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“European O&G - Initiating Coverage (Equity Research Report)”

TRABAJO FIN DE MÁSTER

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ABSTRACT

The Oil and Gas industry drives the world's economy and has been historically one of the largest and most profitable. However, in past years, society has changed, and it has become more aware of climate change's impact. This new concern became apparent in the 2016 UN Paris Agreement. As a result, the European Union plans to be climate-neutral by 2050 as part of its long-term strategy for climate action. In order to continue developing and growing, the O&G industry needs to adapt to this new market condition. In Europe, natural gas is arising as a key resource for the upcoming decades as its less contaminant than crude oil. In addition, renewable energies, like offshore wind and solar, and the CCS systems will be determinant to become a leader in the European scenario. ESG is earning weight in investment decisions and it is becoming more and more important for stakeholders. All these circumstances have made traditional integrated Oil and Gas companies to shift towards becoming broad-energy suppliers.

This Master's Thesis assesses the present and future circumstances around the O&G industry to provide the best recommendation for European Oil and Gas companies. This report focuses on the most important players in Europe: BP, ENI, Equinor, Repsol, Shell and Total, and includes a deeply analysis of business description, industry overview, competitive positioning, valuation, financial analysis, risks assessment and corporate governance. This Master's Thesis is an Initiating Coverage Equity Research report covering the most important O&G stocks in Europe.

Keywords: Oil and Gas, upstream, downstream, renewables, ESG, valuation, energy transition

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INTRODUCTION

The purpose of this thesis is to initiate an equity coverage of the European Oil and Gas Industry focusing on the largest six companies in the continent: Repsol, Equinor, ENI, BP, Total and Shell. As a result of a complete valuation and deep financial analysis, it is proposed a sectorial investment recommendation. Thus, this thesis could be of great help for an investor that is willing to overweight the O&G sector limiting its risk exposures.

Chapter I starts off with a brief summary of the O&G Industry value chain and a short introduction to the origins and history of hydrocarbons. The paper explains some basic concepts of the sector's business divisions prior to describing the six companies and their products and services. Chapter II deals with an overview of the industry dynamics and a competitive study of the industry overall. It is discussed the competitive environment O&G companies have to face.

O&G producers are under increasing pressure from regulators, shareholders and environmental activists. The EU taxonomy will serve as a jurisdiction in ESG compliance classification and will have great impact on the industry. Institutional investors are excluding non ESG compliant companies from their portfolios. 95% of total AuM will be under ESG mandates by 2030 (Deutsche Bank Research, 2018). Increasing regulation might not only limit business operations but could also restrain financing, both from markets and financial entities, as acquirers would also need to comply with ESG standards.

In Chapter III a summary valuation is given and a recommendation between the six European companies is analysed on the grounds of a specific investment thesis. The valuation breakdown using conventional valuation metrics and formulas such as Discounted Cash Flow models and comparable multiples are explained in Chapter IV. It is conducted more than one valuation model as a check and compare these outputs amid the analysed companies. Chapter V includes a detailed analysis of the companies' historical financial performance and a forecast of future performance, and all these financial figures are displayed beside industry-specific financial ratios. Company valuation is surrounded by uncertainty and inaccuracies, and this is the reason why it is essential to conduct a sensitivity analysis on key variables that affect the Enterprise Value, and thus, Equity Value of an O&G company. Chapter VI handles a number of investment risks identified that may negatively determine the future of the European O&G companies. Issues regarding corporate governance like the independence degree of the board of directors, and the firms' management compensation and incentive plans are presented in Chapter VII.

To conclude, an investment recommendation is proposed on the main integrated European Oil and Gas stocks.

1. CHAPTER I: BUSINESS DESCRIPTION

The Oil and Gas industry is involved in complex and diverse activities. The value chain starts with the identification of suitable areas to conduct exploration for oil and/or gas. After initial exploration, petroleum fields are appraised, developed, and produced. These activities are generally called exploration and production (E&P) or referred to as “Upstream” oil and gas. Oil field services include a number of auxiliary services in the E&P process, such as geological and geophysical surveys and analysis drilling, equipment supply, and engineering projects. They form an important part of the overall oil and gas industry but will not be the focus of the overview. Infrastructure, including transport (such as pipelines and access to roads, rail, and ports) and storage, is critical at various stages in the value chain, including the links between production and processing facilities and between processing and the final customer. These parts of the value chain are usually referred to as “Midstream”. Oil refining and gas processing turn the extracted hydrocarbons into usable products. The processed products are then distributed to wholesale, retail, or direct industrial clients. Refining and marketing (R&M) is also referred to as “Downstream”. Certain oil and gas products are the principal input for the petrochemicals industry. This explains the close historical and geographical links between the two. Individual companies can perform one or more activities along the value chain, implying a degree of vertical integration (“integrated” firms are engaged in successive activities, typically E&P and R&M). They can also seek to expand within a given activity, leading to horizontal consolidation (business scale). At the country level, horizontal integration in the Upstream is limited by natural resource endowments and Downstream by the size of the domestic market and the country’s ability to export goods and services. Country-level industrial policies and the related legal and regulatory frameworks affect companies’ vertical and horizontal integration choices. For example, in some countries, such as South Africa, vertical integration in the petroleum sector is prohibited. Other countries, such as Brazil, limit the market share of industry participants.

1.1 O&G ORIGINS

Crude oil and natural gas, together with coal, are considered fossil fuels formed over millions of years, during an era called the ‘carboniferous period’, a name derived from carbon, the fundamental element in the three of them. The most generally accepted theory, the organic theory, states that oil and natural gas (hydrocarbons) originate from the remains of plants and animals that occupied the planet millions of years ago. Since then, bacterial and chemical changes have occurred under concentrated heat in the accumulation between the vegetation, animals and eroded igneous rock, giving rise to what is known nowadays as hydrocarbons. Once crude oil was formed, it moved upward

through sedimentary layers until it is stuck in an impermeable rock layer known as 'trap'. The trapped crude oil is referred to as reservoir. The name petroleum comes from Latin and stands for rock oil, where *petra* means 'rock' and *oleum* means 'oil' (Hassan, 2013).

Crude oil consists of a complex mixture of chemical elements, mostly hydrocarbons. When pumping up from the underground 'trap', a thick, dark and smelly petroleum is obtained, in the form of tar sand, asphalt or bitumen. Crude oil is usually found together with natural gas. Natural gas, on the other hand, is in either liquefied or gaseous form, and is composed primarily by methane, and depending on the type of gas also carbon dioxide, ethane, propane, nitrogen and hydrogen sulphide (Hassan, 2013). When natural gas is found along with crude oil in the same reservoir, it is known as associated natural gas, while it is denominated non-associated when natural gas is enclosed alone.

1.2 OIL HISTORY

The use of crude oil has lasted for centuries through the history of humankind, unfolding to become an essential part of today's world economy. In Babylon they used it as a roofing material, according to the Bible. The Egyptians used it to help preserve mummies. Meanwhile, Alexander the Great apparently used oil in the flaming torches to frighten his enemies. As an additional use as a source of fire, oil was also seen as an interesting substance with medicinal properties. The Chinese employed oil as a skin balm and Native Americans included oil in their healing techniques for frostbite (Deutsche Bank, 2013). But, historically, oil has been mostly used for lighting, particularly in those areas where oil was found in shallow reservoirs, seeps of crude oil were naturally developed, and some oil could be collected from seepage or tan ponds (Devold, 2003).

It was not until 1859 when the modern oil era began. Colonel Edwin Drake drilled the first flourishing oil well with the unique intention of finding oil (Devold, 2003). The Colonel's purpose was to extract 'rock' oil in a farm located in Titusville, Pennsylvania, in order to produce kerosene for illumination. Having drilled 69 feet well (21 metres), he managed to extract 15 barrels per day, leading to a massive search for more oil. Within a year, the state of Pennsylvania was producing almost 500,000 barrels per day.

The increase in production brought its own problems. The kerosene industry was remarkably volatile due to a lack of market structure. The supply of oil had no discipline and low prices boosted demand for kerosene. In 1870, John D Rockefeller established the Standard Oil Company in Ohio as an attempt to bring structure, order and profit to the kerosene refining industry. Rockefeller's goal was to gain absolute influence over the US refining and oil producing industries, and he achieved it, controlling 90% of the refined oil flows in the US by 1890. Eliminating competition, Standard Oil Company set the price the producers would receive for their oil, and then determining the oil price in

the open market. The company kept this dominant position until 1911, when the US Supreme Court ordered the dismantling of Standard Oil Company into 34 independent companies on the grounds of antitrust violation. Most of the O&G companies that stand by today trace their roots back to Standard Oil Company, such as Exxon, Chevron, Texaco, Conoco, much of BP and most of National Oil Companies (Deutsche Bank, 2013).

1.3 GAS HISTORY

Although natural gas was not discovered until 1626, when French explorers discovered that Native Americans were igniting gases that were seeping around Lake Erie, the natural gas industry did not begin as such until the aforementioned Colonel Edwin Drake drilled the first well in 1859. However, it is needed to go back to 1821 for the first intended drilling to find natural gas. William Hart dug a well in Fredonia, New York, after he noticed gas bubbles rising to the surface of a river. Afterwards, the Fredonia Gas Light Company was established. In 1885, Robert Bunsen expanded the use of natural gas by creating a flame that could be easily used for cooking and heating, allowing the temperature to be modified and managed (Ali & Wan Abu Bakar, 2010).

It was not until 1891 that natural gas was successfully transported to large distances. A 120 miles long (193 km) pipeline connected natural gas wells in Indiana with Chicago. The efficiency of gas transportation improved in the 1920's, and especially after World War II. Many efforts were made to develop advanced welding techniques, pipe rolling and metallurgical processes in order to build reliable pipelines, leading to a rapid increase in pipeline construction. As natural gas transportation became consistent and safe, its uses were expanded. Natural gas turned into a common source of energy for home heating and cooking, as well as an important resource for manufacturing and processing plants (Ali & Wan Abu Bakar, 2010).

1.4 BUSINESS SEGMENTS

As already introduced, the Oil and Gas industry comprises three main business segments: Upstream, Midstream and Downstream, although many O&G companies integrate their Midstream activities into their Downstream division.

1.4.1 Upstream

Simplifying the complexity Upstream processes carry, this business segment is generally divided into 5 phases.

1.4.1.1 Exploration

Exploration refers to seeking economically viable oil/gas resources via various geological methods. Governments of those countries with underground hydrocarbon resources seek investments for own exploration or grant access for O&G companies to make exploration activities. The terms of the contracts vary by country, license or block, and these concessions state the negotiated agreement regarding the rights of any future oil/gas discovered. Since exploration costs are high and no discovery at all is probable, O&G companies tend to form joint ventures with competitors, and just one company is appointed as operator. Likewise, each company has its own share in eventual production, also known as Working Interest (WI). Therefore, although the O&G industry is seen as highly competitive, cooperation exists among peers. Should feasible O&G resources be found, additional studies are conducted, and more resources are invested. The companies involved in the exploration carry out social and environmental assessment regarding the impact production in the area may cause. If, on the other hand, no viable resources are hit on, exploration activities are ended up (Darko, 2014).



Figure 1: Exploration and production facility (Repsol, 2020)

1.4.1.2 Appraisal

This second phase begins when feasible oil and/or gas resources are found. Drilling is planned and explanatory wells are constructed on site to map up a more detailed oil and gas reserves. As mentioned before, companies may engage with communities due to the collision that extraction and production can cause on the local environment and

economy. In those blocks where oil and gas reserves are commercially viable, exploration companies will plan to develop the site. In contrast, it may happen that no commercially feasible reserves are found, or these are not sufficient to justify the amount of investment needed, in which case prospecting would end. It is necessary to indicate that hydrocarbon reservoirs cannot be visually inspected or counted, and therefore, oil and gas reserves are estimated.

1.4.1.3 *Development*

Investments are high during this step. Government might rewrite contracts and the exploratory area is set up for production. Activity will accelerate during the field developments phase and first oil/gas will be produced by the end of this period (Darko, 2014).

1.4.1.4 *Production*

During this phase, hydrocarbons are extracted and produced. As already stated, uncertainty surrounds the estimation of actual reserves and thus it is difficult to predict the volume of production throughout the whole life of the field. Production tends to fluctuate across this phase, but it tends to increase until it reaches a peak and afterwards declines towards the end of the field's commercial lifetime (Darko, 2014).

1.4.1.5 *Closing and Decommissioning*

The lifetime of a field may come to its end or extracting reserves may not be cost-effective due to hydrocarbon price fluctuations. At this point, the field is decommissioned and companies that have been operating the site are required to leave the field in a similar state as before (Darko, 2014).

Despite the fact that the Upstream process for oil and gas has been jointly presented, their lifecycles have some differences. Regarding production peaks, while oil tends to peak promptly in the production phase and experiences a lengthy decline, gas is usually produced more gradually with some variations. On the other hand, compared to those required for oil, substantial gas reserves are needed to justify large amounts of investments to carry out field development and production, since gas is more expensive to transport and store, and has a lower price per unit of energy than oil. Finally, liquefied natural gas differs from oil lifecycle in the sense that processing takes place before it is

transported, and hence, Upstream activities overlap with midstream activities (Darko, 2014).

The timing of each phase is highly variable. The exploration phase tends to last between 1 to 5 years. Both the appraisal and development phase have an average length of 4-10 years each. Production covers most of the lifecycle of Upstream activities, with a range of 20-50 years where O&G companies profit from all investments made throughout exploration and production. Last, the closing phase also oscillates, but it involves approximately 2 to 10 years (Darko, 2014). However, the timing of these phases varies substantially and is mainly influenced by the following three factors:

- Physical and technical factors: the location of oil and gas reservoirs (depth, onshore/offshore, shallow/deep water) and the obstacles to extract them affect significantly the timing of Upstream activities. Extracting fields are required to be provided with electricity and water and connected by sometimes non-existent infrastructures. It is noteworthy to say that these factors are beyond the control of O&G companies (Darko, 2014).
- Social and political factors: social and political factors refer to governmental actions, community reaction and company commitment and partnership. Actions approved by governments are of vital importance, since they are the responsible for establishing a stable regulatory framework that will attract O&G companies. Coordination between different governmental layers and agencies are essential to jointly determine a regulatory regime and develop mechanisms so that E&P activities contribute and boost the community through the involvement of local players. The company's engagement is considered a key factor in the success of the Upstream business. When companies execute their business plan in such a manner that local communities benefit from it, it is more likely to receive a positive community reaction. If, on the contrary, communities are unhappy with the resulting land agreements, infrastructure improvements, economic opportunities, and governmental revenue transparency, O&G companies may deter investments and alter E&P activities. The company's direct engagement is the non-revenue benefit to government and communities, which can be classified into three categories: job creation, infrastructure development and social investment. O&G companies can create direct, indirect and induced jobs with their activities, and support local companies to participate in the supply chain by furnishing domestic goods, services and facilities. Moreover, oil and gas fields need to be accessible and contain indispensable services. Companies operating in oil and gas fields contribute in a considerable manner in developing fundamental facilities and systems such as roads, water supply, sewers, electric grids and telecommunications, which generate long-term benefit to communities. In addition, many oil companies seek to develop specific programmes of community involvement and funding where they operate. They usually include health, education, and safety plans intended to develop the local community (Darko, 2014).

- Business coordination factors: it is stated that since exploration costs are high, Large International Oil Companies (IOCs) may share responsibility through joint ventures, where either IOC or the government access to develop and produce reserves. The coordination between different players and their capacity to agree on their responsibilities and community engagement is vital to speed up the timeline of Upstream phases (Darko, 2014).

1.4.2 *Midstream*

Midstream is the next concept in the oil and gas value chain. Once oil and gas are produced, this step refers to its storage, trading and transportation. There is a clear distinction between natural gas and crude oil in this segment. Natural gas needs to be processed to remove certain impurities and elements, after which it is transported through pipelines to petrochemical plants. In addition, once the gas is processed, it can also be transported by the process of liquefaction, which consists of converting gas into a liquid by subjecting it to a very low temperature. In this way, it can be transported by means of tanks in sea vessels to its destination, where it will be offloaded in regasification plants for subsequent shipment to petrochemicals plants or the end consumer

Technological development has allowed ships to become larger and safer, and the shipment of natural gas to any part of the world. However, the necessary facilities (liquefaction and regasification plants) require large capital investments, so it is not always the best alternative. As for the use of gas pipelines, they are the most widely used means of transport. Nevertheless, when pipelines need to cross borders, many geopolitical controversies arise, obstructing their development. In fact, these pipelines have sometimes been subject to terrorist attacks and blackmail as a means of pressure.

As for the crude oil, it has little or no value until it is refined into products such as kerosene or gasoline. Oil is transported to refineries where it will be processed to obtain useful outputs for society. Oil trading and transport occur at this point. The most widely used means of transport are pipelines and oil tankers, and, although to a lesser extent, by tanker trucks and railways (Inkpen & H. Moffett, 2011).

1.4.3 *Downstream*

Downstream includes all those activities necessary to transform crude oil into products that can be easily used by the consumer (OPEC, 2013). In addition, it also covers marketing activities, gas sales to the final consumer, petrochemicals and recently, the

generation of electricity and its sale. Historically, power generation has not been associated with integrated oil companies, but during the last years, many O&G companies have diversified their business model, incorporating power generation with clean energy sources.

1.4.3.1 *Refining*

Process by which crude oil is processed and purified into useful products such as butane and propane, gasoline, kerosene, diesel fuel, lubricating oil, heavy gas or fuel oil and residuals (such as coke and asphalts) to name the most common. Petroleum products are also used in the manufacture of rubber, nylon and plastics (Deutsche Bank, 2013).

Three different phases can be found during the refining process:

- Separation (atmospheric distillation): core of the refining process, it consists of heating and separating the crude oil into its constituent parts taking advantage of the different boiling points (OPEC, 2013) (UBS, 2004).
- Conversion: at this stage, by introducing heat, pressure, catalysts or hydrogen, the heavy hydrocarbon chains are transformed into smaller and lighter ones (Fluid Catalytic Cracker, Hydrocracking and Coker) (OPEC, 2013) (UBS, 2004).
- Treatment and Blending: in this step, the fractions produced during separation are treated to improve their quality. They are then blended with other elements to produce final products (OPEC, 2013) (UBS, 2004).

Due to the variety and difficulty of these processes, refineries are expensive and complex industrial facilities. Depending on the degree of their complexity they can refine oil of higher or lower quality to obtain a given level of product. Refineries can be located both on the coast and inland, although those countries that do not produce oil tend to locate them close to the coast in order to reduce the cost of transporting crude oil. In addition, due to the complexity of the process, facilities need to be thoroughly supervised and workers' safety needs to be guaranteed with strict protection measures. There is always a risk of industrial accidents, spills and explosions. Besides, crude oil and its derivatives are highly flammable products. The refinery segment has high exit barriers due to its complex and expensive constructions. This means that, once the company thinks it is not profitable to keep the refinery operative, it is sold for a relatively low price, since the alternative would be to bear high decommissioning costs.



Figure 2: Refining facility (Repsol, 2020)

1.4.3.2 Petrochemicals

Petrochemicals are products produced from petroleum and natural gas feedstocks (The Global O&G Industry - Andrew Inkpen and Michael H. Moffet p. 507). The products obtained from petrochemical plants are highly versatile and are used in a wide range of everyday objects such as clothes, plastics or pharmaceutical products. Due to their relationship with oil and natural gas, oil companies today are among the largest petrochemical companies in the world. From the entry of raw materials to the production of the final product three different phases take place:

- Base Chemicals
- Intermediates (derived from base chemicals)
- End Product (combination of the two above)

The consumption of petrochemicals is closely related to the level of development of a country. Emerging countries such as China or India with high growth rates are the main consumers of this type of oil derived products (Inkpen & H. Moffett, 2011).

1.4.3.3 Marketing

Marketing refers simply to the wholesale and retail sale of the products obtained in the refinery. It is said that it is the last link in the value chain because it brings the industry together with the final consumer. Large integrated oil companies have an extensive network of gas stations. This segment is a good complement to refining as it provides stability in revenues and margins (UBS, 2004). The most sold products are automotive fuels, jet fuels, fuel oil for heating and power generation, lubricants, asphalts, propane and butane. These products are subject to rigid governmental regulations and high taxation, which makes their price less sensitive to variations in the price of a barrel of

oil. Marketing division is a cyclical business since it is intimately related to the growth of countries. As a country becomes more industrialized and has a better productive structure, more energy will be demanded, more salaries will be paid, and more people will spend on transport.

1.4.3.4 Gas

Natural gas and liquefied petroleum gases do not need to be taken to a refinery to be processed and sold to the end customer. As discussed in Midstream, once gas has been transported from the production field to its destination, the last step is distribution to the final customer. In recent years, the demand for gas has increased mainly due to its role as a driver of the energy transition to cleaner energy sources. Gas has lower carbon emissions per unit of energy than oil and can be used more efficiently in daily life. Gas demand is dominated by three sectors: residential and commercial consumers, industrial consumers and power generation. However, an increasing trend is observed in the use of gas as a fuel for vehicles (Inkpen & H. Moffett, 2011).

1.4.3.5 Renewable power source

Renewable energy sources have historically been seen as a competitor and a threat to oil and gas companies. However, in a relatively short time these companies have invested huge amounts of money in environmentally friendly power generation. The aim of oil companies is not to produce exclusively oil, but to make the world move, which means being at the forefront of energy sources. Because of this, some oil companies have become among the biggest players in the energy sector at the national and global level. Some of the sources in which annual investment is increasing are solar, wind, hydroelectric or combined cycle plants. The increase in environmental concerns and the desire to reduce dependence on oil from the Middle East are some of the causes of the advantages in these technologies (UBS, 2004). Moreover, increased regulation in terms of carbon emissions and government aid to boost this type of energy is likely to lead to significant growth in this segment within the portfolio of oil companies.

1.5 EUROPEAN O&G COMPANIES

The described business segments are the standard divisions that structure an O&G company. However, as any enterprise, these divisions evolve over time as part of the

structural changes and strategic plan the company approves. Therefore, a brief description of the main figures and business units of each of the European O&G companies will be given.

1.5.1 BP

The history of BP dates back to 1908, when oil was discovered in Persia. Nowadays, the firm is formed by 70,100 employees in 79 different countries and develops its activity in several segments, delivering a diverse range of energy products to people around the world. The business segments are: Upstream, which includes oil and natural gas exploration, field development and production; Downstream, divided in Fuels, Lubricants and Petrochemicals, is in charge of global marketing of the company and manufacturing operations; Alternative Energy, focused on renewable energies; and Corporate, which comprises BP Ventures and corporate activities. Moreover, BP has a 19.75% stake in Rosneft, one of Russia's largest oil and gas producers. Since the announcement of their strategy to have net zero emissions by 2050 in February 2020, BP manages all these business segments with common goal: investing in innovation to accelerate the transition towards low carbon energy.

In 2019, BP's production was 2,600 kboe/d with Angola, Argentina, Australia, Azerbaijan, Egypt, Oman, Trinidad, the UAE, the UK and the US as main areas of production. The total number of net productive wells as of December 2019 amounts to 17,644 of oil and 9,596 of gas, accounting 6 million net developed acres and 144 million net undeveloped acres. Total proved reserves are 11 Gboe, where 5.73 Gboe correspond to liquids reserves (90% crude oil, 10% natural gas liquids), and 5.3 Gboe are gas reserves. The company's RRR was 41% for subsidiaries and equity-accounted entities, 25% for subsidiaries alone and 210% for equity-accounted entities alone. With its current daily production and proved reserves, BP's R/P is c11.59 years.

BP's refining activity takes place in 10 refineries, with a refining availability of 94.9%. Europe's refining capacity represents 45% of the total capacity, US refineries join up the 42% and the rest of the world's stake is 13%. During 2019, BP refined 1,700 ksbpd. The refining margin across the Group was established in USD 13.2/bbl in 2019, which was slightly higher than in 2018. The number of retail service stations has increased in the last years, and nowadays add up 18,900 sites distributed mainly in Europe (43%) and the US (38%). The downstream profit before interest and tax in 2019 was USD 6,419 million, USD 4,759 million correspond to Fuels segment, USD 1,258 million to Lubricants and USD 402 million to Petrochemicals. BP's stake in Rosneft gave the company an additional production of 1,100 kboed in 2019, from which BP received USD 785 million following Rosneft dividend policy.

The alternative energy segment of BP includes biofuels, biopower, wind energy, solar energy and renewable products. The company has a generating capacity of 926MW through wind energy and is expecting to develop 10GW of solar energy by 2030 with its 50% stake in Lightsource BP. In Biofuels, BP operates in 11 sites and has a production capacity of 32 mmt tonnes of sugarcane per year.

1.5.2 ENI

ENI SpA is a joint stock company since 1953. The name ENI comes from Ente Nazionale Idrocarburi, and it engages in the following activities across 66 countries with 32,053 employees as of December 31, 2019: exploration, development and production of hydrocarbons, supply and marketing of gas, LNG and power, refining and marketing of products derived from oil, production and marketing of petrochemicals, and commodity trading.

ENI's Upstream division takes place in 41 countries, mainly in Italy, Libya, Egypt, Norway, UK, Angola, Congo, Nigeria, Mexico, US, Kazakhstan, Algeria, Australia, Iraq, Indonesia, Ghana, Mozambique, Bahrain, Oman and UAE. ENI has 873 exclusive or share exploration and production rights over a total acreage of 357,854 km². Out of this total net acreage, developed acreage accounts for 29,283 km². The last available data states that ENI produces 1,736 kboe/d and possesses 7.27 Gboe total proved reserves, with an organic reserve replacement ratio of 92% and an all sources ratio (RRR) of 117% in 2019. With the current production and total proved reserves, ENI's all sources R/P ratio is c11.47 years.

Table 1: Productive oil and gas wells (ENI)

Productive oil and gas wells (2019)	Oil Wells		Natural gas wells	
	Gross	Net	Gross	Net
Italy	204	158.2	441	383
Rest of Europe	657	106.2	207	67
North Africa	589	245.7	125	67.5
Egypt	1,196	513.2	141	43.6
Sub-Saharan Africa	2,620	538	201	27
Kazakhstan	204	55.8	1	0.3
Rest of Asia	990	367.7	180	63.6
Americas	250	128.4	284	81.6
Australia and Oceania	-	-	2	2
Total	6,710	2,123	1,582	736

Source: Company data

ENI has a total refining capacity of 732 ksbpd adding the 20% acquisition of ADNOC Refining (UAE) in 2019, with 88% load factor. Those 732 ksbpd are distributed as follows: wholly owned refineries account for 388 ksbpd with a conversion rate of 55%, and partially owned refineries 344 ksbpd with a conversion rate of 57%. ENI's refining margin increased 16% in 2019 reaching USD 4.3/bbl. The company processed 23.05 mmtonnes of crude oil and other feedstock and sold 32.27 mmtonnes of refined products, 79% of which had Italy as destiny. ENI's retail market share in Italy lowered from 24% in 2018 to 23.7% in 2019. Through its 4,184 service stations network, 39 less than in 2018, the company sold 5.81 mmtonnes in Italy. Retail sales also decreased in 2019 to 2.44 mmtonnes, a reduction of 1.6%. As of December 2019, ENI possessed 1,227 service stations across Europe outside Italy, an increase of 2 units compared to 2018. In the chemicals business segment, ENI operates mainly in Italy and Europe through its totally owned subsidiary Versalis producing and marketing basic petrochemical products, plastics and elastomers. ENI produced 8,068 ktonnes of petrochemicals in 2019.

Gas & Power constitutes an important division in ENI. ENI supplies, trades and markets gas, LNG and electricity, and engages in international gas transport activities and commodity trading. ENI sold 73.07 bcm of natural gas worldwide, 52.80% corresponding to internal sales in Italy. The company has a current total capacity of 4.7 GW installed in its gas-fired plants in Italy. Electricity sales reached 39.49 TWh in 2019. Regarding the company's activities in LNG, they are concentrated on the Italian wholesale and retail market, but it also serves gas and power in a number of European markets. By the end of 2019, ENI has 9.4 million retail customers in the G&P segment.

1.5.3 Equinor

Equinor is the largest O&G operator in Norway. Founded in 1972 as Den Norske Stats Oljeselskap AS—Statoil (the Norwegian State Oil company), it was renamed to Equinor in 2018. As of 2019, it has more than 21,000 employees and it is present in more than 30 countries worldwide. Their activities are segmented into eight business areas: Marketing, Midstream & Processing (MMP), Development and Production Norway (DPN), Development and Production International (DPI), Development and Production Brazil (DPB), Technology, Projects and Drilling (TPD), Exploration (EXP), Global Strategy and Business development (GSB) and New Energy Solutions (NES). At the same time, their business performance is grouped in four divisions: Exploration & Production Norway, Exploration & Production International, Marketing, Midstream & Processing and Other.

Equinor produces 2,074 kboe/d in combined oil and gas equity production and is responsible for about 70% of overall Norwegian O&G production. Norwegian production accounts for 65% of total production with fields located mainly in the Norwegian Sea and the North Sea. International production is mainly attributed to United States, Brazil,

Angola, Algeria, Nigeria and Azerbaijan, accounting for 35% of the total average daily production. As of 31 December 2019, 1P reserves are estimated to be 6 Gboe with 88% located in OECD countries, with a RRR of 75%, which results in a R/P ratio of c7.92 years.

Downstream refining activities take place in three refineries: Mongstad, Kalundborg and Tjeldbergodden, with a distillation capacity of 15.7 mmt tonnes. In 2019, the company's refining margin was USD 4.1/bbl. In total, the net developed acreage is 918,000 km² with 1,120 productive oil wells and 521 gas wells. Natural gas combined entitlement production was 698 MMboe, split in oil, gas, condensate, and natural gas liquids (NGL).

Table 2: Productive oil and gas wells (Equinor)

Productive oil and gas wells (2019)	Oil Wells		Gas wells	
	Gross	Net	Gross	Net
Norway	897	300.8	200	88.4
Eurasia excluding Norway	225	42	12	4.2
Africa	429	68.6	109	41.7
US	2,531	661.7	1993	386.7
Americas excluding US	167	46.4	-	-
Total	4,249	1,120	2,314	521

Source: Company data

Equinor spends around NOK 2.8 bn on research and technology development, split approx. 50/50 between internal and external activities. More than 20% of these funds go to support research on new energy solutions and energy efficiency. In 2019, Equinor has an installed capacity of 750 MW in offshore wind and solar assets. New Energy Solutions, which is included in the "Other" segment, owns one of the largest and fastest-growing renewable energy portfolios in operation and under construction in Europe.

1.5.4 Repsol

Repsol has been exploring, producing oil and gas, and refining oil since 1986, transforming from a Spanish local business to the 14th largest O&G company on the globe according to Forbes. Repsol's activities are divided into three main business areas, Upstream, Downstream (including Refining & Marketing, but also Petrochemicals, LPG, and Gas & Power) and Corporate.

Repsol's Upstream division, consisting of exploration and production of hydrocarbons, represents 56.6% of the company's EBITDA EUR 5,335mn. Repsol has exploration and

producing rights over 193 blocks (232,331 km² net acreage) in 29 countries, produces 715 kboe/d (64% gas production) from 178 operating wells, and possesses 2.34 Gboe total proved reserves, with a reserve replacement ratio (RRR) of 94% in 2018. With the current production and total proved reserves, Repsol's R/P ratio is c8.96 years.

Table 3: Net acreage, oil and gas wells and reserves (Repsol)

Net acreage	Development	Exploration	Wells	Oil	Gas	Proven reserves	
Europe	1,122	11,922	Europe	231	94	Europe	102
LATAM	4,827	90,959	LATAM	771	227	LATAM	1,419
NA	4,698	9,998	NA	1,439	2,795	NA	535
Africa	2,605	10,590	Africa	12	93	Africa	129
Asia	2,951	98,152	Asia	625	82	Asia	154
Total	16,203	221,621	Total	3,078	3,291	Total	2,339

Source: Company data (2018). Net acreage unit km². Proven reserves unit MMboe

Repsol has a total refining capacity of 1,013 ksbpd adding its Peruvian and five Spanish refineries, with 91.9% load factor (Crude Throughput / ADU). The Spanish refineries, which contribute with 88% the distillation capacity, have a conversion rate of 63%, much higher than Peruvian's 24%.

Table 4: Refining capacity (Repsol)

Refining	Refining Capacity (kbbbl/d)	Conversión index (%)
Spain	896	63%
Bilbao (Petronor)	220	63%
Tarragona	186	44%
A Coruña	120	66%
Puertollano	150	66%
Cartagena	220	76%
Peru	117	24%
Total	1,013	59%

Source: Company data

Repsol has seen its refining margin reduced from USD 6.2/bbl in Q4 2018 to USD 5.6/bbl in Q4 2019. More than half of Repsol's petroleum products are middle distillates (53%) such as gasoil and kerosene, followed by gasoline (19%). Repsol also produces fuel oil, LPG, asphalts, lubricants, and others (including petrochemicals). The commercialization of these products is made through B2B and a network of c4,900 service stations in Spain

(3,350), Portugal, Peru, Italy and Mexico, and external commercial distributors. Repsol is the 1st player in the Spanish fuel market, with a 37% market share, and controls 26% of the market both in Portugal and Peru, being the second largest oil and gas company in these two countries. Repsol is also developing a new concept of service station by associations with El Corte Inglés (JV 50/50 including Supercor Stop&Go convenience stores), Amazon, Nespresso, Correos and Disney that consist of proximity stores and lockers. Repsol covers 85% of the Spanish LPG market with 4 mn active customers, which is distributed bottled, bulked and through AutoGas. Repsol's two petrochemical complexes in Spain and one in Portugal produced lubricants, asphalts and specialized products for an amount of 1.91 MMtpa, and 4.84 MMtpa of petrochemicals in 2018. Repsol has several agreements with local producers in certain strategic countries to manufacture some products on site and it is expanding its lubricant segment through a new line of production in Mexico based on its acquisition of 40% of Bardahl in 2018 and online sale. Regarding the production of chemicals, in addition to the three previously mentioned petrochemical complexes, Repsol has several subsidiaries and affiliated. Example of this are the JV with SK in ILBOC or the partnership between Repsol and KUO group in Dynasol to produce synthetic rubber and new products in Spain, Mexico and China. Figure 3 represents Repsol's business divisions geographical location. In orange color, Upstream division, in blue, Downstream division, and in light blue are represented regions with both activities.

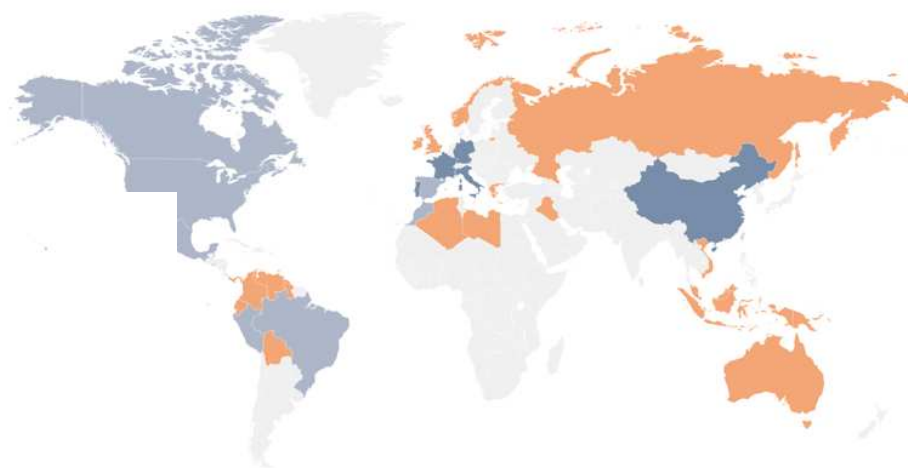


Figure 3: Repsol's activities by geographical location (Repsol, 2020)

The Gas & Power area is also included in the Downstream business segment, integrating LNG, gas distribution and electricity generation. Repsol owns 75% of Canaport LNG regasification terminal, with a maximum send-out capacity of 1.2 Bcf/d, which serves primarily clients in the northeast. United States and Canada. Furthermore, on June 24th, 2018 Repsol announced the acquisition of low-emission assets from Viesgo (EUR 733

mn): three hydroelectric power plants (704 MW), two combined-cycle gas power plants (1,648 MW) and a portfolio of 750,000 retail customers. Repsol's current low- carbon electricity capacity totals 2,952 MW, composed of Viesgo's 2,352 MW and 600 MW of Repsol's capacity in its own industrial complexes. Moreover, Repsol is currently developing and installing new low-carbon electricity plants that account for 1,209 MW and has approved new investments to build two photovoltaic and one wind power project with additional 1,600 MW. Repsol's renewable power and the traditional combined cycle gas capacity will therefore reach 5,600 MW. The company's goal for 2025 is to achieve 7.5 GW, and the potential purchase of wind plants with a capacity of 850 MW from Forestalia goes in line with it.

Repsol also looks into the future with being core strategy of being an energy provider, with focus on mobility. Through its Venture Capital has invested in IBIL, a company with EV charging points distributed throughout Spain. Another innovative project is WiBLE, a carsharing operator as a result of Repsol's and Kia Motors' partnership. With respect to electric mobility, Repsol has also invested in a startup called Silence, which produces electric scooters, and in a project known as Ample, a company that develops new electric vehicles charging alternatives. Switching to digitization in mobility, Repsol invests in two projects: Westmartpark (low- cost collaborative parking) and Drivesmart (application that applies metrics of safe, social and sustainable driving to improve user's driving). Autogas and hydrogen mobility are also projects in the scope of Repsol.

Being an integrated player vs the independents (pure producers or pure refiners) provides Oil Companies with a natural hedge to crude oil price volatility. In order to balance a large downstream portfolio, Repsol acquired YPF in 1999. Following the expropriation by the Argentinian national in 2012 (25% of net operating income), Repsol sought for new reserves in OCDE countries. In December 2010, Repsol closed a deal with Sinopec to develop the company's E&P projects in the Brazilian offshore constituting Repsol Sinopec with a value of USD 17.8 bn. In 2015, it acquired 100% of Talisman Energy Inc., mainly Upstream, for a value of EUR 10.4 bn. In 2018, Repsol sold the 20% interest on Gas Natural Fenosa (currently Naturgy). Repsol today employs more than 25,000 (24,691 avg. own employees as of 2018) workers across 35 countries and 83 nationalities, 68% in Spain.

1.5.5 *Shell*

The Royal Dutch Shell Group was created in February 1907 through the amalgamation of two rival companies – Royal Dutch Petroleum Company and the “Shell” Transport and Trading Company Ltd of the United Kingdom. It was a move largely driven by the need to compete globally with Standard Oil. The terms of the merger gave 60% ownership of the new group to the Dutch arm and 40% to the British. In November 2004, following a period of turmoil caused by the revelation that Shell had been overstating its oil

reserves, it was announced that the Shell Group would move to a single capital structure, creating a new parent company to be named Royal Dutch Shell Plc.

The group has operations in over 70 countries, produces around 3,700 kboe/d, with total proved reserves of 11Gboe, a R/P of c8.14 years, and has 45,000 service stations worldwide. Its operations are divided into 5 main areas, which are Upstream, Downstream, Integrated Gas, New Energies, and Projects & Technology. Shell's Upstream strategies are mainly based on Deep Water, Shales and Conventional Oil and Gas. In 2019, Shell drilled and brought 30 wells onstream. They have interests in 748 productive by the end of 2019. The group has exploration and production rights over a total acreage of 309,475 km². Out of this total net acreage, developed acreage accounts for 58,845 km².

Regarding the Downstream area, Shell has a portfolio of refineries and chemical plants producing a wide range of products including gasoline, diesel, aviation and marine fuel, lubricants and petrochemicals, with a plant availability of 90.8%. Their refinery-processing intake represents 2,564 kbbl/d as for 2019.

The Integrated Gas business manages liquefied natural gas (LNG) activities and the conversion of natural gas into gas-to-liquids (GTL) fuels and other products, as well as the New Energies portfolio. It includes natural gas and liquids exploration and extraction, and the operation of upstream and midstream infrastructure that delivers gas and liquids to market. It markets and trades natural gas, LNG, electricity and carbon emission rights, and markets and sells LNG as a fuel for heavy-duty vehicles and marine vessels. In 2019, production was 336 mboe and LNG liquefaction volume was 35.6 mmtonnes.

Projects & Technology organization manages the delivery of the major projects and drives research and innovation to develop new technology solutions. It provides technical services and technology capability for the Integrated Gas, Upstream and Downstream activities. It is also responsible for providing functional leadership across Shell in the areas of safety and environment, contracting and procurement, wells activities and greenhouse gas management.

1.5.6 *Total*

Total SA is an integrated oil and gas company with nearly a century of history. It originated from the Compagnie Française des Pétroles (CFP) in 1924 and became TOTAL in 1991. It is currently one of the largest integrated oil and gas company in the world by capitalization with almost 110,000 employees in 130 different countries. Its activities are separated into Upstream (Exploration & Production, Integrated Gas, Renewables & Power), Downstream (Refining & Chemicals and Marketing & Services) and Corporate. Its goal for the coming years is to become a responsible energy major.

Exploration & Production mission is finding and exploring oil and gas fields in order to satisfy the increasing non-OECD country's demand. Total produced 2,454 kboe/d during 2019 focusing its strategy in three levels: responsibility (minimizing its environmental impact and reducing its emissions), profitability (cutting costs and selling the least efficient assets) and durability (renewing its reserves). Upstream takes place in 50 countries, mainly in Norway, Russia, Angola, Nigeria, United Arab Emirates and Qatar. Total has exploration and production rights over a total acreage of 422,872 km². Out of this total net acreage, developed acreage accounts for 7,272 km². The last available data states that Total produces 3,014 kboe/d (18% iGRP and 81% E&P) and possesses 12.6 Gboe total proved reserves (Brent at USD 62.72/bbl), with an organic reserve replacement ratio (RRR) of 157% (Brent USD 62.74/bbl). With the current production and total proved reserves, Total's all sources R/P ratio is c12.52 years.

IGRP is a very important segment for Total as it encompasses the production, transport and marketing of LNG and the generation, storage and marketing of low-carbon electricity. In addition, this segment includes trading activities (LPG, sulfur and coke) and carbon neutrality businesses. This segment will be one of the engines of Total in the following years. Hydrocarbon production amounted to 760 kboe/d and LNG sales to 34.3 mmt tonnes. Sales have increased by 57% due to the acquisition of the Engie portfolio, the start-up on the first Cameron LNG train in the EEUU and the ramp-up of Yamal LNG and Ichthys. Total's strategy is to consolidate the second worldwide position with a flexible portfolio. Regarding low-carbon electricity generation, Total has an installed capacity of 1.9 GW from combined cycle plants. In addition, it continues with its plan to promote renewable energy sources, solar, wind and hydro, with a gross installed capacity of 3 GW and have announced agreements to increase it by 5 GW in Spain, Qatar and India. Total operates in this segment through subsidiary companies (Total Quadran, Total Solar International and Total Solar Distributed Generation) and through its shareholding in companies (Total Eren and SunPower). Total is also present in the challenge of electricity storage through its subsidiary Salf Groupe. In the gas and electricity marketplace, Total has a portfolio of nearly 6 mn of electricity and gas customers (B2B + B2C) (76% in France) with the aim to reach 10 million by 2025. The company sold 46 TWh (56% in France) and 9.1 Bcm (45% in UK) in Europe. Natural gas and electricity marketing have presence as well in Argentina, India and Mexico. Activities aimed to reduce carbon emissions (CCUS, natural carbon sinks, energy efficiency, etc.) are also included in this segment.

The Downstream division is formed by Refining & Chemicals and Marketing & Services. Total has a total refining capacity of 1,959 ksbpd adding its 17 refineries (7 in Europe, 73% of Total's refining capacity), with an 83% load factor (Crude Throughput / ADU). These 1,959 ksbpd are distributed as follows: operated refineries account for 1,558 ksbpd and other refineries in which the Group has equity stakes account for 401 ksbpd. Total has seen its refining margin reduced from USD 5.2/bbl in 2018 to USD 4.78/bbl in 2019. The refining segment produced 1,606 kb/d, of which nearly half (41.8%) were diesel and heating oils. In the Chemicals segment, the Group has petrochemical business in Europe, United States, Qatar, South Korea and Arabia Saudi. Most of them are

connected by pipelines to Total refineries in order to maximize synergies. Total produced 21.2 mmt tonnes of petrochemicals in 2019, of which nearly half were in Europe (48%). Its main production was olefins (37%) followed by aromatics (33%).

Marketing segment is divided into three main areas: retail, production and sale of lubricants and the distribution of products and services for professional markets. According to IHS 2018, Total is the second largest retail distribution among majors (Total, BP, Chevron, Exxon and Shell) outside of North America. It accounts for 15,615 branded service stations mainly in Europe (36%) and Africa (29%). Total has a strong position in Western Europe, mainly in France, Germany, Belgium, the Netherlands and Luxembourg where Total reached a market share of 16% in 2019, according to company data. The petroleum product sales ascend to 1,845 kb/d, increasing by 2% in 2019 due to the development in Africa and Americas. The company is the country's top operator in France and Belgium. Apart from petroleum products, Total also sells new energies for mobility such as NGV (hydrogen and electric charging for vehicles) and is focused on empowering lubricants due to its higher unit margins.

