holding 51%, acting through Ministry of Civil Aviation in order tp cater to the logistic requirements of oil fields located at remote/far-flung areas. PHL is a "Mini Ratna-I" Status PSU having 43 helicopters including medi-chopper. The Government of India is taking action for finding a strategic acquirer for its entire holding and hence, ONGC has also decided to exit PHL along with the Government.

11) Petronet LNG Limited (PLL): PLL is a joint venture of ONGC, which was incorporated on 02/04/1998 with a 12.50% equity holding along with identical stakes held by other Oil PSU co-promoters which are GAIL, IOCL and BPCL, it is a listed Company. PLL is the one of the fastest growing world-class companies in the Indian energy sector and it has established the country's first receiving and regasification terminal for LNG at Dahej, Gujarat, and another terminal at Kochi, Kerala. While the Dahej terminal has a nominal capacity of 15 MMTPA, the Kochi terminal has a capacity of 5 MMTPA.



ONGC Limited SWOT Analysis:

ONGC Strengths
Below are the Strengths in the SWOT Analysis of ONGC:

1) **Huge market share**: ONGC Ltd. is India's largest crude oil and natural gas producer.
2) **Sustainable pollution control technologies:** Its Dynamic Gas Blending (DGB) technology to reduce toxic gas emission from oil rigs has massively reduced air pollution during drilling by rigs.
3) **Strong brand and reputation:** ONGC company has good reputation and strong brand name as it is a Maharatna PSU and has various national and international awards to its names. It is ranked 160th in Fortune's 'Global 500' 2019 listing among the largest corporates in the world.
4) **Diversified and integrated:** Its operations are diversified geographically by its presence in various countries and also its business is diversified across the hydrocarbon value chain by its various subsidiaries operating in midstream as well as downstream sector.
5) **Technology to harvest unconventional reserves:** Its technological capability to extract crude oil and natural gas from difficult to extract sources like gas hydrates and ultra-deep-water extraction makes it future ready when this becomes financially viable.

ONGC Weaknesses
Here are the weaknesses in the ONGC SWOT Analysis:

1) **Low financial liquidity:** Its Liquidity position financially is very weak as it has very low cash which puts it in financial danger due to high liquidity risk if the price of crude oil remains low.
2) **Slow bureaucratic management:** Being a government organization, slow bureaucratic decisions can reduce efficiency.
3) **High debt:** Its debt is high which makes it vulnerable to leverage risk if the losses due to low crude oil and natural gas prices continues for long.

ONGC Opportunities
Following are the Opportunities in ONGC SWOT Analysis:

1) **Growing Demand of Crude Oil and Natural Gas:** Energy demand in global as well as the domestic Indian market is set to accelerate, due to growing oil, fuel demands and OIL India is well positioned to capitalize on it. The demand for natural gas is increasing at a fast rate as natural gas is a cleaner fuel as compared to LPG and fuels derived from crude oil.
2) **Cost of extraction of oil and gas from Unconventional sources becoming more financially viable:** Progress in technology has made it easier and cheaper to extract crude oil and natural gas from unconventional sources like Shale, ice hydrates, and coal bed methane. Also, over exploitation of reserves in middle eastern countries which have excess of conventional reserves is leading to increase in extraction cost from many conventional reserves this has given a competitive advantage to Oil India.
3) **Lower investment regulations**: The Navratna status conferred by government, which relieves it from taking the government's permission for investments and with its record of increasing revenue, it can soon get a Maharatna status which will permit

it to make investments of INR 5 Billion without the permission of government. Also 100% Foreign Direct Investment (FDI) in Upstream and Private sector refining projects. Also, for public sector refining companies the FDI limit is raised to 49% without any dilution or disinvestment of domestic equity provides I opportunity to easily get more funds.

ONGC Threats

The threats in the SWOT Analysis of ONGC are as mentioned:

1) **Subsidy burden:** It faces subsidy burden due to GOI policies, can badly impact its cash flows due to delayed cash flows.
2) **A highly competitive market**, with numerous private players now in the fray, which have larger resources and asset bases, can erode its market share.
3) **Political and economic uncertainty:** The global economic scenario and political and economic uncertainty can result in sudden rapid fluctuations in demand and price of crude oil and natural gas therefore harming the company.
4) **Lawsuits and fines for environmental issues:** Oil well blowouts, leakage and other environmental issues like oil spills can attract heavy penalties for the company.
5) **Rapid adoption of renewable energy:** Rapid adoption of renewable energy fueled by technological progress may cause demand of crude oil and natural gas to decrease in future.

4.3.3) Company analysis and scoring on different parameters:

The company analysis was done by scoring every parameter and its sub-parameter on scale of 0 to 5.

The analysis of parameters is as follows:

1) **Valuation:** Valuation of both companies will be done to check whether the company's valuation according to market price are fairly valued in the market and attractive than its peers in the same industry or sub-sector and also it gives target price at which investor can sell his shares to book profits. The valuations were done by relatively valuing six companies in Oil Exploration and production sector using P/E, P/BV and EV/EBITDA.

