

## **PERFORMANCE EVALUATION OF MAJOR INTEGRATED OIL & GAS COMPANIES**

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### **Abstract**

*Being as a prime resource of energy, today oil sector in the grip of numerous negative factors, among which most influential are price, government regulation, supply & demand and geological conditions. With given volatile economic and geopolitical condition prevailed in the world, it is no doubt, gives a premise to wonder of whether global petroleum companies are able to sustain their performance efficiencies in the energy market. The central aim of the study is performance evaluation of major oil companies. The primary objective was achieved through insightful analysis of four major oil companies (BP, Exxon Mobil, Chevron, and Royal Dutch Shell). Research included Financial, Energy ratios analysis and Data Envelopment Analysis (DEA), in which non-parametric method evaluated the performance efficiencies of related companies. Findings of research have revealed that out of four analyzed companies, three of them has shown satisfactory level of performance. However, among all given corporations, results verified that Exxon Mobil found to be the most outstanding one. Because, notwithstanding to Global tough economic condition, followed by low crude oil price, it has shown the excellence from both its financial and operational aspects.*

*Keywords: Oil & Gas Industry, Competitive environment, Financial & Energy ratio analysis, Data Envelopment Analysis (DEA), Performance evaluation, International Oil Companies*

## INTRODUCTION

The need for resources in the history of humankind has always been the most important factor for political, technological, economic, social evolutions. In modern times, necessity for energy sources became more substantial than the industries in the past like production of ships, wood, constructions and even gold production. Among these energy sources, there is no vital source such as oil and yet, as James Buchan, famous British novelist quoted; today oil is almost as vital to human existence as water.

It is not known when exactly petroleum was first used but today, everyone probably knows that oil industry has been around for millennia now. Because, history often evidenced that oil industry has been used by many nations for different purposes; weapon, medicating, painting etc. However, in 1800's the importance of oil to humankind took great leap, where it replaced coal as the primary fuel for the machines of industrial revolution. In today's industrial civilization, petroleum industry represents one of the crucial components of the energy industry just like as the circulatory system of the human body to the modern economy and means power who prevails it. The oil axiom has never been truer "as flows the oil, so flows the prosperity". Today everything from countries' economy and currency exchange rate to countries overall population's security and countries stability seems to hinge precariously on what has come to be known as "Black liquid gold".

Petroleum industry is one of the largest and multifaceted sector that divided into certain segments (upstream, midstream, downstream) and includes the global processes of exploration, extraction, refining, transporting and marketing. Compared with previous century, presently the industry changed dramatically because of significant transformations in the last 150 years. These major changes were vast expansion of national companies and their dominance over the global oil market that once had been prevailed by international oil producers. Among the reasons for such shift in power, the most influential turned out to be the unrest in Middle East in 70s, which triggered huge price shocks in main commodity. During that time it became clear how world is dependent on major industrial product as well as its economic well-being. In addition, the industry has shown to be very sensitive to global economic and social instability to which today world is highly vulnerable as escalation of financial crisis.

In the 2008, global economic crisis has been the most serious one after the Great Depression. Unprecedented scale of economic downturn has led to significant reductions in energy investment worldwide. The drop in fuel price, due to weakened demand had resulted in less attractiveness of energy investments. However, the very crisis effect became obvious especially for oil and gas sector followed by price collapses that led companies to starve for cash flows. In addition, with emerging global finance crisis it seems that today most countries

are in pressure to nationalize their resources in attempt to secure and support public finance thus leaving public to think of negative consequences on the international oil and gas market.

In contrast to financial crisis, the latest development in the energy sector has shown that oil and gas industry thus far has been involved in numerous issues that had the great long-term impact on both countries and on the world at large. Among the examples are recent conflicts raised in Middle East and Ukraine, which lead public to be worried about possible supply disruptions in oil and gas outputs. Considering today's world condition, it appears that global geopolitical environment is becoming more violent. Moreover, assuming the uncertainties of future oil and gas availability, today such questions raises even more tensions among the public. Notwithstanding of significant efforts by countries to find renewable energy source, it seems to be certain is that oil and gas would remain as a major source in the following decades. Taking into account of today's geological condition, where for companies there is only 10% percent of success in finding oil, it gives additional premise to wonder on the future sustainability of oil and gas industry.

### **Purpose of the Study**

The main purpose of this paper is to provide comprehensive information on performances of integrated oil and gas companies through analyzing their financial and operational disclosures. One of the underlying reasons to write this paper is to gain insights on performances of particular four major oil giants, successors of famously known seven oil companies, which once had dominated global oil and gas market.

### **Research Questions**

RQ 1: What is the performance efficiency between major oil and companies?

RQ 2: How recent global crisis affected the global integrated oil and gas companies?

### **LITERATURE REVIEW**

Since the beginning of global financial recession from the second half of 2008, worldwide oil companies has been facing tougher financial environment, which had shown plunging energy investment, weakening final demand and falling cash flows. At the same time, along with crisis the oil and gas industry had undergone through series of events associated with many environmental, social and political issues such as oil spills in gulf, civil unrest in some regions as Middle East and Russia etc. To this day, in consequences of such instability in the world, overall the oil and gas industry has been increasingly popular subject to study.

After a search for previous literature concerning the industry, it seems that the most prevalent topic was “Crude oil price”. The main subjects for discussions are Effect of the Crude oil prices on the macroeconomics, the impact of the stock return on market return. The reason for studying oil price is indeed justified because dependency on oil has left global to be vulnerable to macroeconomic economic side effects. The dependency became clear with the Major oil Shock; the oil crisis in 70s, which period had serious influence on the worldwide economy and especially on the economy of the USA, Western Europe and Asian Pacific countries. Therefore, an interest into oil and gas industry as well as the commodities effect on the economy and finance started just after the crisis with Chen (1986) being one of the first to look into the effect of crude oil price on stock prices of oil producers. Hamilton (1983) looked into the effect of crisis on oil prices and discovered that oil price surged after almost every crisis since the Second World War.

Today the impact of crude oil price on the economy known by numerous studies each is developing a special relationship between prices, economic and financial factor. It found that increase of 10% per barrel in price of crude oil affect the world GDP negatively by at least 0.5 % (IEA.2004). Similar studies has also been implemented by Jean (2009) and Zoheir (2014) in their analytical reviews and in analysis of the behavioral responses of macroeconomic agents to price volatility where it reveals that volatility has several damaging and destabilizing macroeconomic impacts that build fundamental barrier to future economic growth if left unchecked.

On the other hand, concerned to oil producers, it was noticed that limited studies are devoted to integrated oil companies’ performance where Lameira (2012) and Olivier (2014) conducted studies by applying standard financial ratios and multiple regression analysis in relation to price volatility showing negative effect of financial crisis on international oil companies in Eurozone. It also noted that previous studies relied mostly on common assessing approaches. The examples are studies by Pirog (2012) and Irakli (2008). In evaluation of companies performance these studies’ the quantitative approach was emphasized mostly by common financial metrics (Weighted Average Cost of Capital, Discounted Cash Flow, financial ratios), which according to Einav E (2014) the performance of Integrated oil and gas companies should not be relied solely by statistical, economic or by financial tools. The same prospects shares also Simkins B.J (2013) where he believes that “any other analysis in the oil and gas industry is grossly inadequate unless the energy ratio analysis is implemented”. The reason is that the crucial component in Exploration and Production companies’ is their reserves and, therefore, measuring their reserves is of great importance in assessing the corporate performance. Therefore, research would gain more sense if both financial and Energy ratio

analysis applied and backed up by DEA method, nonparametric technique, to measure relative efficiency of all E&P companies by encompassing their financial and operational aspects. The reason to include DEA is comes from the fact that this method also found to be critical in analyzing different industries across different counties to uncover the core efficiencies of entities. In addition reviewing the previous literature, the application of this method to energy economics is however, cited by few authors (Ferreira R.P, Luiz E.F, 2010; Bastos R.C, 2014) where research was not much gave an emphasis to recent economic downturn and its impact on major oil and gas producers.

Based on overall reviews, following study found interesting to investigate international oil and gas companies' financial and operational performance efficiencies in crisis period since previous studies are much organized on the effect of financial crisis around companies on specific area with common valuation methods.

### **Oil and Gas Industry**

Petroleum industry is one of largest and most complex industry around the globe and it reflects a peculiar model of business incorporating itself politics, technology, experienced personnel and environmental protection. This model imposes major challenges on oil-producing companies' profitability and sustainability because they must assure that newly discovered resources used in economical and sustainable manner where technologies are and cost efficiencies are key aspects (Dejan T., 2009). The most crucial thing to mention is that oil and gas plays important role in maintenance of industrial civilization therefore it is a big concern for all nations. Since the energy is the central factor of continuance of daily life, it is not surprising that energy security has become a central focus of nations' foreign policies around the globe. The supply and demand of oil and gas is a constant concern of the administrations of both oil importing and exporting nations.

Oil price and natural gas today are the most watched commodity in the global economy. Since the oil and gas are major industry driven commodities, thus far numerous empirical results suggest on direct detrimental effects on economies. Among the perfect examples, studies by International Energy Agency, suggesting on 10 percent increase would negatively affect by 0.5% percent in country's GDP (IEA, 2004).In addition, recent study shows that fluctuations over price represents fundamental barriers to economic growth. Through causing economic uncertainty, price fluctuations has adverse aggregate impact in consumption, investment and industrial production, resulting in an indirect impact on aggregate unemployment and inflation (Zoheir, 2014).For the last six years, the industry has seen numerous tumultuous events including political, financial, technological and environmental issues. As of today, with

the escalating global crisis, the sustainability of the industry is under the question. For that reason, the industry continues to be the subject for numerous studies.

