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THE ACQUISITION OF BG GROUP BY ROYAL DUTCH SHELL:

THE LARGEST LIQUEFIED NATURAL GAS COMPANY IN THE WORLD

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ABSTRACT

The acquisition of the BG Group by Royal Dutch Shell has created the largest liquefied natural gas company in the world, and it will be the first mega-merge in the industry for more than ten years. The reason for Royal Dutch Shell in purchasing the BG Group was to acquire Brazil's vast oil reserves, focusing on deep water fields and liquefied natural gas, but also to achieve consolidation of the oil market in an attempt to mitigate the downgrade of oil price. (*Appendix 1*)

KEYWORDS

- BG Group;
- Royal Dutch Shell;
- Acquisition;
- Valuation.

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CHAPTER 1.

COMPANIES OVERVIEW

1.1 OIL AND GAS INDUSTRY

Considered to be the biggest sector in the world in terms of dollar value, the oil and gas industry is a global business employing hundreds of thousands of workers worldwide as well as generating hundreds of billions of dollars globally each year. In some countries, oil and gas companies are so vital they often contribute a relevant amount regarding the national gross domestic product (GDP). [1]

The oil and gas industry includes processes such as extraction, exploration, refining, marketing and transporting petroleum products. The biggest volume products of the industry are gasoline and fuel oil. Oil is a fundamental raw material for many chemical products, including fertilizers, plastics, pharmaceuticals, pesticides and solvents. The industry is splitted into three major components: upstream, midstream and downstream, with midstream usually considered a subdivision of downstream. [2] "The upstream industry finds and produces crude oil and natural gas, the midstream industry processes, stores, markets and transports commodities such as crude oil, natural gas, natural gas liquids (NGLs, mainly ethane, propane and butane) or sulphur, and, the downstream industry contains oil refineries, petrochemical plants, petroleum products distributors, retail outlets and natural gas distribution companies." [3]

Recently, the fall in oil prices since mid-2014 has deeply changed the prospects for national oil companies (NOCs). If prices remain low for a large number of years, investors will be far more cautious, international oil companies will see reduced cash flows, and many exploration projects will be put on hold or cancelled. This will have an impact on the ambitious plans that some emerging producers had nurtured for national participation in the petroleum sector, forcing them to refocus on an affordable strategy for developing upstream capabilities. [4]

1.1.1 Oil Price

The volatility in the crude oil prices have always been the focus of the economic and financial news. The higher crude oil prices rise, the more positive is the economic expectations for petroleum exporters. In contrast, those countries dependent on petroleum imports suffer in various degrees with those same higher prices as import invoices increase. Estimates for the price per barrel for crude oil from leading financial and multilateral institutions are thus closely monitored by investors, governments, and consumers alike.

The predictions for the evolution of the oil price is a slow rise. This recovery of oil prices is still supported by expectations of reduction of oil production by OPEC. [5]

(*Appendix 2* shows the prediction of World Bank, in its commodity forecast report, for the oil price from 2014 to 2025.)

1.2 BG GROUP

In the mid-1950s, the UK's Gas Council, a forerunner to BG Group, began to explore liquid natural gas (LNG) as a potential replacement for manufactured gas and cooking gas, having been the pioneers in international shipment.

The Gas Council became British Gas, which was privatised in 1986, before divided, a decade later, into separate and distinct businesses, including BG Group.

In the mid-1990s, British Gas developed their own LNG supplies by investing in a liquefaction facility in Trinidad & Tobago, primarily to develop their gas reserves in the U.K. Then, they started the development on a LNG export project in Egypt, applying the lessons learned from Trinidad & Tobago, one of the lowest unit cost projects of its decade.

In the year 1997, British Gas demerged into two separately listed companies:

- BG plc, which took over the exploration and production, and international downstream operations of British Gas, as well as the British transmission and distribution business (Transco);

- Centrica plc, which took charge of the British retail business of the former British Gas.

Later in the year 2000, there was another demerger, in which two new companies were formed: BG Group plc and Lattice Group plc, with the latter taking possess of the Transco business.