Fair Price	ONGC Ltd	Oil India Ltd.	GAIL India Ltd.	Hindustan Oil Exploration Company Ltd.	Deep Industries Ltd.	Indian Oil Corporation Ltd.
Valuation based on P/E	88.45	106.25	107.85	44.62	79.05	68.39
Valuation based on PRICE/BV	114.46	162.86	124.47	25.23	99.93	75.92
Valuation based on EV/EBITDA	79.72	121.27	123.98	56.20	154.48	-41.58
Average relative fair price	**94.21**	**130.13**	**118.77**	**42.01**	**111.16**	**34.24**
Market price per share(02/06/2020)	84.3	87.25	96.55	53.85	68.7	85.8
Difference(Market Price - Fair price as calculated by relative value)	-9.9140737	-42.8765	-22.2175736	11.83583681	-42.4559577	51.55552
Percent Average fair price is more than market price	11.76%	49.14%	23.01%	-21.98%	61.80%	-60.09%
Result	Undervalued	Undervalue	Undervalued	Overvalued	Undervalued	Overvalued

ONGC:

- Price to Earnings: Valuations of ONGC as on 02/06/2020 came to be Undervalued by relative Price/Earnings by 4.93%.
- Price to Book value: Valuations of ONGC as on 02/06/2020 came to be Undervalued by relative Price/Book Value by 35.78%.
- Enterprise value by EBITDA: Valuations of ONGC as on 02/06/2020 came to be Overvalued by relative E.V./EBITDA valuation by 5.43%.
- Overall Valuation: The valuations were averaged to arrive at fair price so ONGC was found to be overall Undervalued by 11.76% in the market.

Oil India:

- Price to Earnings: Valuations of Oil India as on 02/06/2020 came to be Undervalued by relative Price/Earnings by 21.77%
- Price to Book value: Valuations of Oil India as on 02/06/2020 came to be very much Undervalued by relative Price/Book Value by 86.66%.
- Enterprise value by EBITDA: Valuations of Oil India as on 02/06/2020 came to be Undervalued by relative E.V./EBITDA valuation by 38.99%
- Overall Valuation: The valuations were averaged to arrive at fair price so Oil India was found to be overall highly Undervalued by 49.14% in the market.

Overall:

- Oil India's valuation came much better than ONGC. Also, Oil India is much more undervalued in the market than ONGC by all three methods whereas ONGC even came overvalued by EV/EBITDA valuation.
- Oil India scored much higher than ONGC as the scores are given according to rank of 6 companies on the percentage undervalued by respective methods. So, Oil India scored top rank on P/E and P/B.V. method and 2nd top by EV/

EBITDA valuation. Therefore, overall score which is average of scores on every method is higher. Suggesting Fair price is much higher by all 3 methods.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Valuation on its various sub parameters are as follows:

	ONGC Ltd	Oil India Ltd.	GAIL India Ltd.	Hindustan Oil Exploration Company Ltd.	Deep Industries Ltd.	Indian Oil Corporation Ltd.
Valuation based on P/E	2	5	3	1	4	0
Valuation based on PRICE/BV	3	5	2	0	4	1
Valuation based on EV/EBITDA	1	4	3	2	5	0
Overall Valuation	**2.00**	**4.67**	**2.67**	**1.00**	**4.33**	**0.33**

2) **Technical analysis:** Technical analysis is based on belief that investors are influenced by past prices and past prices, volume, volatility, momentum and trend influence future price of the stocks. The chart used for Technical analysis was 1-day charts as and maximum of 200 period is analyzed also emphasis is laid on short term analysis for various parameters as technical analysis is relevant for short time frame only till any strong fundamental information doesn't affects it.

The Technical analysis is done by dividing the technical analysis sub-parameters into 2 parts which is Oscillators and Moving Averages. The Moving averages were analyzed using same period EMA and SMA crossovers. The EMA gives higher weight to price in recent period and SMA gives equal weight to all period so When EMA is above SMA it is Bullish signal as it shows an increase in momentum towards higher prices in the respective time period and vice versa. Also, Market price is analyzed by volume weighted average price which shows that stock is bullish when MPS crosses VWAP as it shows upside momentum. The Oscillators like RSI show change in trend RSI value above 70 is taken as bearish and overbought and below 30 is bullish and oversold. RSI for both ONGC and Oil India are neutral.

The stochastic indicator shows both momentum and trend the Stochastic RSI fast shows trend just like RSI and it is at 100 which is overbought level for both companies so it is showing a bearish trend also the slow stochastic should be above fast stochastic to show a bullish signal but it is below the fast stochastic indicator so it is also bearish. The Williams percent range also shows trend and its value above -20 shows overbought and bearish and below -80 shows oversold and bullish. Both companies Williams is bearish as it is above 20. All oscillators were used for 14 period time frames.

1	2	3	4	5
Bearish		Neutral		Bullish

OSCILLATORS	ONGC		Oil India	
Name	**Value**	**Score**	**Value**	**Score**
Relative Strength Index (14)	64.32	3	51.95	3
Stochastic %K (14, 3, 3)	87.16	2	85.75	2
Stochastic RSI Fast (3, 3, 14, 14)	100	1	100.00	1
Williams Percent Range (14)	−15.60	2	−8.75	2
Overall Oscillators		**2**		**2**

MOVING AVERAGES Name	ONGC Score	Oil India Score
EMA(5) above SMA(5)	5	5
EMA(10) above SMA(10)	5	5
EMA(20) above SMA(20)	5	3
EMA(30) above SMA(30)	5	3
EMA(50) above SMA(50)	5	5
EMA(100) above SMA(100)	2	1
EMA(200) above SMA(200)	1	1
MPS above VWAP	5	4
Overall Moving averages	4.125	3.375

ONGC:

- ONGC has shown bearish Trend and momentum by Oscillators.
- ONGC has shown a bullish momentum by moving averages.