2. CHAPTER II: INDUSTRY OVERVIEW & COMPETITIVE POSITIONING

2.1 INDUSTRY OVERVIEW

2.1.1 *Industry dynamics: Macro (Crude oil price, production and reserves, FX, Inflation, GDP)*

2.1.1.1 *USD 48.65/bbl Brent crude oil price in 2025e*

After several years of oversupply, the industry was feeling healthier lately. It overcome a period of low prices (USD 40-50/bbl). The global oversupply of Liquefied Natural Gas (LNG) was expected to extend into the late 2020s (McKinsey Energy Insights, 2019). According to (Rystad Energy, 2019), there were three main factors leading to a stable oil price scenario in 2020: no global recession, continued OPEC production cuts and IMO 2020 regulations. However, recent events like the Covid-19 pandemic and Russia's and Saudi Arabia's pulse for oil production have taken Brent's price down to USD 22.74/bbl, an unseen figure since 2002. Current market estimates for Brent price in 2020 are USD 34.70/bbl (Bloomberg, 2020), a 42.07% downside since EIA's last estimation of USD 59.9/bbl. Bloomberg estimates for crude oil prices are in line with the latest estimations provided by the EIA. These estimations can be shown in the table below.

Table 5: EIA estimates for Crude Oil (EIA, 2020)

EIA estimates (USD/bbl)	2019	2020	2021	2022
Brent Crude Oil	71.19	64.37	34.13	47.81
WTI Crude Oil	65.06	57.02	30.10	43.31

Source: EIA

2.1.1.2 *Global oil consumption is half of the Ebro river flow c.95 MMbbl/d*

According to OPEC, the sector is expected to grow at 4.5% CAGR 2019-23, with its companies among the largest corporations by revenues. World's proven oil reserves according to the SPE scheme total only 386 Gbbl and list 2PCX resources close to 1.8 Gbbl as of June 2019 (Rystad Energy, 2019). Society of Petroleum Engineers (SPE) defines reserves as 'those quantities of petroleum which are anticipated to be commercially recovered from known accumulations from a given date forward'. To be commercially recoverable implies both economic and technical, therefore they need to be profitable,

otherwise should not be recovered. In the opposite, resources that were not profitable to be produced should be classified as reserves in the case of a price increase.

Nowadays Europe, as the rest of the World, is living a demand crisis caused by the recent events mainly due to Covid-19. This effect has been taken into consideration to give a representative image of the European O&G industry, following the Rystad Energy's weekly comprehensive Covid-19 Report.

Total oil demand in Europe for 2020 is now forecast to fall by 1.8 MMbbl/d to 12.4 MMbbl/d, a 13.2% decline from 2019's 14.2 MMbbl/d. April will saw a decline of 37.5%, with demand falling to 9 MMbbl/d. May will see a decline of 28.4%, with demand falling to 10 MMbbl/d, while June demand will drop by 19.3% to 11.4 MMbbl/d.

Europe's road fuel demand in 2020 will fall by 0.8 MMbbl/d, a 12% decline to 6.2 million bpd from last year's 7.0 MMbbl/d. April saw a decline of 42.7%, with demand falling to 4.1 MMbbl/d. May will see a decline of 27.2%, with demand falling to 5 MMbbl/d. June demand will decline by 14.8% to 6 MMbbl/d.

In 2021, total oil demand in Europe is expected to average at 13.6 MMbbl/d and road fuel demand at 6.7 MMbbl/d.

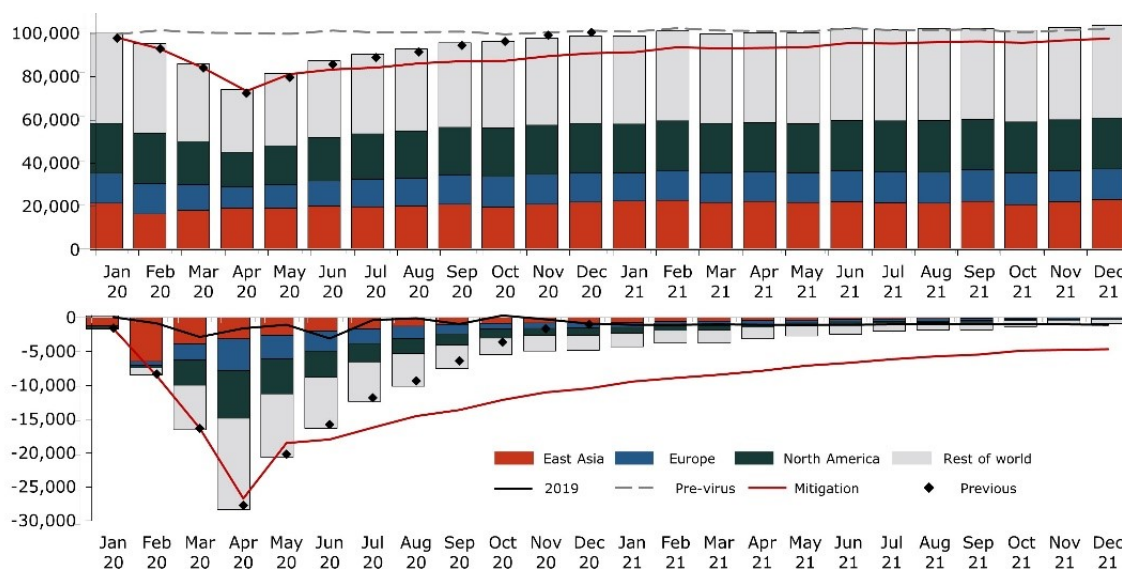


Figure 4: Global oil demand impact of Covid-19, total demand (up), losses (down) (kbbl/d) (Rystad, 2020)

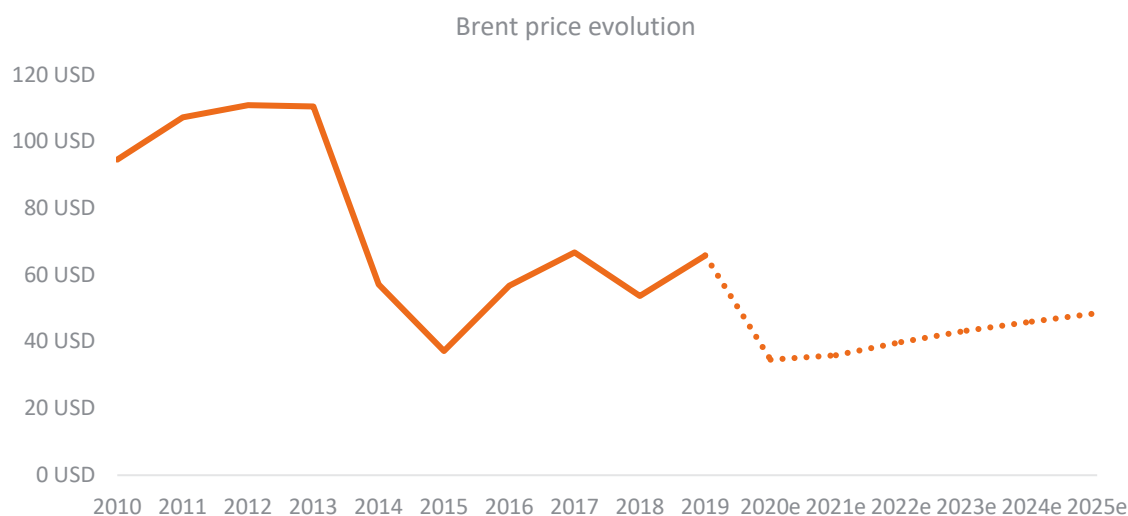


Figure 5: Brent prices' evolution and estimates (Bloomberg, 2020)

2.1.1.3 *The Stone Age didn't end for lack of stone... demand*

Population is growing 1.1% annually (World Bank), expecting to reach 9 bn people worldwide in 2040, with an annual GDP per capita growth of 2.6%. Fast growing economies like Africa and India will double their energy demand by 2050, when 800,000 new people will have access to electricity and passenger cars. The O&G drilling sector currently makes up between 2% and 3% of the global economy (IBISWorld) and it is expected to expand until the beginning of the 2030's decade, when it will reach a peak and start to descend (McKinsey Energy Insights, 2019). Transportation leads the oil demand with 57.5% of global in 2019, followed by the industry sector (26.6%). Currently, barely 5% of the World's oil demand is linked to electricity generation. Demand has stabilized due to the commercial war between US and China, but after the recent agreements, a steady growth is expected mainly caused by the accessibility to energy and industrialization of emerging economies. Air transport is expected to have a CAGR of 4.5% until 2032 (ICAO).

However, 2020 Covid-19 pandemic has made prices to drop to decades minimum as it has become a demand crisis. One of the most affected sectors is Aerospace, as airlines are requiring less kerosene because flights and passenger flows have almost stopped due to quarantine measures. No kerosene bought by airlines implies less workload in refineries, making downstream demand to constrain, and as a direct effect, an impact on upstream producers. This phenomenon can be extent to other business and extrapolated throughout the world economy. The next figure shows the descent in the number of world's total daily flights. It can be seen that the number of commercial flights has fallen more than the non-commercials flights. Non-commercial flights include general aviation flights plus military, government, ambulance flights and helicopters among others.

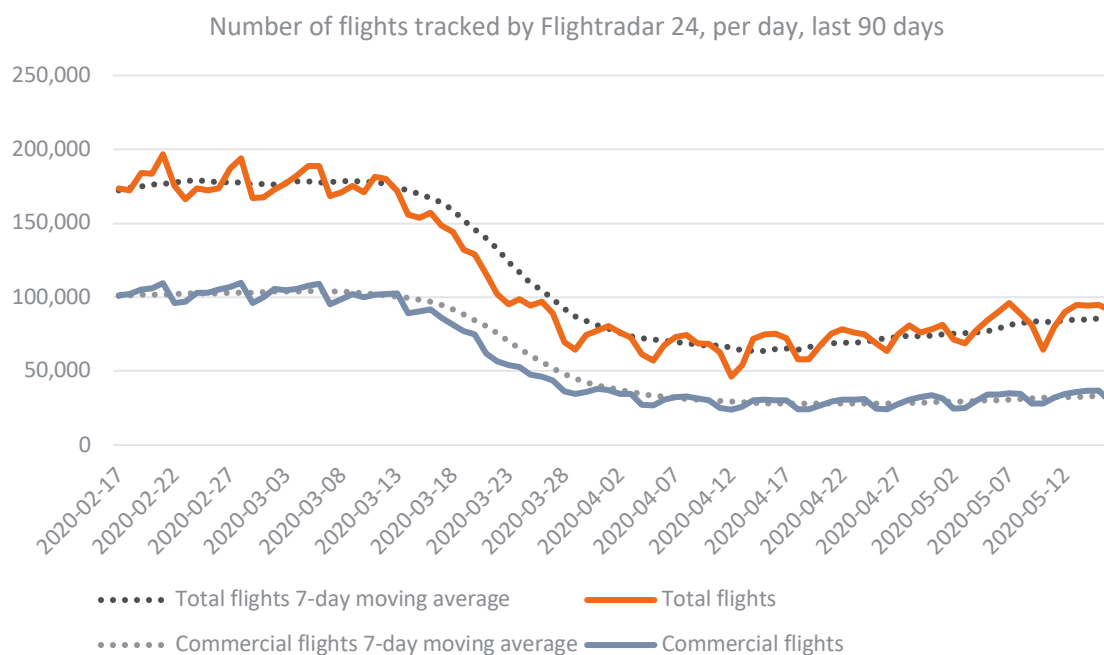


Figure 6: Number of flights tracked by Flightradar 24, per day, last 90 days (Flightradar 24, 2020)

Figure 6 shows the impact on air traffic in Europe between the month of April 2019 and April 2020 at 15:00 CET. Total flights went down by 62% while commercial flights went down by 74%.

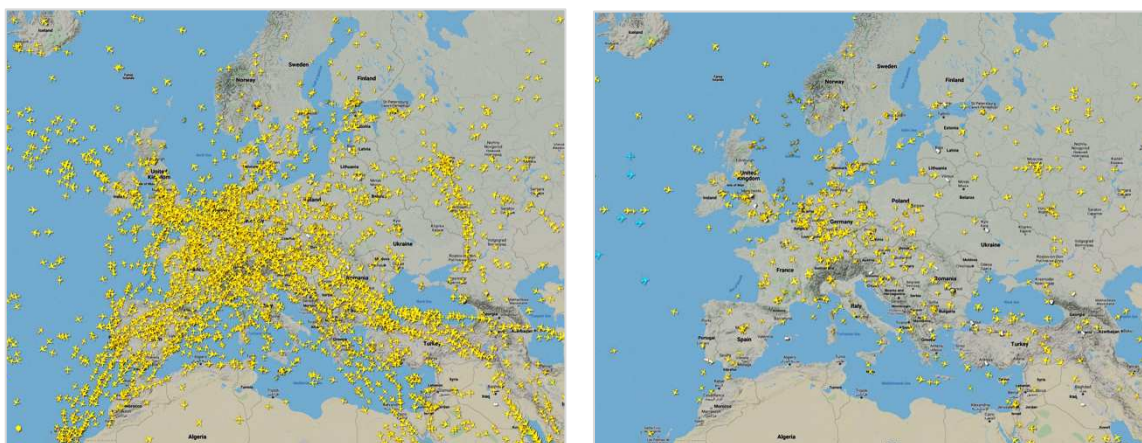


Figure 7: Daily flights in April 2019 (left) and April 2020 (right)

2.1.1.4 ... And the Oil Age will end long before the world runs out of oil: Supply

The United States became for the first time a net oil exporter in Sep-19. Brazil's crude oil production peaked 3 MMbbl/d for the first time ever in Nov-19 (NAP), supported by onshore shale and deepwater's plays. Current projects in Canadian oil sands can deliver more barrels per day (Deloitte). The OPEC still has an enormous impact on global oil supply (41.5% in 2018, BP Stats). OPEC and 10 non-OPEC countries have recently announced a decrease in production targets of 500 kbbl/d by 2025. Since beginning of 2020 there is an additional -500 kbbl/d reduction approved on the 177th Meeting of the Conference of the OPEC that took place on December 2019. After the agreement reached between Russia and OPEC on April 9th, offer has been reduced by 10 MMbbl/d. This reduction is planned to last for at least two months (May and June), while the reduction will be of 8 MMbbl/d in the subsequent period of 6 months. Finally, it will be followed by a 6 MMbbl/d adjustment of an extra of 16 months, from January 1st, 2021 to April 30th, 2022 (OPEC, 2020).

2.1.1.5 Technology has been fighting peak oil

Technology and digitalization play a key role in the O&G industry profit generation. The industry has invested heavily (USD 477 bn Upstream, EIA) in creating new technical developments to discover and produce new hydrocarbons. Hydraulic Fracturing, discovered in 1947, made possible more than 2.5 mn O&G wells (SPE estimates). Digitalization has allowed to constantly reduce costs and improve margin competitiveness. Peak Oil has been avoided as the reserves' life has consistently been above 50 years for the last 10 years for oil and since 1980 for natural gas (BP Stats). The balancing of inventories also influences the crude price. Non-OPEC and OPEC supply try to adjust Non-OECD and OECD demand with US inventories as a reference of the balancing point. Crude oil is traded in a global market with Financial Markets allowing participants to impact on oil prices. In addition, dollar direction and US rig counts (1,050 in 2019, Baker Hughes) will continue to move prices.

2.1.2 Sector strategies

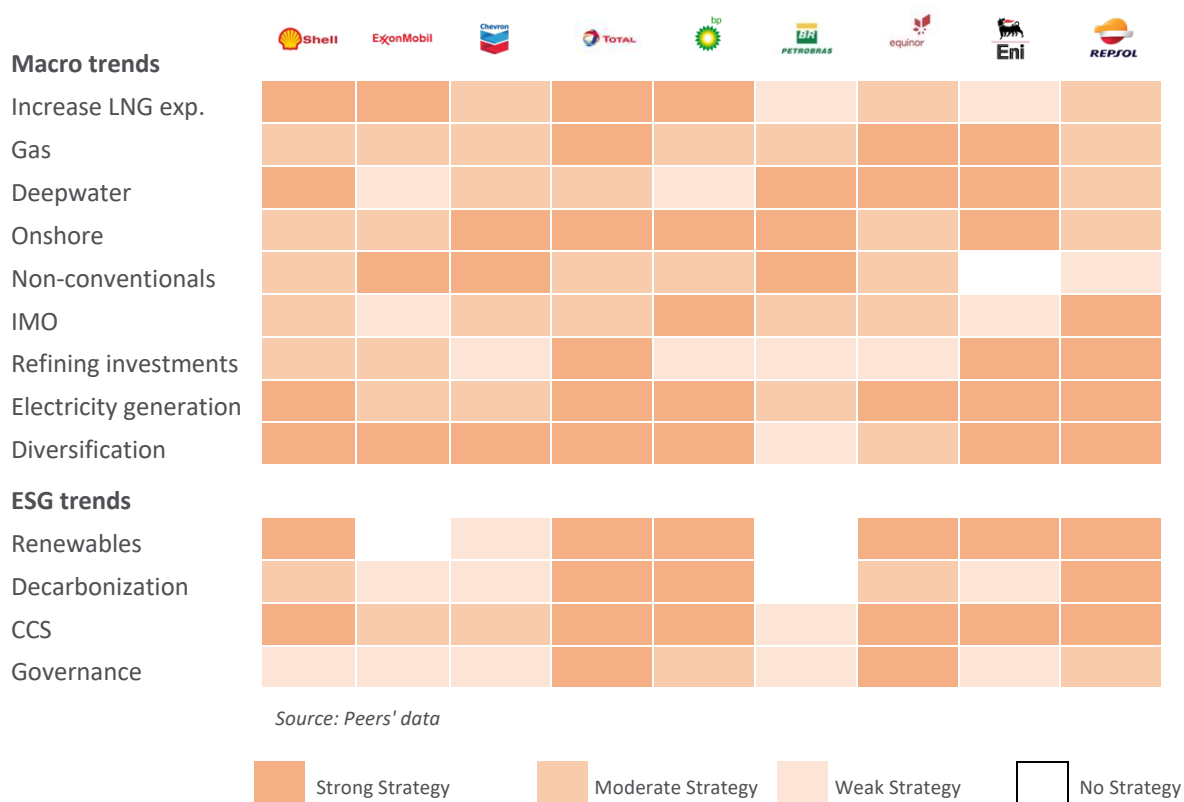
Supermajors are gradually increasing CapEx (Chevron USD 20-22 bn 2020-23) and Exploratory expenditures, with strong focus on LNG (Exxon USD 9 bn 2023 for Papua New Guinea and Mozambique), as it is expected to deliver improved returns over the long-term. However, upstream divisions' investments will remain the highest of the industry. BP and Total renewable's CapEx account for USD 4 bn/y 2019-25. In the

Permian Exxon and Chevron production is expected to exceed 1 MMboe/d by 2024. In downstream, chemicals and lubricants future growth is expected in the US thanks to the increasing demand, becoming the most remarkable expansion in Exxon and Chevron strategy until 2025 (30% sales increase by 2025). BP is committed to continue its activity only in the best markets and assets, increasing its efficiency. Total is willing to expand in fast growing countries targeting 4,000 stations in new markets by 2025. Likewise, Shell has shown an ambitious plan of cost optimization and divestments of at least USD 5 bn/y until 2025, concentrating its business on a competitive portfolio, in order to achieve a 12% ROACE. On the other side, Petrobras presented in December 2018 its 2019-23 Business and Management plan a new vision of energy diversification, focusing on their E&P driving force, they plan to invest USD 78.4 bn, as the movement towards the future lays on a USD 0.4 bn CapEx investment. On the other hand, Total wants to expand in countries with large fast-growing markets. Equinor sustains its growth strategy by building a high value and low carbon oil and gas portfolio with heavy CapEx investments in renewables energies (15-20%), which aim to be more than 60% of total CapEx by 2025. Equinor is shifting towards becoming a global multi-energy supplier, optimizing production and developing new renewable energy opportunities.

The European integrated O&G industry seems to be rapidly evolving towards a reduction of carbon intensity of the energy it supplies, and thus, the six companies analysed are within this group that is shifting towards a low-emissions future. It can be said that non-European O&G companies are well behind their European peers (Dietz, et al., 2020). While Chevron, Exxon (bets on CCS technology) and Petrobras do not include this issue in their short-term agenda, European companies have recently announced plans to reduce their emission footprint setting 2050 as goal for net zero-emissions. This is the case of Equinor, aiming to create high value with low emissions. Repsol and Total are now aligned with the Paris Agreement targets, and BP and ENI have included scope 3 emissions in their reduction plans, a clear step forward with respect to their previous decarbonization plans. BP, ENI, Equinor, Repsol, Shell and Total are implementing long-term carbon emissions plans. For instance, Shell is aiming to reduce the net carbon footprint of its energy products by 65% products by 2050 (Dietz, et al., 2020). It is clear that European O&G peers are ahead the energy transition the industry needs to overcome, although there are differences in the strategies followed by each company. Shell and Total are very strong LNG players, and LNG will be one of the main drivers of the energy transition. BP is also investing large amounts of CapEx in LNG, since they want to take advantage of the expected growth of LNG demand in the following years. In fact, for the sixth consecutive year, global LNG trade set a record in 2019 (International Gas Union, 2019). ENI, Equinor and Repsol are also increasing their LNG portfolio, but they are behind the three largest European O&G companies. With respect to other macro trends, it is remarkable the enlargement of the G&P segment in the European companies, with greater shares in gas production and power generation. The expertise of oil and gas companies to join the low carbon integrated opportunities beside gas and power will be a pivotal competitive advantage (Johnston, et al., 2020). A similar pattern is observed in the diversification strategies all of them are following, seeking a better

resiliency to market prices volatility. In terms of ESG trends, the differences in the strategies between European and non-European companies are even greater. Renewables constitute now an important object of investments and revenues in the case of BP, ENI, Equinor, Repsol, Total and Shell. Repsol assigns 17% of its investments to green energies, Total 13%, Shell and Equinor 10%, ENI 9% and 3% in the case of BP (Montes, 2019). As already mentioned, these companies have recently published updated decarbonization targets in order to compromise to mitigate climate change and achieve the Paris Agreement targets. However, companies will need to go further, and it will be required to progress in other sectors and boost actions by other players such as customers and suppliers. Therefore, this introduces a new “sectorial decarbonization” concept (Dietz, et al., 2020). One of the most widely accepted initiative to help mitigate global warming and ocean acidification is the so-called CCS, a process of capturing CO₂ issued by the companies, transporting it to a storage site usually underground, avoiding releasing into the atmosphere. All the O&G companies, including ExxonMobil, Chevron and Petrobras, have set out CCS initiatives and plans, and thus, it is an important trend in the industry. Finally, and as it will be described with more detail in the Corporate Governance section, there are large disparities in the governance structure among the peers.

Table 6: Strategies of the main O&G players worldwide (Company data and Team Estimates)



2.2 COMPETITIVE POSITIONING

2.2.1 *Exploration, development and production*

The European O&G companies do not face only competition from their well-established European peers, but also from other international and state-owned oil companies. When competing for obtaining exploration and development rights, Shell, BP and Total have a competitive advantage due to their financing capacity and amount of available resources to invest. On the contrary, ENI, Equinor and Repsol, because of their smaller size, encounter more obstacles and greater difficulties to get E&P rights. Another competitive advantage related to the company's size is the economies of scale large Upstream players achieve through considerable cost savings, which can hit harder smaller companies' Upstream segment.

Even though in terms of size ENI, Equinor and Repsol are disadvantaged, there are additional factors that explain a company's competitive positioning in E&P, and it is worth highlighting ENI's Upstream performance. The Upstream division is by far ENI's most competitive business segment and the leading driver of the firm's value creation. ENI is very keen on E&P activities in North Africa, especially in Egypt, Libya and Algeria, in Sub-Saharan African countries such as Nigeria and Angola, and is becoming a more competitive player in Norway, Kazakhstan, and UAE. ENI has a very competitive discovery cost per boe, a key issue to reduce the breakeven of E&P projects and performs its Upstream activities through a strategy called Dual Exploration Model. To put it short, this strategy aims to reduce the payback period of the company's investments by diluting its participation interests in specific projects once the first phases have been successful, but still keeping operatorship of the field. This Dual Exploration Model allows ENI to recover faster its CapEx, as in the 20% interest divestment in the East Sepinggan (Indonesia) discovery. ENI had a unitary exploration cost of USD 1.5/bbl in the period 2014-2018, and USD 1.1/bbl in the last 10 years. These figures are much lower than its peers' (BP, Equinor, Chevron, and Total had an average unitary exploration cost of USD 3/bbl in the last 10 years, and USD 5/bbl in 2018). Shell's exploration unitary cost was around USD 3/bbl in 2018, achieving a great decrease from 2016, when it hit USD 6/bbl. In the case of Repsol, the company is making great efforts to reduce its exploration cost per unit of barrel of oil equivalent and in some core areas, it is below the industry average, but as Shell, they are both above ENI's. The decline in the exploration intensity per boe is a trend that all the European O&G companies are following, and ENI is leading. The company's coming upstream projects have a full-cycle IRR of 25,5% with an average breakeven price of USD 20-25/bbl, greater than Equinor's 25% that has a breakeven of USD 30/bbl. Repsol follows ENI and Equinor with an IRR of 21.4% with a breakeven of USD 40/bbl. Total, on the contrary, estimates that its upstream projects have an IRR of 15% but in an average price scenario of USD 50/bbl, similar to that of Shell and BP.

The cumulative discovered resources figure also reflect ENI's strength in the Upstream segment. ENI discovered an average of 1.3bn boe/year in the last 10 years and 6bn boe of resources in the last 6, well above its peers' average. Moreover, ENI has significantly improved its time to market. While the industry lasts between 3.9 and 4.5 years from discovery to FID and from FID to start-up (8.4 years in total from discovery to field start-up), ENI has accomplished to reduce these terms to 2 and 2.2. Thus, ENI is able to start producing oil and gas 4.4 years after resources have been discovered, which makes ENI a very competitive peer in monetizing its CapEx. The company is convinced of its fast-track scheme that allows lowering unproductive capital and tightening the periods between development intra-phases. For instance, in 2019 En was capable of starting up a field in Mexico in less than a year from the FID. To sum up, ENI has a strong competitive positioning in E&P primarily due to its deep knowledge of basins and superbasins, short time to market cycles and lower exploration unitary costs than its European O&G peers.

In terms of production of hydrocarbons, proved reserves and reserve-to-production ratio (R/P), there are considerable differences between the analysed six European O&G companies. Shell produces 3,700 kboe/d, followed by BP with 2,600 kboe/d, Total 2,454 kboe/d, Equinor 2,074 kboe/d (responsible for about 70 percent of overall Norwegian oil and gas production), ENI 1,736 kboe/d and finally Repsol with 715 kboe/d. Looking at the total proved reserves they possess, Total is in the first position with 12.6 Gboe, and Shell and BP have both 11 Gboe. Far behind is ENI, possessing 7.27 Gboe, followed by the 6 Gboe of Equinor. Again, Repsol has the lowest quantity of proved reserves, with an estimated 2.34 Gboe. These production and reserves figures result in Total as the European O&G company with the highest R/P ratio, which accounts for c12.52 years. BP could continue with its production rate for c11.59 years without the need of new resource discoveries. ENI stands in the third place, since, despite its lower production, its competitive Upstream activities allow the company to have a R/P ratio of c11.47 years. Repsol, on the other hand, had a R/P of c8.96 years in 2018, positioning the company in a stable and comfortable long-run production situation. Shell, which is the largest oil and gas producer in Europe, has not been able to discover enough resources to reach a R/P of 9 years, which currently stands at c8.14 years. Last, Equinor is the European O&G company analysed with the lowest reserve-to-production ratio, c7.92 years.

2.2.2 G&P

In the past, the sale price of gas was indexed to the price of oil resulting from the absence of a unique market price for gas. Market liberalization has propelled the development of innovative European gas markets, opening new opportunities to trade gas in these hubs. This is the case of Equinor, who has taken advantage of these markets to increase its presence in European gas markets, gaining share in Germany, France and England.

Competition in the wholesale gas market is fierce, and it has exacerbated with the entrance of other gas and power distributors and traders. European O&G companies have suffered a very liquid and oversupplied European gas markets in recent years, provoking a fall in wholesale gas prices. The European gas market is evolving towards a more innovative and value-added trading venue. New elements are being incorporated in gas negotiations that make it more attractive to purchase gas in European markets. This is the nature for instance of the adaptability it is offered in the traded gas volumes, the alternative to modify the delivery point which is very interesting from the point of view of the buyer, and various price options. European O&G companies, with more or less difficulties, have accommodated their strategies in order to maintain their presence in European gas wholesale markets.

ENI, Total, Repsol and recently Shell also engage in the supply of power and gas to retail clients. The market liberalization stimulated by the European Union has increased the presence of local companies, which negatively affect the retail activities European O&G companies carry out. The chance residential customer has to change almost without any restriction from one gas and electricity supplier to another has increased pressure on supplier to offer better prices and to improve the provided services. This G&P retail activity is not ENI's most solid business segment, but since 2017, it has become a value generator for the company. The company supplies gas and electricity principally in Italy, its main market, France and in lesser extent other European countries. ENI has conducted selective acquisitions in order to increase its customer base for natural gas and electricity retail sales, implemented efficiency programs and widen its offered services to customers. Its customer portfolio amounted to 9.4 mn as of Dec. 31, 2019. Out of the total of G&P retail customers ENI has, 7.7 mn are located in Italy. Total, on the other hand, has a customer portfolio of approximately 6 mn. Total reaches this customer base through different subsidiaries. Total differentiates between residential customers, based in France, Belgium and Netherlands, and business and industrial customers, which Total provides with gas and electricity in the same three countries and additionally in Spain and Germany.

Repsol also provides directly gas and electricity to its 1 mn customer portfolio in Spain (share of 2% of the market). Repsol is the leading provider of bottled and bulk LPG in Spain (74% market share), with over 4 mn customer in Spain, leader in Peru, and third larger in Portugal. Repsol has recently entered in the French LPG market, but its presence is very limited. Well behind ENI, Total and Repsol stands Shell, which began to supply 700,000 UK residential customers in 2018 with the acquisition of First Utility, now called First Utility to Shell Energy Retail. In 2019, the company also acquired Hudson Energy Supply UK, adding another 900,000 business and end-consumers to its G&P retail portfolio. Another key milestone in Shell's G&P segment was the acquisition of ERM Power, one of the predominant commercial and industrial electricity Australian retailer. In this way, Shell has expanded its business activity within the G&P segment. Equinor, although minimally, sells directly gas to home consumers, but does not supply with retail power. On the contrary, BP does not engage in retail natural gas and power supply. It is noteworthy to say that those European O&G companies that incorporate in their G&P

division the supply of gas and electricity to retail customer do it mostly in their headquarter country, and thus, competition between them is not yet a major issue.

Regarding LNG activities, Total is the second largest LNG player in the world (ExxonMobil is the leader), with presence in the main LNG regions (Middle East, Africa, Europe, Asia, Australia, Russia and US) and it is considered the most competitive peer out of the six European O&G companies analysed together with Shell. Total acquired Engie's LNG assets in 2018, strengthening its robust status through its long-term purchase and sales contracts, regasification plants in Europe, and extension in its LNG ships portfolio. Total's competitive positioning is its diversified and integrated model mentioned in the company's business description. Thanks to the company's IGRP (Integrated Gas, Renewables & Power business segment), Total places its liquefaction plants close to Upstream production areas, and then distributes to end consumer via its midstream activities of transport, regasification and trading. Total is also implementing innovative techniques related to LNG such as the Floating Storage and Regasification Unit project, which enables entering to emerging LNG markets. Shell is the peer with the broadest experience with more than 50 years involved in LNG related projects. In fact, Shell inaugurated the first LNG facility in history in Algeria, dating back to 1964. Shell carries out LNG activity in 10 countries where it possesses liquefaction terminals (Peru, Trinidad, Egypt, Gasnor (Norway), Qatar, Oman, Nigeria, Russia, Brunei and Australia) and is developing an additional LNG plant in Canada. Shell's global network of liquefaction plants and regasification terminals place the company in a strong competitive positioning with an effective unit cost in its LNG operations.

With respect to BP, although it is behind Total and Shell in LNG in terms of size, it is considered the most pioneer peer in innovative LNG approaches. BP has supplied the first trading LNG agreement managed on offshore ship-to-ship transfer and is developing offshore LNG plants and, like Total, Floating Storage and Re-gasification Units (FSRUs). BP has a very strong position in LNG activities, and is capable of supplying LNG in a competitive price. The company has a flexible and integrated network through which it identifies favourable optimization and trading circumstance, and therefore is allowed to offer quick answers to its clients, with a 24/7 trading and operations platform. BP's competitiveness is distinguished in Eastern Europe by means of the alliance the company agreed with Azerbaijani Shah Deniz, considered one of the greatest existing gas-condensate lands. BP gets access to Azerbaijan, Georgia, Turkey, Greece and Italy. Additionally, the company owns LNG facilities in the UK, Spain and Italy. Equinor's LNG supply covers 20 countries through specialised ships, having its activity source in the Snøhvit field in the Barents Sea. Equinor currently owns four LNG facilities, being Hammerfest (Norway) its most powerful LNG plant, where natural gas is cooled down to form LNG and stored in specially designed tanks. LNG is returned back to the Snøhvit field and exported in ships. On the other side, ENI is far from being competitive in this segment, and it is the company's pending subject. Since 2016, when the company signed a deal with BP to develop Mozambique's LNG market, the company has experienced an increase in its LNG actions, but still insufficient to play a role. Finally, Repsol is the peer with less LNG activity. Repsol runs its LNG business in the United States, due to its LNG

regasification port in Canaport, and Spain, and the company has signed new lengthy LNG purchase contracts with producers in the United States and other gas wholesalers. Repsol's LNG activities are not comparable to any of its peers', and therefore the company's LNG position is very weak.

2.2.3 *Refining, Marketing and Chemicals*

The European refining sector is expected to experience an even harder competition in the medium term, being exposed to international competition. As it will be visible in this chapter, some companies have chosen to become part of the international markets, while others have remained mainly part of regional or even local players (Nivard & Kreijkes, 2017). Refining capacity is estimated to grow over 6.8 MMbbl/d in the next five years, mainly in projects located in Asia and in the Middle East (McKinsey, 2019). It is also important to highlight the IMO 2020 regulation. Ships' main type of "bunker" of heavy fuel oil, a residual component resulting from crude oil distillation. When combusting this heavy fuel oil, sulphur emissions are displayed, which are unhealthy for humans originating respiratory and lung diseases, and also damage the atmosphere by incrementing the probability of acid rain events. In order to limit all these effects, from January 2, 2020, board ships will need to reduce the amount of sulphur oxides they emit (IMO, 2020). In front of this situation, fuel oil producers had to adapt and prepare bunker fuel compliant with the IMO 2020 regulation. From July 2019, low-sulphur fuel oil products had great margins in the market. This is the case of Repsol. Repsol is highly competitive EU Q1 in Solomon NCM benchmark and was fully invested for IMO already in 2019. The company is refining leader in Peru with the update for desulfurization units. Repsol was well prepared to capture IMO effect after EUR 4 bn refineries' upgrade investments. Refining in Spain can operate without producing HSFO (High Sulphur Fuel Oil) (only 3% of HSFO is produced in Tarragona). Repsol has the largest coking capacity in Europe (25% coking share, while 6% of total distillation capacity) with coking process becoming highly profitable during IMO. Sales of VLSFO (Very Low Sulphur Fuel Oil) exceed 1 mn under IMO 2020 regulation. Repsol will potentially benefit from this situation maximizing margin's capture, keeping its competitive positioning in European refining. Repsol's refining margin increased from USD 3/bbl in 2018 to USD 6.3/bbl in 2019 in the Peruvian refinery, because of the large investments made, but considerably decreased in the Spanish refineries from USD 6.7/bbl to USD 5/bbl.

As Shell explains in its 2019 Annual Report that industry gross refining margins declined on average in 2019 in the key refining hubs of Europe, Singapore and US Gulf Coast, and improved in the US West Coast as a result of casual outages and price discounts. Since Shell has interests in 15 refineries all over the world, with a total processing capacity of 2.5 MMbbl/d to produce gasoline, heating oil, aviation and marine fuel, lubricants, LPG, sulphur, bitumen, petrochemicals (produced in five refineries), and middle distillates like diesel. The company does not disclose its annual refining margin, and therefore, it has not been able to compare with its peers'. Shell's 42% of refining capacity stands in

Europe and Africa, 41% in the Americas and 17% in Asia and Oceania. The substantial and diversified portfolio Shell owns in refining allows the company to competitively supply its marketing segment and reach a great number of customers. The company maintained a stable refinery availability of 91% in 2019. This figure was a bit lower for the chemical plants, which lowered to an availability of 89% in 2019, partly due to a strike in the Netherlands. Shell's another distinctive is its leadership in lubricants. In 2019, they achieved their 13th consecutive year leading the finished lubricant market with a market share of 11%, selling +4.500 ktons (+5.000 bn liters).

One of Total's main advantages in this segment is to have large integrated platforms (refineries and petrochemical complexes) close to production fields that allow it to take advantage of synergies and economies of scale. Nevertheless, Total has a lower refining capacity than Shell, 2 MMbbl/d at the end of 2019, and an availability of 99%. Total suffered from the six months shutdown of its Grandpuits refinery in France and scheduled maintenance activities at the Normandy refinery, causing a 10% decrease in refinery throughputs in 2019. However, Total has equity interests in more refineries than Shell (17 refineries to be precise), distributed across Europe, US, Middle East, Asia and Africa. Total is the second largest refiner and petrochemist in Western Europe, which represents 73% of Total's global refining capacity and in 2019 the company achieved a refining margin of USD 4.65/bbl. The company operates in traditional refineries located in France (Donges, Feyzin, Gonfreville and the already mentioned Grandpuits), Belgium (Antwerp), UK (Immingham) and Germany (Leuna). Total also owns 55% of the Zeeland refinery in the Netherlands and has invested in converting La Mède (France) into a bio-refinery to produce HVO (hydrotreated vegetable oils), bio jet fuel and petrochemical bio feed.

BP reported on his 2019 annual report that it has equity stakes in 10 refineries in 7 different countries: US (Cherry Point, Whiting, Toledo), Germany (Gelsenkirchen, Lingen), the Netherlands (Rotterdam), Spain (Castellón), Australia (Kwinana), New Zealand (Whangarei) and South Africa (Durban). The total distillation capacity that corresponds to BP's share is 1.9 MMbbl/d. The company's refining margin reached USD 11/bbl in 2019 and an availability of its refineries of 94.9%. BP's refining production peaked in 2018, and in 2019 the company surpassed this level, achieving record numbers. BP's advantage in refining is that its three US refineries are located very close to Canada, where cheaper crudes are available and therefore, higher refining margin is extracted.

The company with a strong biorefining capacity is ENI. ENI refines crude oil in Italy (six refineries: Sannazzaro, Taranto, Venice, Gela, Milazzo, and Livorno) and Germany (stake in two refineries: 8.33% in the Schwedt refinery and 20% in Bayernoil) and is able to process dense crude oil in its refineries and thus, use sour crudes that are cheaper than the Brent. The refineries' good complexity level has allowed ENI in the past to own profitable industrial complexes, as it has been the case of its Italian facility at Sannazzaro. ENI's competitive refining advantage depends consequently on the availability and discount of this cheaper feedstock. In the absence of it, ENI loses its

capacity to keep the refining margin in a sufficient and productive level. In fact, ENI faced some stresses, lowering its refining margin to USD 4.3/bbl. Looking at the petroleum products resulting from refining, as Repsol, more than half of ENI's petroleum products are middle distillates (55%), followed by gasoline (17%). ENI also produces fuel oil (12%), LPG (6%), Bunker (4%), Fuel Oil (1%), Lubricants (1%) and Others (6%). These figures have been constant over the last 3 years. A distinctive characteristic of ENI is its green refinery at Venice, the first case of transformation from a traditional oil refinery to a bio-refinery, and a similar example of reconversion of Gela. At the Venetian refinery, ENI uses a patented technology called EcofiningTM to turn vegetable oil into hydrogenated biofuels and will soon be able to reach the compliant levels of the EU environmental normative. The Gela bio-refinery is considered the most innovative facility in Europe to produce biofuels, capable of converting, in words of ENI, *"100 per cent of second-generation raw materials such as used vegetable and frying oils, animal fats, algae and waste by-products into high-quality biofuels"*. ENI expects to have an IRR of 15% in its biorefineries, and most importantly, it will achieve the targets to comply with the regulatory restrictions on greenhouse emissions generated in the value chain. ENI's another competitive step is the recent acquisition from ADNOC a 20% equity interest in the high quality ADNOC Refining, giving a 35% rise in ENI's refining capacity.

Equinor operates five onshore facilities in Norway, and four outside the country, specifically in Germany, Denmark, UK and the Bahamas. Out of these nine terminals, only two refine oil: Kalundborg (Denmark) and Mongstad (Norway). The Kalundborg refinery produces petrol, diesel, propane (LPG), heating oil and fuel oil, and these products are mainly directed to Baltic countries. Equinor's presence with these products is considerable in these countries and has an established market position. The refinery's yearly production capacity is c5.5 mmt tonnes of oil products. Regarding Mongstad facility, it is composed of an oil refinery, an LNG processing terminal, a cogeneration plant, a crude oil facility, and a technological centre for CO₂ capture. This facilities' competitive advantage is its access to one of the largest oils and its derivatives harbours in Europe. The refinery produces petrol, diesel, aviation fuel and petroleum coke. Although Mongstad is the greatest refining terminal in Norway, it is midsize compared to other European refineries. In terms of refining margins, the Kalundborg refinery increased its margin in 2019 compared to 2018, while the Mongstad refinery had an inverse trend. Overall, Equinor's refining margin declined from USD 5.3/bbl in 2018 to USD 4.1/bbl in 2019. Thus, Equinor's refining activities are not comparable to the rest European O&G companies. Moreover, Equinor divested its service stations channel marketing line of business in 2012 and does not engage in remarkable chemical business activities.

On the subject of retail marketing, it usually represents the company's most visible portion from the customer's perspective. Retail clients identify the analyzed European O&G company by its fuel brand. Shell is the world's largest mobility retailer with 45,000 service stations distributed almost across 80 countries in 2019. Shell, in order to characterize the enormous size of its service stations network, provides a symbolic figure: 45,000 sites are more than the sum of all existing McDonalds, Zara, Carrefour,

Starbucks and GAP. The last available data reflects that more than 30 mn customers make use of the services Shell offers in its stations. Apart from fuel top ups, the company also offers convenience articles such as freshly grown foodstuffs and drinks and added car services like lubricant substitutions and car washes. Shell is the most competitive peer in marketing and has the broadest customer base of all.

Following Shell, BP owns 18,900 retail sites under BP, ARCO, Amoco or Aral brands. BP service stations portfolio is quite balanced, 43% of which are located in Europe, 38% in the US and 19% in the rest of the world. Out of these 18,900 service stations, 1,600 incorporate convenience items. The company's position has also been reinforced in the lubricant and petrochemical business. In the case of lubricant, BP reaches a wide customer base straight through competitive brands like Castrol. BP, for instance, does not produce but purchases base oils, because the company focuses on its competitive advantages on the lubricant segment leveraging strong brands, technology and client relationships. BP is very competitive among its peers in its petrochemicals business, especially in purified terephthalic acid (PTA), paraxylene (PX) and acetic acid, which are used in polyester fibre, construction, and food packaging.

Total owns 15,615 service stations, considering also 500 stations licensed under the Group's brand in Turkey and disregarding the 2,500 Italian service stations that the company sold in 2018. These service stations are predominantly located in Western Europe and increasingly becoming abundant in China, India, Brazil and Mexico. Total commercializes high quality fuels, and, like Shell, the company expanded its product range, including convenience items and car washing services. Total has an average market share of 16% in the European markets where it mainly operates (France 3,480 service stations, Germany 1,200, Belgium 530, the Netherlands 350, and Turkey 500). Total's strong retail marketing presence in Africa is made through 4,568 service stations, and 2,042 in Asia-Pacific. The company also operates in the Americas, with 1,498 sites, and in the Middle East, 889 sites.

ENI holds 23.7% of the Italian refined products retail market, and therefore, it is leader in the domestic country through 4,184 service stations. The company also offers its retail products in 476 German sites (3.2% market share), 321 Austrian sites (12.3%), 275 Swiss sites (7.7%) and 155 French sites (0.6%). Therefore, ENI's presence is limited to Italy and neighboring countries, with a total number of 5,411 service stations, well behind some Shell, Total and BP. ENI is facing strong competition in Italy by some of its competitors and unbranded service stations, which compete directly in price. Something similar happens with Repsol. The Spanish company is retail fuel leader in Spain with a 37% of market share with more than 3,300 service stations and holds 26% of the Portuguese and Peruvian retail market with 486 and 572 respectively. Repsol has also presence in Italy through 298 service stations and in Mexico, reaching 234 sites by the end of 2019. Repsol is also facing strong competition in those countries where it operates, but its position is very stable since it is the major operator in Spain, Portugal and Peru. The company also holds a strong position in Europe's trading capabilities with key positions and expansion opportunities in the chemicals and lubricants field in the Iberian

Peninsula with high value products growth expected. Through Dynasol, a Joint Venture with Grupo KUO, Repsol holds the leadership in world synthetic rubber and key positions in high value products (PO/Polyols and EVA). In addition, Repsol has 28% of lubricants market share in Spain.