### **Risks Faced By the Oil and Gas Companies**

The oil and gas industry quite complex industry in the world, while analyzing of oil and gas companies, it is critical to know for both investors and analysts the risks industry faces and how they influence on their sustainability and how they ultimately influence their values. They are;

#### ***Political Risk***

Political risk is uncertainties that determined not only by the government, political institutions but also determined by minority groups and separatists movements. Political risk includes expropriation, civil unrest, war, terrorism and not honoring of sovereign financial obligations, resource nationalization etc. According to recent survey among the political risks factors, today the risk of resource nationalization has been heightened since as of today's difficult economic condition, the most of countries are pressured to nationalize their resources in attempt to secure and support public finance. Among those counties of high-risk nationalization of resources are Venezuela, Libya, Iraq, Kazakhstan, Uzbekistan, Russia and includes even countries which historically been most attractive for FDI (Ingham, 2013). In addition to issues of resource nationalization, with increasing trend in instability in global economy, recent news and articles suggest that political risks in most of oil and gas countries are intensifying. According to survey by "Maplecroft", strategic forecasting company, in its annual edition of "Political Risk Atlas" has shown that in 2015 the escalating level of political violence increased by 25% percent. Today looking at global news, the political risk with unstable government is obvious in some countries, especially for the last few years. One of the examples is security concern in the Middle East, especially, concerning Iraq and Syria.

#### ***Geological Risk***

It is true that there were the times when it was easy to get oil and companies had not been worrying about their production. However, today there is a time of great challenges for oil and gas-producing companies since nowadays many of easy-to-get oil and gas reserves has been depleted and consequently many exploration activities has moved to the most difficult exploration regions with less friendly environment. Geological risk not only assumes the difficult exploration in harsh environment but also capture an assumption on assessable reserves that might turned up to be less efficient with small deposit in it. As the production moves on to more

and more “Difficult” resource deposits, the pace of technological progress is of great importance for overall oil and gas industry sustainability since it means to maintain the production level.

### ***Price Risk***

Actually, the price of oil and gas is considered primary factor in decision on whether reserve is economically feasible. Because due to the price volatility in the market some projects cannot go further since it entails e great risks for a business. Moreover, being as prime commodity in global economy fluctuation in the price of oil have significant effect not only on industry but also on economic growth and well fare around the world.

Admittedly, the level of oil dependency of industrial economies became clear in 1970 and 1980s, when the series of political events in the Middle East disrupted the security of supply and had detrimental effect on the global oil price. It was a period where many countries in the world- United States, Canada, Western Europe, Australia, Japan and New Zealand-, which were heavily relied upon The Middle East resources, had suddenly experienced supply shortage due to Iranian Revolution (Rentscheller, 2014). Since then, due to such exogenous events oil price shocks have been in size and frequency. As to the situation today, sharp decline in price is obvious compared to past four decades. Since the price respond is quite rapid to surprises in the news, even before actual change occurs, recent trends in economy have affected oil prices dramatically. Among these trends, however, the most destructive factor was dollar appreciation in the second half of 2014 when U.S dollar appreciated 10 percent against major currencies. This situation had an adverse impact on oil prices since the demand for oil declined as in result of erosion of power in many countries. In addition, empirical estimations, conducted by World Bank, suggest that 10% percent of appreciation can be associated with 10% percent decline in oil price (World Bank, 2015).

Thus through analyzing current condition prevailed in global oil and gas industry, it becomes clear that while oil demands are slow, mainly driven by current economic condition and to some extend of climate policies, the future of oil supply is still uncertain-not least taking into account political unrest uncertainty of discovery new reserves. Consequently, because of such uncertainties the price of oil will continue to be volatile and represents a major risk for the industry (Rentscheller, 2014).

### ***Supply & Demand Risk***

Among the risks discussed before, supply and demand risks said to be very risk for all oil and gas industry. Since the global economy is highly dependent on the energy industry such as oil and gas, the supply and demand issues often rise concerns over “peak production” especially

for coming decades. The foremost reason is that making an accurate estimation about global oil reserves almost impossible and more contributive factor might be secrecy policy of many OPEC countries (Bilgiani, 2013).

However, despite of secrecy policy and constrained view on resources, according to International Energy Agencies' report it was estimated that the amount of global oil reserves were 1.638 billion barrels. And, notwithstanding to hard production period in the energy industry, relying on the survey, conducted by US Energy Information Administration, the society may in some sense can be assured of future oil production since report suggests that the hydrocarbons expected to be last for at least 25 years (EIA, 2014). However, even though of this fact, it does not release the tension in the industry because today companies are more concerned with other far more crucial aspects than "peak production" itself. The majority of them are geopolitical aspects, production cost and new technologies, which may contribute to supply and demand disruptions.

## **RESEARCH METHODOLOGY**

This study found it necessary to conduct quantitative research method along with comprehensive theoretical background on the global oil and gas industry. Theoretical part takes most of this study. Since the industry is very complex to analyze, acquiring key industry concepts is essential and used to be as background for the following the final- quantitative part of the research (Financial and Energy Ratio analysis).

In the quantitative analysis, the emphasis was made on computing Financial and Operational ratios concluding with DEA. As for study, there are four international oil companies have been chosen. They are Exxon Mobil, Chevron, British Petroleum and Royal Dutch Shell. For conducting study, the information is borrowed from companies' annual reports and from additional accounting disclosures of 10-k and 20-f report that are required by the FASB (Financial Accounting Standard Board), SEC (Securities and Exchange Commission) and IASB (International Accounting Standards). All reports are gathered from companies' official web sites and reflect data relative to six-year period, from 2009 to 2014 year.

## **FINANCIAL AND ENERGY RATIO ANALYSIS**

The following parts of the study are organized around the empirical analysis of oil and gas super majors. As the foremost reason of the study is to assess the companies' performances over crisis period, the quantitative analysis will cover the computation of financial and operational data relative to the last six-year period and will divide it into three parts- Financial Ratio, Energy Ratio and Data Envelopment Analysis.



## Liquidity Ratios

According to liquidity analysis, all listed companies has shown relatively good results toward their liquidity positions. All companies has been showing indexes above “1”, which indicate the ability of covering short-term liabilities when they fall due. However, for capital-intensive industry indexes of liquidity generally tend to vary significantly from one financial year to another. If rely upon the industry sector benchmark, for given six-year period the best result can be observed form Chevron Corporation with high average current ratio of 1.78 against the industry sector benchmark of 1.17. The lowest current ratio for a company of 1.63 is seen in 2009, which is coincides with first wave of global financial crisis. However, the company has been able to sustain the adequate level of liquidity and, therefore, is likely to enjoy lower cost of capital due to lower liquidity risk. Similarly, the same indexes also can be said about its quick and cash ratios with deterioration for the 2009 same year.

The same prospects can be said about British Petroleum, it also has been able to improve its liquidity position relatively to its peers of like Royal Dutch Shell and Exxon Mobil but slightly below of Chevron Corporation with the average of 1.26 in current ratio. Hence, it can also assign to its level as a good rate of liquidity.

As for Exxon Mobil Corporation’s condition, for the six financial year period company has been showing a negative trend for quick and cash ratio averages of 0.63 and 0.13 which are below the sector levels of 0.74 and 0.22. However, its current liquidity position can be said as good because it is above the sector’s benchmark and moreover better than Shell’s position and slightly above of British petroleum’s value.

When it comes to Shell’s liquidity, for the six-year period company’s liquidity averages are fairly below the sector norms and, thus, showing negative trend over liquidity position concerning its all above competitors like Chevron, British Petroleum and even from Exxon Mobil Corporation.

Table 1: Liquidity Ratios -> Current Ratio: Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	1.13	1.16	1.15	1.27	1.15	1.15	1.17
<b>BP (PLC)</b>	1.14	1.15	1.16	1.43	1.33	1.37	1.26
<b>Chevron (CVX)</b>	1.63	1.92	1.85	1.90	1.80	1.58	1.78
<b>Exxon Mobil (XOM)</b>	1.39	1.28	1.27	1.34	1.12	0.98	1.23
<b>Shell (RDS)</b>	1.14	1.12	1.17	1.18	1.11	1.16	1.15

Table 2: Liquidity Ratios -&gt; Quick Ratio: Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	0.67	0.73	0.75	0.79	0.75	0.77	0.74
<b>BP (PLC)</b>	0.64	0.68	0.69	0.74	0.87	0.97	0.77
<b>Chevron (CVX)</b>	1.01	1.30	1.25	1.25	1.16	0.94	1.15
<b>Exxon Mobil (XOM)</b>	0.74	0.65	0.67	0.70	0.53	0.51	0.63
<b>Shell (RDS)</b>	0.56	0.60	0.69	0.74	0.64	0.72	0.66

Table 3: Liquidity Ratios -&gt; Cash Ratio: Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	0.15	0.23	0.20	0.26	0.21	0.29	0.22
<b>BP (PLC)</b>	0.14	0.24	0.17	0.26	0.32	0.47	0.27
<b>Chevron (CVX)</b>	0.34	0.59	0.60	0.64	0.50	0.41	0.51
<b>Exxon Mobil (XOM)</b>	0.21	0.13	0.17	0.15	0.07	0.07	0.13
<b>Shell (RDS)</b>	0.11	0.13	0.11	0.19	0.10	0.25	0.15

### Leverage Ratios

As analyzing the debt management ratios, the most outstanding result has shown the Exxon Mobile Corporation. The company has been able to achieve the lowest ratio series; 0.9, 0.10, 0.11, 0.07, 0.13 and 0.17 of debt-to-equity ratio for the years 2009, 2010, 2011, 2012, 2013 and 2014 respectively. Although for the 2014 financial year slight exposure of 0.17 debt is seen, it has been able to sustain the excellent balance of debt relative to equity. Its overall debt-to-equity average is 0.11, which is double less than sector's average of 0.23. Similarly, as to measure of debt financing to overall company's capital structure, Exxon's condition can be said healthy as well. Table shows that for the six-year period the average of debt-to-capital ratio is 0.09 which is above all peers; Chevron = 0.11, Shell = 0.20 and BP = 0.29.