Oil India:

- Oil India has shown bearish Trend and momentum by Oscillators.
- Oil India has shown a neutral momentum by moving averages.

Overall:

- Overall in Technical Analysis ONGC fares better as its score is neutral considering bearish oscillators and bullish moving averages whereas Oil India is slightly bearish in technical analysis.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Technical Analysis on its various sub parameters are as follows:

	ONGC Ltd	Oil India Ltd.
Overall Oscillators	2	2
Overall Moving averages	4.125	3.375
Overall Technicals	3.0625	2.6875

3) **Solvency and Liquidity:** Solvency shows a company ability to discharge long term financial obligations and liquidity shows a company ability to discharge shot term obligation and ability to quickly raise cash.

		ONGC	Oil India
	Solvency and Liquidity parameter	Mar-19	Mar-19
Liquidity	Current Ratio (X)	0.7	1.45
	Quick Ratio	0.43	1.3
Solvency	Interest Coverage Ratios (%)	10.07	8.3
	Total Debt/Equity (X)	0.47	0.37

ONGC:

- ONGC liquidity is in bad position and it may see a cash crunch as price of crude oil has fallen below production cost and now hovering at near production cost. This can impact operations of the company negatively and carries high liquidity risk.

- ONGC has good interest coverage ratio of 10.07 times which means its earnings was 10 times the interest paid.
- ONGC solvency is moderate but as the crude oil and natural gas price is very low and also the cash with it is low it is a posing a risk for the company.

Oil India:

- Oil India has good overall liquidity having both current and quick ratio above one which shows it can pay off short term expenses and liabilities easily thus it has low liquidity risk.
- Its solvency is moderate as it has moderate leverage and interest coverage ratios so it is having moderate solvency risk.

Overall:

- Though leverage of ONGC is high but it will benefit from low finance cost due to which it enjoys higher interest coverage ratio, the finance cost forms 4.18% of revenue of Oil India and it forms only 1.36% of total revenue for ONGC even though ONGC has much higher leverage as seen from debt equity ratio this shows that the cost of debt is less for ONGC though the debt is high.
- Oil India performed well on this parameter having score 3.35 out of 5 and ONGC is in a critical situation only scoring 2.33 out of 5. Overall ONGC is in a bad shape and Oil India has good liquidity and moderate solvency.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Solvency and Liquidity on its various sub parameters are as follows:

		ONGC Ltd	Oil India Ltd.
Liquidity	Current Ratio (X)	1.75	3.63
	Quick Ratio	1.08	3.25
	Overall liquidity	1.41	3.44
Solvency	Interest Coverage	4.31	3.56
	Debt/Equity	2.65	3.15
	improvement in Debt/Equity	2.80	3.09
	Overall solvency	3.25	3.27
	Overall liquidity & solvency	2.33	3.35

4) **Industry specific parameters:** This parameter consists of parameters which can be used to evaluate only oil exploration and production companies. This parameter includes growth in Oil and Gas production over the last 4 fiscal years to see the trend whether production is increasing or decreasing. This parameter also includes the Reserve Replacement Ratio (RRR) which shows the amount of oil and gas added to the companies reserves over the amount consumed over the year, RRR greater than one shows excess of reserves are with the company when compared to production of this year which shows that company can continue to produce same or more amount of oil and gas in the next year.

YEAR ON YEAR GROWTH							
		Mar-19	Mar-18	Mar-17	Mar-16	Total Growth	CAGR
Crude Oil Production	ONGC	-4.8%	-0.4%	-1.5%	0.0%	-6.59%	-1.69%
	OIL India	-2.1%	3.4%	0.9%	-5.5%	-3.49%	-0.88%
Natural Gas Production	ONGC	4.9%	5.8%	3.3%	-4.2%	9.74%	2.35%
	OIL India	-1.4%	-1.1%	3.5%	4.3%	5.25%	1.29%

ONGC:

	ONGC				
	Mar-19	Mar-18	Mar-17	Mar-16	Mar-15
Crude Oil Production (MMT)	24.23	25.44	25.54	25.93	25.94
Natural Gas Production (BCM)	25.81	24.61	23.27	22.53	23.52
Reserve replacement ratio>1	YES	YES	YES	YES	YES

- ONGC Crude Oil production decreased consecutively year-on-year from FY 2016 to FY 2019 at a CAGR of -1.69%.
- ONGC Natural Gas production has increased by 2.35% from FY 2016 to FY 2019.
- ONGC Reserve Replacement Ratio has been more than 1 for 13 consecutive years this shows it has sufficient reserves to produce Oil and Gas in next year.