Following the second demerger, the BG Group grew strongly and improved their portfolio with high-quality assets across the gas chain, including Egypt, Trinidad and Tobago, and Kazakhstan, as well as the UK North Sea. Increasingly though, the BG Group has focused on developing two highly distinctive capabilities: a world-class exploration business and a unique LNG model. [vi][6] (BG Group Stock Price, *Appendix 3*)

1.3 ROYAL DUTCH SHELL

Royal Dutch Shell plc, is an Anglo-Dutch multinational oil and gas company headquartered in the Netherlands (tax-resident) and incorporated in the United Kingdom (England and Wales). It is the seventh largest company in the world as of 2016, in terms of revenue, and one of the six oil and gas "supermajors”. [vii][7]

Their history dates back to 1907, when two companies fully merged founding Royal Dutch Shell. There were two separate holding companies with Royal Dutch taking 60% of the earnings and Shell Transport taking 40%. The business was run by a variety of operating companies. The merge transformed the fortunes of both companies. Under the management of Henry Deterding they turned from struggling entities into successful enterprises within twelve months. The Group rapidly expanded across the world. Marketing companies were formed throughout Europe and in many parts of Asia. Exploration and production began in Russia, Romania, Venezuela, Mexico and the United States. [viii][8]

In November 2004, after a period of disturbance caused by the revelation that Shell had been exaggerating 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 union was completed on 20 July 2005 and the original owners delisted their companies from the respective exchanges. On 20 July 2005, the Shell Transport & Trading Company plc was delisted from the LSE, whereas, Royal Dutch Petroleum Company from NYSE on 18 November 2005. The shares of the company were issued at a proportion of 60/40 advantage for the shareholders of Royal Dutch, aligned with the original ownership of the Shell Group.

In 2013, Royal Dutch Shell began the sale of its US shale gas assets and cancelled a US$20 billion gas project that was to be constructed in the US state of Louisiana. Ben van Beurden was appointed in January 2014 as the new CEO, before the announcement that the corporation's overall performance in 2013 was 38 per cent lower than in 2012 and, as a result, the value of Shell's shares fell by 3 per cent.

Furthermore, the sale of the majority of its Australian assets in February 2014, the corporation plans to sell an additional US$15 billion worth of assets in the period leading up to 2015, with deals announced in Australia, Brazil and Italy.

Royal Dutch Shell announced on April 8th 2015 it had agreed to buy the BG Group for $ 73,73 billion, subject to shareholder and regulatory approval. The acquisition was completed in February 2016, resulting in Shell exceeding Chevron Corporation and becoming the world's second largest non-state oil company. [7] (Royal Dutch Shell Stock Price A and B, *Appendix 4* and *5*).

1.3.1 Difference between Shell Shares A and B

As it was said before, Shell is incorporated in England and Wales and tax-resident in the Netherlands. "Therefore, it is generally required by the Dutch law to withhold tax on dividends on its ordinary shares, subject to the provisions of any applicable tax convention or domestic law. So, on one hand, dividends paid on Shell Shares A have a Dutch source for tax purposes and are subject to Dutch withholding tax. On the other hand, there is no Dutch withholding tax dividends on the Shell Shares B, which means that such dividends are paid pursuant to the dividend access mechanism established by Shell, and consequently, treated as UK-sourced for tax purposes." [9]

For more information about Shell Shares A and B, consult the Scheme Document and the Prospectus.

1.4 Deal

In April 8th 2015, the Boards of Shell and BG announced that they had reached an agreement on the terms of a recommended cash and share offer to be made by Shell for the entire issued and to be issued share capital of the BG Group.

Under the terms of the acquisition, BG Group shareholders will be enable to receive for each BG Group share, 383 pence in cash, and 0,4454 Shell B Shares. Based on the 90 trading day volume weighted average price of 2,170.3 pence per Shell B Share on April 7th 2015 (being the last business day before the date of the announcement), the terms of the combination represent a value of approximately 1,350 pence per BG Group share which means approximately a premium of 52% referring to the 90 trading day volume weighted average price of 890,4 pence per BG Group Share on April 7th 2015. [xi][10]

1.5 Negotiations

The negotiations for the acquisition of the BG Group were taken in friendly terms, and because of this approach it is not known the offers of the first conversation between the companies, only rumors of the interest of Shell to expand the strategic rationale in the liquid natural gas business. On April 7th 2016 the offer to BG Group's Board was published, and one day after, at April 8th 2016, both boards had reached an agreement.