The second best position can be assigned to Chevron Corporation. Table suggest that throughout four-year period, company has also been demonstrating the best results; 0.11, 0.11, 0.08, 0.09 before 2013 and 2014 year where its debt-to-equities have reached 0.14 and 0.18. This sudden expansion of debt percentage period can be very associated with capital spending of \$39.2 Billion, which exceeded total operating cash flow of \$35 Billion, indicating of borrowing fund in order to pay dividends and buy off shares back (Chevron, Annual Report, 2013).

In comparison with Exxon and Chevron, however, Royall Dutch Shell Corporation has shown relatively negative trend development of leverage. Tables suggest that the leverage of the

company has been fluctuating and has shown rather expanding signs; with average debt-to-equity ratio of 0.25 and debt-to-capital ratio of 0.20. From analysis of leverage ratio of Shell, it can be inferred that financial crisis might be the main factor of its performance. However, the very factor of increasing level of leverage might be explained as net capital investment of over \$30 Billion through issuing more long term debts. As company's core activities require heavy investments in PP&E, its capital investments also can be observed even by looking its annual statements where its investments in PP&E constantly rising with 10.6% percent. (Srivastava H, 2012)

Finally, when it comes to valuation of BP Corporation table reported not so promising results of leverage. According to six-year period, it can be seen that corporation has been struggling with its debt financing. Its debt-to-capital average shows 0.29 percent relative to the sector's average of 0.19 percent. The average ratio tells us that creditors are providing on average 29 cents for every \$1 dollar being provided by shareholders. The highest debt ratio of 0.48 can be observed for 2010 year, outnumbering its peers and sector norm. The negative performance can only be explained by recent disaster, associated with corporation that took place in 2010 dramatically changing its financial condition.

The 20 April 2010, explosion on BP's offshore drilling rig in Gulf of Mexico, which today estimated as second biggest disaster after Gulf War in 1991, resulted in death of eleven people and caused accidental marine oil spill in the history of petroleum industry. Consequently, U.S government has named BP responsible for damages (BP Annual Report, 2010). From the balance sheet, according to that period, it also can be seen that the level of liability rose sharply from average 137 Billion to 176 billion. It is obvious what caused such increase in liability- oil spill because company had to deal with all cost associated with disaster.

Table 4: Leverage Ratios: Competitive Benchmark Analysis

Ratios	Debt-To-Equity							Debt-To-Capital						
	2009	2010	2011	2012	2013	2014	Average	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	0.24	0.25	0.21	0.20	0.23	0.27	0.23	0.19	0.20	0.17	0.17	0.19	0.21	0.19
<b>BP (PLC)</b>	0.34	0.48	0.40	0.41	0.37	0.47	0.41	0.25	0.32	0.28	0.29	0.27	0.32	0.29
<b>Chevron (CVX)</b>	0.11	0.11	0.08	0.09	0.14	0.18	0.12	0.10	0.10	0.08	0.08	0.12	0.15	0.11
<b>Exxon Mobil (XOM)</b>	0.09	0.10	0.11	0.07	0.13	0.17	0.11	0.08	0.09	0.10	0.07	0.12	0.14	0.10
<b>Shell (RDS)</b>	0.26	0.30	0.22	0.20	0.25	0.26	0.25	0.20	0.23	0.18	0.17	0.20	0.21	0.20

### Asset Management Ratios (Short Term)

The most healthy turnover asset management is observed from- Exxon Mobil Corporation. It demonstrates that over six-year period, the company has been able to sustain an adequate level of inventory, well velocity of collecting and receiving payments. Even though its inventory level falls behind of Chevron, all three-turnover ratio averages considered a positive. Inventory turnover ratio average suggest that corporation's selling and replenishing its inventory is about 3.17 times faster than that of sector's, indicating it turns its inventory roughly about every 20 days in a year. As concerning to its receivables and payables turnover ratios, corporation can be said as in good position as well, except for 2009 and 2010.

However, despite the good performance from overall analysis, there is noted negative trend over inventory management for the last two years. According to recent report for 2013 year, it was stated that despite of relatively good performance over 5 year, Exxon Mobile's worldwide production for both crude oil and gas in the quarter was lower year-over-year. That is, global liquid production in the first quarter of 2013 plunged from 2.192 million BOE a day to 2.148 million BOE. Thus, it may be an answer to the question of why its inventory turnover has decreased in 2013 (Fortune, 2014).

Concerning to BP Corporation, the table demonstrates quite an interesting results for given six-year period. Even though, the inventory ratio average is well below the sector average of 14.45 it can be inferred that a company has been able to raise its inventory turnover by 8.56 times more from 2009 to 2014. As to account receivables ratio, BP has been showing relatively good results in processing receivables. The average of 13.64 against sector level shows that company has been able to retain its competitive position and was able to execute efficiently its credit policies. Similar to its account receivable ratio, almost the same trend can be seen in payables turnover. The average of 10.74 suggest that from overall table BP has the highest ratio in contrast to its peers; Chevron 7.29, Exxon 8.84 and Shell 9.18. From comparison, it can be concluded that in average assumption BP pays off 15 earlier than Chevron (50 days), 7 days earlier than Exxon (41 days) and 2 days earlier than Shell (39 days), meaning more creditworthiness over competitors.

Chevron, company has been managing its inventories very successful, with average of 25.12, than its peer competitor's i.e. Exxon Mobil, Shell and BP whose averages are 18.17, 12.70 and 11.80 respectively. It can also be noted that inventory turnover has been increasing before 2011 and then started to deteriorate up to 2013 year. Because, reportedly, 2013 year has begun challenging for all corporations in which period the energy majors has been suffering from oil and gas lowered prices (Fortune 500, 2013). However, the most challenging situation of such decrease might also serve the fact with prolonged lawsuits associated with environmental

contamination in Ecuador region. Throughout that period 2012-2013, chevron had been defending itself from false accusations for environmental and social harms in The Amazon area, in which case Ecuador court had charged \$ 18 Billion (Annual Report, 2013).

As for Chevron's account receivables and payables turnover ratios, company's values can be said as contrasted to sector averages of 12.68 and 8.94. By examining turnover ratios from average basis, one can say that it collect debts 2.12 times less than industry sector, which means it turns its receivables cash once every 34 days in a year whereas for sector it is about every 28 days in a fiscal period. The similar terms observed in its payables turnover. Chevron has been paying off to its suppliers every 50 days in a year while for the sector it takes approximately 40 days, which means less frequent compared to its peers. Overall, by analyzing its payables and receivables, Chevron has shown, however, slightly negative trend. In spite of slightly difference in payables and receivables terms, the company can be assessed as good because of significant development in inventory management.

Lastly, as to Shell Corporation, its results contrasted to its rivals. Its inventory turnover ratio of 12.70, it can be measured it takes longer for a company to turn its inventories into sales. Similar to inventory turnover rate, its receivable turnover level is also has shown low recovery rate. It concluded that it takes for Shell, along with it competitor Chevron, about 32 days to collect receivables meanwhile for sector, it takes on average 28 days of collecting during the period, which is 1.54 times longer than overall sector's collecting terms. However, as looking to its average payables ratio of 9.18 against sector's average of 8.94, company has shown positive trend in efficiency of paying terms. In spite of having difficulties in turning inventory and lax on collecting debts, Shell's performance, cannot be said as bad. Because it has shown at least, its creditworthiness and timely paying organization, which is a good sign for investors to think that company prevail enough cash at hand.

Table 5: Short-Term Asset Management Ratios ->Inventory Turnover:

Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	11.54	13.94	17.30	15.22	14.24	17.73	15.00
<b>BP (PLC)</b>	8.27	10.71	12.07	11.74	11.15	16.83	11.80
<b>Chevron (CVX)</b>	21.25	24.70	30.95	26.58	24.97	22.28	25.12
<b>Exxon Mobil (XOM)</b>	16.09	18.01	20.42	20.88	17.64	16.00	18.17
<b>Shell (RDS)</b>	8.33	10.48	13.68	12.87	12.72	18.14	12.70

Table 6: Short-Term Asset Management Ratios ->Account Receivable Turnover:  
Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	10.90	11.69	12.63	12.73	12.32	15.79	12.68
<b>BP (PLC)</b>	10.59	12.25	13.45	14.46	13.13	17.97	13.64
<b>Chevron (CVX)</b>	9.46	9.55	11.21	10.98	10.18	11.98	10.56
<b>Exxon Mobil (XOM)</b>	13.59	14.55	15.54	15.97	16.19	21.26	16.18
<b>Shell (RDS)</b>	9.31	9.83	9.73	11.62	11.54	14.83	11.14

Table 7: Short-Term Asset Management Ratios -> Account Payable Turnover:  
Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	7.76	8.58	9.29	8.86	8.83	10.32	8.94
<b>BP (PLC)</b>	8.17	10.21	10.38	11.01	11.27	13.40	10.74
<b>Chevron (CVX)</b>	7.15	7.04	7.75	7.17	6.98	7.63	7.29
<b>Exxon Mobil (XOM)</b>	7.67	7.59	9.03	8.99	9.21	10.55	8.84
<b>Shell (RDS)</b>	7.77	8.92	8.84	9.33	9.10	11.12	9.18

### Asset Management Ratios (Long Term)

Now, this section of analysis is organized around the examination of companies' financial performance from investment activity point of view. That is, analysis will be designed for discussion of net fixed asset and total asset turnover ratios of BP, Shell, Exxon Mobil and Chevron companies in terms of revenue relative to their fixed assets (property, plant and equipment) and total asset (inventories, receivables and fixed asset).