Sr. No.	Wells	Basin/ Acreage	HC Type	Prospect/ Pool	Nomination/ NELP
9	Hatta-2 (B-HAT-B)	Vindhyan	Oil & Gas	Prospect	NELP
10	Jantapathar#1Z	Golaghat Extn-IIA (Addl.) ML, A&AA Basin	Gas	Prospect	Nomination
11	B-203#2	NWMH Extn. PML, Western Offshore Basin	Oil & Gas	Prospect	Nomination
12	Suryaraopeta West-1 (SUW-AA)	KG Onland/ Malleswaram PML	Oil & Gas	Prospect	Nomination
13	KGD982NA-P1-S-1	KG-DWN-98/2 block (Cluster-II	Gas	Pool	NELP

Total 17 discoveries have been monetized during 2018-19, including 5 discoveries (3 pool and 2 Prospect) made during 2018-19, which are in nomination blocks, and remaining 12 from the previous years.

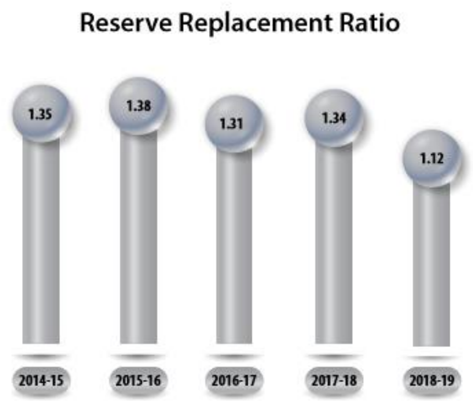
During the year, Reserve Replacement Ratio (RRR) of your Company from domestic fields were 1.41 and 1.78 with respect to 2P and 1P reserves respectively. With this, your Company has achieved Reserve Replacement Ratio (2P) of more than one for 13 consecutive years.

(Source: ONGC Ltd. annual report FY 2019)

Oil India:

	Oil India				
	Mar-19	Mar-18	Mar-17	Mar-16	Mar-15
Crude Oil Production (MMT)	3.32	3.39	3.28	3.25	3.44
Natural Gas Production (MMSCM)	2865	2905	2937	2838	2722
Reserve replacement ratio>1	YES	YES	YES	YES	YES

- Oil India Crude Oil production has reduced by 0.88% from FY 2016 to FY 2019.
- Oil India Natural Gas production has increased by a CAGR of 1.29% from FY 2016 to FY 2019.
- Oil India has a good of maintaining Reserve Replacement Ratio of more than 1 this shows it has sufficient reserves to produce Oil and Gas in next year.



(Source: Oil India Ltd. annual report FY 2019)

Overall:

- Both companies scored almost same on this parameter.
- The oil production of both companies reduced in 5 years but Natural gas production increased, ONGC has performed better in this aspect.
- Both companies have a consistent record of maintain RRR over 1, this shows they have sufficient reserves for the next year. The other sub parameter is historical growth in Oil and gas production.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Industry specific parameter on its various sub parameters are as follows:

		ONGC Ltd	Oil India Ltd.
Growth in Oil and gas production	Crude Oil Production(MMT)	1.00	1.00
	Natural Gas Production(BCM)	3.39	3.21
	Growth in Oil and gas production	2.19	2.11
Maintained RRR over 1	Reserve replacement ratio>1	5.00	5.00
	Overall industry specific Paramete	3.60	3.55

5) **Profitability parameter**: The profitability parameter is divided into return ratios, margin ratios and Improvement in profitability. Following sub para meters were used to evaluate profitability:

- Return ratios: It shows whether profit as compared to capital employed, equity or asset is sufficient or not. Higher Return ratio shows efficient utilization of capital/asset and more profit generation per unit of money invested.
- Margin ratios: It shows the percentage of profit earned on sales revenue. Better margins can be achieved by reduction in cost or increase in selling price. The margin ratios include PBDIT margin, PBIT margin, PBT margin and NPM. The PBDIT margin is better for comparison of different companies for specific years as it removes volatility due to fluctuation in depreciation, Taxes and finance cost. The NPM shows overall profit margin but is affected by changes in taxes depreciation policies, etc.
- Improvement in profits over the 5 years: This shows the historical trend of profitability which may continue in future also. The EPS shows overall net profit generated per share of company, Revenue from operations/share shows revenue from operating activities per share. The Cash EPS shows operating

cash flows per share, It excludes non-cash expenses like depreciation and amortization.

YEAR ON YEAR GROWTH							
		Mar-19	Mar-18	Mar-17	Mar-16	Total Growth	CAGR
EPS	ONGC	38%	-9%	90%	-53%	11.106%	2.67%
	OIL India	20%	77%	-48%	-40%	-34.086%	-9.90%
Revenue from Operations/Share (Rs.)	ONGC	33%	14%	39%	-16%	78.123%	15.53%
	OIL India	-10%	18%	-27%	-2%	-23.441%	-6.46%
Cash EPS (Rs.)	ONGC	19%	2%	-12%	-24%	-18.192%	-4.90%
	OIL India	-22%	53%	-44%	-11%	-39.968%	-11.98%

		ONGC	Oil India
	Profitability parameter	Mar-19	Mar-19
Margin Ratios	PBDIT Margin (%)	19.64	48.74
	PBIT Margin (%)	13.94	37.56
	PBT Margin (%)	12.18	25.58
	Net Profit Margin (%)	7.22	15.14
Return Ratios	Return on Net worth/Equity (%)	13.97	11.17
	Return on Capital Employed (%)	16.02	11.69
	Return on Assets (%)	6.15	6.17
Other per share ratios	Basic EPS (Rs.)	23.81	28.6
	Cash EPS (Rs.)	44.61	33.45
	Revenue from Operations/Share (Rs.)	334.96	127.08

ONGC:

- ONGC has moderate returns but its margin is low.
- ONGC has shown a good CAGR growth of 2.67% in EPS and 15.53% in Revenue from operations per share. Though its cash EPS declined by 4.9%.