2.3 COVID-19'S IMPACT ON THE ENERGY INDUSTRY

O&G companies have suffered two crises during the first term of 2020: an oil price war and the impact of the Coronavirus. Oil prices have experienced a big fall after the OPEC and Russia failed to agree on production cuts. While this imbalance between demand and supply is taking place, the industrial slow-down and travel restrictions due to the Covid-19 is affecting directly to O&G companies. Rystad Energy expects a decline in oil production of 91.1 MMbbl/d in June, which would mean the lowest supply level in 2020, unless further oils production cuts are announced (OGJ, 2020).

The International Monetary Fund projected a fall of the global economy of 3 percent in 2020 in its April World Economic Outlook. This downturn may be the worst recession since the Great Depression in 1929. The economic activity is the main factor driving the world energy consumption and therefore, the oil demand estimates are decreasing. After the OPEC production cuts announcement in April, the International Energy Administration (IEA) predicted a fall of 9.3 MMbbl/d oil demand in 2020 compared to the previous year.

Under this scenario, the Energy sector has to face two challenges: manage the operational issues that the health emergency may cause, and cope with a severe market instability, having a low commodity price, lower oil demand and manage financial obligations. Although Oil and Gas activity is generally considered as essential by governments, and therefore has been exempt from lockdowns, continued operations will probably become difficult as the employees get infected by the coronavirus and complicate their work incorporation under social distancing measures. According to Baker McKenzie (OGJ, 2020), the industry may also consider the sealing off of wells because of a reduction in the number of workers below the minimum required following health and safety measures as reasonable and operator standard on drilling rigs.

Back on March 9th of 2020, oil prices experienced an historic drop, one of the most significant since 1991. The commodity prices collapse occurred as a result of failed negotiations between Russia and the OPEC. Once the Covid-19 was already gaining importance, the OPEC recommended a production cut in order to be in line with the global oil demand reduction. Russia considered that this measure would benefit United States shale producers, whose recent production growth has weakened the global position of Russia and the OPEC (between January 2017 and January 2020, OPEC's market share moved from 55.6% to 49.2%). With no agreement regarding the oil production cuts, Saudi Arabia announced the intention to increase its market share by offering discounts to Asia, America and Northern Europe customers. Moreover, the

country announced that they would increase its production in 2 MMbbl/d in the following months. Following Saudi Arabia's decision, the United Arab Emirates declared a raise in their production rate. These announcements had an adverse impact on markets, contributing to a drop-in oil price. Oil prices crashed more than 50% between March 1st and March 18th. The Brent oil price reached almost USD 15/bbl at the end of March. On April 20th, the West Texas Intermediate (WTI) price was negative for the first time in the history of the oil industry. Oil and Gas companies have cut spending, and earnings forecasts have been reduced. This provoked a dramatic drop in the stock prices of O&G companies and has raised new issues on the capacity of these companies to refinance and meet actual debt obligations. Additionally, the decrease in demand and drop of oil prices may increase the risk of properties and long-term assets impairments across the industry (Corrigan, 2020).

3. CHAPTER III: INVESTMENT SUMMARY

The O&G industry, together with fossil fuel producers, is hugely exposed to the energy transition, and this exposure could result in a significant change of paradigm on the long-term average oil prices and refining margins (S&P Global Ratings, 2019). Moreover, these companies may lose their attractiveness as investments, since ESG is at the center of financial investments and the market is increasingly sensitive to these issues. On January 14th, Larry Fink, Blackrock's CEO, the world's largest fund manager, said in his annual letter that investments made by the Blackrock will take ESG criteria into account and that those companies not matching with them will destroy their shareholder value. In his own words (Fink, 2020), *"there is increasing awareness that material environmental, social and governance (ESG) factors can be tied to a company's long-term performance. As such, more and more investors are looking to integrate sustainability insights and data into their traditional investment processes. By expanding access to data, insights and learning on material ESG risks and opportunities in investment processes across the board, we can become better overall investors. ESG is often conflated or used interchangeably with the term "sustainable investing". We see sustainable investing as the umbrella and ESG as a data toolkit for identifying and informing our solutions. ESG data is most often categorized as "non-accounting" information because it captures components important for valuations that are not traditionally reported. The valuation of companies has become more complex, with a growing portion tied up in intangible assets. ESG metrics provide insights into these intangibles, such as brand value and reputation, by measuring decisions taken by company management that affect operational efficiency and future strategic directions"*. Blackrock joined in January 2020 the Climate Action 100+, 370+ global investors managing more that USD 41 trn, which seeks:

- To reduce greenhouse gas emissions
- Board's accountability of climate change
- Enhanced corporate disclosure (TCFD)

The Norwegian Sovereign Fund recently became Repsol's third shareholder (2.66% as of Feb/02/2020). Previously, they had in their portfolio significant investments in European O&G industry, as for 67% of Equinor's equity (USD 29.6 bn), 2.55% of Shell's equity (USD 5.9 bn), 2.33% of Total's equity (USD 3.4 bn), 2.34% of BP's equity (USD 2.9 bn) and 1.50% of ENI's equity (USD 0.4 bn), amounting an investment of USD 43 bn in the European O&G sector. Missing to comply with their high ESG standard may imply the sell-off of their stakes. In fact, the Norwegian Parliament has issued a statement commanding the Sovereign Fund not to invest in companies that do not adhere to environmentally friendly actions and practices, do not have social concerns and have outdated corporate governance manners (Norges Bank, 2020). The Ministry of Finance has released principles and established an autonomous Ethics Committee to evaluate

firms, elaborate exclusion lists and closely supervise the companies where the fund invests. Exclusion recommendations on tobacco produces, weapon manufacturers, and coal-based businesses have already been published, and those European O&G companies that do not transform to contribute to climate change mitigation could be the next. Norges Bank opted to *“to divest from companies that impose substantial costs on other companies and society as a whole, and so are not long-term sustainable. These might be companies with business models that do not align with prevailing technological, regulatory or environmental trends”* (Norges Bank, 2020).

Pictet Group has decided to eliminate balance sheet exposure to those fossil fuel producers and extractors whose revenues from carbon-intensive activities account for more than 25%. These investments, which amounted to CHF 250 million as of 31 December 2019, have already been cut by 95% and will be reduced to nil by the end of 2020. According to GSIA (Deutsche Bank Research, 2018), by 2030 95% of total assets under management (or USD 130 trn) will be governed by an ESG mandate. This is a threat to find investors of those companies that do not comply with ESG. Recent studies by Bernstein suggest that a bubble is being created by investors' exclusion to non-ESG companies. They estimate that oil companies are traded with a 27% discount, while renewables have a 22% premium.

Governments are increasingly expanding regulation, impacting on companies' results and financing opportunities. The EU is working on defining a Taxonomy, establishing an EU classification system for sustainable activities. Identifying activities as ESG compliant or not may impact not only Regulation but also the financing of projects by Banks or Markets. Companies not compliant with ESG principles could face increases in the cost of financing, if not completely restricted. Pollution, safety and community impact are additional ESG-related elements affecting the rating of these companies (S&P Global Ratings, 2019).

The pressure on companies to transform their businesses towards cleaner energy and meet ESG standards. Agents in the O&G sector are already pivoting their strategies to match climate requests, but CCUS (Carbon, Capture, Utilization & Storage) technologies need to be further developed, as the 2018 IPCC report states that it will not keep temperatures below the 2°C without CCUS. Upstream's challenge consists in balancing short-term returns with long-term license to operate. Investment in Upstream will be necessary to achieve a rapid and less expensive transition, but the type of resource and its exploitation will fundamentally change. The agents will focus on investments of high-quality assets in OECD countries, primarily in the US, Canada and Norway, and expanding its exploration and production capacities in countries where geopolitical issues have low impact.

On December 2nd, 2019, Repsol became the first within the sector to announce its commitment to be a net zero carbon emission company by 2050, provisioning EUR 4.8 bn in order to do so. The agents in the European O&G industry have quickly responded with updates in their strategic plans by following Repsol's strategy and committing with

a zero-emission scenario. Some of the companies such as ENI have yet to improve several of their business plans in order to achieve such optimistic scenario. As for others like Shell or Equinor can take advantage of the ESG topic for it is much simpler to pivot into a sustainable strategy, where social and responsible investments will be made to empower their already strong areas as natural gas or renewables energies. It is clear that large O&G companies need to deeply change the structure of their business models, and re-imagine, exhibiting renewed value and scale and vertical integration (Goldman Sachs, 2018).

3.1 BP

BP has an efficient operational and financial track record, and they want to use it to advance towards a low carbon energy model and achieve their ambition to be net zero emissions by 2050. To do so, BP has established five clear objectives: be net zero emissions in global operations, be net zero emissions in oil and gas production, cut the carbon intensity of the products sold by 50%, reduce methane intensity of production by 50%, and increase investments in new energies. Following these ambitions, BP's strategy in their Upstream segment has safety as core value and plans to invest USD 13-14 bn per year by 2021 searching for an improvement in execution, growing in gas and advantaged oil with a production growth of 5%.

They are building the renewable energy portfolio through venturing in activities including spanning renewable fuels and products, wind, and solar energy and biopower. BP invested USD 500 mn in low carbon energies in 2019, and had a methane intensity of 0.14%, below their target of 0.20%. BP aims to innovate in Downstream with advanced products and strategic partnerships, investing in higher-returning fuels marketing and lubricants businesses with growth potential (China, Mexico, or Indonesia). They have established more than 30 carbon neutral retail sites, developing and offering new products that support the energy transition.

Through their 50% stake in Lightsource BP (global leader in the funding, development, and long-term operation of solar photovoltaic projects), the company aims to develop 10GW of solar energy projects by 2023. In 2019, they purchased a 300MW solar energy portfolio to enter the solar market in Spain and established their presence in Brazil by acquiring 1.9 GW of solar projects.

In the short-term, the company will reduce its investment by 25% in 2020 due to the instability caused by the coronavirus crisis. With its strategy BP is prepared to continue growing in an efficient way, following the Net Zero emissions path established in February 2020, where the focus in gas and new energies will have an important impact in the financial development.

3.2 ENI

ENI's last Action Plan 2020-2023 and Long-Term Strategic Plan to 2050 incorporate reduction in the company's carbon footprint. ENI aims to have a production CAGR 2019-2025 of 3.5%, following a decrease in oil and gas extraction beyond 2025. Within the group's total hydrocarbon production, the company is focusing on increasing the proportion of gas, which the company expect to rise from the current gas share of 52% to 60% in 2030 and 85% in 2050. This initial increase in hydrocarbon production will be balanced with a net carbon neutrality target by 2030 for scope 1 and 2 in its Upstream segment. Taking the group's activities as a whole, ENI is committed to reduce its net green house emissions (scope 1, 2 and 3) by 30% in 2035 and 80% in 2050 from 2018 levels. ENI has recently declared its intention to invest more on circular economy by propelling recycling of waste materials and energy feedstock in its biorefineries, and additionally, the company is willing to move forward CO2 capture and storage projects such as the Ravenna hub in Italy. Within its carbon footprint reduction strategy, ENI desires to diminish the volumes of purchased gas and concentrate on the marketing of equity gas. Furthermore, ENI will leverage on eliminating gas flaring in its Upstream activities and participating on reforestation actions.

Looking closely to the strategy the company has outlined in each of the business segment, Upstream will stay as the company's strongest division. The company has targeted to discover new 2.5 bn boe at a competitive cost of unit of USD 1.5/boe. The company is strengthening its E&P position by expanding its activities mainly in the Middle East, Mexico, Egypt, and Norway. The latter has been carried through a joint venture with Vår Energi and subsequent acquisition of ExxonMobil assets. ENI has therefore become the second largest Upstream operator in Norway, just behind Equinor, with a potential growth of 350 kboe/d in 2023. As mentioned, ENI estimates a production CAGR of 3.5% in the 2019-2025 period, and a reduction in the share of oil production in favour of gas, as a sign of the company's compromise with the energy transition. Beyond 20205, the company intends to reduce total hydrocarbon production. The guidance given by the company is incorporated in the valuation model, although some revisions have been made to show the impact the current situation derived from Covid-19 will have on the company's estimates. ENI will remain in a privilege position in E&P activities, with an estimated average breakeven of USD 20/boe, and USD 35/boe for the 3p reserves. Moreover, the company will continue consolidating the flexibility its conventional O&G assets offer, and betting on its Dual Exploration Model to rapidly monetize its CapEx in new regions, achieving a better portfolio diversification.

In the G&P segment, the most significant step ENI plans to implement is the development of a global and integrated LNG business. ENI's LNG business is currently negligible, and far from its peers' levels. The improvements in the G&P segment during the last three years have allowed the company to generate value from a different segment than Upstream. ENI pursues to renegotiate its wholesale gas contracts in order to align them to market prices and achieve contractual flexibility, reducing sunk logistic

costs and consequently improve its margins. As stated, the company intends to integrate G&P with Upstream, leveraging on LNG growth in new markets such as Mozambique, Egypt and Nigeria. The retail G&P segment is expected to increase in terms of customers. ENI is committed to follow its 2019 actions that consisted of acquiring Evolvere, who managed 11,000 photovoltaic plants, 8,000 of which are installed in clients' rooftops, and generate 58 MW. With this acquisition, ENI became leader in the distribution of solar sourced energy in Italy. The company's strategic plan also includes an expansion in its G&P retail customer base, going from the current 9.4 mn clients to 11 mn (over 4 mn in power) in 2023, and 20 mn in 2050. In addition to enlarging the customer base, ENI is planning to broaden the services offered to these customers, concentrating on the marketing of gas, hydrogen, blue energy and biomethane, and other commodities different from oil. ENI's power generation capacity will invariably grow due to the company's will to boost production of renewables.

ENI's guidance estimates that the firm's gradual investments in renewable energies will allow the company to have a global capacity of 55 GW by 2050. The path to achieve this goal is to be able to generate green energy 3 GW in 2023, 5 GW in 2025 and 10 GW in 2030. ENI wants to propel its clean energy generation by creating synergies with industries and partners close to those locations where ENI operates. ENI has accelerated its photovoltaic, wind and hybrid plants developments in the last two years, in which it has achieved an installed capacity of 168 MW distributed across different projects in Italy, Algeria, Kazakhstan, Australia, Pakistan and Tunisia. Approximately 82 MW correspond to Italian based plants and 86 MW outside Italy. ENI's objectives in relation to renewables are still remote, and is speeding up the construction of a wind farm energy in Kazakhstan (Badamsha area, where it already has a plant with a capacity of 50 MW) and acquired in late 2019 interests in the photovoltaic plant in Australia (Katherine) with an installed capacity of 34 MW.

The business growth of renewable products will go hand in hand with the expansion of biofuel production reaching a capacity of 5 mmt tonnes per year in diverse locations as the US, Europe and the Middle East. Biofuels is an area where ENI is convinced to have a lot to offer in the following years. Two of the most important milestones achieved by ENI in the last decade are the conversion of two of its refineries, already quoted previously. Venice and Gela, two traditional refineries, were converted into innovative biorefineries, enabling ENI to lower its emissions in the case of the Gela refinery by 70%. ENI intends to use waste materials as feedstock in its biorefineries to produce hydrogen, methanol, biomethane and similar, and in the long-term the company only wants to keep the recent 20% acquisition of the Ruwais refinery as a traditional facility. Within the Refining, Marketing and Chemical business segment, ENI will become palm oil free by 2023, and aims to achieve a gradual decarbonization of its refining processes, reaching a 100% free of carbon products. ENI does not specify any action or initiative to promote sustainable mobility and neither intends to expand its retail-marketing network. In fact, the amount of service stations owned by ENI has been slightly reduced, and unlike other peers, the company does not have investment plans to increase its margins or increase the volumes sold at the sites. Although it is not ENI's most significant

segment, the company's guideline regarding chemicals is to specialize in high-quality polymers and to use renewable energy sources and mechanical recycling in the production of chemicals. This will need a progressive conversion of ENI's industrial complexes, which will seek to create synergies with refining in gasification processes involving all kinds of plasmix. To sum up, ENI's strategic plan incorporates a transformation and optimization of its chemical division to improve its margins and specialize in value-added polymers and contributing to the energy transition by recycling plastics and waste materials in chemical processes.

3.3 EQUINOR

Equinor is betting heavily in becoming a broad energy supplier and aligning their growth strategy towards this goal. Equinor has become one of the O&G pioneers in following the ESG agenda. The presence of Norges Bank and other relevant financial institutions as their main shareholders guarantees the alignment of interests to achieve a strong business position and remain a key upstream and downstream player at the head of the worldwide renewable energy transition.

To do so, Equinor has among its core objectives for the upcoming decade, to be an industry leader in safety and security, to improve sustainable management approach of oceans and biodiversity, to do zero harm to the environment, to respect human rights as an employer, business partner and buyer and many more. Equinor's ambition is that all teams are diverse and inclusive by 2025, to achieve an upstream portfolio carbon intensity of below 8kg CO₂/boe by the same year, a 40% reduction in absolute CO₂ emissions by 2030 in Norway and a net carbon intensity reduction by at least 50% by 2050.

Equinor renewable equity generation capacity is expected to increase ten-fold from 2019 to 2026 to 4-6GW. As a leader in CCS, Equinor is working to build a European value chain, capturing and storing CO₂ from industrial plants that have CO₂ as a by-product, for example waste management facilities and cement producers. The Norwegian government is a key partner and has also set the ambition to develop a full-scale CCS value chain in Norway by 2024. The Northern Lights Project establishes the study work for an eventual Joint Venture Agreement between the governs of Equinor, Shell and Total which have collaborated towards this new energy solution. Combined with a strong position in natural gas, Equinor is prepared for future growth in hydrogen, which offers large-scale opportunities for zero emission energy while leveraging existing infrastructure. By removing CO₂ from natural gas, Equinor can produce emission-free hydrogen that can be used in industrial settings, such as power generation and marine fuels as well as residential ones, such as heating.

3.4 REPSOL

In the 2020-25 strategic plan, it is expected that Repsol will define an outline to maintain its leading position in refining profitability. To accelerate the energy transition, Repsol may increase high quality biofuels production originated on vegetable oils (HVO, target 600,000 t/y by 2030) and petrochemical activity orienting it towards circular economy (Repsol forecasts that the demand of these products will increase in 40% by 2050).

To contribute to the objectives of the Paris Agreement, Repsol might intensify the acquisitions of natural gas and low emission assets such as combined cycle plants (needed as the only back-up for renewables), solar or hydroelectric plants, and to accelerate investments on advanced biofuels, biomethane and low-carbon hydrogen production. The IEA estimates that within ten years, low-carbon fuels would need to account for around 15% of overall investment in fuel supply. Repsol will integrate renewable energy on its refining operations producing green hydrogen and use electricity of clean origin in its industrial processes.

As a leader in energy supply for mobility in Spain, Repsol is a key player providing new energy solutions (EV charging stations), innovative forms of mobility (car sharing and battery sharing, for instance) and adapting to consumption patterns (as the entry into the capital of Ampere Energy). Repsol has extended the points of electric charge, auto gas and natural gas in its service station network.

3.5 SHELL

Shell is optimistic in their 2018 Energy Transition Report, based on their resilience in the short-medium term (2018-2030). They are driving their business strategy in the context of climate-related risks and opportunities. Shell sees a commercial opportunity in participating in the global drive to provide more and cleaner energy solutions, since they are an active player that has embraced energy transformation from the very beginning.

They have recently elaborated a new scenario called “Sky”, which represents the most rapid transition to lower-carbon energy. This forecast joins “Mountains” and “Oceans”, Shell precedents scenarios regarding energy transition. Sky is a technologically, industrially and economically possible route to achieving the goals of the Paris Agreement. It is ambitious and challenging to deliver. The magnitude of change needed under Sky is apparent in some of the main developments in different sectors:

- Electricity: the share of electricity in final energy consumption rises from 18% today to 26% by 2030 and grows to as much as 50% by 2060. Renewable energy will possibly overtake fossil fuels such as oil, gas and coal as the primary source of energy in the 2050s. The world may hardly use any fossil fuel in the power

sector beyond 2060. The share of nuclear in the global electricity mix is expected to remain steady at around 10% until 2070. A new addition to the sector is generation from biomass combustion, which is linked with CCS to offer an important carbon sink.

- **Mobility:** the percentage of Internal Combustion Engines (ICE) in passenger cars might fall from 100% in 2010 to around 75% by 2030. By 2050, it is going to be hard to buy a new passenger vehicle powered by an ICE anywhere in the world.
- **Industry:** Sky assumes that industrial applications will be electrified where possible. To provide the negative emissions required to achieve net-zero emissions from the energy system, Sky foresees the need to construct around 10,000 large CCS plants by 2070, compared to less than 50 in operation in 2020.
- **Land use:** Sky targets to achieve net-zero global deforestation by 2070. In addition, reforesting an area of the size of offers the possibility of limiting warming to 1.5°C, the ultimate ambition of the Paris Agreement.
- **Hydrogen:** the share of hydrogen in total final energy consumption is estimated to rise from less than 1% before 2040, to 6% by 2070. It is used as a high-density and storable energy source in transport and industry. Importantly, in the Sky scenario, water electrolysis using mainly renewable power is produced.

In Sky, these changes begin to emerge during the 2020s and accelerate over time. Some sectors, countries or even cities move more rapidly than others do. Globally, these early developments begin to make a material impact on the energy system in the 2030s.

3.6 TOTAL

The ambition of Total is to become an energy responsible major. It may seem a simple goal at first, but it is full of meaning. On the one hand, it pursues the goal of meeting the increase in global energy demand, i.e. ensuring universal access to energy, while at the same time taking responsibility for reducing global warming by sharply reducing net greenhouse gas emissions.

For the long term, Total has a clear roadmap highlighting the key points of its transformation into a responsible energy major.

In the Exploration & Production segment, Total's strategy is based on 3 pillars:

- **Delivering operational excellence.** The company is focused on reducing operating costs from USD 5.4/bbl to USD 5/bbl, increasing its competitive advantage over its competitors.
- **Focus on your strengths.** That is focusing on value over volume, leveraging their technical expertise in LNG and Deepwater and focusing on core areas (Africa,

Middle East and North Sea). In their own strategic plans, they aim to increase production by around 2-4% by 2020 while improving their cash margin (over USD 30/bbl). In addition, regarding to oil and gas production, Total expects that gas will occupy 60% of total hydrocarbon production (currently close to 50%) by 2035.

- Updating its portfolio and renewing its reserves. Continuing to divest inefficient assets with a high break-even and focusing on profic basins. As a result, Total has a high rate of RRR (157% last year and 124% the average of the last 5 years).

As for the Integrated Gas, Renewable and Power segment, Total will invest heavily to consolidate its position as one of the world leaders in LNG while acquiring a relevant position in electricity and renewable energies. Total is convinced of the importance that LNG has and will have in the energy mix of the future. With a 2% annual increase in energy demand, LNG demand is growing at rates close to 5%. Strengthening its position in LNG will allow Total to reduce its pollution levels while being present in the energy of the energy transition and of the future. Natural gas will be the natural partner of renewable energy sources (due to its intermittency) because of its lower CO2 emissions, so improvements in gas transportation will play a key role. For this reason, Total is expanding across the natural gas value chain. Total is currently the second largest producer of LNG in the world with 34 mmt tonnes per year (+40% over the previous year) thanks to projects and acquisitions such as Engie's LNG, Ichthys LNG, Cameron LNG, Yamal LNG or Anadarko's gas asset portfolio in Mozambique. This allows Total to be present in the 3 largest LNG exporters in the world, Qatar, Australia and the USA.

Total also aims to integrate across the electricity value chain, from generation to sale to the end customer. Europe is their main target in this line, increasing electricity generation capacity with gas-fired combined cycle power plants (currently 2GW gas-fired power generation capacity in Europe) and renewable sources (3 GW of installed gross capacity). By 2025 the company expects to reach a gross capacity of 25 GW (compared to 3GW today) from renewable sources. As for the last link in the value chain, Total expects to increase its portfolio of final gas and electricity customers from the current 5.8 mn to 10 mn in Europe, especially in France and Belgium where it expects to take 15% of the market share. The recent acquisition of EUR 515 mn by Total of a combined cycle power plant (850 MW) and 1.5 mn electricity and gas customers in Spain from EDP is fully in line with this (Monforte, 2020).

As for the refining and marketing segment, Total announces "a focused strategy", i.e. maintaining a ROACE higher than 20%. To achieve this, its strategy is based on three pillars:

- Priority to integrated platforms (refinery + petrochemical plant) like for example Antwerp, Total's largest integrated site in Europe. In this way, natural synergies are achieved that reduce production and transport costs. It is also focused on

improving energy efficiency (1% per year). It should be noted that a large number of Total's refineries are ready for IMO.

- Growth in petrochemicals. Focusing on low cost feedstocks (Ethane & LPG instead of Naphtha) and increasing its presence in emerging markets. Total expects that China and India will lead the demand for this type of products in the next years due to their expected growth.
- Investing in low carbon solutions (10% of CapEx of Refining & Chemicals). Promoting biofuels such as biomethane, biojets and H₂ (for example, the start-up of La Mède with capacity to 0.5 mmt tonnes per year of HVO in 2019) and circular economy.

As for the Marketing & Services segment, Total is aware of its non-cyclical nature and the stability this segment brings to cash flow generation (around USD 2-2.5 mn stable). The strategy in this segment is based on 3 pillars:

- Expanding in large growing markets (Mexico, Brazil, Saudi Arabia, Angola, China and India) with the goal of exceeding 4,000 service stations by 2025. This would bring the number of Total service stations to +20,000 (+28% nearly).
- Developing non-fuel revenues by increasing food service, car washing and the concept of mobility. It also expects to take advantage of its leadership in Africa where it has more than 18% of the market share.
- Growing in low carbon solutions (10% of CapEx of Marketing & Services). Total beats on growth of clean marine fuels, developing to tier positions in Electro Mobility and marketing gases for road transportation.

In this way, the weight of the Company's capital employed will be reduced in the Exploration & Production area in favor, mainly, of the Integrated Gas, Renewable and Power segment by 2025. However, CFFO will continue to come from the Exploration & Production area by more than 50% by 2025.

In addition, Total has recently announced what has already become a standard in oil companies, becoming a Net Zero emissions (scope 1 & 2) by 2050 or sooner across all of its worldwide operations, highlighting Europe where they are committing to get Net Zero emissions (scope 1, 2 & 3). For this goal, they emphasize 4 pillars: natural gas (natural gas mixed with green gas and reduction of methane emissions), low carbon electricity (renewables, mobility and batteries), petroleum products (low cost oil and biofuels) and carbon sinks (nature-based solutions and CCUS). All of them are aligned and fit its previous long-term strategy.

For the short-term and to face the current market conditions (demand shock due to Covid-19 and overproduction due to disagreement within OPEC+), Total has decided to reduce the 2020 CapEx by 25% to below USD 14 bn. However, showing a whole declaration of intentions, it will maintain the low carbon electricity CapEx of USD 1.5-2

bn. At the same time, it will accelerate its efforts in terms of energy efficiency and cost savings, while stopping the share buy-back program. In this way, Total expects to save USD 7.5 bn of CFFO in a volatile and challenging environment. Moreover, not all areas of the company will suffer equally, with petrochemicals being one of the most resilient. Total also announced a reduction in the hydrocarbon production of 5% compared to the previous guidance.

Although this is a hostile market environment, Total has better fundamentals than in other oil crises. Among the highlights are the low organic pre-dividends cash break even (less than USD 25/bbl) and the low gearing (22%), which is expected to rise by 4% by 2020.

4. CHAPTER IV: VALUATION

Different valuation methods have been calculated and chosen not to attribute weights to other methods, although they deliver similar prices. Table 7 shows the recommendations for the companies delivered from the corresponding DCF analysis.

Table 7: DCF Recommendation

Recommendation	BP	ENI	EQUINOR	REPSOL*	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	14.47	31.09
EUR Target Price	402.05	9.59	13.50	16.15	21.09	42.47
Upside/Downside potential	+17.95%	+12.56%	+7.06%	+25.80%	+45.74%	+36.60%
Recommendation	HOLD	HOLD	HOLD	BUY	BUY	BUY

Source: Team Estimates. (*) 06/02/2020

Resulting from the DCF analysis conducted for each of the six companies, Shell has the largest upside potential, with a target price of EUR 21.09/shr., a 45.74% higher than its price at May 13, 2020, and therefore, a BUY recommendation is issued on this stock. Total also worths a BUY recommendation due to an estimated upside potential of 36.60%, reaching a target price of EUR 42.47/shr. Repsol's estimations at February 6th, 2020, indicated a BUY recommendation with an upside potential of 25.80%. BP, ENI and Equinor do also show revaluation strengths, although in a more moderate manner, and thus, a HOLD recommendation is issued for the three of them.

4.1 DISCOUNTED CASH FLOW

Cost of Equity is computed using the CAPM model. The German 10-year Bond is chosen as Risk-Free Rate (-0.53% as of May 13th). Mathematically (CFA Institute, 2003):

$$r_e = r_f + \beta \cdot (r_m - r_f) \quad (I)$$

For beta calculation, it has been unlevered the last 5 years of peers' (RDSA LN, BP/LN, EQNR NO, MOL HB, GALP PL, OMV AV, FP FP, ENI IM, XOM US, CVX US, COP US, PETRA BZ) betas (0.882) and levered to match each company's capital structure. Betas

computed by Damodaran have been used as contrast (leveraged beta of 1.093 for European Oil/Gas Integrated).

To unlever beta, the comparable's capital structure is removed from the beta to arrive at the asset beta, which reflects the company's business risk (CFA Institute, 2003):

$$\beta_{asset} = \beta_{equity} \left[\frac{1}{1 + \left((1 - t) \frac{D}{E} \right)} \right] \quad (II)$$

To lever beta, it is adjusted for the company's financial risk (CFA Institute, 2003):

$$\beta_{equity} = \beta_{asset} \left[1 + \left((1 - t) \frac{D}{E} \right) \right] \quad (III)$$

Table 8: Unlevered and levered beta

Unlevered and levered beta	Lev. Beta	Eff. tax rate	Debt/Equity	Unlev. Beta
Repsol	1.090	33%	72%	0.734
Royal Dutch Shell PLC	1.149	36%	59%	0.834
BP PLC	1.183	49%	66%	0.882
Equinor ASA	1.174	80%	3%	1.168
MOL Hungarian Oil & Gas PLC	1.041	17%	36%	0.802
Galp Energia SGPS SA	1.041	61%	25%	0.948
OMV AG	1.070	38%	38%	0.866
Total SA	1.006	34%	28%	0.852
ENI SpA	0.928	97%	42%	0.917
Exxon Mobil Corp	0.943	26%	23%	0.807
Chevron Corp	0.998	49%	14%	0.929
ConocoPhillips	1.091	24%	15%	0.981
Petroleo Brasileiro SA	1.546	35%	92%	0.965
Peers' average	1.097	44%	39%	0.899
Peers' median	1.070	36%	36%	0.882

Source: Bloomberg

The Market Risk Premium (8.42%) is obtained as the EYG (Earnings Yield Gap), computed as the EYR (Earnings Yield Ratio) less the Risk-Free Rate. The Earning Yield Ratio is

assumed to be the inverse of the P/E ratio for the market in which the companies operate (EURO STOXX 50) (BBVA, 2015).

$$EYG = EYR - r_f = \frac{1}{\frac{P}{E}} - r_f \quad (IV)$$

The following Brent and Henry Hub's price scenarios have been used to elaborate the DCF's estimations. This price scenario corresponds with the futures estimates for each of the products. These scenarios have been compared with EIA's latest estimates to support the hypotheses.

Table 9: Estimations for Brent and Henry Hub futures

Product	Units	2020e	2021e	2022e	2023e	2024e	2025e
Brent Price	USD/bbl	34.7	36.02	39.98	43.4	46.12	48.65
Henry Hub	USD MMBtu	2.015	2.655	2.520	2.438	2.443	2.438

Source: Bloomberg

4.1.1 BP

It is issued a HOLD recommendation on BP with a target price of EUR 402.25/shr., which represents a 17.95% upside potential from the closing price of EUR 341.05 on May 13th, 2020. Target price is based on a DCF valuation.

Table 10: Valuation summary and company data (BP)

VALUATION		COMPANY DATA	
EV (EUR mn)	126,666	Market Cap. (EUR mn)	71,006
Adj. NFD (-)	40,295	Recommendation	Hold
Minorities (-)	2,123	Outstanding shares (mn)	209
Preferred Shares	0	Average daily volume (mn)	51.64
Imp. Eq. Value	84,248	Free-float	93.20%
No. of shares (mn)	209	Main Shareholders	
Target price (EUR/shr)	402.05	Blackrock	6.06%
Share price (EUR/shr)	341.05	The Vanguard Group	5.01%
Upside potential	17.95%	Norges Bank	4.66%
		Legal & General Investment Mgt.	2.20%

Source: Company data and Team estimates

Source: Bloomberg

The cost of equity has been calculated under the CAPM model, taking the German 10-year bond as Risk-Free Rate (-0.53%). BP's levered beta is 1.152 and the market premium is 8.42%. This gives BP a cost of equity (r_e) of 9.10%. The cost of debt (r_d) is calculated as the average interest expense/debt ratio of the last five years, giving a cost of 3.56%. Using the average tax rate of the last four years (47.7%) and given a Debt-to-Equity ratio of 0.56, the resulting WACC yields 6.48%. Mathematically (CFA Institute, 2003):

$$WACC = w_d r_d (1 - t) + w_p r_p + w_e r_e \quad (V)$$

Table 11: Cost of Equity and WACC (BP)

COST OF EQUITY		WACC	
Risk Free Rate	-0.53%	Risk-Free Rate	-0.53%
Beta	1.15	Beta	1.15
Market Risk Premium	8.42%	Market Risk Premium	8.42%
		Cost of Equity	9.17%
		Cost of Debt	3.56%
		Tax Rate	47.68%
Total	9.17%	Total	6.48%

Source: Bloomberg and Team Estimates

Source: Bloomberg and Team Estimates

In order to calculate the Terminal Value of the company, the last cash flow has been normalized, and the CAGR of BP's equity has been taken to estimate a perpetuity growth of 0.58%. Mathematically (CFA Institute, 2003):

$$Terminal\ Value = \frac{FCFF_n(1 + g)}{WACC - g} \quad (VI)$$

The estimated growth is in line with BP's long-term strategy towards a more efficient production and energy transition to low carbon energies. Although the recent crisis has added up to the environmental transition challenge that the industry is facing, Bernard Looney (BP's Chief Executive) said that "he is more convinced than ever" about the company's commitment with the Net Zero Emissions goal (Ambrose, 2020). BP has a solid track record and has established a clear strategy, adapting its business model focusing in new energies and low carbon fuels. Nevertheless, the success of the company will be driven by market instability and their capability to be consistent on achieving the announced strategic goals. Therefore, it is issued a HOLD recommendation with an upside potential of 17.95%.

4.1.2 ENI

It is issued a HOLD recommendation on ENI with a target price of EUR 9.59/shr. which represents a 12.6% upside potential from the closing price of EUR 8.52/shr. On May 13th, 2020. Target price is based on DCF valuation.

Table 12: Valuation summary and company data (ENI)

VALUATION		COMPANY DATA	
EV (EUR mn)	52,661	Market Cap. (EUR mn)	30,355
Adj. NFD (-)	18,140	Recommendation	Hold
Minorities (-)	61	Outstanding shares (mn)	3,592
Preferred Shares	0	Average daily volume (mn)	18.68
Imp. Eq. Value	34,460	Free-float	67.19%
No. of shares (mn)	3,592	Main Shareholders	
Target price (EUR/shr)	9.59	Cassa Depositi e Prestiti SpA	25.76%
Share price (EUR/shr)	8.52	Ministero dell'Economia e delle Finanze	4.34%
Upside potential	12.6%	The Vanguard Group	2.41%
		Blackrock	2.07%

Source: Company data and Team estimates

Source: Bloomberg

The cost of equity is calculated according to CAPM model. Beta has been leveraged to a value of 1.11, giving a cost of equity (re) of 8.83%. The financial expenses/net financial debt ratio of 2019 has been taken as the cost of debt (rd), which is 4.85%. The debt and equity ratios are 37.40% and 62.60%, respectively. These inputs show a WACC of 6.32%, used for discounting cash flows.

Table 13: Cost of Equity and WACC (ENI)

COST OF EQUITY		WACC	
Risk Free Rate	-0.53%	Risk-Free Rate	-0.53%
Beta	1.11	Beta	1.11
Market Risk Premium	8.42%	Market Risk Premium	8.42%
		Cost of Equity	8.83%
		Cost of Debt	4.85%
		Tax Rate	56.60%
Total	8.83%	Total	6.32%

Source: Bloomberg and Team Estimates

Source: Bloomberg and Team Estimates

In addition, the weighted average of ENI's Upstream and Downstream tax rates has been used as the effective tax rate, which yields 56.60%. For the calculation of the terminal value, the cash flow of the last year has been normalized in terms of amortization and CapEx, and a perpetuity growth 0.25% has been applied. The perpetuity rate is conservative due to the fact that ENI's strength is in Upstream, which is estimated to evolve negatively in the long-term, and although the company will diversify its portfolio and expand its activities to reach a more balanced business, this transformation will not be straightforward and high efforts will be needed. Thus, a lower perpetuity than the rest of its peers has been applied.

4.1.3 Equinor

It is issued a HOLD recommendation on Equinor with a target price of NOK 148.82/shr. (USD 14.64/shr.), which represents a 7.06% upside potential from the closing price of NOK 139.00/shr. (USD 13.68/shr.) of May 13th, 2020. Target price is based on a DCF valuation.

Table 14: Valuation summary and company data (Equinor)

VALUATION		COMPANY DATA	
EV (EUR mn)	61,723	Market Cap. (EUR mn)	42,099
Adj. NFD (-)	12,829	Recommendation	Hold
Minorities (-)	8	Outstanding shares (mn)	3,339
Preferred Shares	0	Average daily volume (mn)	5.92
Imp. Eq. Value	48,886	Free-float	32.52%
No. of shares (mn)	3,339	Main Shareholders	
Target price (EUR/shr)	13.50	Ministry of Petroleum & Energy	67.00%
Share price (EUR/shr)	12.61	Folketrygdfondent	3.63%
Upside potential	7.06%	Dodge & Cox	1.33%
		JP Morgan Chase & Co.	1.24%

Source: Company data and Team estimates

Source: Bloomberg

Equinor's levered beta is 1.01 and its tax rate reaches 80% (Equinor, Bloomberg), one of the highest among its peers. The cost of debt (rd) is calculated as the average of the last five years gross debt/interest payment ratio, resulting in 3.29%. The cost of equity, calculated with the CAPM model, is 8.04%. These inputs result in a WACC of 6.03%. For the Terminal Value, a perpetuity growth rate of 1.57% has been used. This growth rate is obtained as the average last five years GDP growth rate for Norway, Equinor's main market (World Bank, 2020). It is believed this growth rate represents the most accurate measure for perpetuity growth as Equinor's equity growth rate for the period 2015-2019 exceeds consensus perpetuity growth rate.

Table 15: Cost of Equity and WACC (Equinor)

COST OF EQUITY		WACC	
Risk Free Rate	-0.53%	Risk-Free Rate	-0.53%
Beta	1.01	Beta	1.01
Market Risk Premium	8.42%	Market Risk Premium	8.42%
		Cost of Equity	8.04%
		Cost of Debt	3.29%
		Tax Rate	80.08%
Total	8.04%	Total	6.03%

Source: Bloomberg and Team Estimates

Source: Bloomberg and Team Estimates

The recent market moves due to Covid-19 pandemic and Crude Oil volatility have made Equinor's share price to trade very close to its two decades lowest minimum at the end of 2001, after September 11th attacks. However, there is no reason to doubt about the future performance of Equinor, as it has a strong balance sheet position and high-quality assets. Equinor's strategy and ESG alignment will play in its favour in the years to come as it will position as one of the European leaders in the fight against contaminating emissions. However, uncertainty around Covid-19 and world's economy recovery rate has a huge weight in valuations which has arrived to issuing a HOLD recommendation with a 7.06% upside potential.

4.1.4 Repsol

It is issued a BUY recommendation on Repsol with a target price of EUR 16.15/shr., which represents a 25.9% upside from the closing price of EUR 12.83/shr. of February 6th, 2020. Target price is based on a DCF valuation.

Table 16: Valuation summary and company data (Repsol)

VALUATION		COMPANY DATA	
EV (EUR mn)	32,763	Market Cap. (EUR mn)	20,084
Adj. NFD (-)	7,184	Recommendation	Buy
Minorities (-)	286	Outstanding shares (mn)	1,566
Preferred Shares	0	Average daily volume (mn)	8.23
Imp. Eq. Value	25,293	Free-float	91.43%
No. of shares (mn)	1,566	Main Shareholders	
Target price (EUR/shr)	16.15	Sacyr	7.79%
Share price (EUR/shr)	12.83	Blackrock	4.65%
Upside potential	25.8%	Norges Bank	2.66%
		The Vanguard Group	2.61%

Source: Company data and Team estimates

Source: Bloomberg

Repsol's levered beta yields 1.090, the resulting WACC is 7.85% and the company's Tax Rate is 44.3% (last 4 years average).

Table 17: Cost of Equity and WACC (Repsol)

COST OF EQUITY		WACC	
Risk Free Rate	-0.53%	Risk-Free Rate	-0.53%
Beta	1.09	Beta	1.09
Market Risk Premium	8.42%	Market Risk Premium	8.42%
		Cost of Equity	8.65%
		Cost of Debt	1.95%
		Tax Rate	44.34%
Total	8.65%	Total	7.85%

Source: Bloomberg and Team Estimates

Source: Bloomberg and Team Estimates

A positive view of the stock is deployed. There are reasons to think that recent falls on the stock create a window opportunity to take advantage of the situation. Repsol latest announcements regarding ESG issues set a precedent in the O&G sector, since it has become the first O&G company compromised with a zero-emission scenario by 2050. ESG catalyst, yet it does not act like a catalyst but as an inhibitor in the business, is driving most of the actors in this sector to a less carbonized scenario, where cleaner energy sources develop and become the leader of the future energy generation. As Repsol is now 'focused on value creation rather than volume', the perpetuity growth rate is estimated as the CAGR 2013-18 of Repsol's equity. The calculation provides a terminal growth rate of 2.59%. It is believed that this assumption represents the most accurate estimate for Repsol's future growth.

In order to estimate the Terminal Value of the company, the debt ratio is adjusted by calculating its equity (number of shares as of February 6th by its share price). The last estimated cash flow (2025e) has been normalized, so the terminal value includes stable capital expenditures (adjustment CapEx equals D&A, stable deferred taxes and stable working capital). Nevertheless, cash flow corresponding to 2025e has been discounted as estimated.

It has been forecasted upstream financials based on the historical trend followed by Repsol in their latest strategic plans. It is estimated annual production, not by geographical area but by country, based on wells perspectives for the next years. Revenues by country are estimated by calculating the average crude oil realization price/annum and average gas realization price/annum. Upstream CapEx is estimated by calculating the long-term production growth (2018 production/ 2025e production), a LT production growth rate of 2.66% is obtained. The operational ratio of Required RRR to fulfil LT production growth results as 129% 2019e. LTPGR is in line with Repsol's expectations on upstream future production "Upstream business plans to increase

production to about 720,000 barrels/day in 2019, through active management of its portfolio that provides quality barrels and the prioritization of onshore projects (on land) and in shallow waters, where Repsol has prior experience” (Repsol, 2019).

Repsol has six primary distillation stations, five of them interconnected operating 24/7. Its logistical advantage (strategic geographical positioning, communication with the Atlantic Ocean and the Mediterranean Sea) allows them to operate one of the most efficient refining systems in Europe, generating higher value products with a lower carbon intensity. It is also estimated the refining production (thousand metrics tons) by product. Spanish refining margin indicator for the next five years is forecasted to obtain the refining gross margin. It is important to highlight that refining margins falls as Brent prices increases.

Several divestments have been made during the last decade, concerning the G&P segment, mainly: LNG to Shell in February 2013, Repsol sold LNG assets in Atlantic, Peru and Bizkaia Bay for a value of EUR 6.7 bn. At the time, it was justified as needed to reduce net financial debt, and that would allow an organic growth in the upstream segment. Canalized gas to Redexis Gas and Gas Natural in September 2015, Repsol sold EUR 651.5 mn for 270km of distribution network and 71,530 supply points to Redexis and 250,000 supply points to Gas Natural (non-strategic assets). CLH to Ardian in September 2015, Repsol sold 10% participation on the logistic group for EUR 325 mn, since it was not considered at that time as a core business. GNF to GIP and CVC completed in February 2018. Previously, in September 2016, Repsol sold 20% of their participation in Gas Natural Fenosa to the American fund GIP, for EUR 3.8 bn. It was a year and a half later when Repsol completed its exit from GNF and sold 20% of its participation to CVC for EUR 3.8 bn. Repsol published that same year its current strategic plan 2018-2020 where claims that energy transition and disruptions will play a significant role in the upcoming years, and most importantly that natural gas is the fastest growing fossil fuel. They identified LNG as a key driver through energy transition and clean scenario.