First, by looking at the table, one can notice that BP's net fixed asset turnover has dramatically high value with average of 2.79 over sector average of 2.10. In this case, however, high ratio of fixed asset turnover does not necessarily suggest that corporation has been running its business at peak efficiency. Therefore, it is the object of close analysis.

Generally, having a high value in fixed asset turnover might imply on different reasons such as over investments in fixed assets, outsourcing work or selling off excess fixed assets. However, in case with BP Corporation the reason of such sudden increase in net fixed turnover value might serve the oil spill disaster in Mexico, the best known as "Macondo Case", which result in numerous environmental, legitimate and financial issues for a company. In consequence of such disaster, the company has been forced to dispose many of its assets in

order to raise enough cash to deal with its issues, which one of them is clean up the region (Annual Report, 2012)

The second highest turnover ratio in table, study can say is attributed to Shell's Corporation with net fixed asset turnover average of 2.51 and total asset turnover average of 1.20. The highest point is especially observed for 2011 year with value of 3.09, which is also close to BP's value of 3.15 to that period. Upon wondering the reasons of such increase in turnover rate, it found out similar scenario as like as BP Corporation. According to annual report for the 2011 period, corporation's revenue has increased nearly to 28% percent in comparing to previous financial period, which is most likely let one to think of possible disposing of net fixed assets worth to \$ 457 million dollars in different regions; Cameron, Nigeria, Norway and U.S.A. (Annual report 2011). Therefore, upon considering this fact, one cannot be sure of true reason and it only let us to think of two possible outcomes such as decline in production, diminishing margins or even negative impacts of global financial crisis.

As in regards to Exxon Mobil Corporation, table demonstrates overall values are less efficient compared to peer competitors and to the sector's benchmark, except to total asset turnover ratio average. The average value of net fixed asset turnover implies that every dollar investment Exxon spends on fixed asset would help to generate only \$1.92 dollar of sales whereas sector suggest that dollar of investment at least should help to generate about \$ 2.10 dollar of sales. However, by analyzing all six-year values, it can be noticed sudden high values attributed to 2011, which does not makes to wonder of progressive development in process. If one sees the annual report for 2011, it can be found that most proceeds are associated with selling off subsidiaries, plants and equipment worth of \$ 11.133 million dollars, which in some reasons might be diminishing refining, and decline in production. Hence, it inferred that such spring in net fixed asset turnover probably the results of numerous divesting activities.

Finally, in comparison with all above mentioned corporations' utility efficiencies, Chevron has shown the lowest ones with fixed asset turnover average of 1.62 and total asset turnover average of 0.94, indicating that corporations assets has been utilized with less efficiently compared not only to sector's performance but also among its peer competitors. Its values have been close to efficiency for over three-year period before they started to deteriorate in 2012, 2013 and 2014 year. However, there are many factors may be contributed to such decline. According to financial analysts, there has been sufficient decline in Chevron's revenues from 2011 to 2013 year. Where in 2012, it was 4.65% percent and in 2013, it has dropped to -5.4% percent due to rise in production costs and inflation. Moreover according to Chief Executive John Watson results for 2014 year were hurt by lower crude oil price, lower refining margins and expenses (Fortune, 2014).

Table 8: Long-Term Asset Management Ratios: Competitive Benchmark Analysis

Ratios	Net Fixed Asset Turnover							Total Asset Turnover						
	2009	2010	2011	2012	2013	2014	Average	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	2.02	2.23	2.60	2.18	1.89	1.70	2.10	1.05	1.15	1.35	1.18	1.10	1.04	1.15
<b>BP (PLC)</b>	2.21	2.70	3.15	3.12	2.84	2.71	2.79	1.01	1.09	1.28	1.25	1.24	1.24	1.19
<b>Chevron (CVX)</b>	1.74	1.90	1.99	1.63	1.34	1.09	1.62	0.98	1.03	1.12	0.95	0.84	0.73	0.94
<b>Exxon Mobil (XOM)</b>	2.17	1.85	2.18	2.00	1.73	1.56	1.92	1.20	1.14	1.31	1.28	1.14	1.09	1.19
<b>Shell (RDS)</b>	2.11	2.58	3.09	2.71	2.35	2.19	2.51	0.95	1.14	1.36	1.30	1.26	1.19	1.20

### Profit Margin Ratios

By looking at the table, it became clear that among the major oil and gas giants Exxon Mobil and Chevron has been showing the most impressive results relatively to other two peer corporations: BP and Shell. On average basis, Exxon has shown that in every sales dollar there is roughly 27, 10 and 9 cents of gross, operating and net income whereas for Chevron Corporation there is about 25, 12 and 9 cents of profit margins. As it seen in table of net profit and operating profit margins, it can also be noticed that both of the corporations had begun from challenging notes due to the first effect of financial crisis. Today Exxon's expansion not only limited in U.S with construction of refinery in Texas but also followed by new projects in Singapore and Papua that took off in 2013 year (Global 500, 2014). Meanwhile, Chevron is also said to be the best performer in global oil and natural gas market. Notwithstanding, the revenue of \$220 Billion of 2013, which 6% percent lower than 2012 year, according to CEO John Watson the company anticipates the production increase in 2015 as its continuing expansion in Australia and Gulf Mexico (Fortune, 2014).

Speaking of profitability margins of Shell and BP corporations, they turned up to be less profitable in relation to its above-mentioned competitors and therefore their profitability can be said "fair" rather than "excellent". On average base, Shell has reported 15.97, 6.48 and 4.90 cents of gross, operating and net income, which is well below its majors of Chevron and Exxon. Upon analyzing its revenues and gross profitability ratios, one can noticed that overall profit has deteriorated from 2011 to 2012 and then slightly improved from 2012 to 2013 year. According to CEO Mr. Vossier, Shell's high-profile multibillion-dollar Alaska drilling program had encountered with some production problem due to damage of "Kulluk" vessel, which led to suspend drillings in island until new vessel replaced (New York Times, 2013). Subsequently, at same time U.S



government had blocked corporation from drilling activities before they provide more comprehensive plan for drilling that region. In addition to this delays it also worth to mention recent fire in one of their pipelines in Nigeria, which also might serve as a factor in their performance (Global 500, 2013).

However, according to above mentioned results and news, the company cannot be inferred as in worst position. Instead, it should be anticipated as a winner for next coming periods, because there is a sign for future growth. The reason is that, perhaps more than any other energy companies, Shell has been investing in huge oil and gas projects, which are being anticipated to be lucrative for the coming decades. One of the examples may be “Pearl GT” in Qatar, an enormous oil field of Emirates and where natural gas taken and converted into liquids like diesel (The New York Times, 2013).

As concerning to BP Corporation, it has been showing dramatically negative trend compared with all above competitors. Above table reported, on average base, it owns only 14.05, 2.79 and 3.81 cents from every dollar of sales and negative profit value for 2010 year, which is the reason to think of repercussions of resent catastrophe, took place in Deepwater Horizon. Of course, one would decide that this was the straw that broke camel’s back but along with that issue there are many other issues standing behind for its financial performance. According to analyst reports, between 1965 and 2010 company had been spending millions on issues such as Helicopter accident in North Sea, refinery explosion, corrossions on pipelines etc. Moreover, it also worth to mention the price fluctuations over oil and gas that skewed performance not only BP’s but worldwide industry as well. Nevertheless if one look from optimistic side overall performance of Corporation also might be inferred from positive standpoint for future. Because of its recent report suggestions for opportunities about coming period’s analysts believe that BP has still several opportunities associated with acquisition in the North Sea region reserves, production in Russia and investments in alternative energy (BP analysis, 2014).

Table 9: Profit Margins (Gross Profit Margin): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	21.86%	5.48%	17.51%	12.89%	14.05%	12.53%	14.05%
<b>Chevron (CVX)</b>	24.96%	27.22%	26.48%	25.69%	23.77%	23.62%	25.29%
<b>Exxon Mobil (XOM)</b>	29.76%	29.13%	27.13%	25.83%	25.08%	24.85%	26.96%
<b>Shell (RDS)</b>	17.91%	16.42%	15.67%	15.23%	15.44%	15.15%	15.97%

Table 10: Profit Margins (Net Profit Margin): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	6.93%	-1.25%	6.84%	3.08%	6.19%	1.07%	3.81%
<b>Chevron (CVX)</b>	3.95%	10.35%	11.84%	11.47%	9.67%	9.60%	9.48%
<b>Exxon Mobil (XOM)</b>	8.75%	9.36%	9.71%	8.96%	7.72%	8.25%	8.79%
<b>Shell (RDS)</b>	4.50%	5.47%	6.58%	5.69%	3.63%	3.53%	4.90%

Table 11: Profit Margins (Operating Profit Margin): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	8.17%	-5.22%	7.69%	1.87%	3.87%	0.37%	2.79%
<b>Chevron (CVX)</b>	8.56%	12.80%	15.67%	15.18%	12.36%	9.84%	12.40%
<b>Exxon Mobil (XOM)</b>	8.70%	10.84%	11.58%	11.01%	9.58%	8.65%	10.06%
<b>Shell (RDS)</b>	4.99%	6.93%	8.91%	7.84%	5.73%	4.47%	6.48%

### Profit Return Ratios

It can safely be assumed that the healthiest ratios are attributed to Exxon Mobile Corporation. On average base, ROE reported 19.44 % percent of generating income for shareholders, which is also above the sector average of 15.50 percent. From chart above it is obvious that Exxon turned to be a winner over its closest rivals Chevron, Shell and BP. It also justifies previous assumptions on cumulative effect of given ratio and shows that Exxon Mobile results also consistent with its inventory turnover 18.17 receivables turnover 16.18 and leverage value of 0.11.