Oil India:

- Oil India has advantage of having very high margin on sales which can help it increase its profitability at a higher rate by increase in sales.
- Oil India return is moderate and its improvement in profits is bad as its EPS has fallen by 9.90% CAGR, Revenue from operations per share has fallen by 6.46% and Cash EPS has fallen by 11.98%.

Overall:

- Return: Return ratios and growth in profitability is better for ONGC as compared to Oil India as it has much higher leverage and asset turnover which may reduce due to very bad liquidity/Solvency position
- Margin: Oil India margin ratios are much better than ONGC. All margin ratios were used to analyze profitability and it has been found that Oil India PBDIT margin is much better than ONGC PBDIT margin and Its NPM is also more than double ONGC's NPM but the ratio of Oil India NPM and ONGC NPM is less as compared to their respective ratios of PBDIT as Oil India has higher finance cost which may reduce in future.

- Improvement in Profitability: In this aspect ONGC has performed overall better than Oil India. The CAGR EPS growth and revenue from operations both are negative for Oil India and positive for ONGC whereas CAGR of Cash EPS is negative for both the companies Interestingly ONGC's EPS has grown but Cash EPS has fallen and this can be analyzed by observing Depreciation and amortization in comparative vertical balance sheet, we can observe that percentage of it has fallen as compared to revenue for ONGC this is a major reason for increase in EPS of ONGC though this may happen due to accounting practices and may increase in future.
- ONGC performed better in overall profitability parameter. Oil India however has better margin on sales but it has not shown improvement in profits historically.

Scoring: The scores obtained out of 5 by ONGC and Oil India for profitability on its various sub parameters are as follows:

		ONGC Ltd	Oil India Ltd.
Return Ratios	Return on Networth/Equity (%)	5.00	4.00
	Return on Capital Employed (%)	5.00	3.65
	Return on Assets (%)	4.37	4.39
	Overall Returns	**4.79**	**4.01**
Margin Ratios	PBDIT Margin (%)	1.99	4.94
	PBIT Margin (%)	1.73	4.66
	PBT Margin (%)	1.65	3.47
	Net Profit Margin (%)	1.45	3.04
	Overall Margin	**1.71**	**4.03**
Improvement	EPS Growth	4.11	0.66
	Revenue from Operations/Share (Rs.)	4.78	0.77
	Growth in Cash EPS	0.82	0.60
	Overall Improvement	**3.24**	**0.68**
	Overall Profitability	**3.24**	**2.90**

6) **Efficiency:** Efficiency parameter is used to evaluate how well a company uses its assets and liabilities to generate and increase sales and profits. It includes turnover ratios like asset turnover and inventory turnover. Asset turnover shows revenue from sales as a percentage of total assets, A higher asset turnover ratio shows more revenue generated by assets thus implies more efficient use of assets. The inventory turnover ratio shows number of times the whole inventory has been sold in a year, higher inventory turnover shows leaner inventory management generating more revenue in low working capital by higher turnover.

	ONGC				
Efficiency Parameter	Mar-19	Mar-18	Mar-17	Mar-16	Mar-15
Asset Turnover Ratio (%)	85	70.11	63.42	39.6	47.64
Inventory Turnover Ratio (X)	11.98	10.56	9.45	13.68	15.17
	Oil India				
Efficiency Parameter	Mar-19	Mar-18	Mar-17	Mar-16	Mar-15

Asset Turnover Ratio (%)	26.28	21.99	18.67	24.43	26.92
Inventory Turnover Ratio (X)	11.3	9.92	8.72	9.81	9.49

ONGC:

- ONGC has good asset turnover of 85% and it has increased over the previous 4 years at a high rate which shows it makes very efficient use of its assets.
- ONGC has moderate inventory turnover of 11.98 times.

Oil India:

- Oil India has a low asset turnover ratio which shows it is not utilizing its assets properly.
- Oil India has moderate inventory turnover of 11.30 times.

Overall:

- Overall ONGC has much better efficiency than Oil India.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Efficiency on its various sub parameters are as follows:

	ONGC Ltd	Oil India Ltd.
Asset Turnover Ratio	5.00	1.55
Inventory Turnover Ratio	3.95	3.72
Overall Efficiency	**4.47**	**2.64**

7) **Growth prospects:** Growth prospects parameter is used to evaluate the potential of growth in company's profits and share price driven by various factors impacting growth. Growth has been evaluated with respected to forecasted cost of production, opportunities for the company, selling price and demand of products in future. All factors have been rated on scale of 0 to 5 in which score above 3 shows positive impact on growth and below 3 shows negative impact on growth.