Repsol acquisition of Viesgo's low emissions assets in June 2018, includes hydroelectric plants and two combined-cycle gas turbines (CCGT). Combined cycle gas plants will play a key role in the energy transition. Hydroelectric plants are an efficient source of renewable power generation as well as acting as an energy storage that can be used when other renewable sources are unavailable. The transaction will also improve the efficiency of Repsol's own energy consumption, which is the most significant single cost of its five large industrial facilities in Spain.

Yet, Repsol aims to develop its Gas & Power segment, since they consider it as a key factor to success on the low carbon emission transition. Repsol is well positioned on the energy transition, 72.73% of their reserves are gas, and represents 2/3 of their current production. The company is compromised to reach a level of 4.5 GW installed capacity by 2025 (2.9 GW in February 2020). They have set a CapEx investment in G&P of EUR 2.5 bn in their last strategic plan, including renewable energy plants. The ESG advantage in comparison with other players drives the market to give Repsol a valuation prime.

4.1.5 Shell

It is issued a BUY recommendation on Shell with a target price of EUR 21.06/shr., which represents a 45.74% upside potential from the closing price of EUR 14.47/shr. on May 13th, 2020. Target price is based on a DCF valuation.

Table 18: Valuation summary and company data (Shell)

VALUATION		COMPANY DATA	
EV (EUR mn)	241,331	Market Cap. (EUR mn)	106
Adj. NFD (-)	71,594	Recommendation	BUY
Minorities (-)	3,528	Outstanding shares (mn)	7,881
Preferred Shares	0	Average daily volume (mn)	19.66
Imp. Eq. Value	166,209	Free-float	99.78%
No. of shares (mn)	7,881	Main Shareholders	
Target price (EUR/shr)	21.09	Euroclear Netherlands	43.78%
Share price (EUR/shr)	14.47	Blackrock	6.98%
Upside potential	45.7%	The Vanguard Group	5.07%
		People's Republic of China	1.71%

Source: Company data and Team estimates

Source: Bloomberg

The cost of equity has been calculated under the CAPM model, taking the German 10-year bond as Risk Free Rate (-0.53%). Shell's levered beta is 1.087 and the market premium is 8.42%. This gives Shell a cost of equity (re) of 8.62%. The cost of debt (rd) is calculated as the average interest expense/debt ratio of the last five years, giving a cost of 4.51%. Using the average Tax Rate of the last four years (36.62%) and given a Debt-to-Equity ratio of 0.37, the WACC is 7.08%.

Table 19: Cost of Equity and WACC (Shell)

COST OF EQUITY		WACC	
Risk Free Rate	-0.53%	Risk-Free Rate	-0.53%
Beta	1.09	Beta	1.09
Market Risk Premium	8.42%	Market Risk Premium	8.42%
		Cost of Equity	8.62%
		Cost of Debt	4.51%
		Tax Rate	36.52%
Total	8.62%	Total	7.08%

Source: Bloomberg and Team Estimates

Source: Bloomberg and Team Estimates

The cash flow corresponding to 2025 has been normalized in order to isolate the effect of the tax shield for perpetuity. Shell's equity CAGR of the last 5 years has been taken into account to determine the Terminal Value of the company, resulting 1.05%.

The effects of the current crisis have been taken into account during the valuation, and following the guidance given by the company, the results are coherent with Shell's established scenarios for the energy transition. Shell has been at the vanguard during the last years regarding green investments, and it is believed that they will successfully accomplish their medium- and long-term plans in order to achieve the net zero emissions scenario.

4.1.6 Total

It is issued a BUY recommendation on Total with a target price of EUR 42.47/shr. (USD 46.19/shr.), which represents a 36.60% upside potential from the closing price of EUR 31.09/shr. (USD 33.81/shr.) as of May 13th, 2020. Target price is based on DCF valuation.

Table 20: Valuation summary and company data (Total)

VALUATION		COMPANY DATA	
EV (EUR mn)	153,116	Market Cap. (EUR mn)	80,893
Adj. NFD (-)	31,735	Recommendation	BUY
Minorities (-)	2,527	Outstanding shares (mn)	2,573
Preferred Shares	0	Average daily volume (mn)	8.25
Imp. Eq. Value	118,854	Free-float	92.03%
No. of shares (mn)	2,573	Main Shareholders	
Target price (EUR/shr)	42.47	Credit Agricole Groupe	8.04%
Share price (EUR/shr)	31.09	Blackrock	5.29%
Upside potential	36.60%	The Vanguard Group	3.16%
		Norges Bank	2.37%

Source: Company data and Team estimates

Source: Bloomberg

The cost of equity is calculated according to CAPM model. Beta has been leveraged to a value of 1.04, giving a cost of equity (re) of 8.25%. The average financial expenses/debt ratio of the last 2 years has been taken as the cost of debt (rd), which is 3.83%. The debt and equity ratios are 21.07% and 78.93%, respectively. These inputs show a WACC of 7.06%, used for discounting cash flows.

Table 21: Cost of Equity and WACC (Total)

COST OF EQUITY		WACC	
Risk Free Rate	-0.53%	Risk-Free Rate	-0.53%
Beta	1.04	Beta	1.04
Market Risk Premium	8.42%	Market Risk Premium	8.42%
		Cost of Equity	8.25%
		Cost of Debt	3.83%
		Tax Rate	32.24%
Total	8.25%	Total	7.06%

Source: Bloomberg and Team Estimates

Source: Bloomberg and Team Estimates

In addition, the effective Tax Rate has been taken from the average of the last 3 years, being consistent around 33%. For the calculation of the Terminal Value, the cash flow of the last year has been normalized in terms of amortization and CapEx, and a perpetuity growth of 0.50% has been applied. Being conservative in the perpetuity growth (g), it is believed that this figure is aligned with the positioning and long-term strategy of Total, which presents a balanced portfolio of assets in terms of business and geographical areas. In addition, Total's large size and its strategy of promoting more stable business lines such as electricity generation and sales, make us more conservative in the growth assumption.

4.2 PEER MULTIPLE VALUATION

It has been carried out a peer multiple valuation to assess the value through different methodologies. Table 22 summarizes the recommendations achieved through the peer multiple valuation method based on 2019 multiples.

Table 22: EV/EBITDA multiple recommendation, 2019

Recommendation	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	21.09	31.09
EUR Target Price Multiples	422.98	10.68	25.16	18.18	32.87	38.05
Upside/Downside potential	+24.02%	+25.35%	+99.57%	+41.75%	+55.86%	+22.40%
Recommendation	BUY	BUY	BUY	BUY	BUY	BUY

Source: Team Estimates

The six European O&G companies would have a BUY recommendation based on the EV/EBITDA multiple valuation method. Total is the only stock that would have a lower target price derived from this valuation method than the DCF analysis. The rest would

have a considerable rise in their estimated value, due to the fact that oil prices in 2019 stood calm and the revenues were significant in the industry, leading to interesting EBITDAs. The multiple EV/EBITDA has been used in order to apply the multiple peer valuation and not EV/Sales or P/E because CFA recommends that EV/EBITDA is more appropriate for capital-intensive sectors, such as the one in question, the O&G industry.

Tables 23, 24 and 25 show the comparable's multiples for the O&G sector. It can be seen that Renewable Players and Independents Upstream have the highest multiples. This is consistent with the conclusion reached by Bernstein studies that renewables are trades with a 22% premium.

Table 23: EV/Sales median

EV/Sales median	2019	2020e	2021e
Super-majors	0.79	0.76	0.78
Regional majors	0.70	0.67	0.63
Independents Upstream	3.09	3.09	2.93
Independents Downstream	0.45	0.44	0.48
PetroChemical Players	1.02	1.00	0.97
LPG Players	3.32	1.23	1.20
Renewables Players	8.50	8.18	7.66

Source: Bloomberg

Table 24: EV/EBITDA median

EV/EBITDA median	2019	2020e	2021e
Super-majors	4.40	4.21	4.12
Regional majors	4.05	3.74	3.76
Independents Upstream	5.78	5.62	5.29
Independents Downstream	5.28	5.39	5.20
PetroChemical Players	7.05	5.89	5.60
LPG Players	1.17	8.37	8.32
Renewables Players	11.72	11.19	10.24

Source: Bloomberg

Table 25: P/E median

P/E median	2019	2020e	2021e
Super-majors	10.40	9.39	8.57
Regional majors	7.59	6.69	6.68
Independents Upstream	91.66	53.84	25.20
Independents Downstream	17.75	9.19	10.07
PetroChemical Players	11.44	10.63	10.06
LPG Players	8.49	12.56	12.39
Renewables Players	36.43	33.00	25.09

Source: Bloomberg

4.3 MARKET PRICES

In order to contextualize the different valuation prices obtained from the DCF analysis and the peer multiple valuation, closing prices of the last 52 weeks were extracted from Bloomberg on May 13th. This helps to assess the maximum and minimum listing prices of the analysed European O&G companies in this period, and it may serve as indicative of the upside potential these companies might hold.

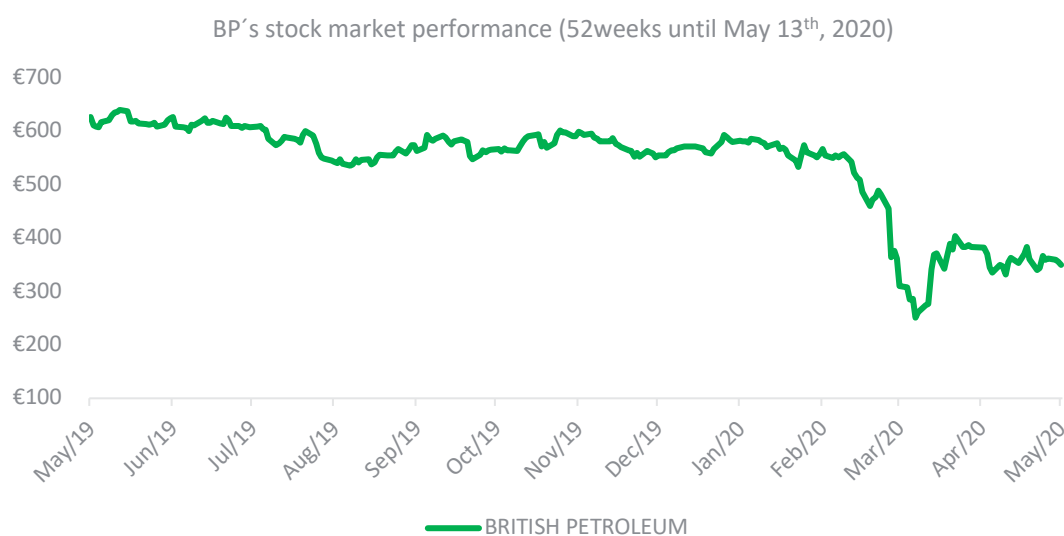


Figure 8: BP's stock market performance (52 Weeks until May 13th, 2020)

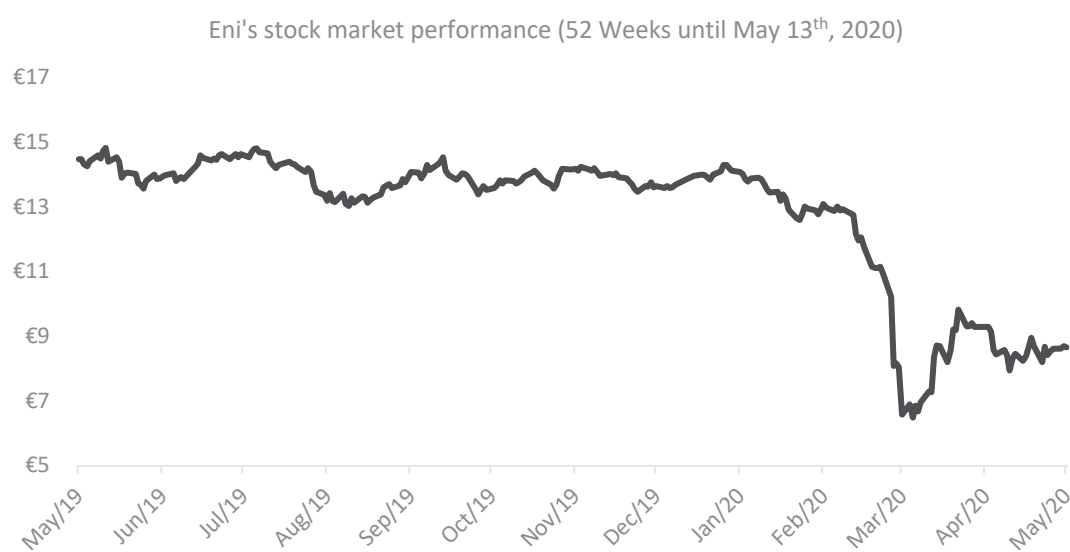


Figure 9: ENI's stock market performance (52 Weeks until May 13th, 2020)

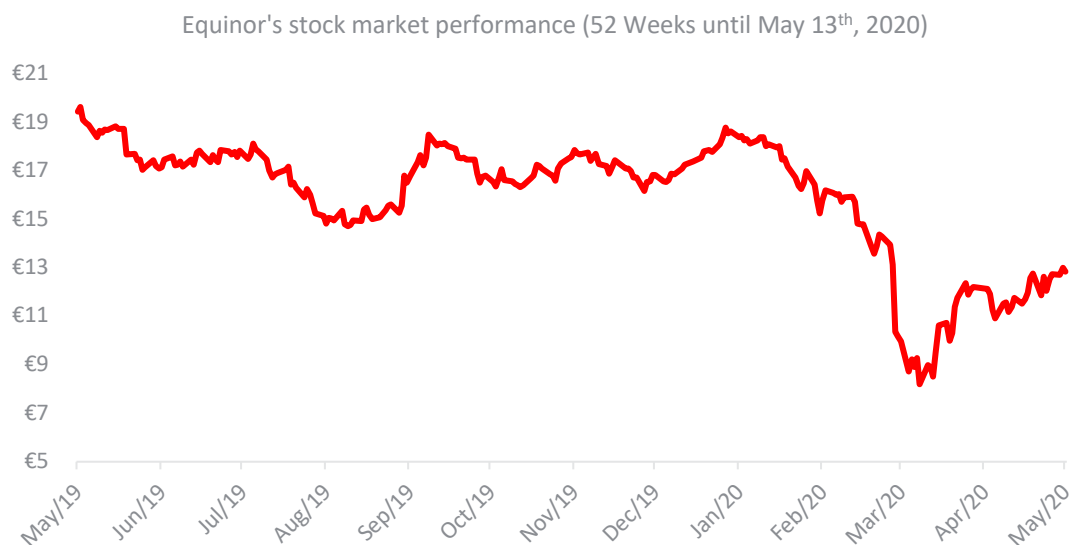


Figure 10: Equinor's stock market performance (52 Weeks until May 13th, 2020)

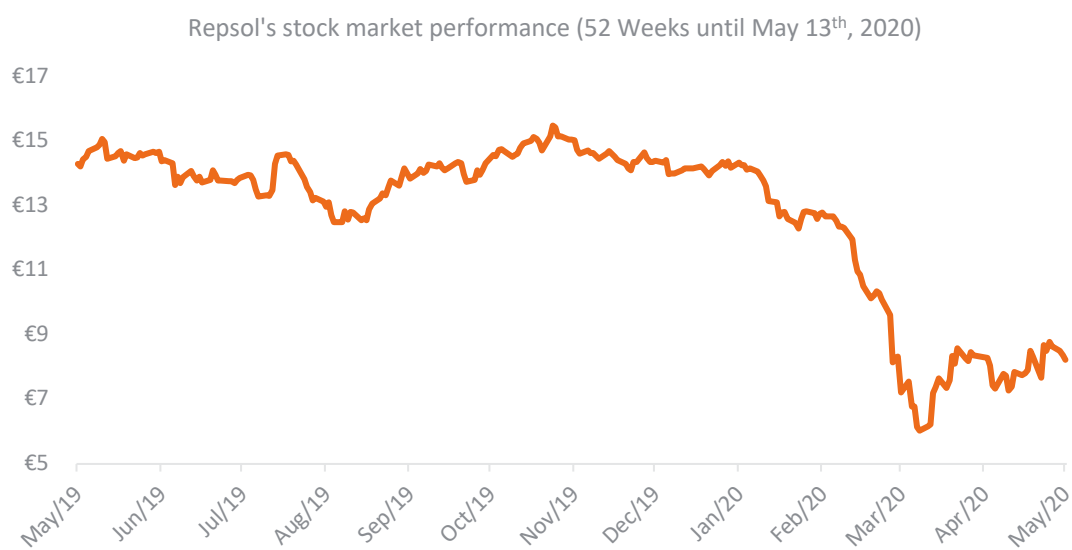


Figure 11: Repsol's stock market performance (52 Weeks until May 13th, 2020)

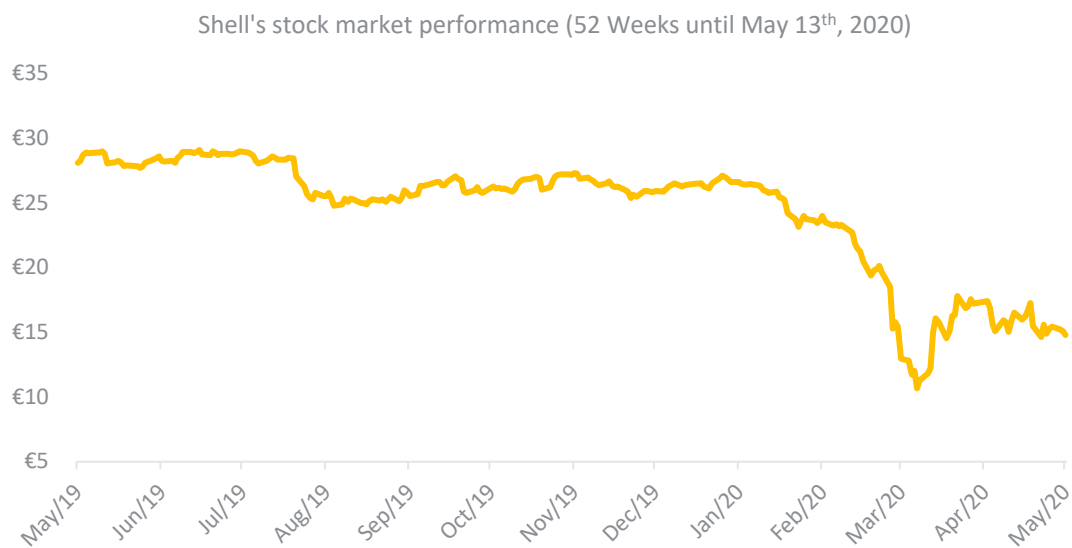


Figure 12: Shell's stock market performance (52 Weeks until May 13th, 2020)

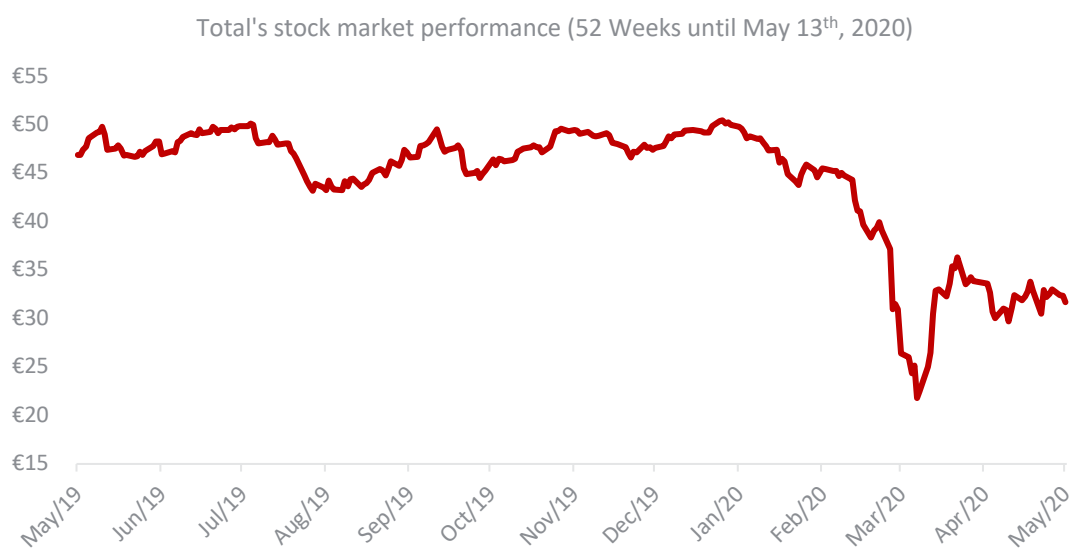


Figure 13: Total's stock market performance (52 Weeks until May 13th, 2020)

4.4 ANALYSTS RECOMMENDATIONS

The following tables include the recommendations made by analysts that cover the selected stocks. Those stocks that are traded in a currency different from the Euro have been converted to EUR so that it is easier to conduct a fair comparison between the six companies. Analysts with the highest and lowest target price have also been highlighted. It has to be said that when reviewing the analysts' recommendations, only the most relevant research firms have been considered.

BP's highest recommendation was given by Goldman Sachs on March 10th, with a target price of EUR 614/shr. (80% upside potential). Royal Bank of Canada Capital Markets gave the least optimistic recommendation, with a target price of EUR 279/shr. (-18.19% of downside potential). The difference between both prices show how the analysts have various estimations for the Oil and Gas industry, and more specifically, how they disagree on BP's real value.

Table 26: Analysts' recommendations (BP)

Firm Name	Analyst	Date	Target Price (EUR/shr)
HSBC	Gordon Gray	May-21-20	446.00
AlphaValue/Baader Europe	Kevin Vo	May-21-20	498.00
Bernstein	Dr Oswald Clint	May-18-20	558.00
J.P. Morgan	Christyan Malek	May-15-20	474.40
Morgan Stanley	Martijn P Rats	May-14-20	290.22
Berenberg	Henry Tarr	May-12-20	357.19
Exane BNP Paribas	Lucas Herrmann	May-11-20	390.70
Landesbank Baden-Wuerttemberg	Achim Wittmann	Apr-30-20	435.00
Societe Generale	Irene Himona	Apr-29-20	586.00
Independent Research GmbH	Sven Diermeier	Apr-29-20	401.00
Oddo BHF	Ahmed Ben Salem	Apr-29-20	424.00
Kepler Cheuvreux	Bertrand Hodee	Apr-29-20	446.50
Panmure Gordon & Co Limited	Colin Smith	Apr-29-20	435.00
RBC Capital Markets	Biraj Borkhataria	Apr-28-20	279.00
Credit Suisse	Thomas Yoichi Adolff	Apr-28-20	390.70
Jefferies	Jason Gammel	Apr-28-20	357.00
Morningstar, Inc	Allen Good	Apr-28-20	602.00
DZ Bank AG	Werner Eisenmann	Apr-28-20	312.00
MainFirst Bank AG	Jean-Pierre Dmirdjian	Apr-28-20	413.00
Barclays	Lydia Rainforth	Apr-28-20	424.00
Grupo Santander	Jason Kenney	Mar-18-20	583.00
Goldman Sachs	Michele Della Vigna	Mar-10-20	614.00

Source: Bloomberg

The available analysts' recommendations about ENI are disparate, which range from a low target price of EUR 7/shr. (-17.84% from its price as of May 13th) given by RBC Capital Markets issued on April 27th, to as high as EUR 16/shr. by Société Générale (87.79% upwards). This difference in price estimation suggests that the current situation is very uncertain for ENI's future as a key O&G company in the region and evokes serious warnings on the company's evolution in the short-term. The most recent recommendations place ENI's price between EUR 8.5/shr. and EUR 13/shr., advising either a hold or a moderate buy recommendation.

Table 27: Analysts' recommendations (ENI)

Firm Name	Analyst	Date	Target Price (EUR/shr)
HSBC	Kim Fustier	May-21-20	9.00
AlphaValue/Baader Europe	Kevin Vo	May-21-20	10.30
Bernstein	Dr Oswald Clint	May-18-20	13.00
J.P. Morgan	Christyan Malek	May-15-20	8.50
Banca IMI	Roberto Ranieri	May-12-20	11.20
Berenberg	Henry Tarr	May-12-20	9.00
Equita SIM SpA	Massimo Bonisoli	May-07-20	11.00
Intermonte	Paolo Citi	May-04-20	11.00
Exane BNP Paribas	Lucas Herrmann	May-04-20	9.00
Independent Research GmbH	Sven Diermeier	Apr-29-20	9.00
Societe Generale	Irene Himona	Apr-27-20	16.00
Mediobanca SpA	Alessandro Pozzi	Apr-27-20	11.00
RBC Capital Markets	Biraj Borkhataria	Apr-27-20	7.00
Credit Suisse	Thomas Yoichi Adolff	Apr-27-20	12.00
Landesbank Baden-Wuerttemberg	Achim Wittmann	Apr-27-20	10.00
Oddo BHF	Ahmed Ben Salem	Apr-27-20	9.50
Kepler Cheuvreux	Bertrand Hodee	Apr-27-20	10.00
Morningstar, Inc	Allen Good	Apr-27-20	15.00
Fidentiis Equities	Marco Oipari	Apr-27-20	9.50
Barclays	Lydia Rainforth	Apr-27-20	9.30
Morgan Stanley	Martijn P Rats	Apr-24-20	7.70
Goldman Sachs	Michele Della Vigna	Apr-24-20	12.00
Banca Akros (ESN)	Francesco Sala	Apr-24-20	11.50
MainFirst Bank AG	Jean-Pierre Dmirdjian	Apr-24-20	9.50
Jefferies	Jason Gammel	Apr-20-20	8.05
Grupo Santander	Jason Kenney	Mar-18-20	13.44

Source: Bloomberg

Credit Suisse gives Equinor a target price of EUR 19.27/shr., which represents an upside potential of +52.81%. On the other hand, Jefferies gives the lowest target price of EUR 9.63/shr., resulting on a downside of -23.63%.

Table 28: Analysts' recommendations (Equinor)

Firm Name	Analyst	Date	Target Price (EUR/shr)
Arctic Securities ASA	Daniel Stenslet	May-22-20	12.85
HSBC	Kim Fustier	May-21-20	12.85
AlphaValue/Baader Europe	Kevin Vo	May-21-20	14.13
Handelsbanken	Anne Gjoen	May-20-20	11.00
SpareBank 1 Markets AS	Teodor Sveen Nilsen	May-19-20	11.93
Bernstein	Dr Oswald Clint	May-18-20	15.60
SEB Equities	Halvor Strand Nygard	May-18-20	12.85
Fearnley Securities	Jorgen Torstensen	May-18-20	15.60
J.P. Morgan	Christyan Malek	May-15-20	13.76
ABN Amro Bank N.V.	Thijs Berkelder	May-15-20	12.85
DNB Markets	Jon Masdal	May-13-20	12.00
RBC Capital Markets	Biraj Borkhataria	May-11-20	13.76
Berenberg	Henry Tarr	May-11-20	13.30
Norne Securities AS	Irmantas Vaskela	May-11-20	13.76
Societe Generale	Yoann Charenton	May-08-20	16.98
Kepler Cheuvreux	Anders Torgim Holte	May-08-20	13.76
DZ Bank AG	Werner Eisenmann	May-08-20	11.00
Morgan Stanley	Martijn P Rats	May-07-20	13.49
ABG Sundal Collier	John Olaisen "Aino"	May-07-20	14.68
Credit Suisse	Thomas Yoichi Adolff	May-07-20	19.27
Pareto Securities	Tom Erik Kristiansen	May-07-20	13.76
Exane BNP Paribas	Alwyn Thomas	May-07-20	15.60
Barclays	Lydia Rainforth	May-07-20	13.30
Danske Bank	Christian Yggeseth	May-07-20	10.46
Jefferies	Jason Gammel	Apr-20-20	9.63
Goldman Sachs	Michele Della Vigna	Apr-01-20	14.68
Grupo Santander	Jason Kenney	Mar-18-20	11.48

Source: Bloomberg

Looking at Repsol's analysts' recommendations, Oddo BHF gave on January 30th the lowest target price of EUR 14.50/shr. (13% upside potential), while Goldman Sachs was more positive on the stock's intrinsic value, targeting the company in a price of EUR 21/shr. (63.67% increase from its price).

Table 29: Analysts' recommendations (Repsol)

Firm Name	Analyst	Date	Target Price (EUR/shr)
AlphaValue/Baader Europe	Kevin Vo	Feb-06-20	15.80
Grupo Santander	Jason Kenney	Feb-03-20	16.10
BBVA	Luis De Toledo	Feb-03-20	19.10
Morningstar, Inc	Allen Good	Jan-31-20	17.20
Mirabaud Securities	Alvaro Navarro	Jan-31-20	18.40
Oddo BHF	Ahmed Ben Salem	Jan-30-20	14.50
Equita SIM SpA	Massimo Bonisoli	Jan-30-20	16.00
RBC Capital Markets	Biraj Borkhataria	Jan-29-20	15.50
Bernstein	Oswald Clint	Jan-28-20	20.00
Kepler Cheuvreux	Pablo Cuadrado	Jan-24-20	17.00
Exane BNP Paribas	Alwyn Thomas	Jan-24-20	17.00
Jefferies	Jason Gammel	Jan-23-20	14.90
Société Générale	Irene Himona	Jan-23-20	16.00
Alontra Equities	Fernando Lafuente	Jan-23-20	16.71
GVC Gaesco Valores	Victor Peiro Perez	Jan-23-20	19.00
Banco Sabadell	Javier Esteban	Jan-23-20	19.70
Barclays	Lydia Rainforth	Jan-22-20	17.00
J.P. Morgan	Matthew Lofting	Jan-21-20	17.50
Credit Suisse	Thomas Adolff	Jan-20-20	20.00
Deutsche Bank	Yuriy Kukhtanych	Jan-14-20	16.00
Berenberg	Ilkin Karimli	Jan-13-20	16.00
HSBC	Kim Fustier	Jan-10-20	16.00
Goldman Sachs	Michele Della Vigna	Jan-06-20	21.00
Independent Research GmbH	Sven Diermeier	Dec-03-19	14.80
CaixaBank BPI	Bruno Silva	Nov-25-19	19.40
Morgan Stanley	Martijn Rats	Nov-05-19	18.00
Ahorro Corporacion Financiera	Luis Padron	Oct-31-19	18.00
Mediobanca SpA	Alessandro Pozzi	Oct-14-19	17.00

Source: Bloomberg

Recommendations on Shell's target price shows great differences among research firms. Société Générale was optimistic on the stock's performance when it issued its buy recommendation with an upside potential of 110%, targeting the price on EUR 30.40/shr. Morgan Stanley issued its target price on April 30th, lowering it to EUR 12.08/shr., which ranks as the lowest estimated price for the company.

Table 30: Analysts' recommendations (Shell)

Firm Name	Analyst	Date	Target Price (EUR/shr)
AlphaValue/Baader Europe	Kevin Vo	May-21-20	19.57
Bernstein	Dr Oswald Clint	May-18-20	21.00
J.P. Morgan	Christyan Malek	May-15-20	18.50
HSBC	Gordon Gray	May-14-20	17.12
Berenberg	Henry Tarr	May-12-20	16.70
Landesbank Baden-Wuerttemberg	Achim Wittmann	May-08-20	17.18
ABN Amro Bank N.V.	Thijs Berkelder	May-08-20	17.00
Exane BNP Paribas	Lucas Herrmann	May-07-20	15.00
Independent Research GmbH	Sven Diermeier	May-06-20	16.90
Oddo BHF	Ahmed Ben Salem	May-04-20	15.97
Kepler Cheuvreux	Bertrand Hodee	May-04-20	19.00
RBC Capital Markets	Biraj Borkhataria	May-01-20	20.50
Credit Suisse	Thomas Yoichi Adolff	May-01-20	19.36
Jefferies	Jason Gammel	May-01-20	13.10
Morgan Stanley	Martijn P Rats	Apr-30-20	12.08
Goldman Sachs	Michele Della Vigna	Apr-30-20	20.50
DZ Bank AG	Werner Eisenmann	Apr-30-20	15.00
MainFirst Bank AG	Jean-Pierre Dmirdjian	Apr-30-20	16.00
Barclays	Lydia Rainforth	Apr-30-20	17.26
ING Bank	Quirijn Mulder	Apr-29-20	30.00
Grupo Santander	Jason Kenney	Mar-18-20	26.70
Societe Generale	Irene Himona	Mar-02-20	30.40

Source: Bloomberg

Regarding Total, on the one hand the analysis firm Day by Day gives a target price of EUR 21.90/shr. (-29.56% downside potential), while on the other hand Société Générale establishes a target price of EUR 60.00/shr. (92.99% upside potential). This disparity between the experts of the different analysis firms is another example of the uncertainty that surrounds the oil and gas sector at this time. The long-term uncertainty about the future of crude oil has been compounded by the current demand crisis caused by the Covid-19.

Table 31: Analysts' recommendations (Total)

Firm Name	Analyst	Date	Target Price (EUR/shr)
HSBC	Kim Fustier	May-21-20	39.25
AlphaValue/Baader Europe	Kevin Vo	May-21-20	43.70
CIC Market Solutions	Jean-Luc Romain	May-19-20	49.00
Barclays	Lydia Rainforth	May-19-20	38.00
Credit Suisse	Thomas Yoichi Adolff	May-18-20	43.00
Bernstein	Dr Oswald Clint	May-18-20	45.00
Day by Day	Valerie Gastaldy	May-18-20	21.90
J.P. Morgan	Christyan Malek	May-15-20	40.00
RBC Capital Markets	Biraj Borkhataria	May-11-20	38.00
Cowen	Jason Gabelman	May-11-20	51.00
Berenberg	Henry Tarr	May-07-20	40.00
Societe Generale	Irene Himona	May-06-20	60.00
Jefferies	Jason Gammel	May-06-20	37.00
Independent Research GmbH	Sven Diermeier	May-06-20	37.00
Oddo BHF	Ahmed Ben Salem	May-06-20	42.00
Kepler Cheuvreux	Bertrand Hodee	May-06-20	41.00
Exane BNP Paribas	Lucas Herrmann	May-06-20	40.00
ABN Amro Bank N.V.	Thijs Berkelder	May-06-20	43.00
Morgan Stanley	Martijn P Rats	May-05-20	28.50
DZ Bank AG	Werner Eisenmann	May-05-20	37.00
MainFirst Bank AG	Jean-Pierre Dmirdjian	May-05-20	37.00
Landesbank Baden-Wuerttemberg	Achim Wittmann	Apr-06-20	38.00
Goldman Sachs	Michele Della Vigna	Apr-01-20	48.00
Grupo Santander	Jason Kenney	Mar-18-20	45.00

Source: Bloomberg

4.5 FOOTBALL FIELDS

DCF is considered the main valuation method of this paper; however, several different valuation methods have been made in order to contrast the target prices. Those are, the peer multiple valuation (EV/EBITDA), last price vs target price, 52 weeks method (maximum and minimum price of the last year), and the market analysts' recommendations method. In the case of Repsol and ENI, it has been possible to conduct an additional method, Sum-of-the-Parts (SOTP) valuation, where upstream and downstream (and its divisions) are deeply analyzed in order to generate accurate financials estimations. Then, the EBITDA of the company is disaggregated in each segment's EBITDA, computed the value of each of these divisions through each division's comparables EV/EBITDA multiples, and summing them to arrive at the Enterprise Value. All these valuations are presented in the following figures, also called Football Fields.

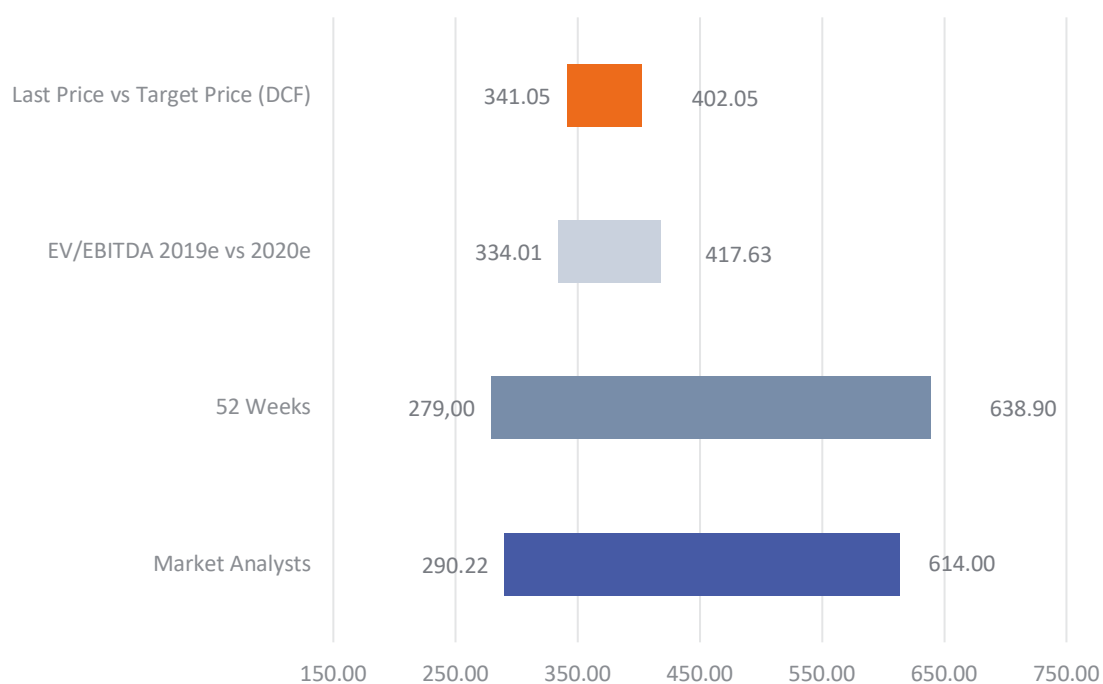


Figure 14: BP's Football Field

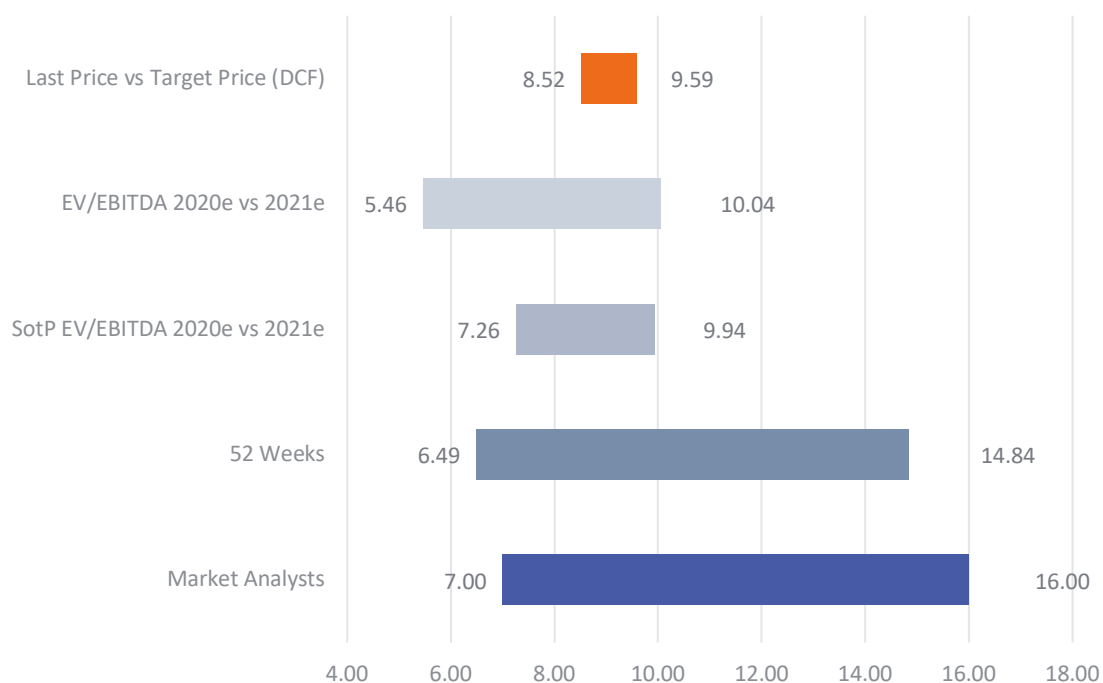


Figure 15: ENI's Football Field

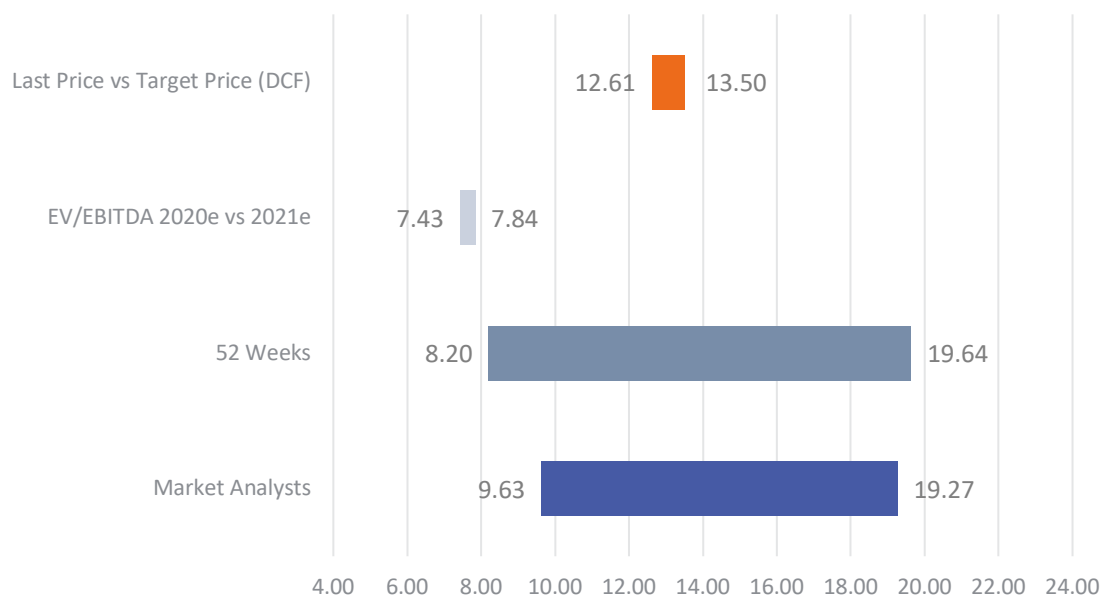


Figure 16: Equinor's Football Field

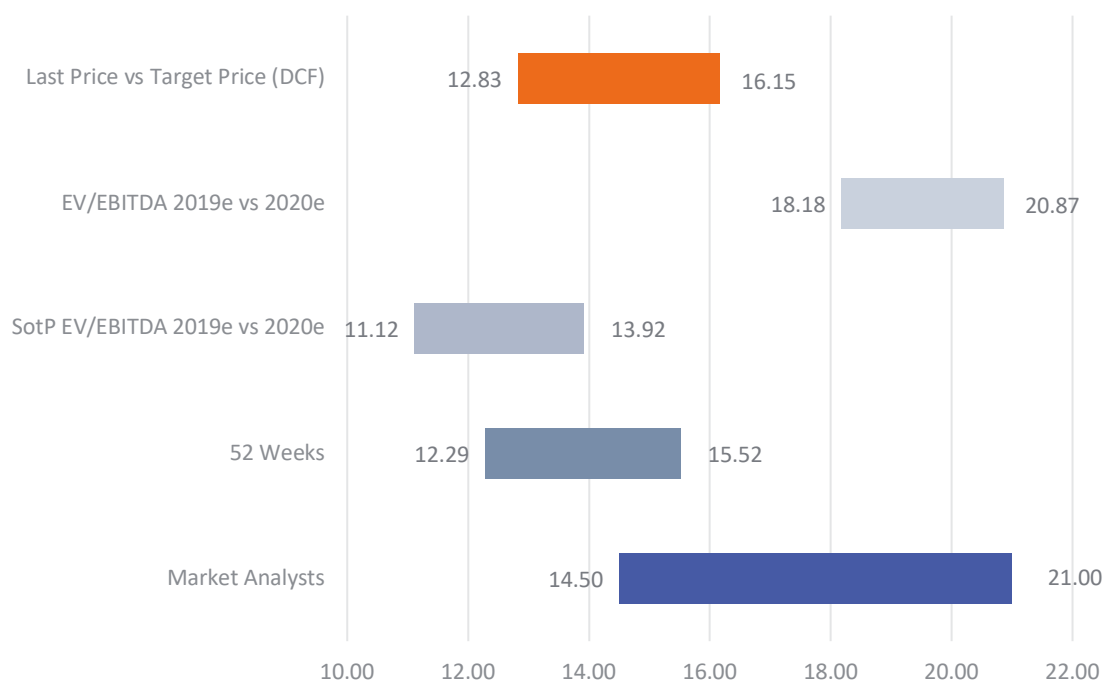


Figure 17: Repsol's Football Field

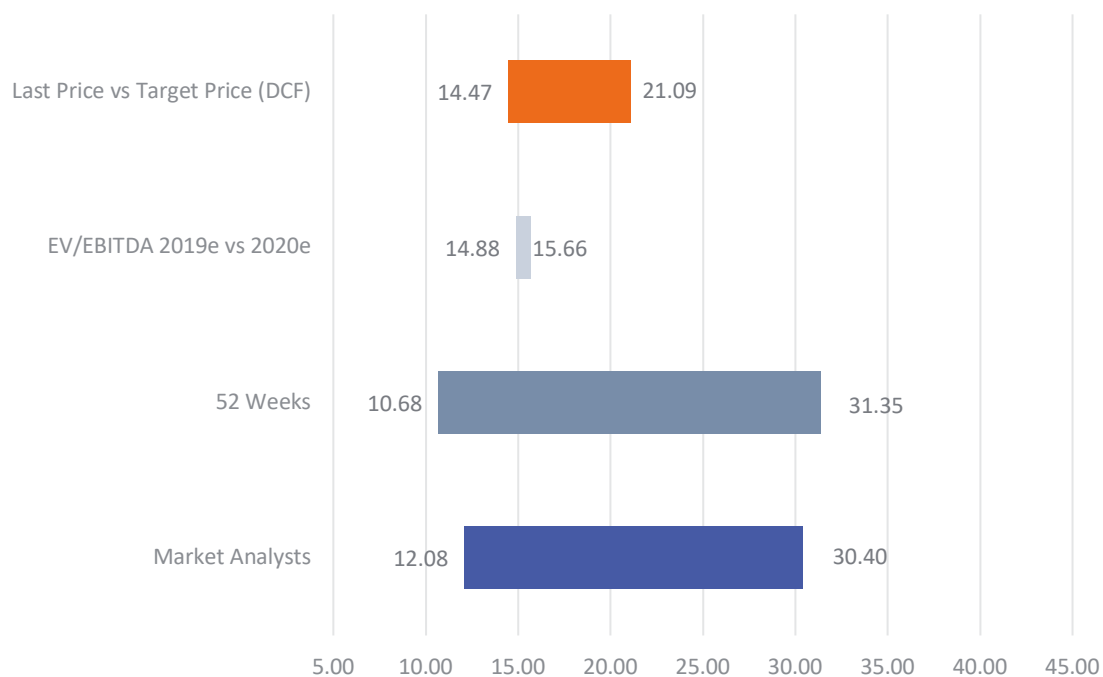


Figure 18: Shell's Football Field

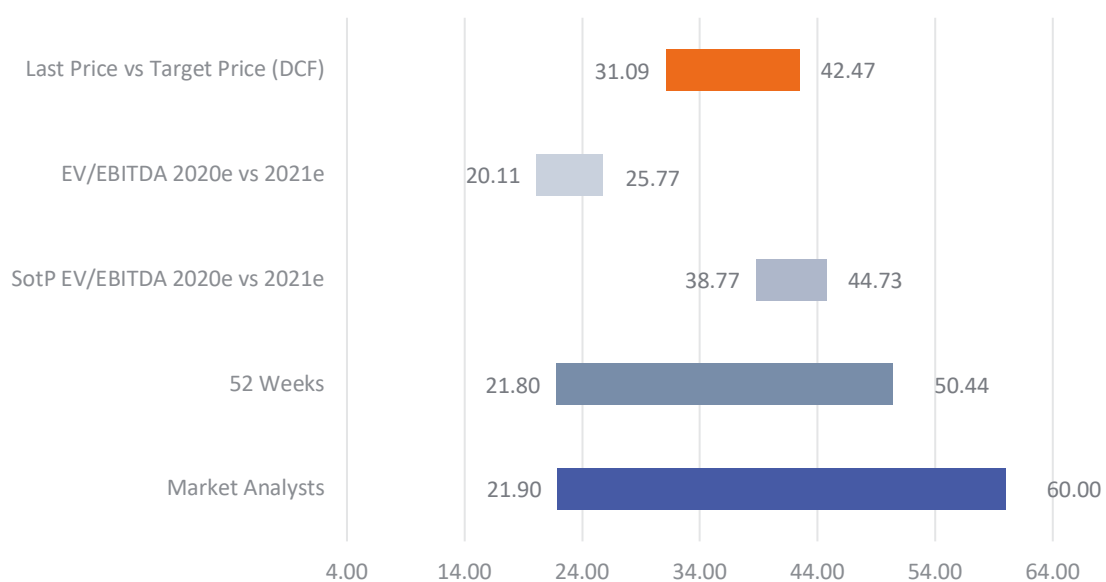


Figure 19: Total's Football Field

5. CHAPTER V: FINANCIAL ANALYSIS

5.1 EUROPEAN O&G COMPANIES FINANCIAL ANALYSIS

5.1.1 BP

All estimations and analysis have been made taking into consideration IFRS magnitudes. BP replacement cost profit before interest and tax has decreased 47% YoY in the first quarter of 2020 due to a heavy decrease in global oil demand.