Similar results also observed for Chevron Corporation with slightly below average of ROE 15.01% percent against sector average of 15.50% percent and well above sector average ROA of 8.92% percent, showing wise investment decisions and asset management efficiency, which is also, puts Corporation above its peers like Shell and BP. The results also reflected upon its leverage and turnover ratios: 0.11 of debt-to-equity and 25.12 of inventory turnover.

However, in case with Shell's profitability ratios, it has been showing slow recovery development compared to Exxon and Chevron. For the six-year period its ROA and ROE has been well below the sector averages. Again, such results direct us to converge in some recently occurred events with suspended production in some geographic areas along with fluctuations over oil and gas prices. However, in consistency view of ROE and ROA, if we look once again to its debt-to-equity of 0.25 and debt-to-capital of 0.20 company has not in much worrisome position, which means for investors a company is less risky to make investments.

Lastly, in case of BP Corporation's profitability the table demonstrates not so impressive values, compared to overall sector. The disastrous consequences for a company are obvious where levels of ROE and ROA are minus signed. However, upon considering ROE it might be misleading conclusion and might be inferred that company has a good level of return to its equity holders unless consider consistency of analysis with previous ones. Once analyzed BP's performance, study concluded that most of its operations relies upon heavy debt level, which is obvious even by looking to its debt-to-equity ratio of 0.41 doubling sector's benchmark of 0.23. The underlying reason is taking up much debt from U.S government to cover all repercussions of recent disaster.

Table 12: Profit Returns: Competitive Benchmark Analysis

Ratios	ROA							ROE						
	2009	2010	2011	2012	2013	2014	Average	2009	2010	2011	2012	2013	2014	Average
<b>Sector Benchmark</b>	5.91%	6.24%	10.29%	8.75%	7.45%	5.64%	7.38%	12.67%	13.71%	22.03%	17.90%	15.04%	11.63%	15.50%
<b>BP (PLC)</b>	7.03%	-1.37%	8.77%	3.86%	7.67%	1.33%	4.55%	16.31%	-3.92%	23.06%	9.78%	18.14%	3.39%	11.13%
<b>Chevron (CVX)</b>	3.88%	10.70%	13.25%	10.92%	8.09%	6.65%	8.92%	6.78%	18.30%	22.20%	18.14%	13.45%	11.17%	15.01%
<b>Exxon Mobil (XOM)</b>	10.53%	10.70%	12.72%	11.43%	8.83%	6.09%	10.05%	20.66%	20.61%	25.20%	21.68%	16.64%	11.85%	19.44%
<b>Shell (RDS)</b>	4.28%	6.24%	8.96%	7.38%	4.58%	4.21%	5.94%	9.18%	13.60%	18.24%	14.11%	9.09%	0.65%	10.81%

### Reserve Ratios

Once having analyzed the table, among the four oil majors the most outstanding values are attributed to Royal Dutch Shell Corporation. Even though, it's Reserve Life average of 11.7 year falls behind its competitors as Exxon Mobil and BP, the rest of its ratios have shown the best competitive advantage by highest ratios in Reserve Replacement of 237.2% percent. Thus, it gives a positive view about the company since it has moderate level of reserve life span, the highest replacement rate of reserves and outstanding capability in exploring reserves.

Similar the best results also can be observed from Exxon Mobil Corporation with the highest reserve life span average of 15.9 years lasting. It also shows that a company has been able to sustain the best level of Reserve Replacement of 205.6% percent and well exploration activity over replacing its resources. Therefore, it can be assigned an "excellent" level for a company as well as like its peer Royal Dutch Shell Corporation. When it comes to analysis of other two super majors, Chevron Corporation has been demonstrating very short life lasting of its reserves and has only average about 8 years over current production level, which is almost double less than that of Exxon Mobil Corporation. The same trend is also observed from its

replacing and exploring reserve capabilities with averages less than 100% percent. However, the worst position here deserves BP Corporation with the lowest replacement of reserves rate of 37.7 %percent and with the lowest exploration capabilities of 60.3% percent. Companies which are not replacing its reserves eventually deplete its resources and end up with tombstone over its corporation. Typically, corporation replacing its reserves should have sustained at least 1.0 times its reserve replacement ratio, which is 100% percent minimum. Thus, despite its fair level of reserve life of 13.7 year, current operation of BP cannot be said as good company for investment. From abnormal low values of BP, it is again points on recent tragic event. It can be inferred that a BP is still slow recovering period since the April 2010 explosion in which period BP had to engage in major divestment program, where it sold off almost half of its upstream installations, pipelines and one third of its wells. However, apart from mentioned factors, there is also another issue may also be result in such abnormal low reserve ratios. The reason might be associated with stringent safety regulations, which may hamper corporation from drilling activities (Williams, 2013).

Table 13: Reserve Ratios (Reserve Life Index): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	12.7	13.0	14.6	14.1	14.4	13.5	13.7
<b>Chevron (CVX)</b>	8.0	7.2	7.6	8.1	8.4	8.4	8.0
<b>Exxon Mobil (XOM)</b>	12.7	13.3	15.3	17.1	18.3	18.7	15.9
<b>Shell (RDS)</b>	10.3	11.2	11.5	12.2	13.5	11.4	11.7

Table 14: Reserve Ratios (Reserve Replacement): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	105.9%	41.3%	16.6%	-37.9%	76.8%	23.4%	37.7%
<b>Chevron (CVX)</b>	78.2%	42.4%	104.4%	110.8%	90.3%	96.5%	87.1%
<b>Exxon Mobil (XOM)</b>	326.1%	128.6%	205.0%	196.2%	191.9%	186.1%	205.6%
<b>Shell (RDS)</b>	554.6%	205.0%	81.8%	150.2%	286.7%	145.0%	237.2%

Table 15: Reserve Ratios (F&amp;D Reserve Replacement): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	112.0%	74.0%	44.6%	-2.4%	104.9%	28.9%	60.3%
<b>Chevron (CVX)</b>	79.8%	40.7%	98.1%	113.3%	88.9%	96.9%	86.3%
<b>Exxon Mobil (XOM)</b>	326.5%	78.3%	210.4%	174.9%	186.5%	185.6%	193.7%
<b>Shell (RDS)</b>	554.8%	201.3%	89.4%	146.3%	194.3%	24.1%	201.7%

## Reserve Cost Ratios

It clearly demonstrated that among the best label of cost effective corporation stands for Exxon Mobile and British Petroleum Corporation. Upon considered the first winner-Exxon, according to the table, its average of reserve replacement cost per BOE (barrel of oil equivalent) is \$30.30 dollar, the second position after Royal Dutch Shell and well above the Chevron and BP. As to its finding and development cost per BOE, the company has no doubt turn out to be a winner in this term with the healthiest ratio whose average is \$ 9.34 dollar. However, when it comes to its production cost rate, known as lifting cost, the corporation has been demonstrating a moderate level of cost control over its extractions, with average of 20.43.

The second highest, however, with most dubious values among the peers is British Petroleum Corporation. It has shown the first position in efficient producing cost of \$9.99 per BOE, second position in finding cost of \$17.54 per BOE and fourth position in reserve replacement cost efficiency with average of 91.51 per BOE. Although prevailing of the highest values in producing and finding cost efficiency, it cannot safely be assured that a company in its peak efficiency in upstream operations. Because, as it's known from previous calculation results, the reserve replacement ratio attributed to a company was about 37.7 % percent. Consequently, this is the very reason of why a company has owned lowest replacement rate since it has not been spending enough on finding and development of reserves. Thus, according to reserve ratios and reserve cost ratios study can be confident that a company is in hard times of recovery and can only deserve the fourth position among its peer competitors.

In case of other two super majors, from analysis the second true and third positions are attributed to Chevron and Royal Dutch Shell Corporations. Here, in table Chevron replacement expenditures show far above cost level than that of Shells with average of \$52.98 per BOE. Nevertheless, having higher cost in reserve replacement the company turned up to be second after BP, with the lowest cost in lifting cost of \$ 21.00 per BOE and third in finding cost with average of \$22.59 per BOE, whereas Shell's results have dominated over only one position with the lowest cost in reserve replacement with average of \$ 20.66 per BOE.