ONGC:

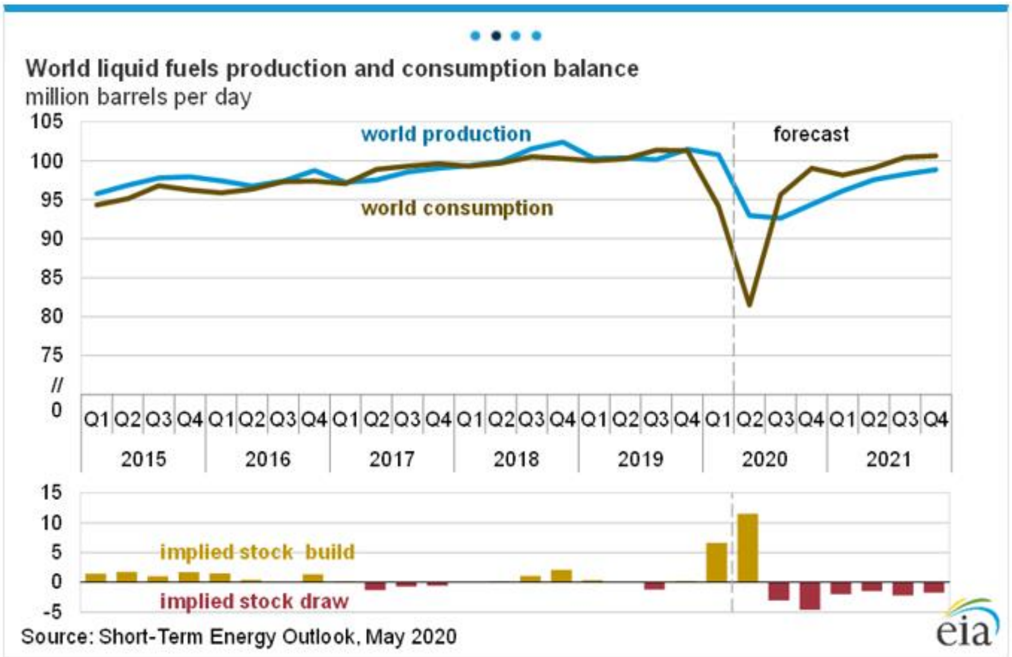
- Due to low cash and already high leverage at time of loss ONGC may not be able to spend much on new exploration projects this can slow down its growth.

Oil India:

- Oil India has good cash position and moderate leverage so it can spend more on exploration activities and take advantage of lower cost of renting rigs as companies offering rigs for rent reduce the rent of rigs due to reduction in demand when crude oil price reduces as the E&P sector suffers financially.
- It is part of strategic plan of Oil India to generate more revenue by selling renewable energy which can diversify its earnings.

Overall:

- Consumption of liquid fuels is forecasted to overtake production by US EIA this can led to excess of demand over supply which can led to increase in price of crude oil and natural gas

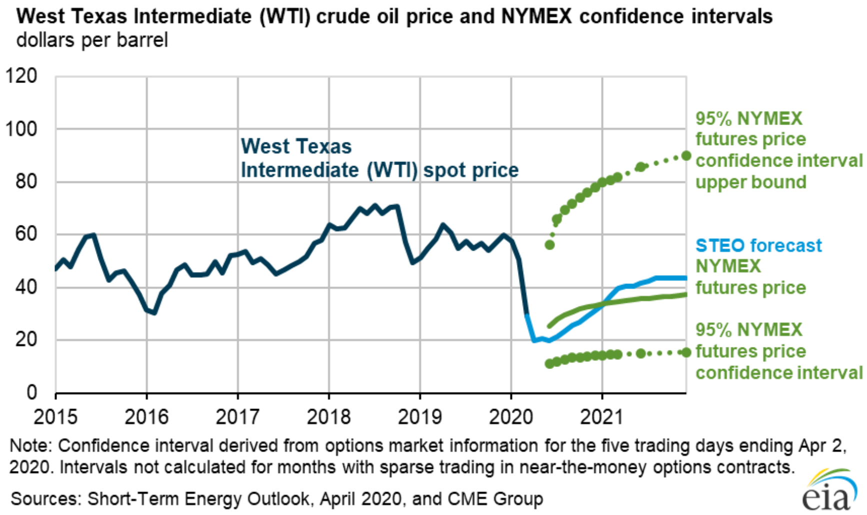


- Crude Oil price is forecasted to go above the average production cost range of crude oil this can increase the profitability of the companies.