BP's sales is expected to have a CAGR of 2.27% for the years 2020 to 2025, with the decrease in 2019 mainly due to low commodity prices. It is estimated to reach levels of 2019 by year 2021 and continue growing for the next years. As of 2019, the downstream segment represents the 90% of the company's total revenues with a CAGR 2020-2025 of 1.22%. This level of contribution to BP's total sales is expected to be stable for the years 2020 to 2025, supported by a strong position in Marketing and the sales of refined products, which represent the 72% of the Downstream total sales. BP is entering new markets to expand its global Marketing position.

Although the recent Covid-19 crisis has impacted the estimated CapEx for 2019, reducing it by 25%, it is estimated a maintained level of around USD 15 bn for the next five years. The company reinforced its commitment to invest USD 500 mn per year in their first quarter of 2020 update.

BP's strategy is to be more efficient in its activities, and to do so it is estimated a reduction of cash cost of around USD 2.5 bn in 2020 and 2021, with technology as its main stronghold.

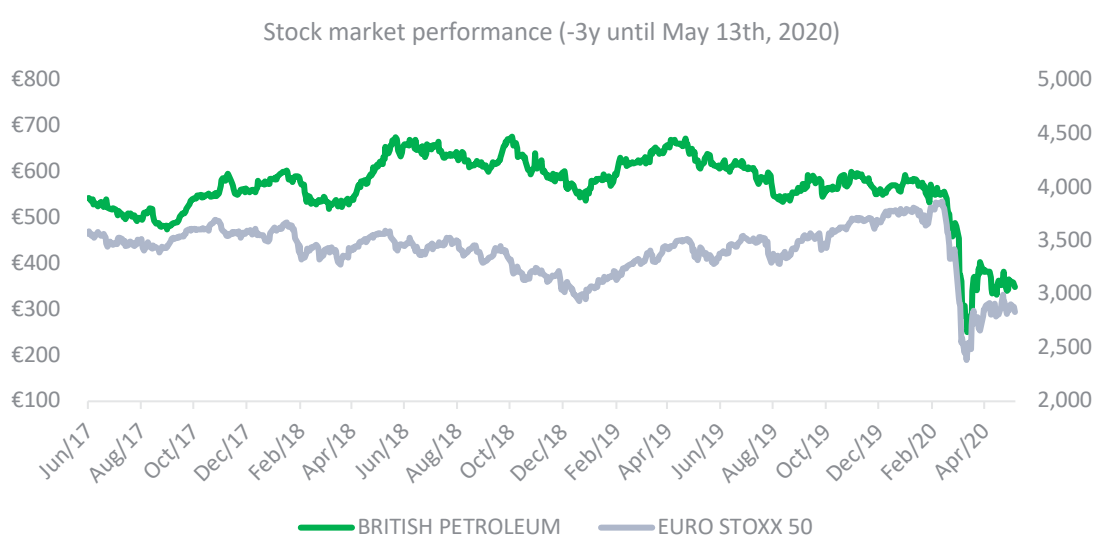


Figure 20: BP's stock market performance (-3y until May 13th, 2020)

5.1.2 ENI

As for the rest of the peers, IFRS magnitudes have been used in order to allow for a fair and illustrative comparison. ENI's Net Income in the first quarter of 2020 was EUR (2,929) mn compared to EUR 1,092 mn in the first quarter of last year (-268% YoY reduction). This shows the complex and hard situation the company is facing amid the fall in global oil demand, and additionally the impact of the Covid-19 on the Italian economy. ENI reported that in the first quarter of 2020, the Italian demand for oil products decreased by 20% and gas demand by 8%. Moreover, the entry of the company in negative results in the first quarter is very related to the decline in its average realization crude and natural gas prices. As it has been stated all over the report, ENI's strength resides in its hydrocarbon production. An unexpected 3.6% decline in hydrocarbon production due to lower volumes in Libya and Egypt plus the stressed crude price scenario have caused a sharp decline in the company's Revenues. The positive quarter results come from the Downstream division, where ENI has experienced an improvement both in G&P and Refining, Marketing & Chemicals. The company's G&P operating profit has increased from EUR 335 mn in the first quarter of 2019 to EUR 431 mn in 2020 in the same period (+28.65% YoY). ENI reported that this considerable increase is based on a growing performance in the retail business and optimization of its portfolio. As for the Refining, Marketing & Chemicals segment, an adjusted operating loss of EUR 18 mn for the first three months of 2019 has turned into a shy but positive operating income of EUR 16 mn this year, mainly due to the production increase of biofuels in the Gela biorefinery. Although it is expected that ENI will have a hard year ahead, it is estimated that for the rest of the year it will be able to recover, still resulting in a Net Loss of 1,876 for 2020e, as it can be observed in the following table of consolidated estimates.

Table 32: Consolidated estimates (ENI)

Consolidated estimates (EUR mn)	18	19	20e	21e	22e	23e	24e	25e
EBITDA	17,485	16,880	9,870	12,163	13,488	13,847	15,431	14,978
EBIT	10,495	8,768	2,817	5,294	6,678	7,097	8,211	7,150
Net Profit	4,137	155	(1,876)	381	2,153	2,487	3,355	2,595
EPS (EUR)	1.15	0.04	(0.52)	0.10	0.60	0.69	0.93	0.72

Source: Company data and Team estimates

In the face of this situation, ENI announced a CapEx reduction plan, together with a plan to save OpEx and general costs. ENI stated in 2019-2025 strategic plan that its CapEx would round EUR 8 bn per year. However, a reduction of 30% in 2020 and 35% in 2021 was communicated in the first quarter results presentation. Additionally, the share repurchase plan for 2020 was suspended, and the company has said that the plan will eventually be reconsidered for the following years as long as the Brent price stays stable over USD 60/bbl. The valuation model implemented incorporates all these new inputs

given by the company and production estimations have declined for the present year. Nevertheless, it is expected that ENI will accelerate its Upstream projects in order to achieve its production target of 2,200 kboe/d by 2023 and 2,300 kboe/d by 2025. This is the reason why in the following table it is appreciated a recovery in total CapEx in 2022. The Upstream segment will be the most affected division after the CapEx reduction measures in 2020 and 2021. The G&P segment will resist relatively well to this shock, since ENI has a long way to go to transform its business units to match and take advantage of the energy transition.

Table 33: CapEx by division

CapEx by division	18	19	20e	21e	22e	23e	24e	25e
Exploration & Production	7,901	6,996	4,200	3,900	6,720	6,420	6,300	6,120
Gas & Power	215	230	221	302	470	456	560	1,020
Refining & Marketing and Chemicals	877	933	895	815	550	781	761	590
Refining & Marketing	726	815	800	705	420	501	487	310
Chemicals	151	118	95	110	130	280	274	280
Corporate and other activities	143	231	220	264	254	260	232	290
Impact of unrealized intragroup profit	(17)	(14)	(19)	(21)	(12)	(2)	(14)	(14)
Total	9,119	8,376	5,517	5,260	7,982	7,915	7,839	8,006

Source: Company data and Team estimates

ENI will recover and come back to positive annual results in 2021 with an estimated Net Income of EUR 381 mn, and an important improvement from 2021 onwards. Even though ENI is behind its peers in the energy transition race, it will still benefit from its slow but decided change in its portfolio diversification and resiliency. An important decision by the company is its commitment to increase the share of gas out of total production to 60% by 2030 and 85% by 2050. ENI's current portfolio is directed to gradually produce more gas than oil. ENI's robust projects in Angola, Indonesia and UAE for gas production reaffirm that the firm has clear that gas will play a big role in the following decades and that it is an opportunity to create value to its shareholders. However, oil projects in Mexico, UAE and Norway are as important as those of gas, and therefore, production of oil is expected to increase until 2025. ENI will need to accelerate and readjust its portfolio, either with higher CapEx for new gas projects or impairing or selling oil drills. The current projections extracted from the company's guidance result in a gas share of 53% by 2025, from its actual level of 53%. It is hard to think that in just 5 years, ENI will be able to achieve a gas share increase of 7 percentage points. Oil and gas share of total hydrocarbon production can be observed in the table below, and, if interested, more information on oil and gas production per country is available in the appendix.

Table 34: Percentages Over Production (ENI)

Percentages Over Production	17	18	19	20e	21e	22e	23e	24e	25e
Liquids (Oil)	47%	48%	48%	50%	50%	48%	50%	50%	47%
Natural gas (Gas)	54%	53%	52%	50%	50%	52%	50%	50%	53%

Source: Company data and Team estimates

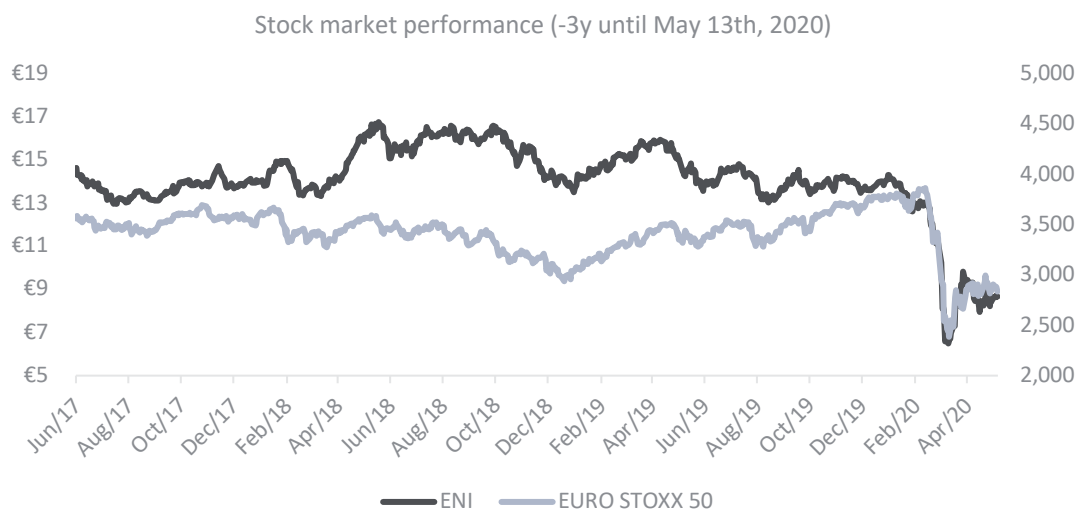


Figure 21: ENI's stock market performance (-3y until May 13th, 2020)

5.1.3 Equinor

All calculations have been made taking into account IFRS magnitudes. Equinor's Q1 2020 revenues have experienced a -8.2% YoY reduction. Q1 2020 Earnings reveal downturns in all divisions except from NES, being E&P Norway the division with the highest drop (-29.1%), followed by E&P International (-10.2%) and MMP (-6.6%). It is estimated that revenues will continue to decrease in 2020, mainly due to the new oil price scenario of USD 34-49/bbl for the period 2021-2025 (Bloomberg, 2020) until they reach a minimum of USD 32,447 mn which represents a -48.4% downside potential. Regarding production, despite the current situation, Equinor has achieved a 1.6% growth rate compared with the previous quarter, Q4 2019. This growth rate changes significantly between divisions. The division with the highest growth rate is E&P Norway, with a 4.8% increase in liquids production, while E&P International equity gas production has decreased 5.5%. It is forecasted that the aggregate decrease in liquids and gas productions will be -6% in 2020 with a CAGR recovery of 1.96% 2021-2023. It is estimated that this recovery will follow the shape of "Nike Swoosh" logo. Company guidance remains positive and establishes a 3% growth rate in production. These assumptions have been implemented to achieve the final target price.

Refining margin for Q1 2020 has dropped to USD 1.8/bbl and it is estimated to gradually reach 2019 levels, but this will not take place before 2025.

Moody's expectation on Equinor is that Equinor's operating performance will suffer materially from the severe decline of oil prices and the already weak gas prices prior to the current crisis. The negative effect will be partially offset by measures announced by the company to protect earnings and cash flow generation. Equinor has announced plans to:

- Reduce organic CapEx for 2020 from USD 10-11 billion to around USD 8.5 billion, a reduction of around 20%.
- Reduce exploration activity for 2020 from around USD 1.4 billion to around USD 1 billion.
- Reduce operating costs for 2020 by around USD 700 million compared to original estimates.
- Suspend the share buy-back program until further notice.

The company stated that with these measures, Equinor can be organic cash flow neutral before capital distribution in 2020 with an average oil price around USD 25 per barrel for the remaining part of the year.

Moody's forecasts that these cost and capital saving measures will improve the resilience of Equinor in a low oil price environment and could enable the company to regain the financial strength the rating agencies requires for an Aa2 rating (Moody's, 2020).

On April 1st, 2020 Equinor executed a total of USD 5 bn in the debt capital market. This transaction consists of the following tranches:

- Issue of USD 1.25 billion 2.875% Notes due April 6th, 2025
- Issue of USD 0.5 billion 3.0% Notes due April 6th, 2027
- Issue of USD 1.5 billion 3.125% Notes due April 6th, 2030
- Issue of USD 0.5 billion 3.625% Notes due April 6th, 2040
- Issue of USD 1.25 billion 3.7% Notes due April 6th, 2050

Equinor has preserved USD 0.27 per share Q4 2019 dividend and cut its next quarterly dividend by two-thirds to 0.09 per share, as part of an effort to preserve cash, making it the first major oil company to slash shareholder payouts following the collapse in crude prices (Reuters, 2020).

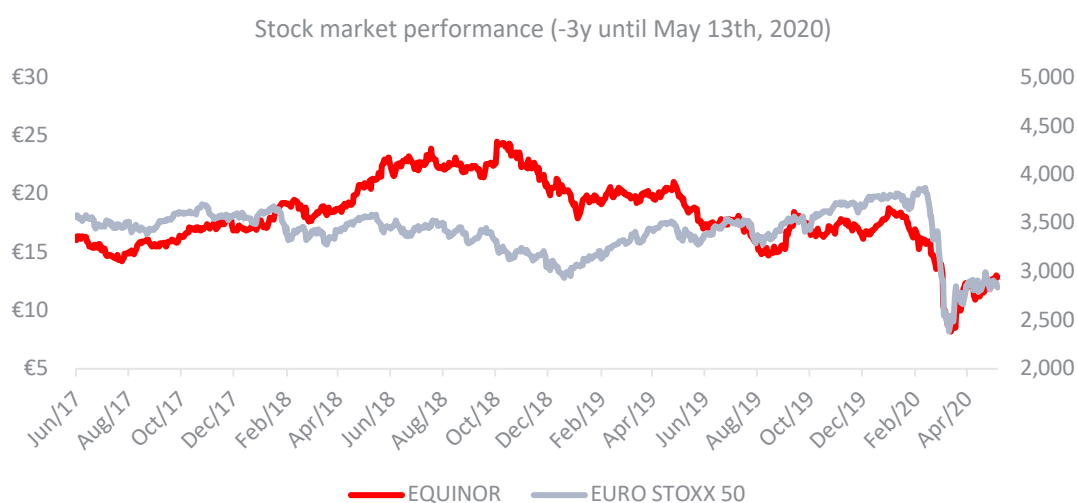


Figure 22: Equinor's stock market performance (-3y until May 13th, 2020)

5.1.4 Repsol

It has been conducted a careful reading of Repsol's financial statements and translated the information provided by the company into IFRS to fairly compare with its peers. All calculations have been made taking into account IFRS magnitudes. Repsol's financial analysis has been made according to February 6th, 2020.

It is constructed Repsol's sales by segment within the IFRS conceptual framework. Repsol's revenues' CAGR 2013-2018 was 1.65%. Despite the fact that it is estimated that revenues will decrease to EUR 37,519 bn 2019e, a CAGR of 7.84% 2019e-25e is expected. This evolution is disparate along Repsol's business segment. While the Upstream division has an estimated projection of a CAGR of 4.18% 2019e-25e, Downstream will be the main driver in Repsol's future growth, with a CAGR of 7.89% 2019e-25e, mainly due to Marketing and G&P development.

Table 35: Repsol's G&P area

Gas & Power	18	19e	20e	CAGR 20-25e
Clients (mn)	0.73	0.97	1.22	15.41%
Generation (MW)	2,952	3,216	3,930	13.80%

Source: Company data and Team estimates

Table 36: Repsol's service stations

Marketing (Service stations)	18	19e	20e	CAGR 20-25e
Total	4,849	4,966	5,052	
Europe	4,121	4,056	3,992	-1.55%
Spain	3,350	3,283	3,217	
Italy	306	303	300	
Portugal	465	470	474	
Rest of the world	728	910	1060	5.11%
Peru	560	560	560	
Mexico	168	350	500	

Source: Company data and Team Estimates

Table 37: Repsol's service stations sales

	18	19e	20e	CAGR 20-25e
Total (ktm)	60,074	53,685	55,330	1.63%
Europe Sales	52,589	45,481	45,533	-0.02%
Rest of the world sales	7,485	8,204	9,797	8.18%
Million litres / service station	12.39	12.55	12.71	1.63%

Source: Company data and Team Estimates

OpEx will grow in a lower rate than revenues (CAGR of 7.57% 2019e-25e), causing an EBITDA CAGR of 7.76% 2019e-25e, reaching EUR 8.05 bn. It is estimated that Repsol's financial expenses will be stable the next 5 years, compatible with the company's commitment of financial flexibility and low indebtedness, resulting on a lower WACC. As a result, estimates for 2019 yield on a Net Income of EUR 1.47 bn, although a positive evolution is forecasted for the 2019e-25e period, yielding a CAGR of 9.38%, which depicts on a Net Income of EUR 2.5 bn in 2025e.

Table 38: Repsol's Downstream division

	18	19e	20e	CAGR 20-25e
Processed crude oil (MMtoe)	46.6	47.6	48.6	1.59%
Spain Refining Margin Indicator (EUR/bbl)	5.68	4.46	4.54	-4.10%

Source: Company data and Team Estimates

Repsol requires a RRR of 123% and a CapEx of EUR 2,333 mn/year to fulfil a long-term production growth of 2.66%. As of 2018, the company has a Reserves-to-production ratio of 8.96 years. It is estimated a decrease in the ratio towards 7.26 years in 2025 mainly due to an increase in production. In terms of the Reserves-Replacement-Ratio (RRR), it is expected that Repsol will maintain a level of 94% in 2019, with an increase to 102% in 2020, and a paulatine reduction in the next years to 71% in 2025. The evolution of both ratios is explained by the focus of Repsol on their best quality assets rather than in quantity.

Table 39: Repsol's hydrocarbon Production

Repsol's Hydrocarbon Production (Kboe/d)	18	19e	20e
Europe	60	61	61
Latin America	342	338	343
North America	175	175	183
Africa	58	67	86
Asia	79	81	78
Total	714	722	752
Gas Production (Bcf)	2,545	2,540	2,529

Source: Company data and Team Estimates

Table 40: Repsol's industry ratios

Main Ratios	18	19e	20e	21e	22e	23e	24e	25e
Reserves	2,339	2,324	2,330	2,262	2,186	2,105	2,018	1,929
RRR	94%	94%	102%	76%	74%	73%	72%	71%
R/P	8.96	8.82	8.49	7.97	7.43	6.99	6.54	6.15

Source: Team Estimates

The graph below shows the weight of each division in Repsol's EBITDA. It is estimated that Upstream and Downstream will have a similar distribution in the long term. Downstream is mainly driven by a significant increase in Marketing's EBITDA as the contribution of Refining decreases in the company to an estimation of 21.7% in 2025.

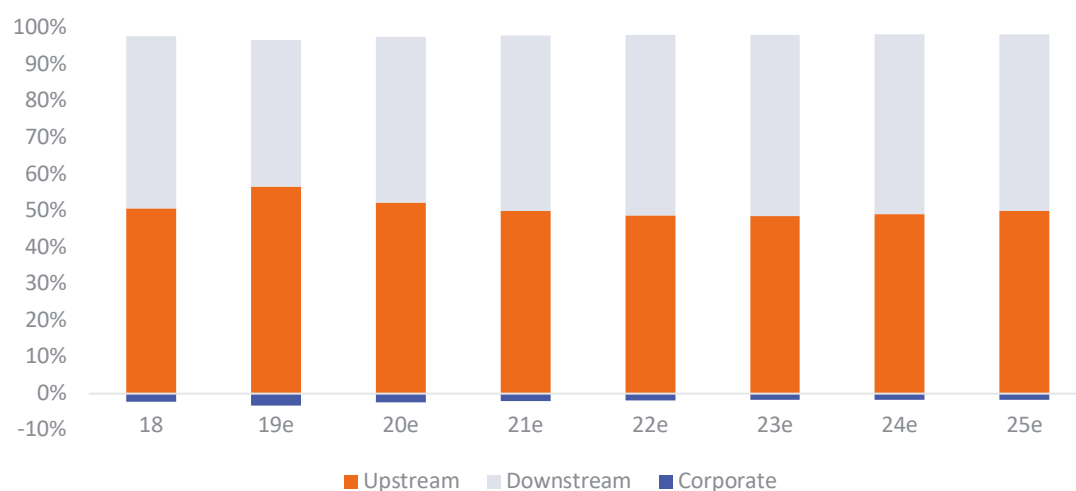


Figure 23: Repsol's EBITDA by division

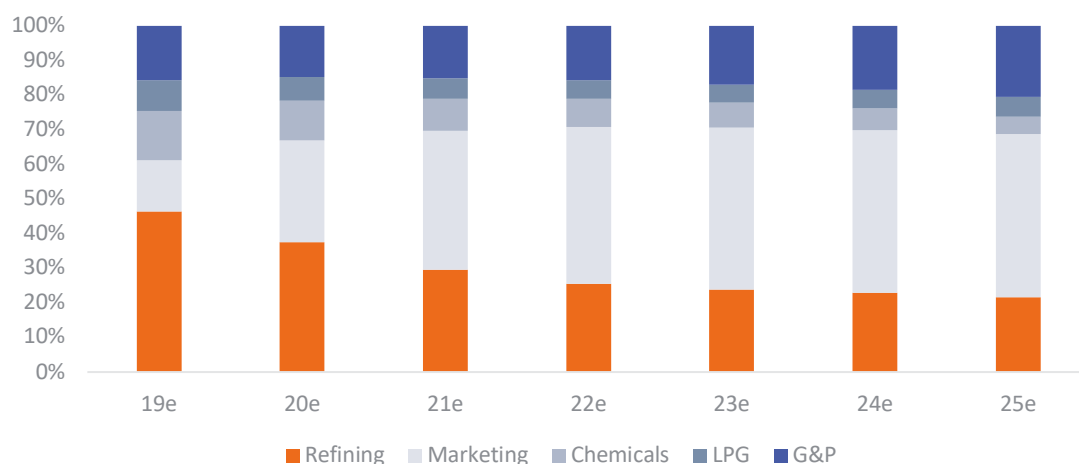


Figure 24: Repsol's Downstream EBITDA

It is forecasted that Repsol will have generated EUR 6.6 bn from its ordinary activities in 2019e, and it is believed that the company will be able to bring on EUR 9.3 bn in 2025e (CAGR 5.77%). These inflows will be enough to overcome prospective CapEx to rebalance the company's portfolio into the 30% Upstream, 30% Downstream and 30% G&P business structure. CapEx estimates for 2019e are EUR 2.9 bn and will reach EUR 4.5 bn in 2025e. The model supports the company's commitment to pay stable dividends, represented on negative financing cash-flows. Repsol's strategic plan of diversifying its portfolio and investing in high quality assets is expressed in the estimated model as a CAGR of +5.66% 2019e-25e.

Repsol's has a healthy financial situation, with high flexibility on paying back its debt and the generated interests. The company's EBITDA interest coverage has increased from 11.75x in 2017 to 13.99x in 2018, and a ratio of 12.63x is estimated in 2019e. The EBIT interest coverage maintained a satisfactory level of 6.03x in 2018, but it is expected a considerable drop in 2019e reaching a level of 2.36x due to decline in downstream margins and provision of EUR 4.8bn to commit the energy transition. Repsol's current financial balance sheet shows a robust strength against potential economic recessions. Repsol presents a Debt/EBITDA ratio of 0.69x in 2019e, compared to 3.38x in 2017 and 2.93x in 2018. The net Debt/Equity ratio has experienced a drop from 4.45x in 2017 3.07x in 2018, and it is estimated that it will be of 0.45x in 2019e.

Repsol's capacity to generate stable cash flows is manifested in last year's CFO/Debt ratio. This ratio increased from 54.23% in 2017 to 63.74% in 2018, and it will substantially improv in 2019e, reaching a high level of compared to 3.38x in 2017 and 2.93x in 2018. ROCE will be affected in 2019e, lowering to a level of 2.12%, compared to a ROC of 5.11% in 2018. Repsol's ROE will fall to 4.60% in 2019e, breaking the stability shown in the previous two years with an average ROE of 7.35%.

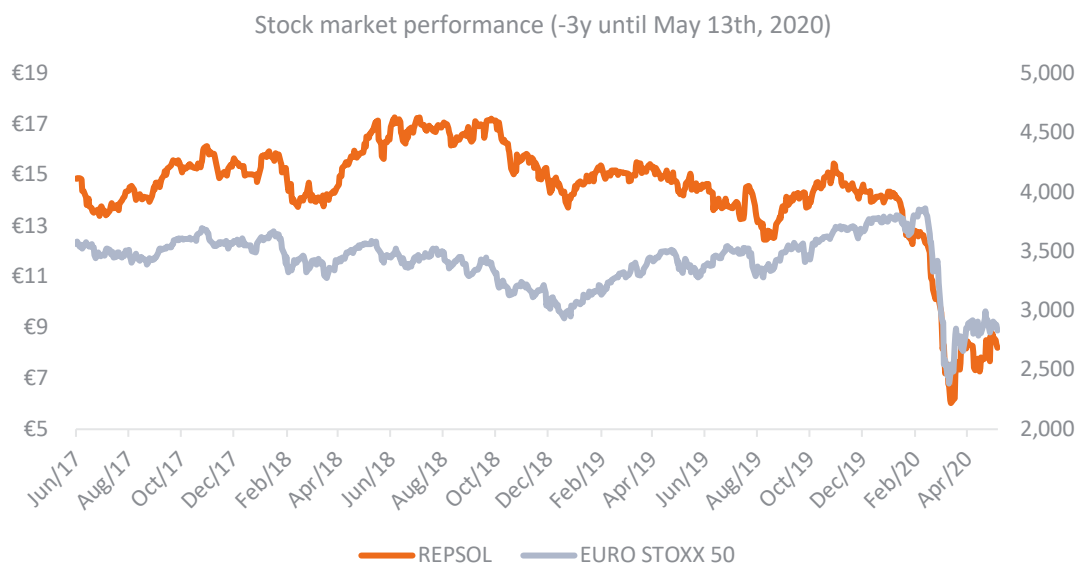


Figure 25: Repsol's stock market performance (-3y until May 13th, 2020)

5.1.5 Shell

All estimations and analysis have been made taking into consideration IFRS magnitudes, in order to have comparable information between Shell and its peers.

Shell's revenues have decreased a 28.31% in 2020 first quarter. All the different areas have been affected by the uncertainty caused by the Covid-19 during the first quarter of 2020, nevertheless Shell has managed to maintain robust Integrated Gas and Marketing cash flows, that as the main competitive advantage of the company will act like a resilient support to carry the rest of the segments during the next months. The demand crisis has not only reduced sales but also forced O&G companies to reduce their CapEx. Shell has cut its CapEx in 11.26% for the first quarter, other investments have been postponed, and will be reconsidered as the uncertainty disappears.

It is estimated that revenues will continue to decrease in 2020, mainly due to the new oil price scenario of USD 34-49/bbl for the period 2021-2025, that has been implemented in the valuation model.

The plan during the first months of 2020, has been to reduce spending (-19.83%) and increase liquidity (+24.50%), in order to be able to manage macro-economic outlook.

Shell's strategy by the moment is to relay on its strong LNG and Marketing division, that will be able to generate a positive cash flow under a pessimistic scenario. It will provide the company resilience thought the organic growth, while acquisitions are on hold.

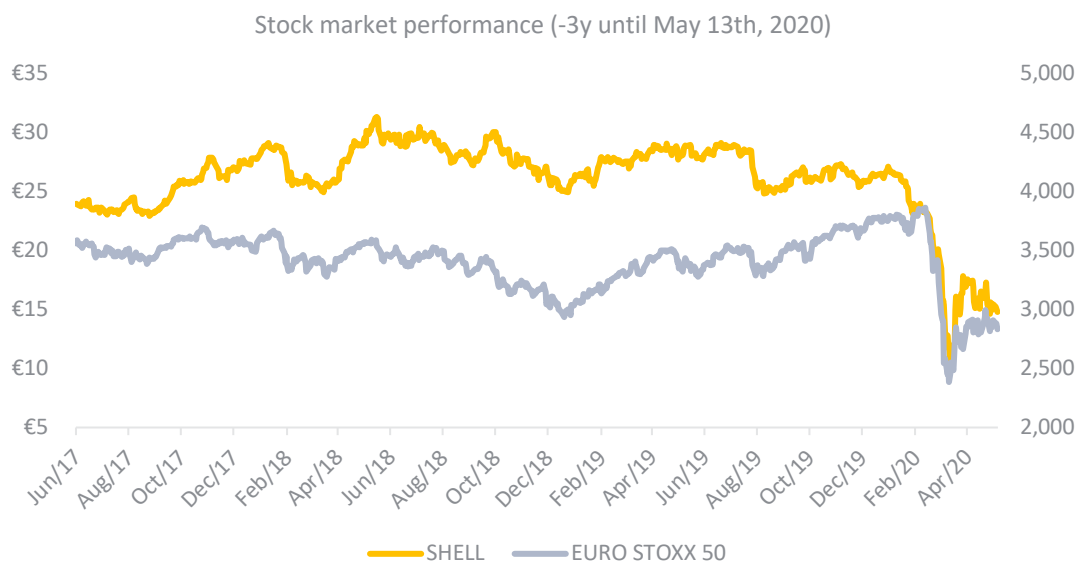


Figure 26: Shell's stock market performance (-3y until May 13th, 2020)

5.1.6 Total

All calculations have been made in accordance with the IFRS to homogenize the information and make it easier to compare.

Total's Net Income in the first quarter of 2020 was USD 34 mn compared to USD 3,111 mn in the first quarter of last year (-99% YoY reduction). This is due to the sharp fall in Revenues (USD 38,577 mn versus USD 45,124 mn), experiencing a drop of 14.5%. Refining & Chemicals has been the most affected segment and the one that weighs down the most P&L Statement. Due to the measures of lockdown and paralysis of the economy, the refineries have reduced their activity in the face of the fall in demand for oil products, being the clearest example, fuels for transport. These declines in revenues and net income are expected to continue, even more so in Q2 2020 as it has been the most affected by Covid-19. The model reflects this new context of low oil prices and low product demand. In order to face this volatile market context, Total has announced a contingency plan in which it announces a 25% CapEx reduction while intensifying its cost efficiency program. In addition, it is freezing its share buyback program. With these measures, Total expects to save USD 7.5 bn in cash. In addition, Total presents a robust balance sheet with a debt level close to 20%, which allows it to have sufficient liquidity to face this short-term situation. In line with the new scenario of low Brent and gas prices and a fall in demand, it is estimated that CapEx in 2020 will be close to USD 14 bn and that it will end up returning to levels close to USD 19-20 bn by 2023. Although in the short term all of Total's segments have contracted, the company continues to rely on the integrated Gas, Renewables and Power (iGRP) segment as a fundamental pillar for

the company's energy transition. In fact, the assumptions taken are that by 2025 one fifth of Total's Revenues will come from this segment, which would result in a CAGR 19-25 of close to 20%. The estimates are that Total will not recover its revenue level until 2023 and its net income level until 2024.

It is worth highlighting that Total is keeping its dividend intact as a sign of commitment and responsibility, projecting a solid image to the market and strengthening its long-term relationship with its shareholders (Total has announced a dividend of EUR 0.66/share for the first quarter of 2020).

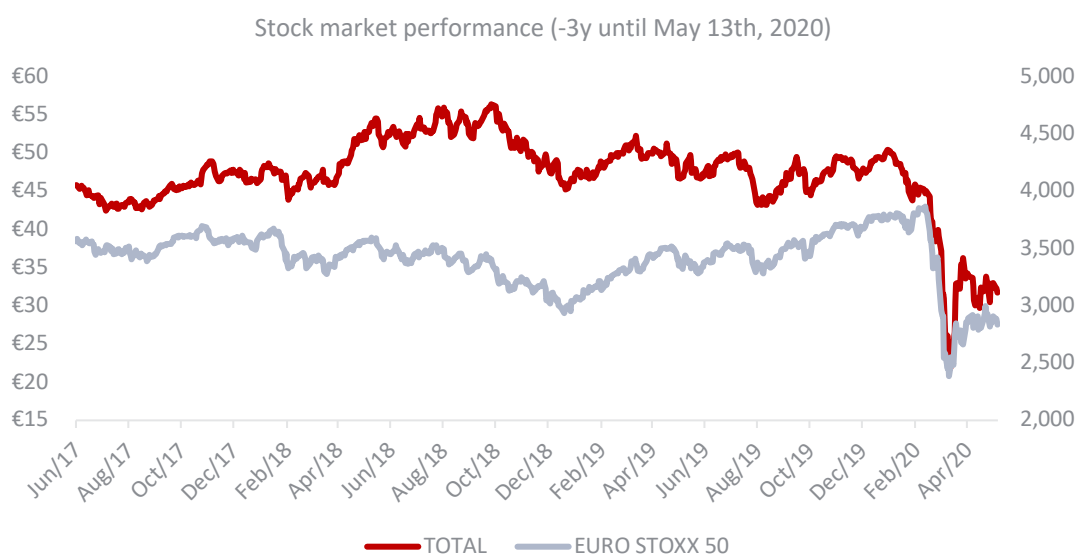


Figure 27: Total's stock market performance (-3y until May 13th, 2020)

5.2 FINANCIAL RATIOS

The following table shows some of the main return ratios of the companies analysed. Total and Shell have the highest ROE, ROA and ROIC, as a result of their competitive advantages.

Table 41: Return ratios

Return ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
ROE	4.14%	0.31%	4.38%	7.68%	8.36%	9.64%
ROA	1.45%	0.13%	1.59%	3.88%	4.09%	4.32%
ROIC	6.10%	0.35%	2.67%	3.43%	6.70%	6.21%

Source: Company data

Regarding profitability ratios, Equinor shows the highest EBITDA margin (34.97%), followed by ENI (23.76%) and Total (18.15%).

Table 42: Profitability ratios

Profitability ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Gross profit margin	28.32%	15.34%	36.22%	9.20%	18.32%	34.06%
EBITDA margin	10.43%	23.76%	34.97%	11.40%	17.07%	18.15%
Margin ratio	1.48%	0.22%	2.86%	4.69%	4.76%	6.49%

Source: Company data

The efficiency ratios show how efficient the company is given an asset level, the higher the ratio the better as it will show a higher turnover. BP shows the highest asset turnover and AR turnover. However, the company with the highest inventory turnover is Equinor.

Table 43: Efficiency ratios

Efficiency ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Assets Turnover	0.98	0.59	0.56	0.83	0.86	0.67
AR Turnover	10.68	5.27	7.47	8.30	8.03	9.86
Inventory Turnover	10.79	11.57	15.20	11.42	15.26	7.26

Source: Company data

Cash flow ratios show the cash generation capacity of the company. This ratio is one of the most important since it shows the health of the company and its capacity to undertake investments. Equinor has the highest OCF to assets and the highest OCF to CL. Repsol has the highest Free CF to OCF.

Table 44: Cash flows ratios

Cash flow ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
OCF to Assets	0.09	0.10	0.12	0.08	0.11	0.09
OCF to CL	0.36	0.43	0.76	0.37	0.57	0.37
Free CF to OCF	0.40	0.08	0.33	0.70	0.34	0.30

Source: Company data

Liquidity ratios show the facility that companies have to meet their short-term debt commitments without borrowing external capital. They provide a quick picture of

potential financial tensions in companies. Total has the highest capacity in terms of cash ratio.

Table 45: Liquidity ratios

Liquidity ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Current ratio	1.12	1.178	1.27	1.35	1.16	1.21
Quick ratio	0.67	0.636	0.69	0.85	0.32	0.65
Cash ratio	0.31	0.20	0.26	0.37	0.23	0.39

Source: Company data

Balance sheet key figures show a static picture between two balance sheet items. All companies show a fixed asset to equity ratio greater than 1 except Repsol. This is because the oil and gas industry is very capital-intensive.

Table 46: Balance Sheet structure

Balance Sheet structure	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Capital Intensity	1.04	1.738	1.83	1.22	1.17	1.50
Fixed Assets to Equity	1.90	1.298	1.7	0.82	1.64	1.25

Source: Company data

The debt data shows how leveraged a company is. These ratios have a double reading since on the one hand they work as a multiplier of the shareholder's profitability, but they also deteriorate the company's credit rating and the possibility of facing a critical situation like the current one caused by the Covid-19.

Table 47: Leverage ratios

Leverage ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Debt-to-Equity	1.70	1.58	1.87	0.97	1.12	1.29
Debt-to-Capital	0.37	0.61	0.41	0.49	0.34	0.21
Equity Multiplier	2.93	2.58	2.87	1.97	2.12	2.29

Source: Company data

Closely related to the above table are the coverage ratios. Unlike the previous ones, these compare the company's leverage with P&L Statement magnitudes.

Table 48: Coverage ratios

Coverage ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Times Interest Earned	3.36	2.15	26.49	6.03	6.43	6.91
Net Debt to EBITDA	1.54	1.07	1.06	1.068	1.32	0.99
OCF to CL	0.36	0.43	0.76	0.37	0.57	0.37

Source: Company data

All companies have a positive and relatively low cash conversion cycle, except Repsol. This shows a balance between their short-term operating accounts of assets and liabilities. Excluding Repsol, Total is the company with the lowest cash conversion cycle.

Table 49: Cash Conversion

Cash conversion	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
Average Payment Period	53	104	89	77	62	84
Average Collection Period	35	66	47	45	45	37
Average Inventory Period	34	48	21	42	28	50
Cash Conversion Cycle	15	9	-21	10	12	3

Source: Company data

In terms of market metrics, the recent drop in prices due to the Covid-19 and the excess supply of crude oil have led to an increase in the dividend yield and a decrease in the PER ratio. Some of the companies analyzed have a strong commitment to their shareholders in terms of dividend distribution, placing the payout ratio at a high level. The question is whether they will be able to continue to maintain their dividends in this new macroeconomic context.

Table 50: Dividend and market ratios

Dividend and market ratios	BP	ENI	EQUINOR	REPSOL	SHELL	TOTAL
EPS	0.20	0.041	0.51	1.45	2.08	3.75
Dividend Yield	6.56%	6.30%	7.67%	5.90%	11.95%	8.62%
Payout ratio	20%	1950%	1813%	12.70%	80.27%	58%
PER	31.7	205	24.87	9.71	6.72	8.29
P/B value	0.83	0.63	1.11	0.65	0.65	0.73
EV multiple	4.94	6.00	2.89	9.00	4.46	3.79

Source: Company data

5.3 SENSITIVITY ANALYSIS

As it has been explained in the industry overview and it will be thoroughly analysed in the risks section, the price of crude oil represents the main driver of the O&G sector. The industry is facing an unfavourable price scenario, and since the companies operating in the production and processing of crude oil are very sensitive to price movements, it is recommendable to test the evolution of the analysed six companies in different price scenarios to have more confident valuation estimations. A sensitivity analysis has been carried out for each company in diverse Brent price scenarios based on the DCF analysis. This way, each of the framework in Table 51 has been used as an input, and the hypothetical target prices with their corresponding upside/downside potential are deployed in tables 52 to 56.

Table 51: Brent scenarios

Sensitivity analysis	2020e	2021e	2022e	2023e	2024e	2025e
Baseline Brent price	34.70	36.02	39.98	43.40	46.12	48.65
Brent price (-15%)	29.50	30.62	33.98	36.89	39.20	41.35
Brent price (+15%)	39.91	41.42	45.98	49.91	53.04	55.95
Brent price (+30%)	45.11	46.83	51.97	56.42	59.96	63.25
Brent price (+45%)	50.32	52.23	57.97	62.93	66.87	70.54
Brent price (+60%)	55.52	57.63	63.97	69.44	73.79	77.84

Source: Bloomberg

In Table 52 a further stressed Brent scenario is presented, which refers to an additional fall of 15% from the baseline. Shell and Total's upside potential would considerably be reduced to a slight increase of 6.63% and 6.47%, changing the recommendation to a hold position. Repsol would be the only company worth to BUY in such situation, due to its better resiliency based on the company's strong Dowsntream segment, leveraging in cheap crude oil prices to become more profitable in Refining & Marketing. BP, ENI, and Equinor would see their upside potential reduce, but still positive, keeping their HOLD recommendations.