However, Shell and BG Group's general meeting for the voting of the acquisition only took place on 27th and 28th of January of 2016. [xii][11] [xiii][12]

The acquisition had suffered opposition and uncertainties in the middle of the two past events. With the oil industry facing a downgrade over their prices, Shell's Chief Financial Officer Simon Henry and the Chief Executive Ben Van Beurden had to face the press several times explaining the rationale behind the deal. [xiv][13] Standard Life Investments, the 16th biggest shareholder in Royal Dutch Shell with a 2.1 percent stake, has voiced doubts that the oil price will recover sufficiently to make the acquisition worthwhile, including request for the remaining shareholders to vote against the acquisition. [xv][14]

In the end, the acquisition was approved by both general meetings, and on February 15th 2016, Royal Dutch Shell was pleased to announce that the acquisition had become effective and that the entire issued ordinary share capital of the BG Group was now owned by Royal Dutch Shell. [xvi][15]

1.6 ANALYSTS OVERVIEW OF THE DEAL

The analyst's opinion for this deal is, broadly speaking, positive although they admit that the success will depend on the oil price evolution. The consolidation of the market and the synergies that both companies will create are very clear. Nevertheless, they might be insufficient if the oil price remains at low levels, as the company's exposure to a series of troubled projects in Brazil and costs associated with the launch of a new Liquefied Natural Gas (LNG) project in Australia weighed on the shares. [xvii][16]

Richard Hunter, head of equities at Hargreaves Lansdown stockbrokers stated:

"*Whether precipitated by the falling oil price or BG's more recent production woes, Shell has acted opportunistically, as it previously implied it might if the occasion arose.*

Already the largest FTSE 100 constituent by a considerable margin, this deal will further consolidate Shell's position in that regard. There are clear attractions from Shell's viewpoint, including its additional exposure to liquefied natural gas, almost immediate cost synergies and, in due course, asset sales from a partial break up of BG's operations." [xviii][17]

In addition, there is another issue that concerns the analysts. Issuing more shares and paying a huge amount of cash to obtain the BG Group will affect the future dividends that Shell will pay to their shareholders.

Matthew Beesley, head of global equities at Henderson Global Investors, stated:

"Shell is taking on more risk in issuing more shares and also in paying out cash to BG shareholders. As a result, their balance sheet will become more stretched. And this potentially puts some strain on this dividend as they redirect cash flows to paying down debt ahead of growing the dividend." xix[18] xx[19]

CHAPTER 2.

DEAL ANALYSIS

2.1 REASONS FOR THE ACQUISITION

The reasons for the acquisition can be divided in buyer side and vendor side. The reasons for Shell to acquire the BG Group are the following: efficiency enhancement based in an improvement program, including divestments and the restructuring of underperforming businesses; acceleration of the financial growth strategy, obtained thanks to the BG's competitive natural gas position; mitigation of the risk of the oil volatility, which can be obtained through a bigger bargaining power achieved by the scale improvement; and finally, enhance of free cash flow potential, as the capacity to undertake share buybacks.

Jorma Ollila, Chairman of Shell said:

"This is an important transaction for Shell, accelerating the delivery of our strategy for shareholders. The result will be a more competitive, stronger company for both sets of shareholders in today's volatile oil price world."

Ben van Beurden, CEO of Shell said:

"Bold, strategic moves shape our industry. BG and Shell are a great fit. This transaction fits with our strategy and our read on the industry landscape around us." [20]

The reasons for the BG Group to sell the company have some similarities with the reasons for Shell to make the acquisition. BG's deep water positions and strengths in exploration, liquefaction and LNG shipping and marketing will combine well with Shell's scale; with the merge it will be possible to develop the expertise and join the "know-how" of both companies, transforming the result company in a much more solid enterprise; and, as it would be expected, improve the financial strength of the merge company.

Besides the previous reasons, BG's CEO and Chairman agree that the structure of the offer will provide BG shareholders with an attractive premium and a substantial cash return as well as enabling them, if they wish, to participate in the benefits of the combination through the share components.

Andrew Gould, Chairman of BG said:

"This offer represents an attractive return for BG shareholders. BG has a strong portfolio of operations including growth assets in Australia and Brazil and a highly competitive LNG business, as well as an enviable track record of exploration success." [20]

2.2 STRATEGIC FIT AND FINANCIAL RETURNS

Shell believe that the BG Group is highly complementary to their strategic priorities of deep water and liquid natural gas exploration. By applying the knowledge of Royal Dutch Shell to BG Group assets, it is expected that, by around the year 2020, the combined group will have a potential generation of $15-$20 billions of cash flow from operations per annum for each of the two strategic growth businesses – deep water and integrated gas. Moreover, upstream and downstream engines that could potentially generate a further combined $15-$20 billions of cash flow from operations per annum in total; and long-term positions which could potentially add around a further $10 billion of cash flow from operations per annum. (*Appendix 6* and *7*)

In addition, Shell expects asset sales to increase and to total $30 billion for the period between 2016 to 2018.