Table 1: Break-up of cost of production of crude

Expense head	Average range
Operational expenses	\$12 -\$13
Depreciation, Depletion, and Amortization (DD&A)	\$8-\$10
Taxes	\$15-\$17
Total	**\$35-\$40**

Source: CARE Ratings



- Overall Oil India has shown better growth outlook for future than ONGC as Oil India has scored 3.75 and ONGC has scored 3.63.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Growth prospects on its various sub parameters are as follows:

Impact on growth	very bad		no impact		very good
	1	2	3	4	5

Impact on Growth	ONGC	Oil India
Forcasted increase in crude oil price.	4	4
Forcasted increase in Natural gas price.	3	3
Forecasted consumption over production of crude oil	5	5
Increase in demand of Crude oil in future	4	4
Increase in demand of Natural gas in future	4	4
Probability of reduction in expenditure on exploration activities.	2	3
Potential to extract oil/gas from unconventional sources	5	4
Impact of adoption of renewable sources of energy	2	3
Overall Growth outlook	**3.63**	**3.75**

8) **Risk:** Risk parameter evaluates the risk an investor is taking by investment in the respective company. Risk is an important part of wealth maximization as improper risk management can lead to an investor losing his portfolio value. It includes both systematic risk and unsystematic risk. If returns are same investor will pick a lower risk investment so the stock having lower risk is given higher score.

	ONGC	Oil India
Systematic Risk		
Beta	1	0.92
Unsystematic Risk		
Debt/Equity	0.470	0.37
DFL	1.010	1.318
DOL	1.236	0.518
Cash and cash equivalents as a % of assets	1.03%	12.24%
Risk of fall in crude oil price	HIGH	HIGH
Risk of reduction in oil demand	LOW	LOW
Risk of Alternative energy sources	MODERATE	LOW
Moody's Credit rating (2nd June 2020)	baa3	baa3

ONGC:

- ONGC has moderate systematic as well as unsystematic risk.
- Its major risk posing factors are a low cash position, high operating leverage, fall in crude price and risk of adoption of alternative energy sources.

Oil India:

- Oil India has very low systematic as well as unsystematic risk.
- Its major risk posing factor is fall in crude oil price.

Overall:

- Overall Oil India is less risky investment as compared to ONGC.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Risk on its various sub parameters are as follows:

	Risk Factors	ONGC Ltd	Oil India Ltd.
Systematic Risk	Beta	4.11	5.00
	Overall Systematic risk	**4.11**	**5.00**
Unsystematic Risk	Debt/Equity	2.65	3.15
	DFL	4.95	3.79
	DOL	2.10	5.00
	Cash and cash equivalents(Liquidity risk)	0.42	5.00
	Risk of fall in crude oil price	2.50	2.50
	Risk of reduction in oil demand	4.50	4.50
	Risk of Alternative energy sources	3.50	4.50
	Moody's credit rating	2.50	2.50
	Overall Unsystematic risk	**2.89**	**3.87**
	Overall Risk	**3.50**	**4.43**

9) **Corporate Sustainability:** Corporate Sustainability is about creating long term value for all stakeholders. It basically includes economic, environmental and social sustainability.

ONGC:

- ONGC has good Economic, Environmental and Social Sustainability.

Oil India:

- Oil India has good Economic, Environmental and Social Sustainability.

Overall:

- Overall both ONGC and Oil India are almost similar in terms of sustainability as both have stood at a good position regarding sustainability though ONGC scored a little more than Oil India.

Scoring: The scores obtained out of 5 by ONGC and Oil India for Corporate Sustainability on its various sub parameters are as follows:

	Risk Factors	ONGC Ltd	Oil India Ltd.
Economic Sustainability	Diversification across the value chain	5.00	5.00
	Geographical Diversification	3.50	3.50
	Extraction from Unconventional sources	4.00	3.00
	Diversification outside the value chain	3.00	4.00
	Overall Economic Sustainability	**3.875**	**3.875**
Environmental Sustainability	Green House Gases control measures	4.50	3.50
	Oil waste reduction	4.00	5.00
	Adoption of renewable energy	3.50	4.50
	Reduction in water pollution	4.00	4.00
	Overall Environmental Sustainability	**4**	**4.25**
Social Sustainability	CSR activities	4	4
	Employee wellness	5.00	4
	Overall Social Sustainability	**4.50**	**4.00**
	Overall Sustainability	**4.13**	**4.04**

10) **Management and Corporate Governance:** The management and corporate governance parameter will evaluate the management potential and the ethics, rules, regulations and process followed by the companies.

ONGC:

- ONGC has good management and corporate governance but its management credibility is dented by a fraud of Rs. 80 crores by its officials.

Oil India:

- Oil India ONGC has good management and corporate governance.

Overall:

- Overall both ONGC and Oil India scored well on this parameter though Oil India scored a little better.

Scoring: The scores obtained out of 5 by ONGC and Oil India for management and corporate governance on its various sub parameters are as follows:

Management and Governance	ONGC	Oil India
Promoters Credibility	5	5
Governance	4	4
Management Decision speed	3	3
Management Illegal activities cases	3.5	4
Overall Management and Governance	**3.88**	**4.00**

5)CONCLUSION

After looking at Economy, Industry and Company analysis and performing analysis of 10 parameters I found out that the overall score of Oil India Limited came better than ONGC Limited. I found out that overall Oil India Limited is better company as compared to ONGC Limited for investment as it has scored higher on the overall scores and shows better wealth creation prospects. It has higher valuations, growth prospects and lower overall risks. Its target price which is fair price calculated by valuation is 49.14% higher than the market price compared to ONGC whose target price came only 11.76% higher than market price as on 02/06/2020.

Overall based on all the analysis I recommend to buy Oil India Limited shares and to sell ONGC Limited shares.