Table 52: Brent price (-15%) sensitivity analysis

Brent price (-15%)	BP	ENI	EQUINOR	REPSOL*	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	14.47	31.09
EUR Target Price	386.26	9.15	13.01	15.40	15.43	33.10
Upside/Downside potential	+13.26%	+7.39%	+3.11%	+20.03%	+6.63%	+6.47%
Recommendation	HOLD	HOLD	HOLD	BUY	HOLD	HOLD

Source: Team Estimates. (*) 06/02/2020

The next four Tables (53 to 56) show an improvement in the Brent price scenario. The six companies would benefit from a rise in the Brent price. With a 15% increase in the Brent price from the baseline would incur in a change in BP's recommendation, moving from a HOLD statement to a BUY statement. ENI's and Equinor's target prices would also see an important increment, but not sufficient to issue a BUY recommendation.

Table 53: Brent price (+15%) sensitivity analysis

Brent price (+15%)	BP	ENI	EQUINOR	REPSOL*	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	14.47	31.09
EUR Target Price	418.25	10.04	14.11	16.51	23.01	46.05
Upside/Downside potential	+22.63%	+17.84%	+11.96%	+28.68%	+59.01%	+48.12%
Recommendation	BUY	HOLD	HOLD	BUY	BUY	BUY

Source: Team Estimates. (*) 06/02/2020

With a 30% increase in the Brent price, ENI would also be added to the BUY recommended group. In contrast, Equinor would still be in the HOLD position despite its 17.67% upside potential.

Table 54: Brent price (+30%) sensitivity analysis

Brent price (+30%)	BP	ENI	EQUINOR	REPSOL*	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	14.47	31.09
EUR Target Price	434.24	10.48	14.84	17.09	24.68	51.21
Upside/Downside potential	+27.32%	+23.00%	+17.67%	+33.20%	+74.54%	+64.72%
Recommendation	BUY	BUY	HOLD	BUY	BUY	BUY

Source: Team Estimates. (*) 06/02/2020

In Table 55 it is exhibited the threshold crude oil scenario from which the six European O&G companies analysed are worth BUYING. As noted in Table 51, this price scenario assumes a Brent price above USD 50/bbl. European O&G companies have extensively argued in their past strategic plans that USD 50/bbl constitutes a breakeven from which the industry can manage the business comfortably, and gradually transform the business model towards a more resilient and diversified portfolio. Therefore, the target prices obtained at this analysis are in line with what it is openly discussed in the O&G sector.

Table 55: Brent price (+45%) sensitivity analysis

Brent price (+45%)	BP	ENI	EQUINOR	REPSOL*	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	14.47	31.09
EUR Target Price	450.23	10.92	15.57	17.94	26.88	55.57
Upside/Downside potential	+32.01%	+28.17%	+23.48%	+39.82%	+90.09%	+78.74%
Recommendation	BUY	BUY	BUY	BUY	BUY	BUY

Source: Team Estimates. (*) 06/02/2020

Finally, an even further upgrade in the price of crude would result in important boost in European O&G companies' stock prices from current levels. It is relevant to state that despite the fact that the estimated upside potential resulting from the target prices seem very high, it has to be taken into consideration that the sector is trading at record lows, and thus, none of these estimations surpasses previous high records. Shell would be the company with a highest upside potential in this most optimistic price scenario, followed by Total, and well behind both, Repsol would come as the third most recommendable stock.

Table 56: Brent price (+60%) sensitivity analysis

Brent price (+60%)	BP	ENI	EQUINOR	REPSOL*	SHELL	TOTAL
EUR Price (13/05/2020)	341.05	8.52	12.61	12.83	14.47	31.09
EUR Target Price	466.22	11.37	16.46	18.36	29.54	59.94
Upside/Downside potential	+36.70%	+33.45%	+30.56%	+43.10%	104.15%	+92.80%
Recommendation	BUY	BUY	BUY	BUY	BUY	BUY

Source: Team Estimates. (*) 06/02/2020

6. CHAPTER VI: RISKS

The Oil and Gas industry is exposed to several risks that could directly affect the activity of the companies. On one hand they face operational risks where labour incidents, oil spills or the availability to oil reserves could impact their daily business. On the other hand, they are exposed to critical financial risks. Commodity prices and FX rates are determinant on the stock price and the financial results of the companies. In this sense, it has been analysed the impact of the Covid-19 crisis on the Oil and Gas industry.

6.1 PRICE OF CRUDE OIL AND NATURAL GAS

The prices of hydrocarbons, both oil and gas, are the largest risks an integrated O&G company faces. In some transactions and marketing contracts, companies may be able to hedge against abrupt price fluctuations, but overall, these companies are undoubtedly exposed to hydrocarbon price levels. Although integrated O&G companies could benefit from low prices in their Downstream segment, E&P is hardly hit if a prolonged time of low depressed prices materializes. Any structural decline in raw petroleum and gas prices would negatively affect European integrated O&G companies, and thus, the traditional business carried out by Repsol, Total, Shell, ENI, BP and Equinor would exhibit adverse detriment. Unfavourable long-term price perspectives invariably affect these companies' business plans and financial stability. Regarding operational activities, O&G companies would have to reconsider their planned investments and projects in order to reevaluate their feasibility and alignment with future trends in the industry. These companies might be forced to delay or even abort E&P projects, declare considerable asset impairments in their financial statements, and re-estimate current and expected reserves. As a consequence of the weakening the sector could suffer, their financials would probably be hit by a downward rating revision, causing difficulties in their financing and increasing their cost of capital, leading to higher interest expenses, which would limit financial flexibility and call in question the shareholder remuneration policy commitments by Repsol, Total, Shell, ENI, BP and Equinor.

The price of natural gas is very volatile and is greatly influenced by global supply, where Japan is the largest supplier of LNG and global demand, which is linked with macroeconomic trends and global temperatures. However, as the gas prices follows a similar trend as crude oil, a more detailed explanation will be given regarding oil price formation. Most of the outlined drivers of oil prices are also valid to understand gas price movements.

The price of oil has been far from being stable since it was discovered. Oil prices are formed by the matching of global supply and demand, and for this reason, this variable is outside company's administration's ability to control. Global demand of oil is closely

linked to macroeconomic growth. When an economic expansion is generalized among the largest economies in the world, oil prices are pushed upward *ceteris paribus* due to the increase in the demand for oil to be used as a source of energy. Nevertheless, an economic downturn would presumably relax the demand for oil and thereby potentially push oil prices down. Aside economic growth, there are a wide range of different variables that directly affect the demand for unrefined petroleum. The evolution of demographics and consumers' preferences are also considered demand drivers. The increase in the quality of living standards of people and a development of a greater middle-class segment as it has occurred in China in the last decades are also influencing factors. Moreover, accessibility to other sources of energy such as nuclear and renewable energy is a key issue when analyzing future oil prices projections. Connected with the boost clean energy sources are experiencing in developed countries, laws aimed to battle worldwide temperature alteration and ozone harming are becoming more determinant in the oil price formation, and as it will be mentioned later, regulation endorsed by governments to propel an organized transition to low-carbon economies will assumedly reduce oil's share in world energy consumption. Finally, oil demand and supply are subject to unforeseeable and changeable events such as geopolitical strains, regional conflicts, terrorist attacks, civil wars, social riots, and widespread pandemic, as the current Covid-19. These destabilizing factors negatively affect economic agents' confidence, deteriorate economic growth and therefore, the price of oil is affected.

Supply of oil is largely determined by technological advances that allow to extract oil that otherwise would have been unfeasible, either because it was physically unreachable or because tough being handy, it was not cost effective thus not economically beneficial. An additional and crucial variable on the supply side of oil is the OPEC cartel and lately OPEC+. Current OPEC members are Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of Congo, Saudi Arabia, the United Arab Emirates and Venezuela. In 2016, the OPEC + was formed by the adhesion of the following ten more oil-producing countries: Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan. Saudi Arabia is considered the dominant player within the group due to its large capacity of oil extraction and huge amounts of reserves. Observing the geographic location of all these countries, it is clear that geopolitical tensions and uncertainty in the Middle East have great impact on the evolution of oil prices. It is also remarkable that the US oil industry has experienced an awakening since 2010 due to the development of shale oil extraction, becoming the largest oil producer (crude oil, all other petroleum liquids and biofuels) in the world with 19.51 MMboe/d per day, just before Saudi Arabia (11.81 MMboe/d) and Russia (11.49 MMboe/d) in 2019 (EIA, 2020). Variables such as climatic conditions and natural disasters also influence the supply of oil, but their frequency and total impact on the price is much more moderate.

6.2 COMPETITION

Strong competition characterizes the market where O&G companies operate. Although in the Business Description it was stated that cooperation between peers through joint ventures exists due to high exploration and production costs, these companies still compete with each other and with other industries in the supply of energy and petrochemical products. The fact that product differentiation is very limited, together with the large price fluctuations commodities experience that are out of companies' control, challenge O&G companies to be updated in the latest technologies in order to make sure that internal processes are cost efficient and resources are thoroughly employed. A worsening of the competitive environment is one of the main risks the described companies have, and negatively affects their net income, cash flows, financial flexibility, and shareholder remuneration policy. The risk associated to competition has different characteristics in each of the business segment that form the whole O&G company.

Competition in the Upstream division is depicted as the strong desire IOCs and NOCs have to discover new resources, either onshore or offshore. As described previously, a company wishing to increase its proven reserves and production could on the one hand acquire equity interests (inorganic growth) or on the other hand obtain exploration and development rights with its corresponding Working Interest (organic growth). The larger the company's size, the easier will be for the company to secure and come by with more interesting business opportunities. In this sense, Shell, BP and Total have better entry chances than ENI, Equinor and Repsol. Large amounts of CapEx are needed and big players like Shell, BP and Total are able to save costs when bidding for Upstream projects. Thus, a decrease in the company's size is a great risk in terms of competition especially in E&P.

The analyzed O&G companies participate in European wholesale gas markets, and also sell gas to industrial customers, individuals and distribution companies. These distributors then commercialize gas to residential and business customers. European gas markets have become more liquid in recent years. As the Quarterly Report Energy on European Gas Markets shows, total traded volumes increase by 7.5% in Q4 2019 compared to Q4 2018 in the main European gas hubs. In December 2019, YoY increase in gas trade was 35% and taking complete years, total traded volume grew in 20% from 2018 to 2019. This suggests that European gas spot markets are becoming more liquid and competitive in terms of pricing and service differentiation such as offering a variety of pricing options, and flexibility on the volumes and delivery points (European Commission, 2020). Competition is also strong in the direct supply of gas and power to industrial customers and individuals, where local distributors tend to have a wider range of services to offer to customers and a greater acceptance. Lately, European regulation has been aimed at liberalizing the distribution of gas and electricity, granting customers with greater negotiation power by making it easier to substitute one supplier by another. With respect to electricity sales, competitive pressures are arising in European

wholesale markets. There are mainly three factors that explain this fierce competition: a growth in electricity generation (in particular carbon-free based power generation), a slowdown in the European GDP growth rate, and the clash between energy sources. European O&G companies accept that competition in European wholesale, and retail gas and electricity markets will remain, and thus they need to be aware of future regulation regarding G&P distributional channels.

European O&G companies also suffer from competition in the Refining and Marketing segment. An important characteristic of this segment is the limited product differentiation. Customers do not appreciate differences between fuels sold by one company or another, and thus, product substitution is complete, giving rise to high pressure on refining margins. The entrance of new local and unbranded operators in the marketing segment competing on price is a significant risk and could result in a decline in market share the analyzed O&G companies hold in different European countries. Additionally, large international players can better compete due to economies of scale, lower-priced feedstock and reduced energy costs. A structural decrease in European demand for fuels would offset the benefits the Refining and Marketing segment gets in a low crude oil and natural gas price scenario, and thus the macroeconomic cycle greatly affects this segment. O&G companies are competing on increasing the Nelson Complexity Index rates of their refineries so that they are able to use feedstock of worse quality to yield lighter, more refined and raise the value added to the final output. Should a company increase this rate, its refinery will be more complex and therefore be able to process cheaper and crude oil of worse quality, leading to an improvement in its competitive positioning.

Specialized international and state-owned petrochemical enterprises benefit from cheap feedstock and established economies of scale, mostly in the Middle East, Far East and the US. Competition coming from firms located in the US is particularly fierce in products such as polyethylene and ethylene since ethane produced from shale gas is the less costly raw material, and as a result, they have an inherent better positioning. The chemical segment has recently been hit by a lower demand due to the negative externalities the use of plastics has on climate change and ecological preservation, pushing petrochemical products' prices down.

6.3 CLIMATE CHANGE AND REGULATION

Regulatory modifications and climate change are closely related. Concerns about the devastating effects derived from climate change are increasing. International organizations and governments are gathering all these concerns and correspondingly adopting changes in laws and regulation. In this case, the leadership the EU is showing is very remarkable. It is working on a bunch of rules and laws to achieve net-zero emissions by 2050 and limit the use of fossil fuels. Alongside, the European Commission

published its final report on the EU Taxonomy in March 9, 2020, an action plan calling for the approval of an EU categorization methodology for sustainable activities. It includes a list of economic activities that are especially harmful for environmental harmony and call all these companies for real and quick action to mitigate climate change. They require economic agents to protect and make a sustainable use of water, transit to a circular economy, reduce greenhouse emissions, and safeguard global ecosystems and biodiversity. On the other hand, governments are increasingly adopting carbon-pricing schemes, where those companies that issue greenhouse emissions can adhere to these mechanisms and trade emission rights. This creates a market for carbon emission allowances, and consequently, assigns a price to pay for polluting the air, making carbon emissions less attractive. O&G companies have seen their operating costs increase due to this scheme, and they may also need to incur in higher costs to meet with further compliance obligations. It is expected that the use of fossil fuels will progressively decline and be substituted by cleaner energy, where renewables will play an important role.

Another important issue regarding this risk is related to natural disasters as a consequence of climate change. Companies like Shell, Total, BP, Repsol, ENI and Equinor conduct some of their business activity in sites where climatological conditions are rough, as offshore deepwater drilling. These companies are seriously vulnerable to severe events such as storms, hurricanes, droughts, and floods, events that have become more frequent in the last years according to experts.

Additionally, it is a widespread opinion that climate change is accelerated due to the massive use of hydrocarbons. The oil industry in particular is in the centre of the value chain of hydrocarbons, and it has a very high reputational risk. As mentioned before, ESG criteria is becoming more popular in the investment approaches of large institutional and individual investors. O&G companies have an enormous reputational risk regarding their contributions to environmental sustainability, social responsibility and ethical governance. Should they not meet these requirements, they might find themselves in a difficult financing situation where their shares are less interesting from the investor's point of view, and the cost of new bond emissions and loans may be considerably high. Very linked to the implications the EU taxonomy may bring about, a growing number of institutional investors are either excluding or constraining from their portfolios to companies that have fossil fuels in the centre of their business activity. The World Bank issued a brief in December 12, 2017, where the group committed not to make new investments in Upstream oil and gas projects from 2019 onwards, and they supported natural gas as a key energy source to properly conduct the energy transition. Hence, O&G companies may be subject to increasing financial constraints in the following years to develop projects that do not comply with ESG issues.

To sum up, regulatory, natural, reputational, and financial risks are all related around the answer today's society is trying to give to climate change. This is requiring European O&G companies to rethink their strategic plans for future decades and better resist to the possible realization of these risks. The traditional operations these companies

conduct could be adversely affected, and therefore, risks associated to climate change and regulation cannot be ignored.

6.4 SAFETY, SECURITY, ENVIRONMENTAL AND OTHER OPERATIONAL RISKS

The very nature of hydrocarbons makes the O&G industry risky itself. The whole value of chain the analysed integrated oil and gas companies entails the transportation of fossil fuel-based products, either processed products or raw material. Hydrocarbon transportation procedures and their quality are important issue when these companies define a project, since there exists relevant material, environmental, safety, and health risks. Moreover, the daily operational activities can likewise induce blasts, flames, oil and gas spills, release of toxic substances, and contamination of the air, ground and water, among others. Disasters like these may expose the corresponding company to a very delicate legal situation in view of possible damage claims and subsequent required provision. O&G companies spend plenty of human and financial resources to limit, prevent and address these negative incidents by improving their E&P platforms, fineries, industrial complexes, transport and storage infrastructures and studying measures to protect their stakeholders. However, the difficulty arises in the wide variety of roots that can cause these unwished catastrophes. Assaults, terrorist attacks, technical matters, human mistakes, control procedures' breakdown, or even natural causes can be behind such adverse issues.

More specifically, the E&P division faces risks of the type of crude oil or natural gas bursts, rotting of wells, hydrocarbon leaks, explosions, and burnings. In case such a tragedy happens, the consequences tend to be more dramatic in offshore operations than in onshore works. Accidents occurring in offshore platforms result in catastrophes much more difficult to handle due to the challenging environment to arrive and establish an emergency team offshore and cluster crude oil spillovers in the water if it happens. As specified in the previous risk related to climate change, operations in deepwater are exposed to an additional climatic risk regarding weather and marine conditions, which may sometimes lead to insecure and dangerous circumstances, both for the company's own employees and for the offshore platform. The Refining&Marketing and Chemical segments face risks such as toxicity, ozone depleting, different types of contamination and pollution of the land in site or ground water and poisoning of not recoverable litter.

At last, there is an extra safety, security, environmental, and operational risk that is more subtle but of the same relevance. It has to do with decommissioning activities carried out on infrastructures and industrial complexes that will no longer be operating. Decommissioning costs are very expensive, and it needs to be carefully done.

O&G companies, in front of all these considerable risks, engage in insurance coverage aimed to hedge possible provisions and liabilities it may face. Nevertheless, all the possible economic losses are never fully covered by insurance contracts. It is common within the industry that companies retain insurance for unforeseen events in very concrete projects and common risks in its operations. Events of great magnitude are usually not insured and thus, O&G companies are threatened by all the pointed-out risks. Therefore, companies within this industry may encounter themselves in a harsh position if a disaster happens, where the firm's financial statements would reflect all tangible negative consequences.

6.5 E&P SPECIFIC RISKS

The Upstream activity of an O&G company is surrounded by uncertainty and unpredictable events, making it a highly risky business segment. Besides the pointed-out risks that affect the E&P business division, a summary of the predominant risks an O&G company confronts is yielded below.

6.5.1 Fruitless exploration investments

As briefly explained in the Business Description, companies that incorporate an Upstream division are required to devote large amounts of exploration and development CapEx. However, exploration can turn out to be unsuccessful, either because no oil/gas reserves are found or because those reserves are not economically feasible. The probability of dry holes in the exploration process incur in sunk costs that considerably affect the firm's financial statements. Moreover, a decrease in the rate of success of exploration projects could reduce the company's future O&G production, leading to a weakening of its performance.

6.5.2 Failure to execute, expand and manage main development projects

O&G companies trace detailed development plants to yield and market discovered reserves, plans that are sometimes hard to complete successfully due to the unsafe or environmentally critical location of reserves (like in deep offshore drills). European O&G companies may fail to carry out, enhance and operate the necessary development phases and thus, these projects may end up dying. The obstacles these companies face

are much broader than just physical barriers. They may encounter difficulties in the following:

- Quality of cooperation between peers within the joint venture, state-owned companies, local authorities and the rest stakeholders, and the O&G company's capacity to reach a favourable deal
- Variation in the operating environment and expense exceeds
- Length of public permits and licenses
- Cost and time needed to build essential infrastructures and commercial negotiations to transport and market oil and natural gas
- Faculty to accomplish pioneer engineering layouts to avoid technical failures, secure development phase timing and comply with the agreed breakthroughs.
- Capability to implement latest technology to optimize the recovery rate of hydrocarbons and/or reach new reserves
- Extraction stability and the decline management of the natural field

Drastic changes in these variables may deviate the project's rate of return from the estimated before development investments were made, usually through meaningful impairment losses of capitalised costs, and thus, they are part of the group of risks an Upstream player has.

6.5.3 Difficulty in keeping a sufficient R/P ratio

The two previous risks affecting E&P may result in a serious incapacity to maintain an adequate reserve-to-production ratio. If an O&G company does not have the ability to extract current residuals in its fields with advanced technology and is unsuccessful in discovering fresh hydrocarbon reserves, unless it acquires them inorganically, its future Upstream division's growth prospects will decrease.

6.5.4 Unpredictability of actual oil and gas reserves

Expectations on future cash flows based on reserves estimations are subject to change and they need to be faithfully evaluated, since it is one of the main drivers of an Upstream O&G company when assessing proved reserves. Variables such as the quality of geological studies, future production's estimations, expectations on required CapEx to discover new resources, agreement clauses, changes in the E&P rate of success, and hydrocarbon prices that automatically vary proved reserves affect the accuracy of oil and gas reserves, and thus, O&G companies conduct sensitivity analyses with different scenarios.

6.5.5 *Rise in income taxes and royalties*

O&G companies are on the one hand exposed to the payment of income taxes, which are susceptible to be higher than in other business industry, and on the other hand need to deal with royalties. Although each European O&G company is under its corresponding national statutory corporate tax, the total amount of taxes and royalties they pay can reach large rates even above 100%, primarily due to tax regimes applied to Upstream activities. These tax regimes tend to fluctuate according to the agreement's companies reach with foreign governments, which are sometimes linked to hydrocarbon price movements, diminishing the price increase translation into net profit. The current delicate situation of some public finances could motivate some states to approve tax increases, unexpected tax changes or nationalisations.

6.5.6 *Regulatory changes*

E&P is an extremely regulated activity worldwide. Governments impose tight restrictions to companies that are willing to conduct exploration, development and production of hydrocarbons. For this reason, they specify certain obligations to O&G companies such as payment of royalties, environmental preservation actions, detailed abandonment of fields, and production constraints. Thus, the regulatory framework and political changes are important risks an Upstream company faces.

6.5.7 *Political risks*

International European O&G companies like Shell, Total, BP, ENI, Equinor and Repsol have a very important part of their total proved hydrocarbon reserves located outside OECD countries, and most importantly, they operate in some politically and economically unstable countries. The larger the revenue share relying on fragile territories, the larger the uncertainty surrounding the company's future performance. Oil and natural gas are precious commodities, and they have been object of conflict between regions over decades. More specifically, European O&G companies could suffer from the following contingencies:

- Political and social instability that could result in clashes, upheavals, establishment of dictatorships, assaults, strikes, terrorist attacks, riots, savages, and analogous incidents. These events could bring about interruptions on the company's business activity causing yield losses, shutdowns, project delays and serious personal risky situations.

- Adverse regulation framework in terms of legal enforcement and property rights.
- Absence of reliable statutory structure and scepticism around contracts fulfilment.
- Constraints on oil and natural gas trading.
- Fear of retroactive claims.
- Struggle to find satisfactory domestic suppliers.
- Risk of operating in a corruptive context.
- Risk of sovereign defaults leading to possible financial constraints to O&G companies.

6.6 FINANCIAL RISK

The Oil and Gas industry is very capital intensive and therefore a failure forecasting the financial framework of the companies could have a great operational impact and result in financial loss. Companies may not be able to recover trade and other receivables; divestments may not be successfully completed; and unexpected cash call or funding request could disrupt the financial framework and the ability to meet their obligations. Changes in interest rates, foreign exchange rates and commodity prices can unfavourably affect the cash flow estimations or the valuation of assets and liabilities.

Moreover, there is a strong correlation between the USD currency and the crude oil price. European companies have their consolidated financial statements in local currency, either in Euros or in Pounds, but the Exploration and Production business segment uses the Dollar as main functional currency. Crude oil prices (both Brent and WTI) are quoted in USD, therefore each movement on the currency generates an immediate change in the price of the commodity. There is a difference between countries that don't have significant oil reserves (Japan), where the correlation is weaker, and countries with significant reserves (Canada or Brazil). A depreciation of the USD against the EUR has a negative impact on the results of European O&G companies, as drilling activities would be reduced.

Furthermore, important operational incidents, legal proceedings or a geopolitical event in an area where European companies have significant activities may reduce their financial liquidity and credit ratings. Credit ratings downgrades could potentially increase financing costs and limit access to financing or engagement in the trading activities on acceptable terms, which could put pressure on the group's liquidity. Companies are exposed to a risk from a potential reduction of their local sovereign credit ratings, which may have an impact on credit rating of the debt instruments issued by those companies. A reduction on the company's credit rating may also affect the

financial performance of Oil and Gas companies, constraining the ability to obtain financing, and therefore reduce CapEx in order to provide enough liquidity.

The liquidity risk that BP, ENI, Equinor, Repsol, Shell and Total are exposed to refers to the availability to suitable funding sources or the ability to sell assets in case of needs to meet short-term financial requirements and obligations. This situation would mean an increase in borrowing expenses, affecting directly the company's results. In the worst-case scenario, this would mean an inability to continue their activity in normal conditions. The evolution of global financial markets could also influence the long-term investment decisions. A continued period of constraints may put under pressure the ability of the Oil and Gas companies to maintain their investment programs, affecting directly the future operational results and cash flows. The failure or unavailability from counterparties to pay back the amounts owed to BP, ENI, Equinor, Repsol, Shell and Total, or don't pay under the conditions previously established make up the exposure of European O&G companies to credit risk. Due to the large and diversified customer base of the gas and power segment, including medium and small-sized businesses and retail customers, that have especially suffered the economic downturn.

The dispute between Saudi Arabia and Russia finally came to an end on April 13, and the OPEC+ agreed to cut the oil production. Some events occurred between January 2020 and the middle of April 2020, provided early warning signals of a deterioration in credit risk. The current situation in the O&G industry have underlined the importance of having mechanisms to control credit risk both from an individual perspective and a macroeconomic view (S&P Global Market Intelligence, 2020).

6.7 ETHICAL MISCONDUCT AND LEGAL OR REGULATORY NON-COMPLIANCE

An ethical misconduct or breaches of laws or regulations, including anti-bribery and corruption, anti-money laundering, competition law and international trade regulations, may harm the companies' reputation, affect operational results and shareholder value, and affect their licence to operate in the industry. In order to avoid these risks, BP, ENI, Equinor, Repsol, Shell and Total have an internal code of conduct, which is applicable to all employees.

The recent increase in the amount of data processed by each company driven by the continuous development of new technologies and the rise of data science, has opened a new risk. European Oil and Gas companies face a relevant risk since in May 2018 the European Union General Data Protection Regulation (GDPR) came into effect. The main aim of the GDPR was to harmonize the protection of the consumers and personal data across each member state of the European Union. The new regulation introduced higher penalties to non-compliant companies, with two tiers of penalties, applying the

maximum EUR 20 mn or a 4% of the global revenue. In addition, data subjects have the right to do a litigation for compensation for damages to the company regarding the data protection issue (Intersoft Consulting, 2020).

6.8 CYBERSECURITY

With the development of technology in the Oil and Gas sector, cyberattacks have increased in the last years. It could seem to be an unattractive target, nevertheless the industry's usage of technology has grown. According to Deloitte (Deloitte Insights, 2017), in 2016 the Oil and Gas was the second industry susceptible of a cyberattack, and nearly 75% of the US industry companies experienced at least one cyber incident.

As showed in Figure 28, intrusion and malwares are the most common cyberattacks in the Oil and Gas industry.

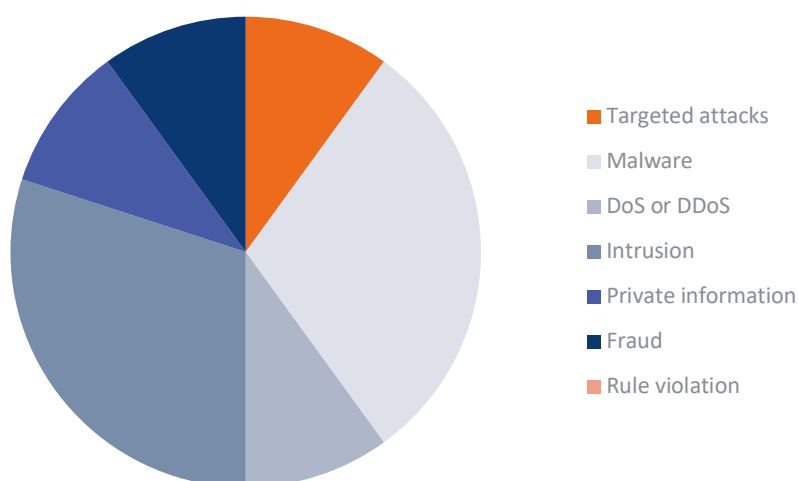


Figure 28: Type of incidents in the O&G sector (CCI and Check Point Software Technologies, 2020)

Cyberattacks can be not only a cost for the company suffering it, but also cause a big incident risking the lives of many people. As seen in Figure 29, the attacks are mainly causing a temporary lose of service, physical consequences, and environmental issues. Nowadays, there are plenty of risk management programs that allow companies to mitigate cybersecurity risks.

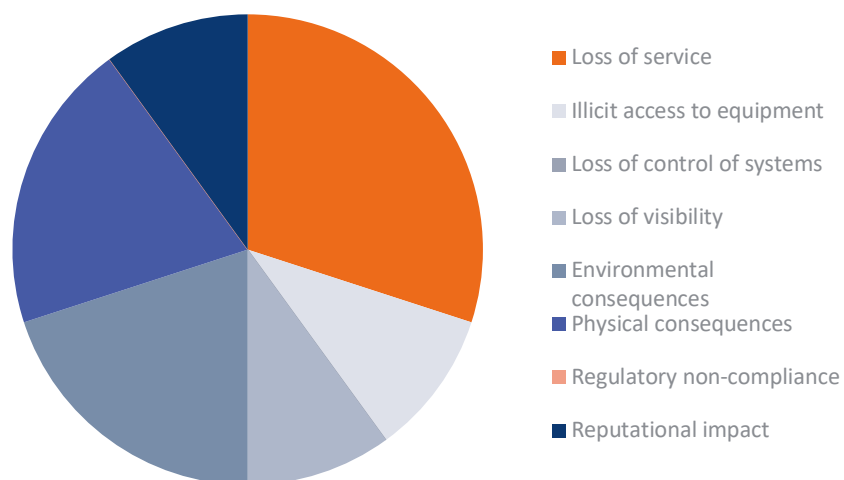


Figure 29: Impact of the incidents (CCI and Check Point Software Technologies, 2020)

6.9 RISK MATRIX

Having identified the main risk that could have an impact on O&G companies, it has been created a probability-severity risks matrix to assess the identified risks.

- A:** Price of Crude Oil and Natural Gas
- B:** Competition
- C:** Climate Change and Regulation
- D:** Safety, Security, Environmental and other operational risks
- E:** E&P Specific Risks
- F:** Financial Risk
- G:** Ethical misconduct and Legal or Regulatory non-compliance
- H:** Cybersecurity

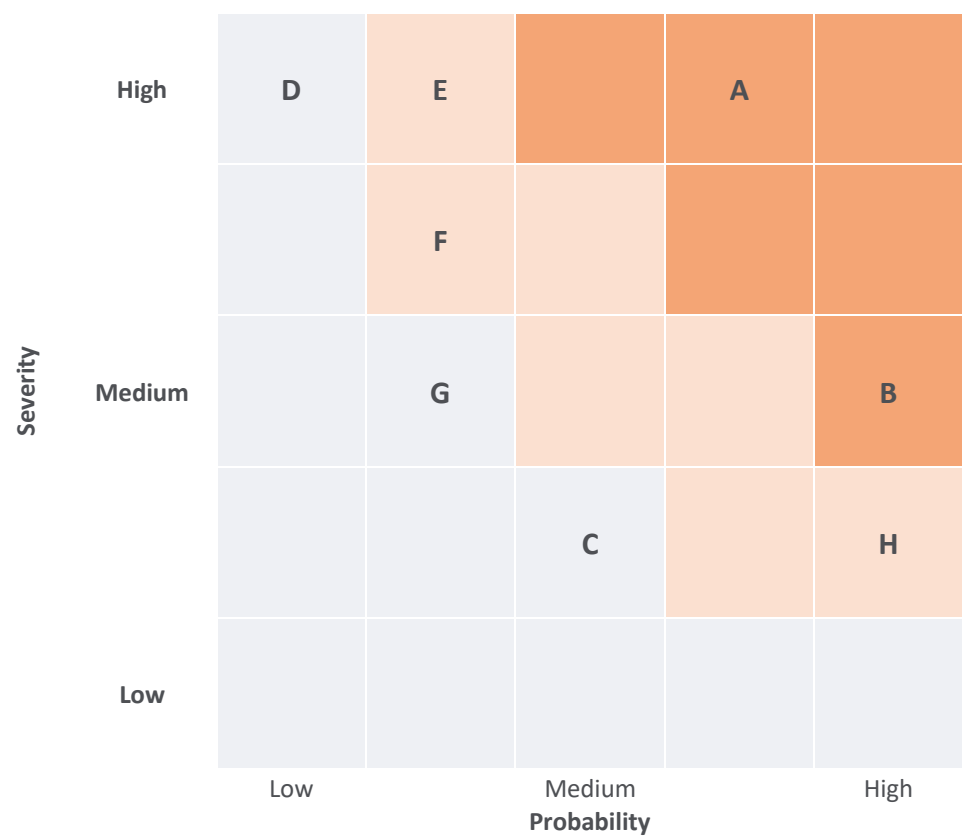


Figure 30: Risk matrix (Team Estimates)

7. CHAPTER VII: CORPORATE GOVERNANCE

As part of ESG, governance analysis acquires significant relevance. Defining and establishing an adequate governance framework is of great importance to face certain obstacles that arise with enough resiliency. There is a phrase that summarizes the purpose of corporate governance in just one line: *“the biggest challenges of corporate governance are to make it meaningful and engaging – as distinct from just following formulae – and having competent people to implement it. Competence requires the ability to see beyond a particular framework or regulation to impart the real purpose of the system”* (KPMG & The University of Western Australia, 2015). All the possible negative consequences that arise from a negation of ESG policies apply to a bad governance structure. In the absence of a proper governance, BP, ENI, Equinor, Repsol Shell and Total may face both internal and external challenges. As previously explained, an insufficient governance framework could result in a lack of confidence of investors and thus, tighten funding and lose investing attractiveness (Deloitte, 2013). Governance has been put into question within the O&G industry, and in the last decade, European O&G companies have stepped forward and implemented measures in the right direction. Almost identical governance structures have been found between the analysed companies. Nevertheless, a brief description of the companies' features will be given in this chapter in those governance matters that affect the most the O&G industry.

7.1 GENDER EQUALITY AND EMPLOYEE DIVERSITY

All the European O&G companies evaluated aim to increase the presence of women in the board and in the overall workforce. As of December 31, 2019, women represented 38% of BP's total workforce. However, the distribution and placement of women is very disparate between different categories. As observed in Table 57, 42% of the board are women. This is the highest women percentage across employee levels. Gender equality is far from reality for instance in executive teams (15%) and subsidiary directors (17%). BP has work to do at these executive and senior levels, as the company admits, and is developing mentoring, sponsorship and coaching programmes to boost women's presence in the group. These schemes also aim to expand ethnic, sexual and disable diversity, and the company is committed to ensure equal opportunities in hiring, promotion, and remuneration regardless of any feature concerning religion, age, nationality, etc.

Table 57: BP's gender composition

BP: Gender composition (2019)	Male	Female	Female (%)
Board directors	7	5	42%
Executive team	11	2	15%
Group leaders	285	93	25%
Subsidiary directors	1,202	247	17%
All employees	43,762	26,280	38%

Source: company data

ENI pays special attention to attract fresh talent females and implements several initiatives to boost women's career development within the company. In 2019, women represented 26.05% of senior level positions, a rise of 77 basic points with respect to 2018. Looking at the group's workforce, women account for 24.23%, distributed as follows: 29.8% of white collars are female, 27.2% of middle managers, 15.6% of senior managers, and only 2% of blue collars. ENI still has a lot work to do to achieve real gender equality. The company also organizes recruiting processes focused on equal opportunities and balancing gender hiring. Moreover, ENI is monitoring the gender wage gap within all the teams that compose the group in order to evaluate if significant differences exist and consequently apply corrective measures. Training, parenthood (10 days of leave paid), welfare, health specialist visits and check-ups) and inclusion are ENI's main benefits offered to employees.

Equinor guarantees equal opportunities in the whole range of its business activities. In 2019, Equinor strengthened its collaborative and diverse culture in all levels. For instance, the company defined some initiatives to support in particular three groups: women, disabled ("differently abled" in words of Equinor), and LGTBQ+. Another milestone in terms of diversity was the implementation of a corporate diversity and inclusion KPI, through which the company intends that by 2025 all its teams will be diverse and inclusive. The supportive and consistent policies the company is establishing resulted in 2019 to an increase in the share of female leaders and non-Norwegian employees at different categories. Parallel to Norwegian's welfare state, Equinor offers a wide range of services and flexibility to its employees. It has successfully applied a global parental leave policy, health insurance, and a minimum of 16 weeks paid leave for those employees becoming parents, among others. Equinor is convinced that giving security to its workforce and offering social benefits will in the long-run pay back to the company.

Repsol is pursuing gender equality in new external hires. In 2018, 50.7% of Repsol's new hires were women, reaching 37.4% of all Repsol employees (+1.6% YoY). Repsol is working on reducing the gender wage gap. Repsol's last stats indicate that income disparities by gender are more uniform across job categories than across ages. While

women above 50 earn on average 17% less than men, this figure is not higher than 11% within any job category. Repsol should focus on reverting this wage gap in North America, but above all, in Asia and Oceania, where the wage gap reaches a level of 20%. Repsol believes that diversity is a competitive element and integrates people with disabilities, nurturing a non-discriminatory caring social model. Through the project named Diverse Talent Repsol incorporates people with disabilities to its workforce, and it is committed to continue to do so. At December 31st, 2018, the company had 570 employees with disabilities, representing 2.29% of the workforce.

Shell's board diversity in term of gender is the same as BP's. 42% of the board is composed of women, and the company is committed to increase this figure in the following years. This trend also applies to new hirings, where Shell is making great efforts. In 2019, 48% of the recruited graduates were female and female senior positions grew 2.4 percentage points in the same year, reaching a level of 26.4%, still below the company's strategic targets. In relation to gender equality in general, Shell encourages female workers to amplify their knowledge and studies in science, technology, engineering and mathematics. The company's inclusion guidelines also aim to end with certain LGBT stigmas, and it is noteworthy the top tier position in the Workplace Pride Global LGBTI benchmark. Shell has implemented an initiative called "I'm Not OK", which treats mental issues and overcomes past traumatic experiences.

Total's evolution regarding gender equality has been impressive. In 2004, only 5% of senior executives were women. In 2019, this figure was 23% and by 2020, the company has committed to achieve a share of 25% female senior executives. In the case of senior managers, the presence of women is much lower, 17.4% in 2019, although it has more than doubled from 2004 (8%). For the year ahead, Total will increase it to 18%. Overall, 25.7% of Total's workforce are females and 20.3% non-French, figures that the company wants to reverse. The company, like the rest of the peers, has inclusive and integration policies especially for young professionals and people with any disability.

7.2 BOARD COMPOSITION AND COMPENSATION

"A robust corporate governance culture is best achieved through the mindset of the board. A good corporate culture rewards and encourages good conduct. A poor corporate governance culture often results in poor conduct and the loss of confidence" (KPMG & The University of Western Australia, 2015). As pointed out by the Cadbury Report issued in 1992 (Cadbury, 1992), an analysis of the board is critical for the company's positioning.

BP's all non-executive directors are independent after providing all the sufficient information and details that discard any conflict of interest. The board evaluates and supervises that this independence is maintained through all the period. BP also states

that they regularly review the succession plans for both executive and non-executive positions. The procedure followed to select the adequate personal in the succession plan is based on meritocracy and objective criteria. Regarding the company's compensation policy, the remuneration committee defines and advises to the board the remuneration scheme the chairman and executive directors should have. In BP, as in the case of other peers, remuneration is linked to long-term strategic targets completion. BP's shareholders approved in 2019 new policy guidelines that in summary established measurable strategic KPI's related to the energy transition, sustainability, carbon emission reductions, and shareholder returns. Within this framework, strong incentives are created for the executive members to achieve the company's strategic goals. There is direct and clear alignment, and this is very positive for the company's internal and external credibility.

In the case of ENI, the number of independent directors in the board is larger than the requirement established in the company's Bylaws and Corporate Governance Code. Out of 9 directors, 7 are independent defined by applicable law. Like BP, the company's remuneration policy is aligned with the long-term strategic lines. It is of special relevance the variable part of the board's salary, related to short-term and long-term decarbonization, energy transition and circular economy targets.

Equinor's remuneration concept does not defer from other European O&G companies. It intends to reflect the company's financial health, contribute to the achievement of the strategic plans, and tries to differentiate performance from responsibilities. The company's executive remuneration policy is resumed in the following elements: a fixed base salary, an annual variable payment beyond a flexible threshold, a long-term incentive, and pension, insurance and share savings benefits.

Repsol's governance structure, 53.3% of the board members are independent, with the pledge to keep it above 50%. None of the independent directors is a current or former executive or director, and they have never been connected to any director or chief executive. Repsol has experienced audit, nomination and compensation committees that seek the correct functioning of the company's and the stability in its credibility. With the incorporation of Ms. Aránzazu Estefanía and Ms. María Teresa García-Milà to the board of directors as independent in May 2019, women make up 33.33% of it. The latest proposal from the CNMV establishes that the least represented sex on the board of directors should account for at least 40%, and therefore, market analysts estimate that Repsol will include it in its strategic plan. Applying the Rooney' rule can help Repsol achieve it. Repsol's executive directors are paid an annual fixed and variable remuneration plus a long-term variable remuneration, 40% of the latter linked to the accomplishment of the Paris Agreements, announced by Repsol in Dec. 2nd, 2019. This way, they have the incentives to be ESG compliant. The non- executive directors have a fixed salary according to their participation in the board and different committees.

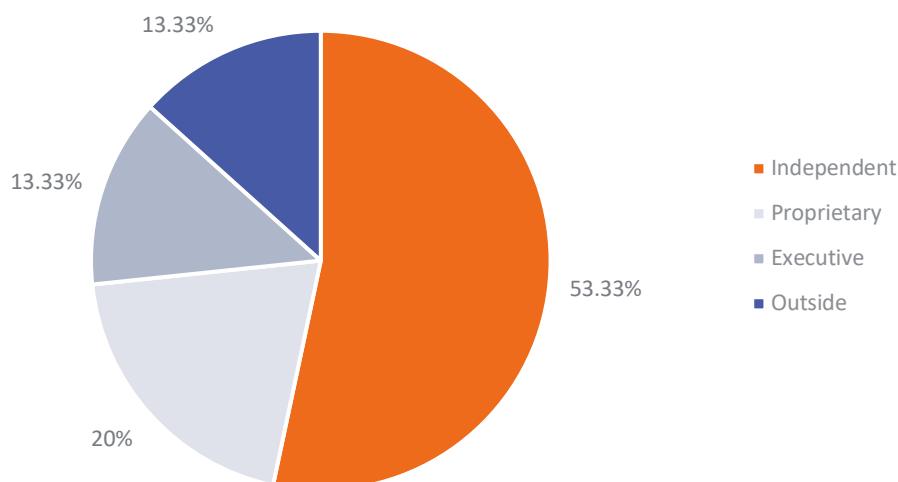


Figure 31: Independent Proprietary Executive Outside (Repsol, 2020)

Shell complies with the degree of independence needed in the board of directors. Regarding the remuneration elements that directors receive, Shell has proposed to its shareholders the following compensation scheme changes to be approved at the 2020 Annual General Meeting: reduction of the CEO's annual bonus from 150% to 125%, removal of the individual performance factor for executive directors to boost teamwork, and inclusion of the energy transition variable in the long-term incentive payment. With these modifications, Shell stays in line with the rest European O&G companies, incentivising the company to accomplish its ambitious goals.

As of March 18th, 2020, 90% of Total's directors were independent, with an average of 5.3 years serving the company as part of the board. It can be said that Total's board is the most diverse of the six peers, composed of 5 different nationalities with a 50% women representation, above the minimum 40% threshold imposed by the French Commercial Code. The audit committee, the governance and ethics committee, and the compensation committee are composed of 4 independent members each, while the strategy and CSR (Corporate Social Responsibility) committee has 6 members, 80% of which are considered autonomous. The governance and ethics committee evaluates on a regular basis the work conducted by the board, and my recommend changes based on Total's strategic criteria.

7.3 TAX AND TRANSPARENCY

Paying taxes on those countries where they operate is one of the most visible way O&G companies have to show the value they add to local communities. Contributing public finances with the payment of taxes and royalties. As specified during the course of this work, O&G companies are granted exploration and production rights in a certain block or area. Under this kind of concession, the company assumes to pay some royalties and corporate income tax, and in some cases, depending on the country, other payments arise in form of rentals, special taxes, export duties, state participation, special petroleum or windfall profit taxes, and bonuses (EY, 2019). Production Sharing Contract (PSC) or Production Sharing Agreements (PSA) have different features. A national oil company (NOC) or a host government agrees with the O&G company that the company will be covering all E&P costs in exchange of receiving a share of the production such that it covers the realized costs and participates in a proportion of the profits. Operating under PSC or PSA may also include payments in the form of corporate income tax, royalties or windfall profit taxes (EY, 2019). Finally, some countries prefer to operate under service contracts through which an O&G company finances and develops the necessary phases to run production activities, and receives a fee for these services (EY, 2019).