Table 16: Reserve Cost Ratios (Reserve Replacement Cost):  
Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	\$ 12.25	\$ 22.40	\$ 50.79	\$ 370.50	\$ 25.17	\$ 67.94	\$ 91.51
<b>Chevron (CVX)</b>	\$ 30.16	\$ 72.82	\$ 44.71	\$ 40.75	\$ 68.24	\$ 61.19	\$ 52.98
<b>Exxon Mobil (XOM)</b>	\$ 8.66	\$ 75.90	\$ 21.83	\$ 23.74	\$ 27.88	\$ 23.79	\$ 30.30
<b>Shell (RDS)</b>	\$ 5.91	\$ 13.13	\$ 28.05	\$ 25.80	\$ 25.04	\$ 26.06	\$ 20.66

Table 17: Reserve Cost Ratios (Finding Cost): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	\$4.49	\$ 5.34	\$ 35.79	\$ 25.78	\$ 10.17	\$ 23.67	\$ 17.54
<b>Chevron (CVX)</b>	\$ 37.00	\$ 25.05	\$ 6.39	\$ 11.24	\$ 40.85	\$ 14.99	\$ 22.59
<b>Exxon Mobil (XOM)</b>	\$ 21.52	\$ 16.45	\$ 2.17	\$ 3.66	\$ 4.42	\$ 7.81	\$ 9.34
<b>Shell (RDS)</b>	\$ 6.50	\$ 29.73	\$ 18.40	\$ 100.99	\$ 47.72	\$ 53.45	\$ 42.80

Table 18: Reserve Cost Ratios (Lifting Cost): Competitive Benchmark Analysis

Years	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	\$ 6.29	\$ 6.64	\$ 9.86	\$ 12.17	\$ 12.72	\$ 12.26	\$ 9.99
<b>Chevron (CVX)</b>	\$ 14.35	\$ 15.56	\$ 20.22	\$ 23.03	\$ 25.88	\$ 26.95	\$ 21.00
<b>Exxon Mobil (XOM)</b>	\$ 15.20	\$ 17.08	\$ 21.69	\$ 22.49	\$ 25.69	\$ 26.00	\$ 21.36
<b>Shell (RDS)</b>	\$ 19.99	\$ 19.41	\$ 23.91	\$ 26.97	\$ 29.52	\$ 30.13	\$ 24.99

### Reserve Value Ratios

First, by looking at overall set of energy ratio, the first two best competitive companies are Royal Dutch Shell and Chevron Corporations. Because, it suggests that over six-year period Shell has been able to achieve the maximum level of value added per BOE of 1.6 and quite a good level of value upon its reserves, slightly giving in to its competitor as Chevron with average of \$38.1 per BOE. Hence, because of getting excellent performance in reserve ratio analysis and having moderate level in reserve cost ratio it can assigned as a company with an excellent performance.

Similar pattern in reserve value ratios can also be observed from Chevron Corporation with high above all average of \$48.3 per BOE in its values of reserves and with minimum average of 0.9 in value added ratio, which is important to sustain with given global condition. Thus, having a first position in reserve value added ratio, second positions in reserve cost, reserve value ratio and, finally, third high position in reserve ratio analysis, it can be concluded that a company is the second competitive benchmark leader in the upstream operations.

Concerning to Exxon Mobil Corporation, however, its reserves value in relation to cost not so comforting compared to Shell and Chevron competitors and has only average of 0.7, which is not consistent with the industry level. However, taking into account previously computed results, in some sense, it has been demonstrating far better competitive advantage over reserve and reserve cost ratios, where it has been able to take over Chevron, Shell, and BP corporations.

Finally, when the discussion comes to BP Corporation's activity over its overall upstream operations, it leaves it much to be desired. Thus far, in all set of energy ratio analysis the company has been showing the lowest operation activity in exploring, replacing and production of its reserves, which performance shows disastrous consequences of recent event. However, apart from mentioned the most possible factor that affecting its overall performance, according to recent report's announcements, the future of the company might encourage investors because of optimistic view of company's activity. Reportedly, instead of acquiring reserves, which would be an expensive way for growth, the company has chosen a restructuring plan in enhancing a corporate health by focusing on new high quality projects in Mexico, Angola, Azerbaijan and North Sea (Dow Jones, 2013).

Table 19: Reserve Value Ratios: Competitive Benchmark Analysis

Ratios Years	Value Of Proved Reserve Additions							Value Added						
	2009	2010	2011	2012	2013	2014	Average	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	3.6	-1.4	-49.3	-296.0	-6.3	8.5	-56.8	0.3	-0.1	-1.0	-0.8	-0.2	0.1	-0.3
<b>Chevron (CVX)</b>	14.6	63.2	50.8	57.8	61.7	41.8	48.3	0.5	0.9	1.1	1.4	0.9	0.7	0.9
<b>Exxon Mobil (XOM)</b>	4.6	37.4	12.1	9.0	30.1	31.5	20.8	0.5	0.5	0.6	0.4	1.1	1.3	0.7
<b>Shell (RDS)</b>	14.3	29.4	69.8	26.1	33.2	56.1	38.1	2.4	2.2	2.5	1.0	1.3	0.3	1.6

## PERFORMANCE EFFICIENCY ANALYSIS

Lastly, when the study came to analysis of relative efficiencies over major oil and gas companies, Data Envelopment Analysis have revealed thus far, very similar results as previous analysis-Financial and Energy ratio analysis. Considering the best performance, out of four DMUs, analysis verified the first position for Exxon Mobil Corporation with sustained index efficiency of "1" in all given six-year period and thus, justifying the results of Financial and Energy ratio analysis. Consequently, the second best efficient DMU stands out for Chevron Corporation with only lowest efficiency index of 0.96088 related to 2009 year which period coincides with the early stages of global financial crisis. According to International Energy Agency this period was coupled many project cancellations due to lower prices and cash flows, cutbacks in capital spending. It also stated that according to estimations compared to 2008, global upstream oil and gas investments budgets was hit by 21 percent and this resulted in 35 projects delays (IEA, 2009). In general perception, from analysis it may be that American companies are outstanding ones to their European counterparts. This, however, may be due to lower dividend payouts compared to European companies, access to domestic low cost oil and,

finally due to advantage of strengthening dollar that helps to international return (Zack Analyst Blog, 2015).

On the other hand, regarding to Shell's performance, analysis found it as the third competitive DMU with slightly less than its peers' with average of 0.84637. However, upon examining its six-year efficiency, it has revealed the negative trend for the last 2014 year which period is associated with 4.6% percent plunge in sales and low production compared to previous periods (Fortune, 2014). Corporation has shown only the best efficiency index in 2011 which fact repeatedly may indicate its asset divestments worth \$457 million dollar in strengthening financial performance.

Finally, as concerning to BP performance, it has shown relatively negative scope of efficiency and over six-year period, it has been able to achieve only average of 0.49882. Looking at the table, the most dramatically index has shown for 2010 period with efficiency rate of 0.09557 which, again justifies previous assumptions made in Financial analysis, Macondo case in 2010.

Table 20: Efficiency values of DEA: Competitive Benchmark Analysis

Companies	2009	2010	2011	2012	2013	2014	Average
<b>BP (PLC)</b>	1.00000	0.09557	0.73098	0.27026	0.75302	0.14310	0.49882
<b>Chevron (CVX)</b>	0.96088	1.00000	1.00000	1.00000	1.00000	0.97657	0.98958
<b>Exxon Mobil (XOM)</b>	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
<b>Shell (RDS)</b>	0.76724	0.86503	0.95611	0.93218	0.81169	0.74596	0.84637

Table 21: Summary of Performances

Companies	Ratios	Rate	Performance
BP(PLC)	Liquidity	2 <sup>nd</sup>	Good
BP(PLC)	Leverage	4 <sup>th</sup>	Poor
BP(PLC)	Asset management (Short-term activity)	2 <sup>nd</sup>	Good
BP(PLC)	Asset management (Long-term activity)	1 <sup>st</sup>	Excellent
BP(PLC)	Profitability	4 <sup>th</sup>	Poor
BP(PLC)	Reserve	4 <sup>th</sup>	Poor
BP(PLC)	Reserve Cost	4 <sup>th</sup>	Poor
BP(PLC)	Value Added	4 <sup>th</sup>	Poor
BP(PLC)	Performance efficiency		poor
Chevron (CVX)	Liquidity	1 <sup>st</sup>	Excellent
Chevron (CVX)	Leverage	2 <sup>nd</sup>	Good
Chevron (CVX)	Asset management (Short-term activity)	3 <sup>rd</sup>	Fair
Chevron (CVX)	Asset management (Long-term activity)	4 <sup>th</sup>	Poor



Table 21....

Chevron (CVX)	Profitability	2 <sup>nd</sup>	Good
Chevron (CVX)	Reserve	3 <sup>rd</sup>	Fair
Chevron (CVX)	Reserve Cost	2 <sup>nd</sup>	Good
Chevron (CVX)	Value Added	2 <sup>nd</sup>	Good
Chevron (CVX)	Performance efficiency		Good
Exxon (XOM)	Liquidity	3 <sup>rd</sup>	Fair
Exxon (XOM)	Leverage	1 <sup>st</sup>	Excellent
Exxon (XOM)	Asset management (Short-term activity)	1 <sup>st</sup>	Excellent
Exxon (XOM)	Asset management (Long-term activity)	3 <sup>rd</sup>	Fair
Exxon (XOM)	Profitability	1 <sup>st</sup>	Excellent
Exxon (XOM)	Reserve	2 <sup>nd</sup>	Good
Exxon (XOM)	Reserve Cost	1 <sup>st</sup>	Excellent
Exxon (XOM)	Value Added	3 <sup>rd</sup>	Fair
Exxon (XOM)	Performance efficiency		Excellent
Shell (RDS)	Liquidity	4 <sup>rd</sup>	Poor
Shell (RDS)	Leverage	3 <sup>rd</sup>	Fair
Shell (RDS)	Asset management (Short-term activity)	4 <sup>rd</sup>	Poor
Shell (RDS)	Asset management (Long-term activity)	2 <sup>nd</sup>	Good
Shell (RDS)	Profitability	3 <sup>rd</sup>	Fair
Shell (RDS)	Reserve	1 <sup>st</sup>	Excellent
Shell (RDS)	Reserve Cost	3 <sup>rd</sup>	Fair
Shell (RDS)	Value Added	1 <sup>st</sup>	Excellent
Shell (RDS)	Performance efficiency	2 <sup>nd</sup>	Fair

## CONCLUSION

The central aim of this study was to assess the performance of oil and gas super majors in current economic downturn condition. The interest for such study came as a result of recent trends surrounded the industry, especially for the last six years. The purpose achieved through insightful analysis of given companies' financial and operational disclosures by relying on the best evaluation approaches such as Financial, Energy and Data Envelopment Analysis.