In technical analysis Oil India moving averages are bearish so it is recommended to wait for some days and invest when it shows bearish trends. Investor hold the shares of Oil India Limited till it reaches its target price of Rs.130.13.

The rationale behind recommending Oil India Over ONGC Limited is that Oil India share has fared better overall and it is available at attractive valuations with lower risks and better future growth prospects as compared to ONGC. Risk is an important factor during the pandemic especially for a company whose profits have fallen due to fall in crude oil price and this pandemic is uncertain, so Oil India Limited with better liquidity and solvency and much more cash with it can survive easily through this period.

	Analysis Parameters	**ONGC**	**OIL India**
1	Corporate Sustainability	4.13	4.04
2	Solvency and Liquidity	2.33	3.35
3	Profitability	3.24	2.90
4	Efficiency	4.47	2.64
5	Industry specific factors	3.60	3.55
6	Valuation	2.00	4.67
7	Growth prospects	3.63	3.75
8	Corporate Governance and Management	3.88	4.00
9	Risk	3.50	4.43
10	Technical analysis	3.06	2.69
	Overall Result	**3.38**	**3.60**

6) LEARNINGS

- How to present financial data so a layman can understand what it means.
- How to a financial model to score and evaluate different companies easily and also learned Ms-Excel and arithmetic formulae to create such model and generate scores.
- What factors should be considered to make an investment decision.
- About nitty-gritty of Oil and Gas industry, their growth potential, its products/revenue sources, major costs, profitability, challenges, opportunities, Value chain and stakeholders.
- Major challenges faced by Oil and Gas industry and how the companies are curbing the same.
- How a company will perform in future can be identified by foreseeing and understanding the changes the industry is going to experience.
- Opportunities and threats of any business can be identified and resources can be generated or diverted accordingly to develop unique capabilities or to help the company in building competitive advantage, plan for contingencies and doing business sustainably.
- Important ratios and financial data which are used by equity research analysts to assess the wealth creation prospects of the companies.
- Indian stock market and economic factors affecting it.
- How industries and companies react to change in macro-economic factors.
- Awareness of Key Parameters and Indicators on which performance of Oil exploration and Production companies can be measured.
- Skimming and Scanning annual reports of companies and other lengthy reports related to economy, company and industry
- Learn about effective teamwork being working with other students.
- Learn how to utilize Analytical skills to solve real finance problem. Usage of IBM SPSS has been done for the same.

7) RECOMMENDAIONS

- **ONGC Limited should increase its liquidity and growth in share price**: The liquidity of ONGC is very low as compared to its competitors it needs to be increased as industry is suffering due to losses during the pandemic it may led to operational hurdles especially due to low cash position and it faces huge liquidity risks. As
- **Oil India can should analyze its high finance costs to increase profits:** The finance cost forms 4.18% of revenue of Oil India and it forms only 1.36% of total revenue for ONGC even though ONGC has much higher leverage as seen from debt equity ratio this shows that the cost of debt is very high for Oil India Limited as compared to ONGC so Oil India should focus on reducing its cost of debt to increase profits.
- **Portfolio diversification for reducing risk of investors:** Investors should diversify their portfolio by allocating investment in stocks which have positive as well as in stocks which have negative correlation with crude oil price. As ONGC and Oil India are Upstream Oil and gas companies its share price has positive correlation with price of Crude oil so the risk of fall in crude oil and be reduced by incorporating stocks which have negative correlation with crude oil prices.

8) LIMITATIONS

- **Analysis of Few Companies:** Due to lack of time, I was not able to analyze more companies. I only limited this project to ONGC and Oil India. If I more companies would be analyzed then it may happen that even better investment opportunity can be found out in this Industry.
- **Unavailability of Data:** The analysis was done on secondary data from various sources but due to difficulty in finding data on internet and research reports many critical factors affecting the industry and companies cannot be analyzed so secondary source of information was not enough to complete the report.
- **Self-Answering of Questions related to Qualitative Parameter Analysis:** Since qualitative parameters were scored based on questions having specific score on each type of answer these questions should be answered correctly to get a better score. I had answered these questions by reading annual reports, credit rating reports and news articles these are not as good source as someone who works with the company, therefore for adding more correctness to answer of qualitative parameters like management and governance the answers to questions should be taken from experts and employees of the companies.
- **Experience and Knowledge:** Experience matters a lot in the success of any project. Since, I am a fresher with no experience; a lot of efforts must be put in to ensure that the project is done without any hassle and mistake. There could be better ways to write equity research reports and make equity research scoring model.

9) FUTURE SCOPE

- **Taking views of experts in domain and employees of companies:** In future for scoring and analyzing the various parameters especially qualitative parameters. Views of various employees of the respective company and experts in respective domain can be taken so as to increase the accuracy of answer and incorporating the ground reality in the research.
- **Can find better investment opportunity by comparing more Industry/Companies:** Using the same scoring model more companies can be evaluated and compared so as to find the best investment for a investor looking to invest his/ her money in this or any other industry.
- **Updating the analysis using latest information:** Since this report is made using FY 2019 annual report as the latest FY 2020 report was not released at the time of analysis. So, updating the analysis using latest information from FY 2020 annual report will give better investment decision and target price.

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