All analysed European O&G companies affirm their compromise to pay effectively the required taxes and to make it available and transparent to investors. BP, for instance, complies with tax laws and cooperates with the authorities acting in a responsible manner. In 2019, the company paid USD 6.9 bn in income and production taxes to government (vs. USD 7.5 bn in 2018). BP discloses its annual Upstream payments to tax authorities disaggregated by country and projects. BP is one of the founding partner of the Extractive Industries Transparency Initiative (EITI), which aims to normalize the reporting of payments received and transferred to governments within the oil, gas and mining industry.

In 2019, ENI had the highest effective tax rate among the evaluated peers. The company does not use aggressive tax planning, which in its own words consist of *“artificial structures put in place merely to save tax, or of transactions lacking economic substance aimed at obtaining undue tax advantages”* (ENI, 2020). ENI adhered to the OECD’s “Guidelines for Multinational Enterprises” which recommend paying taxes on a timely basis accepting the tax rules in each of the operating countries, have a fluent and honest communication with tax authorities, and determine transfer prices in intra-group transactions. ENI discards the use of tax havens unless it is *“needed due to justified operating requirements”* (ENI, 2020). In addition, the company seeks to eliminate or at least reduce double taxation and avoid tax disputes.

Equinor supports and promotes the guidelines proposed by the EITI talked about previously. The company advocates for good and responsible tax practices. Thus, the company has comprised not to generate artificial business activities to pay a lower tax

rate. Equinor is convinced that paying the corresponding taxes where it operates ensures and positively impacts on the company's activity in the long-run. According to the company, Equinor was amidst the leading group within the industry that reported in detail its transfers to governments on its own initiative. Moreover, peer companies have consulted Equinor on tax transparency matters. Equinor also seeks to achieve a global transparency scheme that harmonizes information requirements for O&G companies. It has been accepted that Equinor is an example in tax and transparency issues. It provides breakdown information on payments per country, payments per project, and the concept of the payments by country and group's entity.

During 2018, Repsol paid in total EUR 13.60 bn in taxes and public charges, where downstream derived taxes such as VAT and taxes on hydrocarbons accounted for 81.5% and upstream charges linked to oil production 14.9%. Repsol provides disaggregated information on tax payments per project, country and government. The firm is decided to strengthen relationships with tax administrations and reduce the restricted presence in tax havens.

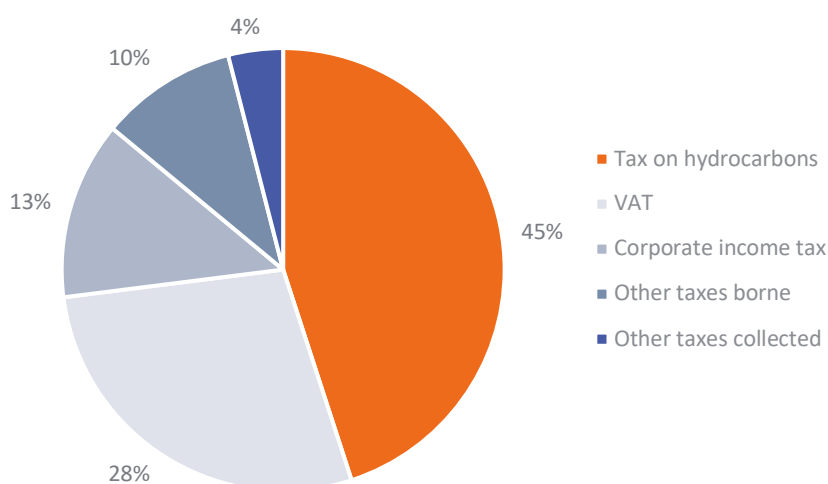


Figure 32: Taxes paid globally in 2018 by tax type (Repsol, 2020)

In 2019, Shell published for the first time its Tax Contribution Report, where it detailed the taxes it paid in different countries and locations, following the European industry trend to become more transparent. Although Shell as a company is incorporated in England and Wales, the Netherlands is its tax resident, and thus, it is entitled to pay a corporate income tax at this country. Shell paid more than USD 61.3 bn to governments in 2019 (vs. USD 64.1 bn in 2018): USD 7.8 bn in corporate income taxes, USD 5.9 in royalties, and collected USD 47.6 bn in excise duties, sales taxes and other taxes required to pay back to governments.

Total's Code of Conducts gives no doubt on the company's compliance with tax laws in every country where it operates. Like other peers, Total has a commitment to pay its fair tax share and do not create affiliates in order to pay less taxes in tax havens. The company is conscious that aggressive tax plannings may harm more than benefit, and from the point of view of Total, it wants to keep a high reputational standard among shareholders and investors. Total, as BP, is a permanent member of the EITI since its creation. As a transparent initiative, the company also discloses in its Registration Document the group's annual payments to governments. The group paid USD 5.47 bn in corporate income taxes in the 2019 fiscal year.

7.4 ANTI-BRIBERY AND CORRUPTION

BP's Code of Conduct establishes a confidential and anonymous whistleblowing channel called OpenTalk managed by an external and independent company. These are necessary requisites to be an effective and useful way to recover suspecting, unethical, corrupt, or unsafe behaviours from employees, contractors, or any third party. 1,800 reports were received through OpenTalk in 2019, most of them related to harassment misconducts, equal opportunities issues and diversity and inclusion concerns. BP took disciplinary actions against employees that did not comply with the company's Code of Conduct and fired 74 employees during 2019. BP is also aware of the high bribery and corruption risk that surrounds the company overseas, which is firmly prohibited by the company's Code of Conduct. The company, with the objective to avoid as much as possible cases of bribery and corruption, trained 11,000 employees during 2019 and conducts anti-bribery compliance audits on suppliers. It also includes contractual clauses that allow to terminate business relationships in front of corruptive events.

ENI includes its anti-corruption strategy within the Global Impact initiative, which supports and fully recommends the compliance of the universally recognized principals. The ten principals are incorporated in ENI's Code of Ethics, in which corruption is explicitly rejected. ENI has an anti-corruption compliance program that has been running since 2009, and employees need to attend e-learning lessons and participate in workshops and specific anti-bribery/corruption training. As BP, ENI also includes anti-corruption clauses in its contracts with all kinds of stakeholders. At the same time, ENI carries out audits in all of its business segment to assess, report a periodic evaluation and improve the company's good practices. Since 2005, ENI is involved in the already mentioned EITI. ENI reports that during 2019 27 audits were made in 20 different countries with positive results, improving the minimum standards set out by the anti-corruption compliance programme.

Equinor, like its peers, has an anti-corruption compliance programme, which includes mandatory training sessions to implement a zero-tolerance corruption approach. The company has two channels in order to encourage employees to raise any issue they think

about ethical behaviors that may go against the company's Code of Conduct: an internal channel which connects employees with their leader (an optimistic approach that is not probably the best way to collect concerns) and a 24/7 anonymous channel run by an external company. Equinor develops a global network of compliance officers that merge ethics and anti-corruption issues with daily operations.

Repsol participates in an initiative promoted by the B-team that pretends to be a catalyser of a new way of doing business to fight bribery and corruption and define a responsible tax policy. Repsol's anti-corruption policy incorporates an Ethics and Compliance Channel, accessible 24/7 and managed by an external supplier, through which employees and third parties that have evidence, questions or suspicions about any form of corruption must inform to their supervisor, Legal Services or Repsol Chief Compliance.

Shell's Code of Conduct needs to be followed from the company's executive directors, to the employee at the lowest category. This code enlists the basic behavioural practices that the company expects from its employees, and all employees are required to complete a training about it. Then, those workers that because of their role in the company are more exposed to bribery and corruptive conducts are more specifically trained on compliance requirements. Shell violated according to the US Securities and Exchange Commission (SEC) the US Foreign Corrupt Practices Act, and consequently, Shell settled. Currently, Shell is also experiencing unwanted investigations on Shell Nigeria Exploration and Production Company Limited's practices that could result in adverse financial consequences. The company is aware of the problems its reputational damage could bring about, and more resources are being transferred into its global anti-bribery and anti-money laundering programme.

The US Foreign Corrupt Practices Act, the UK Bribery Act and the French law on transparency constitute the three pillars of Total's anti-corruption programme. The company is continuously improving this programme to achieve acceptable levels of compliance until subsidiary levels. The international presence of Total places the company in countries where a high degree of corruption is perceived, and Total is committed to have zero tolerance with practices that are beyond its ethics.

7.5 LOBBYING AND POLITICAL DONATIONS

Probably due to the political culture that exists in the United Kingdom, BP and Shell include a section in their corporate governance segment about lobbying and political donations. BP collaborates with communities and governments within the regulatory framework of each country and region. The company's compliance policy forbids any contribution to a political candidate or party. Employees' activism is obviously permitted, although the participation in political processes are carefully watched,

applying the local laws. As an example, in the US a non-partisan committee called PAC (Political Action Committee) attracts the individual participation in the political life, and BP reviews contributions made to this committee in order to ensure that no internal and external laws are violated. Shell affirmed in its 2019 Annual Report that nor the company nor any of its subsidiaries made any political donation during the year. Similar to BP, Shell administers the non-partisan Shell Oil Company Employees' Political Awareness Committee (SEPAC) to manage employees' voluntary contributions within the boundaries of regulation.

8. CONCLUSIONS

The current situation in the Oil and Gas industry is very far from being optimal for those companies that operate in the sector. The sharp increase in oil production in the last years and to the global economic slowdown in 2019 have been worsen by the uncertainty surrounding the OPEC deal and the Covid-19, resulting in a global oversupply of oil and unprecedented falls in the crude price. It is still unknown how the economies will recover from the economic downturn they are suffering all over the world, and thus, oil and gas prices are experiencing high volatility in the markets, which is critical for O&G companies.

The O&G industry faces an additional challenge: climate change. It is undeniable the existence of adverse effects derived from climate change such as global warming, sea level rise, increase of surface ocean acidity, contraction of ice sheets, and more frequent extreme temporal events. O&G companies are significantly affected in their business activity by severe events in the form of storms, hurricanes, droughts and floods. Concerns around environmental risks and climate change have encouraged governments and international organizations to take action such as the Paris Agreement in 2016 and increase regulation, forcing the sector to reinvent. However, O&G companies need to go further and extend their vision to social and corporate governance improvements. In other words, they ought to take into account ESG matters in their business models.

Environmental activists, regulators and investors are increasing the pressure on O&G companies. The EU taxonomy will act as a jurisdiction in ESG compliance classification and will have significant consequences in investment decisions. Institutional investors like Blackrock and Vanguard, and Sovereign Wealth Funds such as the Norwegian are excluding non ESG compliant companies from their portfolios. The ESG trend is unstoppable, and those firms that do not contain appropriate ESG conducts and policies will not only suffer from financing problems in the financial markets, but also when issuing debt or borrowing loans.

O&G companies do not have any other choice. Either they become ESG compliant, or they will be out. Fortunately, European O&G companies have taken a step forward and have recently announced more ambitious carbon emissions cuts and actions to support the energy transition, giving more weight to LNG, power, circular economy and mobility solutions. The European O&G industry is shifting from a traditional hydrocarbon production and refining model to a multi-energy provider, offering different solutions to customers.

All these matters have been taken into consideration to elaborate the Initiating Coverage Equity Research report covering the most relevant European O&G companies: BP, ENI, Equinor, Repsol, Shell and Total. After deeply analyzing future oil and gas price trends, the strategic plans of these companies, and how they are handling the energy transition, a sectorial recommendation is issued. The European O&G industry is

undoubtedly leading the change required by regulators and investors, and the DCF valuation methodology suggests that Shell, Total and Repsol are in a better position to face the mentioned challenges. A BUY recommendation is issued for these three stocks, with target prices of EUR 21.09/shr. (+45.74%), EUR 42.47/shr. (+36.60%) and EUR 16.15/shr. (+25.80%), respectively. BP, ENI and Equinor follow with estimated target prices of EUR 402.05/shr. (+17.95%), EUR 9.59/shr. (+12.56%) and EUR 13.50/shr. (+7.06%), issuing a HOLD recommendation. As contrast, the EV/EBITDA multiple valuation method, a SOTP methodology if possible, the previous 52 weeks maximum and minimum prices, and analysts' recommendations from prestigious research firms have been used, and it has been confirmed that the target prices obtained from the DCF analysis are in line with these methodologies. Due to the high market volatility in oil prices, a sensitivity analysis of the Brent price has been carried out, verifying that in the case of price increases, Shell, Total and Repsol would still be the three stocks more worth buying among the six. However, should the price of the Brent decrease 15% further, Shell and Total would have a HOLD recommendation, and only Repsol would receive a BUY recommendation, leveraging in its strong Downstream position in Europe.

9. APPENDIX

9.1 BP

Table 58: P&L Statement (BP)

P&L Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Revenues	303,738	282,616	274,752	283,139	289,365	294,521	301,086	307,089
Net sales from operations	298,756	278,397	269,941	278,374	284,662	289,697	296,045	302,007
Other income and revenues	4,982	4,219	4,811	4,765	4,703	4,824	5,041	5,083
Operating expenses	268,043	245,055	240,535	248,862	253,571	258,393	264,142	269,285
Purchases	229,878	209,672	204,323	211,519	215,384	219,531	224,428	228,772
Production and manufacturing expenses	24,541	23,362	24,556	25,323	25,895	26,353	26,930	27,472
Exploration expenses	1,445	964	935	964	986	1,003	1,025	1,046
Distribution and administration expenses	12,179	11,057	10,721	11,056	11,306	11,506	11,758	11,995
EBITDA	35,695	37,561	34,217	34,277	35,794	36,128	36,944	37,805
Depreciation, Depletion and Amortization	16,317	25,855	24,810	25,154	23,289	23,253	23,244	23,276
EBIT	19,378	11,706	9,406	9,123	12,505	12,875	13,700	14,528
Interest Expense	(2,528)	(3,489)	(3,068)	(2,925)	(2,869)	(2,803)	(2,753)	(2,721)
Net finance expense relating to pensions and other	(127)	(63)	(150)	(140)	(120)	(118)	(132)	(128)
EBT	16,723	8,154	6,188	6,058	9,516	9,954	10,816	11,679
Income taxes	(7,145)	(3,964)	(3,494)	(3,714)	(5,444)	(5,819)	(6,385)	(6,979)
Effective Tax Shield	-43%	-49%	-48%	-46%	-48%	-47%	-47%	-47%
Income for the period	9,578	4,190	2,694	2,344	4,072	4,134	4,431	4,701
Income/(loss) attributable to non-controlling interest	195	164	164	150	168	235	255	282
% Non-Controlling	2%	4%	4%	4%	4%	4%	4%	4%
Income attributable to BP shareholders	9,383	4,026	2,530	2,194	3,903	3,899	4,176	4,419

Source: Company Data and Team Estimates. All figures in USD million

Table 59: Balance Sheet (BP)

Balance Sheet	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Property, plant and equipment	135,261	132,642	131,352	131,000	132,005	133,282	134,972	137,087
Goodwill	12,204	11,868	11,868	11,868	11,868	11,868	11,868	11,868
Intangible assets	17,284	15,539	15,640	15,741	15,765	15,788	15,812	15,835
Investments in joint ventures	8,647	9,991	9,991	9,991	9,991	9,991	9,991	9,991
Investments in associates	17,673	20,334	20,334	20,334	20,334	20,334	20,334	20,334
Other investments	1,341	1,276	1,276	1,276	1,276	1,276	1,276	1,276
Loans	637	630	630	630	630	630	630	630
Trade and other receivables	1,834	2,147	2,147	2,147	2,147	2,147	2,147	2,147
Derivative financial instruments	5,145	6,314	6,314	6,314	6,314	6,314	6,314	6,314
Prepayments	1,179	781	781	781	781	781	781	781
Deferred tax assets	3,706	4,560	4,560	4,560	4,560	4,560	4,560	4,560
Defined benefit pension plan surpluses	5,955	7,053	7,053	7,053	7,053	7,053	7,053	7,053
Total Non-Current Assets	210,866	213,135	211,945	211,695	212,724	214,024	215,737	217,876
Loans	326	339	339	339	339	339	339	339
Inventories	17,988	20,880	20,347	21,064	21,449	21,862	22,350	22,782
Trade and other receivables	24,478	24,442	25,781	26,587	27,187	27,668	28,275	28,844
Derivative financial instruments	3,846	4,153	4,153	4,153	4,153	4,153	4,153	4,153
Prepayments	963	857	857	857	857	857	857	857
Current tax receivable	1,019	1,282	1,282	1,282	1,282	1,282	1,282	1,282
Other investments	222	169	169	169	169	169	169	169
Cash and cash equivalents	22,468	22,472	22,222	24,270	25,071	26,005	26,733	27,179
Assets classified as held for sale		7,465	7,465	7,465	7,465	7,465	7,465	7,465
Total Current Assets	71,310	82,059	82,616	86,185	87,972	89,800	91,622	93,070
Total assets	282,176	295,194	294,561	297,880	300,696	303,824	307,359	310,946
Trade and other payables	46,265	46,829	44,896	46,757	47,535	48,455	49,550	50,495
Derivative financial instruments	3,308	3,261	3,261	3,261	3,261	3,261	3,261	3,261
Accruals	4,626	5,066	5,066	5,066	5,066	5,066	5,066	5,066
Lease liabilities	44	2,067	2,067	2,067	2,067	2,067	2,067	2,067
Finance debt	9,329	10,487	10,487	10,487	10,487	10,487	10,487	10,487
Current tax payable	2,101	2,039	2,039	2,039	2,039	2,039	2,039	2,039
Provisions	2,564	2,453	2,453	2,453	2,453	2,453	2,453	2,453
Liabilities associated with assets held for sale	0	1,393	1,393	1,393	1,393	1,393	1,393	1,393
Current liabilities	68,237	73,595	71,662	73,523	74,301	75,221	76,316	77,261
Other payables	13,830	12,626	12,626	12,626	12,626	12,626	12,626	12,626
Derivative financial instruments	5,625	5,537	5,537	5,537	5,537	5,537	5,537	5,537
Accruals	575	996	996	996	996	996	996	996
Lease liabilities	623	7,655	7,655	7,655	7,655	7,655	7,655	7,655
Finance debt	55,803	57,237	57,237	57,237	57,237	57,237	57,237	57,237
Deferred tax liabilities	9,812	9,750	9,750	9,750	9,750	9,750	9,750	9,750
Provisions	17,732	18,498	18,498	18,498	18,498	18,498	18,498	18,498
Defined benefit pension plan	8,391	8,592	8,592	8,592	8,592	8,592	8,592	8,592
Non-current liabilities	112,391	120,891	120,891	120,891	120,891	120,891	120,891	120,891
Total liabilities	180,628	194,486	192,553	194,414	195,192	196,112	197,207	198,152
BP shareholders' equity	99,444	98,412	99,562	100,852	102,654	104,608	106,766	109,103
Non-controlling interests	2,104	2,296	2,446	2,614	2,849	3,104	3,386	3,691
Total equity	101,548	100,708	102,008	103,467	105,504	107,712	110,152	112,794
Total liabilities and Equity	282,176	295,194	294,561	297,880	300,696	303,824	307,359	310,946

Source: Company Data and Team Estimates. All figures in USD million

Table 60: Cash Flow Statement (BP)

Cash Flow Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
I. Cash Flows from Operating Activities								
Net Income	9,578	4,190	3,834	4,300	6,007	6,513	7,193	7,790
D&A	15,457	17,780	16,404	16,658	15,467	15,576	15,714	15,895
Minorities	195	164	150	168	235	255	282	305
Inv. Working Capital	2,964	(2,182)	(2,740)	338	(207)	26	1	(57)
Op. Current Assets	44,448	47,461	48,268	49,790	50,775	51,669	52,763	53,765
Op. Current Liabilities	55,556	56,387	54,454	56,315	57,093	58,013	59,108	60,053
Op. Working Capital	(11,108)	(8,926)	(6,186)	(6,525)	(6,318)	(6,344)	(6,345)	(6,288)
Cash Flow from Operating activities	28,194	19,952	17,648	21,464	21,502	22,370	23,190	23,933
II. Cash Flow Used in Investing Activities								
CAPEX	(16,707)	(15,418)	(15,214)	(16,407)	(16,496)	(16,877)	(17,427)	(18,034)
Acquisitions (BHP)	(10,464)	—	—	—	—	—	—	—
Cash Flow from Investing activities	(27,171)	(15,418)	(15,214)	(16,407)	(16,496)	(16,877)	(17,427)	(18,034)
III. Cash Flows from/ (Used in) Financing Activities								
Variation in Debt	2,558	2,592	—	—	—	—	—	—
Dividends	(6,699)	(6,946)	(2,684)	(3,010)	(4,205)	(4,559)	(5,035)	(5,453)
Capital Increase	—	—	—	—	—	—	—	—
Capital Decrease	—	—	—	—	—	—	—	—
Cash Flow from Financing activities	(4,141)	(4,354)	(2,684)	(3,010)	(4,205)	(4,559)	(5,035)	(5,453)
Net Increase/(Decrease) In Cash And Cash Equivalents	(3,118)	180	(250)	2,047	801	934	728	446

Source: Company Data and Team Estimates. All figures in USD million

9.2 ENI

Table 61: P&L Statement (ENI)

P&L Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Revenues	76,484	70,889	62,699	70,818	73,012	76,375	79,382	82,489
Net sales from operations	75,822	69,881	61,914	70,000	72,141	75,550	78,544	81,644
Other income and revenues	662	1,008	785	818	871	825	838	844
Operating expenses	(59,001)	(54,015)	(52,829)	(58,655)	(59,524)	(62,527)	(63,951)	(67,511)
Operating expenses	(59,130)	(54,302)	(52,553)	(58,679)	(59,565)	(62,546)	(63,903)	(67,520)
Other operating (expense) income	129	287	(276)	24	41	19	(48)	9
EBITDA	17,485	16,880	9,870	12,163	13,488	13,847	15,431	14,978
Depreciation, Depletion and Amortization	(6,988)	(8,106)	(7,054)	(6,869)	(6,810)	(6,751)	(7,219)	(7,828)
EBIT	10,495	8,768	2,817	5,294	6,678	7,097	8,211	7,150
Sale of Fixed Assets	454	152	152	152	152	152	152	152
Impairment reversals (losses) of tangible, intangible and rights of use ass	(866)	(2,188)	(1,622)	(1,802)	(834)	(859)	(756)	(504)
Write-off of tangible and intangible assets	(100)	(300)	(408)	(293)	(281)	(285)	(323)	(327)
Operating Profit	9,983	6,432	938	3,351	5,714	6,105	7,285	6,470
Net non-operating income (expense)	124	(686)	(581)	(218)	(510)	(485)	(439)	(487)
Finance Income (expense)	(971)	(879)	(974)	(915)	(963)	(1,037)	(1,010)	(1,001)
Income (expense) from investments	1,095	193	393	698	453	552	572	515
EBT	10,107	5,746	357	3,133	5,205	5,620	6,846	5,984
Income taxes	(5,970)	(5,591)	(2,233)	(2,752)	(3,052)	(3,133)	(3,491)	(3,389)
Profit from continuing operations	4,137	155	(1,876)	381	2,153	2,487	3,355	2,595
- Attributed to Eni's shareholders (reported income)	4,126	148	(1,883)	374	2,145	2,480	3,347	2,587
- Attributed to non-controlling interest	11	7	7	7	8	7	7	7

Source: Company Data and Team Estimates. All figures in EUR million

Table 62: Balance sheet (ENI)

Balance Sheet	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Non-Current Assets	78,628	88,511	83,896	79,479	78,605	77,825	76,535	75,052
Property, plant and equipment	60,302	62,192	58,625	54,922	54,979	55,000	54,541	53,888
Intangible assets	3,170	3,059	3,181	3,309	3,441	3,579	3,722	3,871
Right of use assets	0	5,349	5,413	5,541	5,672	5,805	5,941	6,080
Inventory - compulsory stock	1,217	1,371	1,371	1,371	1,371	1,371	1,371	1,371
Equity-accounted investments	7,044	9,035	7,694	6,772	5,616	4,563	3,487	2,400
Other investments	919	929	1,029	977	934	909	870	835
Other financial assets	1,253	1,174	1,174	1,174	1,174	1,174	1,174	1,174
Deferred tax assets	3,931	4,360	4,360	4,360	4,360	4,360	4,360	4,360
Income tax assets	168	173	178	183	188	193	198	203
Other assets	624	871	871	871	871	871	871	871
Current Assets	39,450	34,909	35,512	40,329	42,124	42,737	43,260	44,355
Cash and cash equivalents	10,836	5,994	4,939	8,426	9,267	8,393	8,897	9,096
Other financial activities held for trading	6,552	6,760	6,975	7,196	7,424	7,660	7,903	8,154
Other financial assets	300	384	384	384	384	384	384	384
Trade and other receivables	14,101	12,873	13,656	12,860	12,857	13,028	13,105	13,164
Inventories	4,651	4,734	4,430	4,917	4,879	5,238	5,420	5,893
Income tax assets	191	192	192	192	192	192	192	192
Other assets	2,819	3,972	2,806	2,597	2,540	2,675	2,765	2,677
Assets held for sale	295	18	18	18	18	18	18	18
Total Assets	118,373	123,440	117,295	116,070	116,166	115,414	115,219	114,629
Equity	51,073	47,900	42,827	40,011	38,966	37,820	37,542	36,504
Shareholders' equity	51,016	47,839	42,759	39,936	38,883	37,730	37,445	36,399
Share capital	4,005	4,005	4,005	4,005	4,005	4,005	4,005	4,005
Retained earnings	36,702	37,438	34,389	29,316	26,500	25,419	24,673	24,795
Cumulative currency translation differences	6,605	7,209	7,353	7,500	7,650	7,803	7,959	8,119
Other reserves	1,672	1,562	1,496	1,290	1,068	918	766	613
Treasury shares	(581)	(981)	(981)	(981)	(981)	(1,381)	(1,781)	(2,181)
Interim dividend	(1,513)	(1,542)	(1,627)	(1,575)	(1,511)	(1,521)	(1,533)	(1,546)
Net income for the year attributable to the parent	4,126	148	(1,876)	381	2,153	2,487	3,355	2,595
Non-controlling interests	57	61	68	75	83	90	98	105
Liabilities	67,300	75,540	74,468	76,059	77,200	77,594	77,677	78,125
Non-Current Liabilities	38,859	45,897	46,908	47,860	47,816	47,645	47,324	46,794
Long-term debt	20,082	18,910	19,747	20,425	20,104	19,654	19,008	18,171
Long-term lease liabilities	—	4,759	4,759	4,759	4,759	4,759	4,759	4,759
Provisions for contingencies	11,626	14,106	14,106	14,106	14,106	14,106	14,106	14,106
Provisions for employee benefits	1,117	1,136	1,136	1,136	1,136	1,136	1,136	1,136
Deferred tax liabilities	4,272	4,920	4,920	4,920	4,920	4,920	4,920	4,920
Income taxes payable	287	454	628	902	1,179	1,458	1,783	2,090
Other liabilities	1,475	1,612	1,612	1,612	1,612	1,612	1,612	1,612
Liabilities directly associated with assets held for sale	59	—	—	—	—	—	—	—
Current Liabilities	28,382	29,643	27,561	28,199	29,384	29,948	30,353	31,331
Short-term debt	2,182	2,452	2,736	2,946	2,798	2,622	2,178	2,147
Current portion of long-term debt	3,601	3,156	1,063	1,100	1,924	1,650	1,850	1,924
Current portion of long-term lease liabilities	—	889	889	889	889	889	889	889
Trade and other payables	16,747	15,544	15,270	16,408	16,655	17,489	18,218	19,250
Income taxes payable	440	456	456	456	456	456	456	456
Other liabilities	5,412	7,146	7,146	6,401	6,662	6,842	6,762	6,666
Total Equity and Liabilities	118,373	123,440	117,295	116,070	116,166	115,414	115,219	114,629

Source: Company Data and Team Estimates. All figures in EUR million

Table 63: Cash Flow Statement (ENI)

Cash Flow Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
I. Cash Flows from Operating Activities	13,647	12,392	7,753	10,449	10,959	10,968	12,216	12,014
Profit from continuing operations	4,137	155	(1,876)	381	2,153	2,487	3,355	2,595
Depreciation, depletion and amortization	6,988	8,106	7,054	6,869	6,810	6,751	7,219	7,828
Impairment losses (impairment reversals) of tangible, intangible and right	866	2,188	1,622	1,802	834	859	756	504
Write-off of tangible and intangible assets	100	300	408	293	281	285	323	327
Share of (profit) loss of equity-accounted investments	68	88	167	52	134	106	92	122
Gains on disposal of assets, net	(474)	(170)	11	94	97	94	94	95
Dividend income	(231)	(247)	(227)	(235)	(236)	(233)	(235)	(235)
Interest income	(185)	(147)	(81)	(67)	(114)	(126)	(114)	(121)
Interest expense	614	1,027	996	675	719	838	759	715
Income taxes	5,970	5,591	2,233	2,752	3,052	3,133	3,491	3,389
Other changes	(474)	(179)	—	—	—	—	—	—
Cash flow from changes in working capital	1,632	366	199	688	379	113	58	241
Net change in the provisions for employee benefits	109	-23	—	—	—	—	—	—
Dividends received	275	1,346	260	262	282	283	281	283
Interest received	87	88	49	40	68	75	68	72
Interest paid	(609)	(1,029)	(996)	(675)	(719)	(838)	(759)	(715)
Income taxes paid, net of tax receivables received	(5,226)	(5,068)	(2,064)	(2,483)	(2,780)	(2,859)	(3,172)	(3,086)
II. Cash Flow Used in Investing Activities	(7,536)	(11,413)	(4,639)	(4,688)	(7,277)	(7,309)	(7,189)	(7,388)
Cash flow from investing activities	(9,321)	(11,928)	(6,107)	(5,819)	(8,576)	(8,525)	(8,446)	(8,624)
CapEx	(9,119)	(8,376)	(5,517)	(5,260)	(7,982)	(7,915)	(7,839)	(8,006)
Tangible assets and prepaid right of use	(8,778)	(8,065)	(5,313)	(5,065)	(7,686)	(7,621)	(7,548)	(7,709)
Intangible assets	(341)	(311)	(205)	(195)	(296)	(294)	(291)	(297)
Consolidated subsidiaries and businesses net of cash and cash ec	(119)	(5)	—	—	—	—	—	—
Investments	(125)	(3,003)	(186)	(256)	(263)	(271)	(279)	(288)
Securities held for operating purposes	(8)	(8)	(111)	(42)	(54)	(69)	(55)	(59)
Financing receivables held for operating purposes	(358)	(229)	(294)	(261)	(277)	(269)	(273)	(271)
Change in payables in relation to investing activities	408	(307)	—	—	—	—	—	—
Cash flow from disposals	2,142	794	1,468	1,131	1,300	1,215	1,257	1,236
Net change in receivables and securities not held for operating purposes	(357)	(279)	—	—	—	—	—	—
III. Cash Flows from/ (Used in) Financing Activities	(2,637)	(5,841)	(4,169)	(2,272)	(2,842)	(4,533)	(4,523)	(4,428)
Increase in long-term debt	3,790	1,811	1,900	1,778	1,603	1,200	1,204	1,086
Repayments of long-term debt	(2,757)	(3,512)	(3,156)	(1,063)	(1,100)	(1,924)	(1,650)	(1,850)
Repayment of lease liabilities	—	(877)	—	—	—	—	—	—
Increase (decrease) in short-term financial debt	(713)	161	284	210	(148)	(176)	(444)	(31)
Net capital reimbursement to non-controlling interest	—	(1)	—	—	—	—	—	—
Acquisition of additional interests in consolidated subsidiaries	—	(1)	—	—	—	—	—	—
Dividends paid to Eni's shareholders	(2,954)	(3,018)	(3,193)	(3,193)	(3,193)	(3,229)	(3,229)	(3,229)
Dividends paid to non-controlling interests	(3)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Net purchase of treasury shares	—	(400)	—	—	—	(400)	(400)	(400)
Effect of change in consolidation (inclusion/exclusion of significant/insignif	—	(7)	—	—	—	—	—	—
Effect of cash and cash equivalents relating to discontinued operations	—	—	—	—	—	—	—	—
Effect of exchange rate changes on cash and cash equivalents and other c	18	8	—	—	—	—	—	—
Net Increase/(Decrease) In Cash And Cash Equivalents	3,492	(4,861)	(1,055)	3,488	840	(874)	504	198

Source: Company Data and Team Estimates. All figures in EUR million

Table 64: Production of oil and natural gas

Production of oil and natural gas (kboe/d)	17	18	19	20e	21e	22e	23e	24e	25e
Total production	1,825	1,860	1,871	1,774	1,939	2,011	2,130	2,216	2,356
Italy	135	139	123	123	118	113	108	103	98
Rest of Europe	190	195	163	173	173	197	268	325	325
Croatia	3	2	—	—	—	—	—	—	—
Norway	130	134	108	118	118	142	213	270	270
UK	57	59	55	55	55	55	55	55	55
North Africa	486	398	382	300	334	334	337	337	409
Algeria	90	85	83	88	122	122	122	122	122
Libya	387	304	291	204	204	204	207	207	279
Tunisia	9	9	9	9	9	9	9	9	9
Egypt	232	302	354	300	318	331	345	356	356
Sub-Saharan Africa	349	357	386	391	391	427	438	461	461
Angola	147	146	136	141	141	167	178	201	201
Congo	84	93	86	75	75	85	85	85	85
Ghana	9	19	42	49	49	49	49	49	49
Nigeria	109	100	121	125	125	125	125	125	125
Kazakhstan	132	143	150	158	158	158	158	158	158
Rest of Asia	120	179	179	189	241	260	290	293	366
China	2	1	1	1	1	1	1	1	1
Indonesia	41	73	59	59	101	101	101	101	101
Iraq	44	35	42	42	42	39	37	40	38
Pakistan	24	20	19	19	19	19	19	19	19
Turkmenistan	9	11	8	8	8	8	8	8	8
United Arab Emirates	0	40	51	61	71	93	125	125	200
Americas	161	123	106	112	178	163	158	155	155
Ecuador	12	12	6	6	6	6	6	6	6
Mexico	—	—	5	11	77	77	77	77	77
Trinidad & Tobago	10	7	—	—	—	—	—	—	—
United States	77	55	57	57	57	57	57	57	57
Venezuela	62	49	39	39	39	24	19	16	16
Australia and Oceania	21	23	28	28	28	28	28	28	28
Australia	21	23	28	28	28	28	28	28	28

Source: Company data and Team estimates

Table 65: Percentages over production (ENI)

Percentages Over Production	17	18	19	20e	21e	22e	23e	24e	25e
Liquids (Oil)	47%	48%	48%	50%	50%	48%	50%	50%	47%
Natural gas (Gas)	54%	53%	52%	50%	50%	52%	50%	50%	53%

Source: Company data and Team estimates

Table 66: Production of natural gas (ENI)

Production of natural gas (kbbbl/d)	17	18	19	20e	21e	22e	23e	24e	25e
Total production	973	973	978	882	976	1,036	1,075	1,106	1,253
Italy	82	79	70	70	70	70	70	70	70
Rest of Europe	88	82	66	66	66	90	106	106	106
Croatia	3	2	—	—	—	—	—	—	—
Norway	49	45	34	34	34	58	74	74	74
UK	36	35	32	32	32	32	32	32	32
North Africa	325	241	213	164	198	198	201	201	273
Algeria	22	20	21	26	60	60	60	60	60
Libya	300	218	190	136	136	136	139	139	211
Tunisia	3	3	3	3	3	3	3	3	3
Egypt	160	225	279	225	243	256	270	281	281
Sub-Saharan Africa	99	110	133	140	140	166	166	189	189
Angola (& Mozambique)	25	32	30	30	30	56	56	79	79
Congo	21	28	27	27	27	27	27	27	27
Ghana	1	4	18	21	21	21	21	21	21
Nigeria	52	47	57	61	61	61	61	61	61
Kazakhstan	49	49	50	50	50	50	50	50	50
Rest of Asia	66	102	93	93	135	147	158	158	233
China	—	—	—	—	—	—	—	—	—
Indonesia	37	70	57	57	99	99	99	99	99
Iraq	4	7	15	15	15	15	15	15	15
Pakistan	24	20	19	19	19	19	19	19	19
Turkmenistan	1	5	1	1	1	1	1	1	1
United Arab Emirates	0	1	2	2	2	14	25	25	100
Americas	86	63	48	48	48	33	28	25	25
Mexico	0	—	1	1	1	1	1	1	1
Trinidad & Tobago	10	7	—	—	—	—	—	—	—
United States	26	15	12	12	12	12	12	12	12
Venezuela	50	41	36	36	36	21	16	13	13
Australia and Oceania	19	21	26	26	26	26	26	26	26
Australia	19	21	26	26	26	26	26	26	26

Source: Company data and Team estimates

Table 67: Production of liquids (ENI)

Production of liquids (kbbbl/d)	17	18	19	20e	21e	22e	23e	24e	25e
Total production	852	887	893	892	963	975	1,055	1,110	1,103
Italy	53	60	53	53	48	43	38	33	28
Rest of Europe	102	113	97	107	107	107	162	219	219
Norway	81	89	74	84	84	84	139	196	196
UK	21	24	23	23	23	23	23	23	23
North Africa	161	157	169	136	136	136	136	136	136
Algeria	68	65	62	62	62	62	62	62	62
Libya	87	86	101	68	68	68	68	68	68
Tunisia	6	6	6	6	6	6	6	6	6
Egypt	72	77	75	75	75	75	75	75	75
Sub-Saharan Africa	250	247	253	251	251	261	272	272	272
Angola (& Mozambique)	122	114	106	111	111	111	122	122	122
Congo	63	65	59	48	48	58	58	58	58
Ghana	8	15	24	28	28	28	28	28	28
Nigeria	57	53	64	64	64	64	64	64	64
Kazakhstan	83	94	100	108	108	108	108	108	108
Rest of Asia	54	77	86	96	106	113	132	135	133
China	2	1	1	1	1	1	1	1	1
Indonesia	4	3	2	2	2	2	2	2	2
Iraq	40	28	27	27	27	24	22	25	23
Turkmenistan	8	6	7	7	7	7	7	7	7
United Arab Emirates	0	39	49	59	69	79	100	100	100
Americas	75	60	58	64	130	130	130	130	130
Ecuador	12	12	6	6	6	6	6	6	6
Mexico	—	—	4	10	76	76	76	76	76
Trinidad & Tobago	—	—	—	—	—	—	—	—	—
United States	51	40	45	45	45	45	45	45	45
Venezuela	12	8	3	3	3	3	3	3	3
Australia and Oceania	2	2	2	2	2	2	2	2	2
Australia	2	2	2	2	2	2	2	2	2

Source: Company data and Team estimates

Table 68: CapEx by division (ENI)

CapEx by division	18	19	20e	21e	22e	23e	24e	25e
Exploration & Production	7,901	6,996	4,200	3,900	6,720	6,420	6,300	6,120
Gas & Power	215	230	221	302	470	456	560	1,020
Refining & Marketing and Chemicals	877	933	895	815	550	781	761	590
Refining & Marketing	726	815	800	705	420	501	487	310
Chemicals	151	118	95	110	130	280	274	280
Corporate and other activities	143	231	220	264	254	260	232	290
Impact of unrealized intragroup profit elimi	(17)	(14)	(19)	(21)	(12)	(2)	(14)	(14)
Total	9,119	8,376	5,517	5,260	7,982	7,915	7,839	8,006

Source: Company data and Team estimates

Table 69: Realization prices (ENI)

Eni Realization Prices (USD)	18	19	20e	21e	22e	23e	24e	25e
Crude oil (USD/bbl)	65.47	59.26	31.98	33.17	36.86	39.99	42.50	44.84
Gas (USD/kcf)	5.20	4.94	3.61	4.90	4.58	4.47	4.46	4.46

Source: Company data and Team estimates

Table 70: Consolidated estimates (ENI)

Consolidated estimates (EUR mn)	18	19	20e	21e	22e	23e	24e	25e
EBITDA	17,485	16,880	9,870	12,163	13,488	13,847	15,431	14,978
EBIT	10,495	8,768	2,817	5,294	6,678	7,097	8,211	7,150
Net Profit	4,137	155	(1,876)	381	2,153	2,487	3,355	2,595
EPS (EUR)	1.15	0.04	(0.52)	0.10	0.60	0.69	0.93	0.72

Source: Company data and Team estimates

Table 71: EBITDA estimates (ENI)

EBITDA estimates (EUR mn)	18	19	20e	21e	22e	23e	24e	25e
Upstream	16,786	15,817	8,915	10,972	12,147	12,532	13,996	13,462
Δ %		-5.8%	-43.6%	23.1%	10.7%	3.2%	11.7%	-3.8%
Downstream	1,136	1,756	1,613	1,866	2,066	1,985	2,123	2,137
Δ %		54.6%	-8.1%	15.7%	10.7%	-3.9%	7.0%	0.7%
Corporate	(620)	(548)	(510)	(524)	(562)	(519)	(535)	(481)
Δ %		-11.6%	-6.9%	2.7%	7.3%	-7.7%	3.1%	-10.1%
Impact of unrealized intragroup profit elimi	183	(146)	(148)	(152)	(163)	(151)	(154)	(140)
Δ %		-179.8%	1.4%	2.7%	7.2%	-7.4%	2.0%	-9.1%
Total	17,485	16,880	9,870	12,163	13,488	13,847	15,431	14,978

Source: Company data and Team estimates

Table 72: Downstream EBITDA estimates (ENI)

Downstream EBITDA estimates (EUR mn)	18	19	20e	21e	22e	23e	24e	25e
G&P	958	1,187	1,113	1,311	1,465	1,421	1,539	1,603
Δ %		24%	-6%	18%	12%	-3%	8%	4%
Refining & Marketing & Chemicals	178	569	500	555	601	564	584	534
Δ %		220%	-12%	11%	8%	-6%	4%	-9%
Total	1,136	1,756	1,613	1,866	2,066	1,985	2,123	2,137

Source: Company data and Team estimates

Table 73: Retail and Wholesale Product Sales (ENI)

Retail and Wholesale Product Sales (mmto)	18	19	20e	21e	22e	23e	24e	25e
Italy	13.5	13.5	11.8	13.0	13.3	13.3	13.2	13.0
Retail	5.9	5.8	4.9	5.6	5.6	5.5	5.3	5.1
Gasoline	1.5	1.4	1.2	1.4	1.4	1.4	1.4	1.4
Gasoil	4.0	4.0	3.4	3.8	3.8	3.7	3.5	3.3
LPG	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wholesale	7.5	7.7	6.8	7.4	7.7	7.8	7.9	7.9
Gasoil	3.3	3.4	3.1	3.3	3.4	3.4	3.3	3.3
Fuel Oil	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LPG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Gasoline	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5
Lubricants	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bunker	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Jet fuel	2.0	1.9	1.6	1.8	2.0	2.1	2.2	2.3
Other	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Outside Italy	5.8	5.6	5.3	5.5	5.5	5.4	5.3	5.1
Gasoline	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2
Gasoil	3.2	3.0	3.0	3.0	3.0	2.9	2.8	2.6
Jet fuel	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fuel Oil	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Lubricants	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LPG	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3
Total retail and wholesale sales	19.2	19.0	17.1	18.5	18.7	18.7	18.5	18.1

Source: Company data and Team estimates

9.3 EQUINOR

Table 74: P&L Statement (Equinor)

P&L Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Revenues	78,555	62,911	32,447	34,188	38,688	42,721	47,042	51,487
Net income/(loss) from equity accounted investments	291	164	164	164	164	164	164	164
Other income	746	1,283	1,283	1,283	1,283	1,283	1,283	1,283
Total revenues and other income	79,593	64,357	33,894	35,635	40,135	44,168	48,489	52,934
Growth rate (%)		-19%	-47%	5%	13%	10%	10%	9%
Purchases [net of inventory variation]	(38,516)	(29,532)	(15,962)	(16,569)	(18,391)	(19,964)	(21,215)	(22,379)
Operating expenses	(9,528)	(9,660)	(8,984)	(9,322)	(9,153)	(9,237)	(9,195)	(9,216)
Selling, general and administrative expenses	(758)	(809)	(752)	(764)	(776)	(789)	(802)	(816)
Exploration expenses	(1,405)	(1,854)	(1,005)	(1,430)	(1,217)	(1,323)	(1,270)	(1,297)
COGS	(50,207)	(41,854)	(26,703)	(28,085)	(29,537)	(31,314)	(32,483)	(33,708)
Total operating expenses	(59,456)	(55,058)	(38,403)	(40,866)	(41,808)	(43,093)	(44,476)	(45,222)
EBITDA	29,386	22,502	7,191	7,550	10,598	12,855	16,006	19,226
Depreciation, amortisation and net impairment losses	(9,249)	(13,204)	(11,700)	(12,781)	(12,270)	(11,779)	(11,994)	(11,514)
Net operating income/(loss) (EBIT)	20,137	9,299	(4,509)	(5,231)	(1,672)	1,075	4,012	7,712
Net financial items	(1,263)	(7)	(280)	(303)	(296)	(266)	(237)	(211)
Income/(loss) before tax	18,874	9,292	(4,789)	(5,534)	(1,968)	809	3,775	7,502
Income tax	(11,335)	(7,441)	—	—	—	(647)	(3,020)	(6,001)
Tax Rate (%)	-60%	-80%	—	—	—	-80%	-80%	-80%
Net income/(loss)	7,538	1,851	-4,789	-5,534	-1,968	162	755	1,500
Attributable to equity holders of the company	7,535	1,843	(4,770)	(5,512)	(1,960)	161	752	1,494
Attributable to non-controlling interests	3	8	-19	-22	-8	1	3	6