Based on study came up with decision that among the four analyzed companies, three of them have shown a good level of competitiveness. However, the most prominent one has been turned up to be an Exxon Mobil Corporation with the best ability to weather difficult economic condition. According to six-year ratios over its performance, the company has been demonstrating an effective utilization of its inventory and perfect balanced approach toward debt and equity with average of 0.11 that is quite outmatches the industry expectation of 0.23. With given global condition, where most of industries are heavy leveraged, such results, no doubt, places a company for prior position over its peers in that having the least reliance on debt financing entails the least risks and, therefore, attractive for investors. While keeping debt level

at reasonable level, it also has shown an impressive return to capital and outstanding return to its equity holders with averages of 10.05% and 19.44% percent against the industry norms of 7.38% and 15.50% percent. As to its upstream operations, again it had shown the company set itself apart amongst the other IOC with significant oil reserve lasting of 15.3 year, with the best effective cost management, exploration and with excellent performance in replacing its resource bases. The combination of all of these, study believes it will create the best possible values for its shareholders. Moreover, upon analyzing its overall performance, Data Envelopment Analysis has revealed it as the most efficient company, which achieved 100% efficiency in all six-year periods.

However, the relatively poor performance, study showed for BP Corporation. Throughout the study, results have demonstrated unsatisfactory and negative trends suggesting that a company is bursting at the seams in current economic condition. Among the numerous reasons for such performance, there is nothing certain but the disaster took place in Gulf Mexico. From all conducted analysis, it became obvious that explosion on BP's offshore drilling had disastrous effect than that of financial crisis. Because, it had result in company's acquiring of heavy debt from government and even pressured it to divest almost half of its upstream installations, which are misleadingly, reflected upon its leverage and asset management ratios. Being as a main responsible entity for explosion, as of today, the company has been exposed to numerous restrictive regulations and the future of the company is ambiguous unless it recently acquired reserves in North Sea and its new investments start to bring sufficient level of profit in the future. Given the importance of the industry and its link between economic growth, form analysis it has been inferred that recent global financial downturn had the most detrimental effect on oil and gas producers. Because due to slow economic growth, followed by skewed demand on major energy commodity, it had put downward pressure on crude oil price. It has revealed that in consequences of low price, high production cost, major oil and gas producers had faced low energy investments thereby incurring diminishing profit margins. In response to such situation, many oil producers had to cut their capital spending and launch their divestment plan upon their upstream installations. In some sense, this recent global downturn can be classified as "manufacturing crisis" since condition had resulted in many project delays and cancellations.

In addition, it is clear that the price risk in today's energy market is of great importance and has a profound impact on the long-term sustainability because production has straightforward relation with the price of crude oil. Due to the current negative trend in demand, which is the main factor of volatility of the price, the companies are in great difficulties with cost of producing resources. Moreover, it is obvious that along with low demand for oil, there are also many factors like politics, war in some regions as Middle East and other civil unrest affect the

instability of price. Form competitive environment analysis, it also seen that having prevailed most of global resources, OPEC can also impose great impact on price which condition may challenge major E&P companies.

Hence, upon analyzing overall performances companies, it can be concluded that the overall the industry is subject of numerous risks which are highly correlative with current economic rate of development and sustainability of major IOC' is can be said in opacity. Because, even all negative external factors eliminated, the production level is most likely would not be able to sustain a necessary level of supply since demand is increasing year over year with 1,5% percent rate and by the 2030 year would reach 60% percent. Therefore, the industry's future turns very anxious unless companies have significant breakthroughs in exploration technology for nonconventional oil extracting.

Thus far, current research has been applying the best practices in financial ratio analysis combining additional set of ratios specific to the oil industry and Implemented Data Envelopment Analysis. However, with given source of literatures and studies the industry analysis is still complex to analyze and, hence, cannot be bounded around the standard financial tools. Therefore, current research encourages further study also to combine statistical tools while evaluating the performance of oil and gas companies. It would give more insight on volatility of sales with current energy market condition. Moreover, as this study has taken only crisis period data, further research would be more fruitful if data would cover before and after recession period.

## REFERENCES

- Bilgiani,R,“Reducing Risk in Oil and Gas Operations” White paper publications. 13.10.2013, <http://www.emc.com/collateral/analyst-reports/minimizing-operational-risk-in-oil-gas-industry.pdf>
- Biz Yahoo, “Industry Borwser Oil and Gas Refining & Marketing”. 05.06.2014, <http://biz.yahoo.com/p/122conameu.html>
- BP Corporation. “Annual Reporting Archive”. 20.04.2014, [http://www.bp.com/content/dam/bp/pdf/investors/BP\\_Annual\\_Review\\_2009.pdf](http://www.bp.com/content/dam/bp/pdf/investors/BP_Annual_Review_2009.pdf)
- BP Corporation. “Annual Reporting Archive”. 20.04.2014, [http://www.bp.com/content/dam/bp/pdf/investors/BP\\_Summary\\_Review\\_2010.pdf](http://www.bp.com/content/dam/bp/pdf/investors/BP_Summary_Review_2010.pdf)
- BP Corporation. “Annual Reporting Archive”. 20.04.2014, [http://www.bp.com/content/dam/bp/pdf/investors/BP\\_Summary\\_Review\\_2010.pdf](http://www.bp.com/content/dam/bp/pdf/investors/BP_Summary_Review_2010.pdf)
- BP Corporation. “Annual Reporting Archive”. 20.04.2014, [http://www.bp.com/content/dam/bp/pdf/investors/Strategic\\_Report\\_2013.pdf](http://www.bp.com/content/dam/bp/pdf/investors/Strategic_Report_2013.pdf)
- BP Corporation. “Annual Reporting Archive”. 20.04.2014, [http://www.bp.com/content/dam/bp/pdf/investors/BP\\_Summary\\_Review\\_2012.pdf](http://www.bp.com/content/dam/bp/pdf/investors/BP_Summary_Review_2012.pdf)
- Business Times. “Earnings Preview: ExxonMobil Corporation (XOM), Chevron Corporation (CVX), Royal Dutch Shell (RDSA)”. 28.04.2015, <http://www.ibtimes.com/earnings-preview-exxonmobil-corporation-xom-chevron-corporation-cvx-royal-dutch-shell-1898621>

Chen, N.F. "Economic Forces and the stock market" The Journal of Business, Volume 59, No 3, 383-403.28.04.2014,  
[http://rady.ucsd.edu/faculty/directory/valkanov/pub/classes/mfe/docs/ChenRollRoss\\_JB\\_1986.pdf](http://rady.ucsd.edu/faculty/directory/valkanov/pub/classes/mfe/docs/ChenRollRoss_JB_1986.pdf)

Chevron. "Publications" Annual Reports. 08.08.2014,  
[http://www.chevron.com/documents/pdf/annualreport/Chevron2009AnnualReport\\_full.pdf](http://www.chevron.com/documents/pdf/annualreport/Chevron2009AnnualReport_full.pdf)

Chevron. "Publications" Annual Reports. 09.02.2014,  
[http://www.chevron.com/documents/pdf/annualreport/Chevron2010AnnualReport\\_full.pdf](http://www.chevron.com/documents/pdf/annualreport/Chevron2010AnnualReport_full.pdf)

Chevron. "Publications" Annual Reports. 09.02.2014,  
<http://www.chevron.com/annualreport/2013/documents/pdf/Chevron2013AnnualReport.pdf>

Chevron. "Publications" Annual Reports. 09.02.2014,  
[http://www.chevron.com/documents/pdf/annualreport/Chevron2010AnnualReport\\_full.pdf](http://www.chevron.com/documents/pdf/annualreport/Chevron2010AnnualReport_full.pdf)

Chevron. "Publications" Annual Reports. 09.02.2014,  
<http://www.chevron.com/documents/pdf/annualreport/Chevron2012AnnualReport.pdf>

Dejan, T. (2009) "Strategic and Financial analysis in the oil industry; Petrobras Shareholders value potential and fair value of stock". Master thesis in Finance and International Business. Aarhus school of business.

Denis, C. "On This Day: Drake Well Strikes Oil" Finding of Dulcinea; internet library.27.08.2011,  
<http://www.findingdulcinea.com/news/on-this-day/July-August-08/On-this-Day--First-Oil-Well-in-U--Strikes-Oil.html>

Economic times. "Oil majors like Royal Dutch Shell, Chevron, BP fail to find reserves to counter falling output". 05.02.2015, <http://economictimes.indiatimes.com/markets/commodities/oil-majors-like-royal-dutch-shell-chevron-bp-fail-to-find-reserves-to-counter-falling-output/articleshow/46132954.cms>

Einav, H. "Investing in the NYSE integrated oil and gas companies". Master thesis in international Business. 01.05.2014,  
<https://publications.theseus.fi/bitstream/handle/10024/80529/hazuteinav.pdf?sequence=1>

Exxon Mobil, (2012) "Summary of annual Reports"URL:<http://thomson.mobular.net/thomson/7/3184/4612/>

Exxon Mobil. "Summary of annual Reports". 17.02.2015, <http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9ODk0MzZ8Q2hpbGRJRD0tMXxUeXBIPtM=&t=1>

Exxon Mobil. "Summary of annual Reports". 20.02.2014,  
<http://nasdaqomx.mobular.net/nasdaqomx/7/3395/4843/>

Exxon Mobil. "Summary of annual Reports". 20.02.2014,  
<http://thomson.mobular.net/thomson/7/3184/4448/>

Exxon Mobil. "Summary of annual Reports". 20.02.2014,  
<http://thomson.mobular.net/thomson/7/3184/4612/>

Hamilton, J.D. "Oil and the Macro economy since World War 2" The journal of political economy, vol.91 pp. 228-248. Published by The University of Chicago. 24.10.2008,  
<http://digidownload.libero.it/rocco.mosconi/Hamilton1983.pdf>

Ian, L. (1997). "Geological Risk and Uncertainty in Oil Exploration". Academic Press; a division of Harcourt Brace & Company. Library of Congress Catalog-in Publication data. Printed in United States of America. 622pg.