Source: Company Data and Team Estimates. All figures in USD million

Table 75: Balance Sheet (Equinor)

Balance Sheet	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
ASSETS								
Property, plant and equipment	65,262	69,953	67,155	64,469	61,890	59,414	57,038	55,196
Intangible assets	9,672	10,738	10,308	9,896	9,500	9,120	8,755	8,405
Equity accounted investments	2,863	1,442	1,442	1,442	1,442	1,442	1,442	1,442
Deferred tax assets	3,304	3,881	13,724	13,724	13,724	13,724	13,724	13,724
Pension assets	831	1,093	1,093	1,093	1,093	1,093	1,093	1,093
Derivative financial instruments	1,032	1,365	1,365	1,365	1,365	1,365	1,365	1,365
Financial investments	2,455	3,600	3,600	3,600	3,600	3,600	3,600	3,600
Prepayments and financial receivables	1,033	1,214	1,214	1,214	1,214	1,214	1,214	1,214
Total non-current assets	86,452	93,285	99,901	96,803	93,828	90,972	88,231	86,039
Inventories	2,144	3,363	2,146	2,257	2,373	2,516	2,610	2,708
Trade and other receivables	8,998	8,233	4,336	4,559	5,134	5,650	6,203	6,772
Derivative financial instruments	318	578	578	578	578	578	578	578
Financial investments	7,041	7,426	7,426	7,426	7,426	7,426	7,426	7,426
Cash and cash equivalents	7,556	5,177	8,262	3,503	1,638	1,748	1,857	1,708
Total current assets	26,056	24,778	22,748	18,323	17,150	17,918	18,674	19,192
Assets classified as held for sale	—	—	—	—	—	—	—	—
Total assets	112,508	118,063	122,649	115,125	110,978	108,890	106,904	105,231
EQUITY AND LIABILITIES								
Shareholders' equity	42,970	41,139	35,168	29,656	27,696	27,760	28,061	28,659
Non-controlling interests	19	21	2	(20)	(28)	(28)	(24)	(18)
Total equity	42,990	41,159	35,170	29,636	27,668	27,733	28,037	28,641
Finance debt	23,264	24,945	29,945	27,298	24,765	22,175	19,614	17,038
Deferred tax liabilities	8,671	9,410	19,253	19,253	19,253	19,253	19,253	19,253
Pension liabilities	3,820	3,867	3,867	3,867	3,867	3,867	3,867	3,867
Provisions	15,952	17,951	17,951	17,951	17,951	17,951	17,951	17,951
Derivative financial instruments	1,207	1,173	1,173	1,173	1,173	1,173	1,173	1,173
Total non-current liabilities	52,914	57,346	72,189	69,542	67,009	64,419	61,857	59,281
Trade, other payables and provisions	8,369	10,450	6,183	6,841	7,194	7,632	7,903	8,202
Current tax payable	4,654	3,699	3,699	3,699	3,699	3,699	3,699	3,699
Finance debt	2,463	4,087	4,087	4,087	4,087	4,087	4,087	4,087
Dividends payable	766	859	859	859	859	859	859	859
Derivative financial instruments	352	462	462	462	462	462	462	462
Total current liabilities	16,605	19,557	15,290	15,948	16,301	16,739	17,010	17,309
Total liabilities	69,519	76,904	87,479	85,489	83,310	81,157	78,868	76,590
Total equity and liabilities	112,508	118,063	122,649	115,125	110,978	108,890	106,904	105,231

Source: Company Data and Team Estimates. All figures in USD million

Table 76: Cash Flow Statement (Equinor)

Cash Flow Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
I. Cash Flows from Operating Activities								
Net Income			(4,770)	(5,512)	(1,960)	161	752	1,494
D&A			11,700	12,781	12,270	11,779	11,994	11,514
Minorities			(19)	(22)	(8)	1	3	6
Inv. Working Capital			848	324	(339)	(221)	(375)	(369)
Op. Current Assets		11,596	6,482	6,815	7,508	8,166	8,813	9,480
Op. Current Liabilities		10,450	6,183	6,841	7,194	7,632	7,903	8,202
Op. Working Capital		1,146	298	(25)	313	535	910	1,278
Cash Flow from Operating activities			7,759	7,571	9,964	11,720	12,374	12,645
II. Cash Flow Used in Investing Activities								
CAPEX			(8,473)	(9,683)	(9,296)	(8,924)	(9,252)	(9,322)
Cash Flow from Investing activities			(8,473)	(9,683)	(9,296)	(8,924)	(9,252)	(9,322)
III. Cash Flows from/ (Used in) Financing Activities								
New debt	998	984	5,000	—	—	—	—	—
Repayment of debt	(2,875)	(2,419)	—	(2,647)	(2,533)	(2,590)	(2,562)	(2,576)
Dividends	(2,672)	(3,342)	(1,201)	—	—	(97)	(451)	(897)
Capital Increase			—	—	—	—	—	—
Capital Decrease			—	—	—	—	—	—
Cash Flow from Financing activities			3,799	(2,647)	(2,533)	(2,687)	(3,013)	(3,472)
Net Increase/(Decrease) In Cash And Cash Equivalents			3,085	(4,759)	(1,865)	109	109	(149)

Source: Company Data and Team Estimates. All figures in USD million

Table 77: Equinor realization prices

Equinor Realization Prices (USD)	18	19	20e	21e	22e	23e	24e	25e
EPN Crude oil (USD/bbl)	65.33	57.23	30.93	32.11	35.64	38.69	41.11	43.37
EPI Crude oil (USD/bbl)	62.13	55.20	29.84	30.97	34.38	37.32	39.65	41.83
Gas (USD/kcf)	5.64	4.40	1.92	2.00	2.22	2.41	2.56	2.70

Source: Company data and Team estimates

Table 78. Consolidated estimates (Equinor)

Consolidated estimates (EUR mn)	18	19	20e	21e	22e	23e	24e	25e
EBITDA	27,094	20,747	6,630	6,961	9,771	11,852	14,757	17,727
EBIT	18,566	8,574	(4,157)	(4,823)	(1,542)	991	3,699	7,110
Net Profit	6,947	1,699	(4,398)	(5,082)	(1,807)	149	693	1,378
EPS (EUR)	2.08	0.51	(1.32)	(1.52)	(0.54)	0.04	0.21	0.41

Source: Company data and Team estimates

9.4 REPSOL

Table 79: P&L Statement (Repsol)

P&L Statement	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Revenues	51,353	37,519	45,241	50,372	54,586	57,285	58,951	58,997
Purchases	(38,056)	(32,379)	(39,202)	(43,671)	(47,304)	(49,653)	(51,037)	(50,948)
Personnel expenses	(1,874)	(1,896)	(1,928)	(1,965)	(2,006)	(2,050)	(2,097)	(2,146)
OPEX	(46,760)	(34,274)	(41,130)	(45,636)	(49,311)	(51,703)	(53,134)	(53,094)
GROSS PROFIT	4,593	3,245	4,111	4,736	5,275	5,581	5,817	5,904
Adj. EBITDA	1,100	1,896	1,928	1,965	2,006	2,050	2,097	2,146
EBITDA IFRS	5,693	5,140	6,039	6,702	7,281	7,632	7,914	8,049
Amortization of non-current assets	(2,140)	(2,283)	(2,408)	(2,541)	(2,685)	(2,839)	(3,007)	(3,188)
Operating Income	2,453	962	1,703	2,195	2,590	2,742	2,810	2,716
Net Interest	(230)	(193)	(147)	(162)	(136)	(106)	(77)	(51)
Other finance income and expenses	57	—	—	—	—	—	—	—
Financial Result	(173)	(193)	(147)	(162)	(136)	(106)	(77)	(51)
EBT	2,280	769	1,556	2,033	2,454	2,636	2,733	2,665
Income investments accounted for using the equity method	1,053	1,053	1,053	1,053	1,053	1,053	1,053	1,053
Net Income Before Tax	3,333	1,822	2,609	3,086	3,507	3,689	3,786	3,718
Income tax	(1,386)	(423)	(856)	(1,118)	(1,350)	(1,450)	(1,504)	(1,466)
Profit from continuing operations	1,947	1,399	1,753	1,967	2,157	2,239	2,282	2,252
Income from continuing operations attributed to non-controlling interest	(18)	(12)	(15)	(17)	(18)	(19)	(19)	(19)
Income From Continuing Operations Attributed To The Parent	1,929	1,387	1,738	1,951	2,139	2,220	2,263	2,233
Income From Discontinued Operations Attributed To The Parent	412	—	—	—	—	—	—	—
Total Income Attributable To The Parent	2,341	1,468	1,903	2,166	2,399	2,499	2,552	2,515

Source: Company Data and Team Estimates. All figures in EUR million

Table 80: Balance Sheet (Repsol)

Balance Sheet	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
Non-Current Assets	43,484	40,583	43,823	44,907	46,098	47,412	48,869	50,492
Intangible assets	5,096	2,606	2,728	2,836	2,930	3,012	3,080	3,134
Property, plant and equipment	25,431	23,967	27,086	28,062	29,157	30,390	31,780	33,349
Investments accounted for using the equity method	7,194	8,247	8,247	8,247	8,247	8,247	8,247	8,247
Non-current financial assets	1,103	1,103	1,103	1,103	1,103	1,103	1,103	1,103
Deferred tax assets	3,891	3,891	3,891	3,891	3,891	3,891	3,891	3,891
Other non-current assets	769	769	769	769	769	769	769	769
Current Assets	17,294	16,811	19,066	21,079	23,032	24,672	26,005	26,801
Inventories	4,390	3,023	5,952	4,046	6,784	4,584	7,101	4,564
Trade receivables and other receivables	6,407	4,958	5,978	6,657	7,213	7,570	7,790	7,796
Other current financial assets	1,711	1,711	1,711	1,711	1,711	1,711	1,711	1,711
Cash and cash equivalents	4,786	7,119	5,425	8,665	7,324	10,807	9,403	12,730
Total Assets	60,778	57,394	62,890	65,987	69,130	72,084	74,874	77,294
Equity	30,914	32,395	34,314	36,498	38,917	41,437	44,011	46,548
Shareholders' equity	30,468	31,936	33,839	36,005	38,403	40,902	43,454	45,969
Share capital	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559
Share premium and reserves	25,894	28,235	29,703	31,606	33,772	36,170	38,669	41,221
Net income for the year attributable to the parent	2,341	1,468	1,903	2,166	2,399	2,499	2,552	2,515
Other equity instruments	674	674	674	674	674	674	674	674
Other cumulative comprehensive income	160	160	160	160	160	160	160	160
Non-controlling interests	286	299	315	333	354	375	397	419
Non-Current Liabilities	17,054	12,918	14,951	14,853	14,755	14,658	14,561	14,465
Non-current provisions	4,738	4,784	4,784	4,784	4,784	4,784	4,784	4,784
Non-current financial liabilities	9,392	5,247	7,280	7,182	7,084	6,987	6,890	6,794
Deferred tax liabilities	1,028	1,040	1,040	1,040	1,040	1,040	1,040	1,040
Other non-current liabilities	1,896	1,848	1,848	1,848	1,848	1,848	1,848	1,848
Current Liabilities	12,810	12,081	13,625	14,636	15,458	15,989	16,302	16,282
Liabilities related to non-current assets held for sale	—	1	1	1	1	1	1	1
Current provisions	500	509	509	509	509	509	509	509
Current financial liabilities	4,289	4,248	4,248	4,248	4,248	4,248	4,248	4,248
Trade payables and other payables	8,021	7,324	8,868	9,879	10,701	11,232	11,545	11,525
Total Equity and Liabilities	60,778	57,394	62,890	65,987	69,130	72,084	74,874	77,294

Source: Company Data and Team Estimates. All figures in EUR million

Table 81: Cash Flow Statement (Repsol)

Cash Flow Statement	2018	2019e	2020e	2021e	2022e	2023e	2024e	2025e
I. Cash Flows from Operating Activities	4,579	6,634	2,974	8,017	3,684	8,787	4,210	9,288
Net income before tax	3,333	2,875	3,662	4,139	4,560	4,742	4,839	4,771
Adjusted result:	2,360	2,283	2,408	2,541	2,685	2,839	3,007	3,188
Amortisation of non current assets	2,140	2,283	2,408	2,541	2,685	2,839	3,007	3,188
Other adjustments to net profit/(losses)	220	—	—	—	—	—	—	—
Changes in working capital	(389)	1,817	(2,406)	2,239	(2,473)	2,375	(2,424)	2,511
Other Cash Flows from/ (Used in) operating activities:	(725)	(341)	(690)	(901)	(1,088)	(1,169)	(1,212)	(1,182)
Dividends received	472	—	—	—	—	—	—	—
Income taxes received/ (paid)	(762)	(341)	(690)	(901)	(1,088)	(1,169)	(1,212)	(1,182)
Other proceeds from/ (payments for) operating activities	(435)	—	—	—	—	—	—	—
II. Cash Flow Used in Investing Activities	(1,359)	(2,902)	(3,102)	(3,325)	(3,575)	(3,853)	(4,163)	(4,510)
Payments for investment activities:	(5,501)	(2,902)	(3,102)	(3,325)	(3,575)	(3,853)	(4,163)	(4,510)
Group companies, associates and business units	(807)	—	—	—	—	—	—	—
Property, plant and equipment, intangible assets and investment p	(2,661)	(2,902)	(3,102)	(3,325)	(3,575)	(3,853)	(4,163)	(4,510)
Other financial assets	(2,033)	—	—	—	—	—	—	—
Proceeds from divestments:	4,074	—	—	—	—	—	—	—
Other cash flows	68	—	—	—	—	—	—	—
III. Cash Flows from/ (Used in) Financing Activities	(3,032)	(1,399)	(1,566)	(1,451)	(1,451)	(1,451)	(1,451)	(1,451)
Proceeds and (payments) on equity instruments:	(1,595)	—	—	—	—	—	—	—
Proceeds and (payments) on financial liability instrument::	—	—	—	—	—	—	—	—
Issue	18,127	—	—	—	—	—	—	—
Return and amortization	(18,923)	—	—	—	—	—	—	—
Payments on stockholder remuneration and other equity instruments	(297)	(1,399)	(1,566)	(1,451)	(1,451)	(1,451)	(1,451)	(1,451)
Other cash flows from financing activities:	(344)	—	—	—	—	—	—	—
Exchange Rate Fluctuations Effect	(3)	—	—	—	—	—	—	—
Net Increase/(Decrease) In Cash And Cash Equivalents	185	2,333	(1,694)	3,241	(1,341)	3,483	(1,405)	3,328
Cash And Cash Equivalents At The Beginning Of The Period	4,601	4,786	7,119	5,425	8,665	7,324	10,807	9,403
Cash And Cash Equivalents At The End Of The Period	4,786	7,119	5,425	8,665	7,324	10,807	9,403	12,730
Cash and banks	4,124	—	—	—	—	—	—	—
Other financial assets	662	—	—	—	—	—	—	—

Source: Company Data and Team Estimates. All figures in EUR million

Table 82: Sensitivity analysis I (Repsol)

Perpetual Growth	Weighted Average Cost of Capital					
	8.85%	8.35%	7.85%	7.35%	6.85%	
	1.59%	9.15	10.72	12.56	14.75	17.37
	2.09%	10.29	12.08	14.2	16.75	19.86
	2.59%	11.61	13.67	16.15	19.18	22.94
	3.09%	13.16	15.57	18.51	22.17	26.84
	3.59%	15.01	17.87	21.42	25.96	31.93

Source: Team estimates

Table 83: Sensitivity analysis II (Repsol)

Brent (USD/bbl)	Henry Hub (USD/MMBtu)				
	3.00	2.70	2.50	2.20	2.00
69	6.53	7.43	8.33	9.23	10.13
64	10.11	11.02	11.92	12.82	13.72
59	14.35	15.25	16.15	17.05	17.96
54	19.42	20.32	21.23	22.13	23.03
49	25.61	26.52	27.42	28.32	29.22

Source: Energy Information Administration, EIA

Table 84: Sensitivity analysis III (Repsol)

GDP (%)	Inflation (%)				
	1.25%	1.15%	1.05%	0.95%	0.85%
1.05%	4.93	8.53	12.12	15.72	19.31
1.45%	6.93	10.53	14.13	17.72	21.32
1.85%	8.94	12.55	16.15	19.75	23.36
2.25%	10.98	14.59	18.2	21.81	25.41
2.65%	13.05	16.66	20.27	23.88	27.5

Source: International Monetary Fund, IMF

Table 85: Sensitivity analysis IV (Repsol)

Brent (USD/bbl)	Forward (EUR/USD)				
	0.93	1.03	1.13	1.23	1.33
69	4.03	6.06	8.33	10.73	13.19
64	7.49	9.58	11.92	14.38	16.9
59	11.58	13.74	16.15	18.69	21.29
54	16.47	18.73	21.23	23.85	26.54
49	22.45	24.81	27.42	30.15	32.95

Source: Bloomberg and EIA

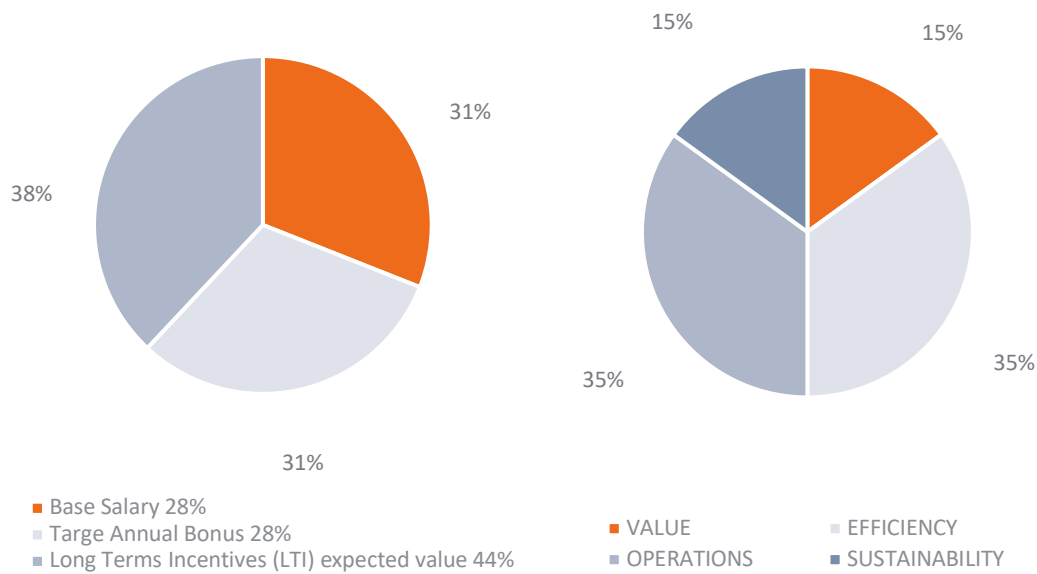


Figure 33: Repsol's anual variable remuneration and lead executive pay mix

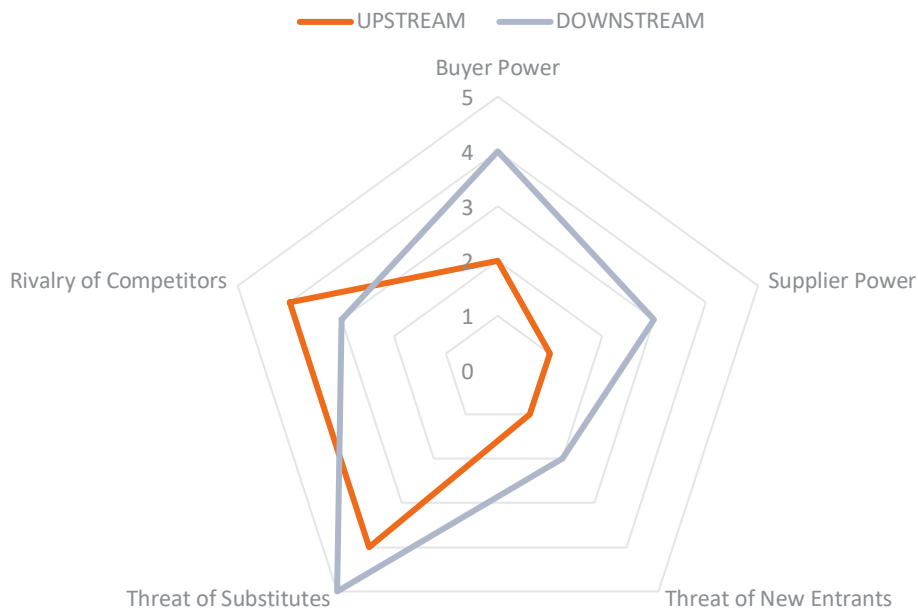


Figure 34: Repsol's competitive positioning

Table 86: Repsol's competitive positioning

	BUYER POWER	SUPPLIER POWER	THREAT OF NEW ENTRANTS	THREAT OF SUBSTITUTES	RIVALRY OF COMPETITORS
	Low	Insignificant	Insignificant	High	High
UPSTREAM	Lack of a unified formation for oil buyers	Suppliers are financially dependent from E&P companies	Barriers to entry: high capital requirements, high sunk costs and experience curve	Alternative energy sources. Strong growth in renewables production rates in the last decade	Aggressive disputes to gain access, but the trend is to collude and share risks (joint ventures)
DOWNSTREAM	The product is perceived among the final consumers as a commodity	The bargaining power is limited by market prices	Economies of scale, complicated access to the distribution channel. Policies and regulations	Various substitutive products (renewable energies, etc) penetration rates have beaten expectations	The number of players is limited, and market share is stable

Source: Team estimates

Table 87: Repsol's Downstream division I

Repsol G&P	18	19e	20e	21e	22e	23e	24e	25e
Retail G&P	0.73	0.97	1.22	1.48	1.73	1.99	2.24	2.50
MW	2,952	3,216	3,930	4,644	5,358	6,072	6,786	7,500

Source: Company data and Team Estimates. Retail G&P unit million clients

Table 88: Repsol's Downstream division II

Repsol Refining	18	19e	20e	21e	22e	23e	24e	25e
Crude oil	46,565	47,578	48,589	49,281	50,105	50,930	51,883	52,565
Other raw materials	8,292	8,472	8,652	8,776	8,922	9,069	9,239	9,360
TOTAL	54,857	56,050	57,242	58,057	59,027	60,000	61,122	61,925
Processed raw material	1,097	1,121	1,142	1,161	1,181	1,200	1,219	1,239
Growth (%)		2.2%	1.8%	1.7%	1.7%	1.6%	1.6%	1.6%

Source: Company data and Team Estimates. Raw materials unit ksbpd

Table 89: Repsol's Downstream division III

Repsol Refining	18	19e	20e	21e	22e	23e	24e	25e
Intermediate distillates	27,127	27,300	27,880	28,277	28,750	29,224	29,770	30,162
Gas	9,515	9,814	10,022	10,165	10,335	10,505	10,702	10,842
Fuel oil	4,716	4,914	5,018	5,090	5,175	5,260	5,359	5,429
LPG	987	1,000	1,022	1,036	1,053	1,071	1,091	1,105
Asphalts	1,631	1,603	1,637	1,660	1,688	1,716	1,748	1,771
Lubricants	266	269	274	278	283	288	293	297
Others	7,078	7,585	7,746	7,856	7,988	8,119	8,271	8,380
TOTAL	51,320	52,484	53,600	54,363	55,272	56,183	57,233	57,986
Refining production	375	383	391	397	403	410	418	423
Refinery utilization	94%	94%	94%	94%	94%	94%	94%	94%

Source: Company data and Team Estimates. Refining unit kt. Refining production unit MMBbl. Refinery utilization unit prod/throughput

9.5 SHELL

Table 90: P&L Statement (Shell)

P&L Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Revenue	388,379	344,877	169,306	180,964	200,201	213,468	218,805	230,271
Growth (%)	27%	-11%	0%	7%	11%	7%	2%	5%
Share of profit of joint ventures and associates	4,106	3,604	3,646	3,694	3,578	3,463	3,430	3,378
Growth (%)	-3%	-12%	1%	1%	-3%	-3%	-1%	-1%
Interest and other income	4,071	3,625	3,677	3,822	4,163	4,732	4,894	5,201
Growth (%)	65%	-11%	1%	4%	9%	14%	3%	6%
Total revenue and other income	396,556	352,106	176,629	188,479	207,942	221,664	227,128	238,849
Purchases	294,399	252,983	—	—	—	—	—	—
Production and manufacturing expenses	26,970	26,438	—	—	—	—	—	—
Selling, distribution and administrative expenses	11,360	10,493	—	—	—	—	—	—
Cost of Goods Sold	332,729	289,914	145,431	155,189	171,213	182,512	187,011	196,662
% on sales	84%	82%	82%	82%	82%	82%	82%	82%
Research and development	986	962	962	962	962	962	962	962
Exploration	1,340	2,354	2,354	2,354	2,354	2,354	2,354	2,354
EBITDA	61,501	58,876	27,882	29,975	33,412	35,836	36,801	38,872
Depreciation, depletion and amortisation	22,135	28,701	30,849	29,650	28,499	27,392	26,328	25,305
Interest expense	3,745	4,690	3,538	3,723	3,853	3,851	3,757	3,569
Total expenditure	360,935	326,621	183,134	191,878	206,881	217,070	220,411	228,852
Income before taxation	35,621	25,485	(6,505)	(3,398)	1,061	4,593	6,717	9,997
Taxation charge/(credit)	11,715	9,053	(2,311)	(1,207)	377	1,632	2,386	3,551
Taxation (%)	33%	36%	36%	36%	36%	36%	36%	36%
Income for the period	23,906	16,432	(4,194)	(2,191)	684	2,962	4,331	6,446
Income/(loss) attributable to non-controlling interest	554	590	(151)	(79)	25	106	155	231
Non-Controlling (%)	2%	4%	4%	4%	4%	4%	4%	4%
Income attributable to Royal Dutch Shell plc shareholders	23,352	15,842	(4,043)	(2,113)	659	2,855	4,175	6,215

Source: Company Data and Team Estimates. All figures in USD million

Table 91: Balance Sheet (Shell)

Balance Sheet	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Assets								
Non-current assets								
Intangible assets	23,586	23,486	22,595	21,739	20,914	20,121	19,358	18,624
Property, plant and equipment	223,175	238,349	229,067	220,147	211,575	203,336	195,418	187,808
Joint ventures and associates	25,329	22,808	22,808	22,808	22,808	22,808	22,808	22,808
Investments in securities	3,074	2,989	2,989	2,989	2,989	2,989	2,989	2,989
Deferred tax	12,097	10,524	10,524	10,524	10,524	10,524	10,524	10,524
Retirement benefits	6,051	4,717	4,717	4,717	4,717	4,717	4,717	4,717
Trade and other payables [A]	7,826	8,085	8,085	8,085	8,085	8,085	8,085	8,085
Derivative financial instruments [A]	574	689	689	689	689	689	689	689
	301,712	311,647	301,475	291,698	282,301	273,269	264,588	256,244
Current assets								
Inventories	21,117	24,071	12,075	12,885	14,216	15,154	15,527	16,328
Trade and other payables [A]	42,431	43,414	21,778	23,239	25,639	27,331	28,004	29,450
Derivative financial instruments [A]	7,193	7,149	7,149	7,149	7,149	7,149	7,149	7,149
Cash and cash equivalents	26,741	18,055	16,106	11,931	9,000	9,038	11,163	15,400
	97,482	92,689	57,108	55,204	56,004	58,671	61,844	68,328
Total assets	399,194	404,336	358,583	346,902	338,305	331,941	326,432	324,572
Liabilities								
Non-current liabilities								
Debt	66,690	81,360	81,360	81,360	81,360	81,360	81,360	81,360
Trade and other payables [A]	2,735	2,342	2,342	2,342	2,342	2,342	2,342	2,342
Derivative financial instruments [A]	1,399	1,209	1,209	1,209	1,209	1,209	1,209	1,209
Deferred tax	14,837	14,522	14,522	14,522	14,522	14,522	14,522	14,522
Retirement benefits	11,653	13,017	13,017	13,017	13,017	13,017	13,017	13,017
Decommissioning and other provisions	21,533	21,799	21,799	21,799	21,799	21,799	21,799	21,799
	118,847	134,249	134,249	134,249	134,249	134,249	134,249	134,249
Current liabilities								
Debt	10,134	15,064	15,064	15,064	15,064	15,064	15,064	15,064
Trade and other payables [A]	48,888	49,208	22,420	26,211	28,991	30,823	31,485	33,178
Derivative financial instruments [A]	7,184	5,429	5,429	5,429	5,429	5,429	5,429	5,429
Taxes payable	7,497	6,693	6,693	6,693	6,693	6,693	6,693	6,693
Retirement benefits	451	419	419	419	419	419	419	419
Decommissioning and other provisions	3,659	2,811	2,811	2,811	2,811	2,811	2,811	2,811
	77,813	79,624	52,836	56,627	59,407	61,239	61,901	63,594
Total liabilities	196,660	213,873	187,085	190,876	193,656	195,488	196,150	197,843
Equity								
Share capital	685	657	—	—	—	—	—	—
Shares held in trust	-1,260	-1,063	—	—	—	—	—	—
Other reserves	16,615	14,451	—	—	—	—	—	—
Retained earnings	182,606	172,431	—	—	—	—	—	—
Equity attributable to Royal Dutch Shell plc shareholders	198,646	186,476	167,662	152,268	140,866	132,563	126,238	122,453
Non-controlling interest	3,888	3,987	3,836	3,758	3,782	3,889	4,044	4,276
Total equity	202,534	190,463	171,498	156,026	144,649	136,452	130,282	126,729
Total liabilities and equity	399,194	404,336	358,583	346,902	338,305	331,941	326,432	324,572

Source: Company Data and Team Estimates. All figures in USD million

Table 92: Cash Flow Statement (Shell)

Cash Flow Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
I. Cash Flows from Operating Activities								
Net Income	23,352	15,842	15,178	18,965	24,542	28,904	31,213	34,445
D&A	22,135	28,701	30,849	29,650	28,499	27,392	26,328	25,305
Minorities	554	590	565	706	914	1,076	1,162	1,283
Cash Flow from Operating activities	46,041	45,133	46,592	49,321	53,955	57,372	58,703	61,033
II. Cash Flow Used in Investing Activities								
CAPEX	(23,011)	(22,971)	(25,214)	(24,235)	(23,294)	(22,390)	(21,520)	(20,685)
Inv. Working Capital	4,016	(5,301)	(436)	(981)	(1,915)	(1,595)	(772)	(1,109)
Op. Current Assets	63,548	67,485	67,211	71,779	79,299	84,543	86,642	91,148
Op. Current Liabilities	60,495	59,131	58,420	62,008	67,613	71,262	72,588	75,985
Op. Working Capital	3,053	8,354	8,790	9,771	11,686	13,281	14,054	15,163
Write Offs	4,815	3,817	4,537	4,361	4,192	4,030	3,874	3,723
Cash Flow from Investing activities	(14,180)	(24,455)	(21,113)	(20,854)	(21,017)	(19,955)	(18,419)	(18,070)
III. Cash Flows from/ (Used in) Financing Activities								
New debt	—	—	—	—	—	—	—	—
Repayment of debt	—	—	—	—	—	—	—	—
Dividends	(16,259)	(15,735)	(14,771)	(14,803)	(15,133)	(15,878)	(16,910)	(18,043)
Capital Increase	—	—	—	—	—	—	—	—
Capital Decrease	—	—	—	—	—	—	—	—
Cash Flow from Financing activities	(16,259)	(15,735)	(14,771)	(14,803)	(15,133)	(15,878)	(16,910)	(18,043)
Net Increase/(Decrease) In Cash And Cash Equivalents	15,602	4,943	10,708	13,664	17,805	21,539	23,374	24,920

Source: Company data and Team Estimates. All figures in USD million

9.6 TOTAL

Table 93: P&L Statement (Total)

P&L Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
Non group sales	209,363	200,316	136,310	169,632	198,928	213,999	232,667	247,422
Exercise taxes	(25,257)	(24,067)	(14,915)	(19,267)	(24,588)	(26,318)	(27,865)	(28,593)
Revenues from sales	184,106	176,249	121,396	150,365	174,340	187,681	204,802	218,829
Growth rate (%)		-4%	-31%	24%	16%	8%	9%	7%
Operating expenses	(154,097)	(144,261)	(99,891)	(124,545)	(145,189)	(156,279)	(170,071)	(180,683)
Purchases, net of inventory variation	(125,816)	(116,221)	(71,436)	(96,090)	(116,734)	(127,824)	(141,616)	(152,228)
Other operating expenses	(27,484)	(27,255)	(27,255)	(27,255)	(27,255)	(27,255)	(27,255)	(27,255)
Exploration costs	(797)	(785)	(1,200)	(1,200)	(1,200)	(1,200)	(1,200)	(1,200)
EBITDA	30,009	31,988	21,505	25,819	29,151	31,403	34,731	38,146
DD&A tangible assets and mineral interests	(13,992)	(15,731)	(17,662)	(16,730)	(16,909)	(16,993)	(17,684)	(17,891)
Operating income (EBIT)	16,017	16,257	3,843	9,090	12,242	14,409	17,047	20,255
Net income (loss) from equity affiliates and other items	4,170	3,405	1,913	2,459	2,891	3,101	3,478	3,691
Other income	1,838	1,163	1,163	1,163	1,163	1,163	1,163	1,163
Other expense	(1,273)	(1,192)	(1,192)	(1,192)	(1,192)	(1,192)	(1,192)	(1,192)
Other financial income	1,120	792	792	792	792	792	792	792
Other financial expense	(685)	(764)	(764)	(764)	(764)	(764)	(764)	(764)
Equity in income (loss) of affiliates	3,170	3,406	1,914	2,460	2,892	3,102	3,479	3,692
Cost of net debt	(2,121)	(2,352)	(2,796)	(2,660)	(2,708)	(2,699)	(2,445)	(2,036)
Income/(loss) before taxes	18,066	17,310	2,959	8,888	12,424	14,811	18,080	21,910
Income taxes	(6,516)	(5,872)	(954)	(3,029)	(4,151)	(4,924)	(6,071)	(7,321)
Consolidated net income	11,550	11,438	2,005	5,859	8,273	9,887	12,009	14,589
Non controlling interest	104	171	30	88	124	148	179	218
Net income-group share	11,446	11,267	1,975	5,772	8,149	9,739	11,829	14,371

Source: Company Data and Team Estimates. All figures in USD million

Table 94: Balance Sheet (Total)

Balance Sheet	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
ASSETS								
Non-current assets								
Intangible assets, net	28,922	33,178	32,852	32,998	33,547	34,430	35,308	36,206
Property, plant and equipment, net	113,324	116,408	113,234	113,195	115,154	117,642	119,436	120,898
Equity affiliates: investments and loans	23,444	27,122	27,122	27,122	27,122	27,122	27,122	27,122
Other investments	1,421	1,778	1,778	1,778	1,778	1,778	1,778	1,778
Non-current financial assets	680	912	912	912	912	912	912	912
Deferred income taxes	6,663	6,216	6,216	6,216	6,216	6,216	6,216	6,216
Other non-current assets	2,509	2,415	2,415	2,415	2,415	2,415	2,415	2,415
Total non-current assets	176,963	188,029	184,529	184,637	187,145	190,514	193,187	195,548
Current assets								
Inventories, net	14,880	17,132	10,721	14,698	17,157	18,297	20,975	22,569
Accounts receivable, net	17,270	18,488	11,108	14,408	17,030	18,268	19,995	20,948
Other current assets	14,724	17,013	11,348	14,595	16,792	17,541	19,037	20,718
Current financial instruments	3,654	3,992	3,992	3,992	3,992	3,992	3,992	3,992
Cash and cash equivalents	27,907	27,352	21,360	23,198	22,543	22,666	26,100	31,622
Assets classified as held for sale	1,364	1,288	1,288	1,288	1,288	1,288	1,288	1,288
Total current assets	79,799	85,265	59,818	72,179	78,803	82,051	91,387	101,138
Total assets	256,762	273,294	244,346	256,815	265,948	272,566	284,574	296,685
LIABILITIES AND SHAREHOLDERS' EQUITY								
Shareholders' equity								
Common shares	8,227	8,123	—	—	—	—	—	—
Paid-in surplus and retained earnings	120,569	121,170	—	—	—	—	—	—
Currency translation adjustment	(11,313)	(11,503)	—	—	—	—	—	—
Treasury shares	(1,843)	(1,012)	—	—	—	—	—	—
Total shareholders' equity – Group share	115,640	116,778	112,112	111,242	112,749	115,845	121,031	128,758
Non-controlling interests	2,474	2,527	2,557	2,645	2,768	2,916	3,096	3,314
Total shareholders' equity	118,114	119,305	114,669	113,887	115,517	118,761	124,126	132,071
Non-current liabilities								
Deferred income taxes	11,490	11,858	11,858	11,858	11,858	11,858	11,858	11,858
Employee benefits	3,363	3,501	3,501	3,501	3,501	3,501	3,501	3,501
Provisions and other non-current liabilities	21,432	20,613	20,613	20,613	20,613	20,613	20,613	20,613
Non-current financial debt	40,129	47,773	47,773	47,773	47,773	47,773	47,773	47,773
Total non-current liabilities	76,414	83,745	83,745	83,745	83,745	83,745	83,745	83,745
Current liabilities								
Accounts payable	26,134	28,394	15,684	24,536	28,595	30,343	34,667	36,973
Other creditors and accrued liabilities	22,246	25,749	14,147	18,547	21,990	23,616	25,935	27,794
Current borrowings	13,306	14,819	14,819	14,819	14,819	14,819	14,819	14,819
Other current financial liabilities	478	487	487	487	487	487	487	487
Liabilities directly associated with the assets classified as held for sale	70	795	795	795	795	795	795	795
Total current liabilities	62,234	70,244	45,932	59,183	66,685	70,059	76,702	80,869
Total liabilities	256,762	273,294	244,346	256,815	265,948	272,566	284,574	296,685

Source: Company Data and Team Estimates. All figures in USD million

Table 95: Cash Flow Statement (Total)

Cash Flow Statement	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
I. Cash Flows from Operating Activities								
Net Income			1,975	5,771	8,148	9,737	11,827	14,368
D&A			17,662	16,730	16,909	16,993	17,684	17,891
Minorities			30	88	124	148	179	218
Inv. Working Capital	3,218	805	(4,856)	2,728	223	248	741	(62)
Op. Current Assets	48,238	53,921	34,465	44,989	52,268	55,394	61,295	65,523
Op. Current Liabilities	48,450	54,938	30,626	43,877	51,379	54,753	61,396	65,563
Op. Working Capital	(212)	(1,017)	3,839	1,112	888	640	(101)	(39)
Cash Flow from Operating activities	24,703	24,685	14,811	25,316	25,403	27,126	30,431	32,416
II. Cash Flow Used in Investing Activities								
CAPEX			(14,162)	(16,838)	(19,417)	(20,363)	(20,356)	(20,252)
Write Offs			—	—	—	—	—	—
Cash Flow from Investing activities	(14,946)	(17,177)	(14,162)	(16,838)	(19,417)	(20,363)	(20,356)	(20,252)
III. Cash Flows from/ (Used in) Financing Activities								
New Debt			—	—	—	—	—	—
Payment of Debt			—	—	—	—	—	—
Dividends			(6,641)	(6,641)	(6,641)	(6,641)	(6,641)	(6,641)
Capital Increase			—	—	—	—	—	—
Capital Decrease			—	—	—	—	—	—
Cash Flow from Financing activities	(13,925)	(7,709)	(6,641)	(6,641)	(6,641)	(6,641)	(6,641)	(6,641)
Net Increase/(Decrease) in Cash And Cash Equivalents	(4,168)	(201)	(5,992)	1,837	(654)	122	3,434	5,522

Source: Company Data and Team Estimates. All figures in USD million

9.7 OIL AND GAS SECTOR

Table 96: Vehicle fleet registration (2018)

2018 Vehicle fleet registration	Diesel	Gasoline	Others	Total	Total (%)
Internal combustion engine	773,650	937,864	-	1,711,514	93.4%
Hybrid Electric Vehicles (HEVs)	1,761	73,930	718	76,409	4.2%
Battery Electric Vehicle (BEV)	16	2	11,477	11,495	0.6%
Plug-in HEV (PHV/PHEV)	31	2,064	3,769	5,864	0.3%
Range-extended EV (REEV)	1	5	408	414	0.0%
Others	-	-	25,860	25,860	1.4%
Total	775,459	1,013,865	42,232	1,831,556	100%

Source: Company data and Team estimates

Table 97: Growth estimates by fuel type

Fuel type	2018	2020	Levels mboe/d 2030	2040	Growth mboe/d 2018 - 2040	Growth % p.a. 2018-2040
Oil	90.1	92.1	98.6	100.7	0.5	10.6
Coal	75.9	76.2	77.3	76.8	0.1	0.9
Gas	65.5	67.4	79.7	90.3	1.5	24.7
Nuclear	14.3	15.1	18.5	21.8	1.9	7.5
Hydro	7.3	7.5	8.9	10.2	1.6	3.0
Biomass	27.5	28.3	31.7	34.5	1.0	7.0
Other	5.3	6.6	14.1	23.2	6.9	17.9
Total	285.8	293.3	328.8	357.5	1.0	71.7

Source: OPEC

Table 98: Share of global energy demand

Fuel type	Share of global energy demand			
	2018	2020	2030	2040
Oil	31.5	31.4	30	28.2
Coal	26.6	26	23.5	21.5
Gas	22.9	23	24.2	25.2
Nuclear	5	5.2	5.6	6.1
Hydro	2.5	2.6	2.7	2.9
Biomass	9.6	9.7	9.7	9.6
Other	1.9	2.3	4.3	6.5
Total	100.0	100.0	100.0	100.0

Source: OPEC

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GLOSSARY

Term	Description
AuM	Assets under Management
bbl / bbl/d	Barrel/ Barrel per day
Bcf	Billion cubic feet
Bcm	Billion cubic meters
boe	Barrel of oil equivalent
Btu/MBtu	British thermal unit/ Btu/million Btu
CAGR	Compound Annual Growth Rate
CapEx	Capital Expenditure
CAPM	Capital Asset Pricing Model
CCC	Consolidated Contractors Group
CCS	Carbon Capture and Storage
CCUS	Carbon Capture Utilization and Storage
CEO	Chief Executive Office
CFFO	Cash Flow From Operations
CNMV	Comisión Nacional del Mercado de Valores
CSR	Corporate Social Responsibility
D&A	Depreciation and Amortization
DB	Deutsche Bank
DCF	Discounted Cash Flow
E&P	Exploration and Production
EBIT	Earning Before Interest and Taxes
EBITDA	Earning Before Interest Taxes Depreciation and Amortization
ECB	European Central Bank
EIA	Energy Information Administration
EITI	Extractive Industries Transparency Initiative
ESG	Environmental Social Governance
EU	European Union
EYG	Earning Yield Gap
EYR	Earning Yield Ratio
g	Growth Rate
G&P	Gas and Power
GDP	Gross Domestic Product
GSIA	Global Sustainable Investment Alliance
GW	GigaWatt
Gwh	Gigawatts per hour
HVO	Hydrocarbon Vegetable Oil
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization

IEA	International Energy Agency
iGRP	Integrated Gas, Renewables and Power
IMO	International Maritime Organization
IOCs	International Oil Companies
IRR	Internal Rate of Return
kbbbl	Thousand barrels of oil
kbbbl/d	Thousand barrels of oil per day
kboe	Thousand barrels of oil equivalent
kboe/d	Thousand barrels of oil equivalent per day
r_d	Cost of Debt
r_e	Cost of Equity
km ²	Square kilometer
KPI	Key Performance Indicator
ksbpd	Barrels Per Stream Day
kscf/d	Thousand standard cubic feet per day
Kt/Mt	Thousand tons/million tons
LGTBIQ+	Lesbian Gay Transexual Interseccional Queerr +
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
Mbbl	Million barrels
Mboe	Million barrels of oil equivalent
Mm ³ /d	Million cubic meters per day
Mscf/d	Million standard cubic feet per day
MW	Megawatt (million watts)
MWh	Megawatts per hour
NAP	National Agency of Petroleum, Natural Gas and Biofuels (Brazil)
NCI	Nelson Complexity Index
NOCs	Nation Oil Companies
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
OpEx	Operative Expenses
PAC	Political Action Committee
PSA	Production Sharing Agreements
PSC	Production Sharing Contract
R/P	Reserves to Production Ratio
R_f	Risk Free
R_m	Market Risk
ROACE	Return On Average Capital Expenditure
RRR	Reserve Replacement Ratio
SEC	Securities and Exchange Commission
SEPAC	Shell Oil Company Employees' Political Awareness Committee

TCF	Trillion cubic feet
TCFD	Task force in Climate-related Financial Disclosures
tep	Ton of oil equivalent
TV	Terminal Value
UK	United Kingdom
UN	United Nations
US	United States
USD / Dollar / \$	US dollar
WACC	Weighted Average Cost of Capital
YoY	Year on Year