IEA. International Energy Agency "Oil Market Report". 10.12.2004,  
<https://www.iea.org/media/omrreports/fullissues/2004-12-10.pdf>

IEA. International Energy Agency "Oil Market Report". 10.12.2010,  
<https://www.iea.org/oilmarketreport/reports/2010/1210/>

IEA. International Energy Agency "Oil Market Report". 10.12.2010,  
<https://www.iea.org/oilmarketreport/reports/2010/1210/>

- IEA. International Energy Agency “Oil Market Report”. 11.12.2013, <https://www.iea.org/oilmarketreport/reports/2013/1213/>
- IEA. International Energy Agency “Oil Market Report”. 12.12.2012, <https://www.iea.org/oilmarketreport/reports/2012/1212/>
- IEA. International Energy Agency “Oil Market Report”. 11.12.2009, <https://www.iea.org/oilmarketreport/reports/2009/1209>
- IEA. International Energy Agency “Oil Market Report”. 12.12.2014, <https://www.iea.org/oilmarketreport/reports/2014/1214/>
- Ingham, C. “Key political risks for the oil and gas industry in 2013”. Natural gas in Europe. 10.01.2013, <http://www.naturalgaseurope.com/key-political-risks-for-the-oil-and-gas-industry-in-2013>
- Irakli, M. (2008) Valuation of Integrated Oil and Gas companies; comparative analysis of methodologies and empirical practices. Master thesis in international Business and Economics. Copenhagen Business School.
- Jean. B, (2009) “The global Financial Crisis and the Oil and Gas sector of Nigerian Economy”. International association for Energy Economics. 04.01.2015, [http://pdf8.keenbooks.org/pdf/economics-of-the-oil-crisis\\_4zyw8.pdf](http://pdf8.keenbooks.org/pdf/economics-of-the-oil-crisis_4zyw8.pdf)
- Jones, T. (2014). America, Oil, and War in the Middle East. Published by Oxford University Press on behalf of the Organization of American Historians. ISSN 1945-2314 - Print ISSN 0021-8723.
- Journal Fortune, “Global 500”. 30.11.2014, <http://fortune.com/global500/royal-dutch-shell-2/>
- Journal Fortune, “Global 500”. Exxon Mobil Corporation’s profile. 17.08.2014, <http://fortune.com/global500/exxon-mobil-5/>
- Journal Fortune. Chevron Corporation’s profile. 28.11.2014, <http://fortune.com/global500/2013/chevron-corporation-11/>
- Kjarstad, J, Johnson F (2008) “Resources and future supply of oil” Department of Energy and Environment, Energy Conversion, Chalmers University of Technology, SE-412 96 Gothenburg, Sweden.
- Lameira, V.D. (2012) “Performance analysis of Euro-zone energy companies”. European Association for Development of Renewable Energies. International Conference on Renewable Energies and Power Quality. Santiago de Compostela, Spain.
- LitonChandroSarkar “Daily Star journal, Global Oil supply & demand equation poses risks”. 15.07.2014, <http://www.thedailystar.net/global-oil-supply-and-demand-equation-poses-risks-33344>
- MarketWatch. “Exxon Mobil's 2009 profit of \$19.42 billion off 56 percent from 2008” 01.02.2010, <http://www.tampabay.com/news/business/energy/exxon-mobils-2009-profit-of-1942-billion-off-56-percent-from-2008/1069924>
- Olivier, T.M. (2014) “Oil and Gas producers’ financial performance and Crude oil prices in Eurozone from 2004-2013”. Master thesis. Umea School of Business and Economics.
- OPEC. Organization of the Petroleum Exporting Countries “OPEC share of world crude oil reserves in 2013”. 19.03.2015, [http://www.opec.org/opec\\_web/en/data\\_graphs/330.htm](http://www.opec.org/opec_web/en/data_graphs/330.htm)
- Pirog, R. (2012) “Financial Performance of Major Oil Companies, 2007-2011”. Congressional Research Service. CRS report for congress. Prepared for Members and Communities of Congress.
- Rentsheller, J.E. “Oil Price volatility – its risk on economic growth and development”. The World Bank. 07.18.2013, <http://blogs.worldbank.org/developmenttalk/oil-price-volatility-its-risk-economic-growth-and-development>
- Reuters. “Price Falls Hastens of Big oil as Western Majors Retreat” 09.10.2014, <http://www.reuters.com/article/2014/10/09/oil-prices-majors-idUSL6N0RU4HU20141009>
- Royal Dutch Shell (2013). “Annual Reports and Publications”. 31.12.2013, [http://reports.shell.com/annual-report/2013/servicepages/about\\_disclaimer.php](http://reports.shell.com/annual-report/2013/servicepages/about_disclaimer.php)

Royal Dutch Shell. "Annual Reports and Publications" 31.12.2009, [http://reports.shell.com/annual-report/2009/servicepages/downloads/files/all\\_shell\\_20f\\_09.pdf](http://reports.shell.com/annual-report/2009/servicepages/downloads/files/all_shell_20f_09.pdf)

Royal Dutch Shell. "Annual Reports and Publications". 19.09.2014, <http://s04.staticshell.com/content/dam/shell/static/src/downloads/annual-reports/2011/annual-report-2011.pdf>

Royal Dutch Shell. "Annual Reports and Publications". 31.12.2010, [http://reports.shell.com/annual-report/2010/servicepages/downloads/files/all\\_shell\\_20f\\_10.pdf](http://reports.shell.com/annual-report/2010/servicepages/downloads/files/all_shell_20f_10.pdf)

Royal Dutch Shell. "Annual Reports and Publications". 31.12.2012, [http://reports.shell.com/annual-report/2012/servicepages/downloads/files/entire\\_shell\\_ar12.pdf](http://reports.shell.com/annual-report/2012/servicepages/downloads/files/entire_shell_ar12.pdf)

Saul B. S. "Uncertainty and Risk Analysis in Petroleum Exploration and Production". 23.02.2015, <http://www.ige.unicamp.br/terrae/V6/PDF-N6/T-a3i.pdf>

Seeking alpha. "The Market Is Shortsighted". 21.02.2014, <http://seekingalpha.com/article/2038293-chevron-the-market-is-shortsighted>

Simkins, B.J. (2013). Energy finance and economics: analysis and valuation, risk management, and the future of energy. Kolb Series in Finance. Published by John Wiley & Sons Inc. New Jersey.

Srivastava, H. (2012), "Royal Dutch Shell Valuation". International University of Monaco. Master in Finance.

Talevski, D. (2009) "Strategic and Financial Analysis in the oil Industry. Petrobras Shareholders value potential and fair value of stock". Aurus School of Business. MC in Finance and International Business.

Titman, S. (2013) "Energy finance and economics: analysis and valuation, risk management, and the future of energy", Kolb Series in Finance, "How Our Political Views Affect Our View of Energy Prices".

Value Walk, "Oil Major's Reserves in 2013". 14.04.2014 <http://www.valuewalk.com/2014/04/oil-majors-reserves-oil-gas-2013/>

Vause, B. (2009). Guide to Analysing Companies. Published by profile books Ltd. 3a Exmouth House, Pine Street, London.

Wall street Journal. "BP doesn't need Acquisition to replace Reserves". 12.04.2013, <http://www.wsj.com/articles/SB10001424127887324695104578417963414509222>

Wall Street Oasis. "Valuing oil and GAS Companies". 02.09.2012, <http://www.wallstreetoasis.com/blog/valuing-oil-and-gas-companies-ep>

Williams, S. Dow Jones Newswires. 11.04.2013, [http://www.rigzone.com/news/oil\\_gas/a/125708/BP\\_Doesnt\\_Need\\_Large\\_Acquisition\\_to\\_Replace\\_Reserves\\_Executives](http://www.rigzone.com/news/oil_gas/a/125708/BP_Doesnt_Need_Large_Acquisition_to_Replace_Reserves_Executives)

World Bank Group. "Global Economic Prospects; having fiscal space and using it". 01.01.2015, [http://worldbank.org/content/dam/Worldbank/GEP/GEP2015a/pdfs/GEP15a\\_web\\_full.pdf](http://worldbank.org/content/dam/Worldbank/GEP/GEP2015a/pdfs/GEP15a_web_full.pdf)

Yunging. D.T, (2008) "Investing in Oil: an assessment of Oil companies' stock performance outlook". B.A., California State University, Sacramento.

Zanoyan, V. "NOC-IOC relations and their impact on investment in the upstream sector". Alexander's gas and oil connections. 14.10.2002, <http://www.gasandoil.com/news/features/467d7b463f4ac6f3eb5838f737ee307e>

Zoheir. B. (2014) "Macroeconomic impacts of oil price volatility: mitigation and resilience". Higher Education Press and Springer-Verlag Berlin Heidelberg. 30.12.2013, <http://www.smithschool.ox.ac.uk/news/FEP-14003-EZ-proof-chec>