Finally, the combination is expected to be mildly accretive to earnings per share until 2017 and strongly accretive to earnings per share from 2018 onwards, on a current cost of supply basis and excluding identified items.

The main priorities for the combined group will be to use the generated cash in order to decrease debt, buyback shares, pay dividends and make capital investments. (*Appendix 8*)[xxi] [20]

2.2.1 Synergies

On April 8th of 2015, based on the recommended cash and share offer that was announced and published, Shell has identified a potential pre-tax synergy that is expected to reach $2,5 billion per annum in 2018, comprising $1 billion of operating cost savings and a $1,5 billion reduction in exploration expenditures. [20] However, on November 3rd of 2015, Shell was able, as a result of further analysis and its integration planning work, to de-risk its initial synergy estimates and increase the expected level of identified pre-tax synergies from $2,5 billion to $3,5 billion in 2018, an increase of 40% from the previous analysis. This increase can be attributed to a doubling of expected operating cost savings from $1 billion to $2 billion.

The potential sources of quantified cost savings arise from:

- "Corporate, administrative, organizational and IT operational efficiencies;"
- "Efficiencies in marketing and shipping costs;"
- "Efficiencies in procurement spend;"
- "Reduced exploration expenditure enabled by the high-grading and optimization of the combined exploration portfolio."

The cost savings referred in the bullet points above are expected to be recurring.

Shell estimates that the implementation of the operating cost savings would give approximately $1,230 million incurred in the first two years post completion by the end of 2017, of which approximately 70% would be incurred in 2016 and 30% in 2017.

By identifying these synergies, the Shell Directors have formulated the following bases of belief:

Corporate, administrative, organizational and IT operational efficiencies of $1,400 million from the de-duplication of overlapping back office and business support functions, the elimination of overlapping support costs, office consolidation, the migration of BG onto Shell IT systems, and removal of duplicative corporate costs;

Efficiencies in procurement spent of $520 million, and marketing and shipping costs of $50 million, which can be translate into $570 million from economies of scale, specification standardization and operating efficiencies across operating, capital and raw material cost areas and optimization of shipping and marketing;

Reduction in exploration expenditure over $1.5 billion from the reduction in exploration expenditure enabled by the high-grading and optimization of the combined exploration portfolio. [xxii][21]

Furthermore, Shell is confident in carrying out additional synergies that cannot be quantified for reporting under the City Code. It includes liquid natural gas integration opportunities in the Atlantic basis and Trinidad, and project coordination and best practice learnings in deep water Brazil.

2.3 Risks

In this acquisition there are three different types of risk. The first type of risk is the traditional integration risk of the acquired company, where it is important to retain the intellectual capital that often walks out after the acquisition. Gerard Paulides, the responsible for the acquisition of the BG Group is focused in avoiding management distraction that may lead to execution problems during this merge. It is well known that if the integration isn't carried out correctly the acquisition may fail. As to the cultural attrition, both companies present many similarities in their procedures, making this issue easy to overpass.

The second risk is the oil prices and their volatility over the past years. Although is a problem inherent to every company of the sector, the risk of the price going against the expectation will have a more serious impact to the combined group. After a merge, the company is more susceptible to financial variations because of the amount of money spent in the acquisition.

Gerard Paulides, the responsible for the acquisition of the BG Group said:

"As a deal maker, I watch volatility closely, in specific segments, over the shorter term, and also in the financial markets in general. Because if volatility is high—over a month, three

months, six months—risk capital becomes more scarce and your ability to move is affected." xxiii[22]

The consequences of the oscillation of the oil price against expectations may cause the reduction of the credit rating, meaning it would raise the interest of the obtained debt.

Finally, the third risk is related to the disclosure of information. Any lack of disclosure for this transaction will probably negatively influence the financial-markets. In order to avoid any bad reaction from the market, Gerard Paulides already has guaranteed the ultimate transparency of the information during the entire process.

2.3.1 Disadvantages of the acquisitions

The Combination will reduce Shell's return on average capital employed by around 1.5%, on a 2014 pro-forma basis, but Shell expects the effect on return on average capital employed to be neutral from 2018, with potential for growth in returns thereafter, assuming flat oil prices.

The return on capital employed is obtained based on the formula:

$$ROCE = \frac{EBIT}{Capital\ Employed}$$

"This ratio allows measuring a company's profitability and efficiency with which its capital is employed, i.e. a higher number of ROCE it means the company is using capital more efficiently." xxiv[23]

It is not expected that the European Commission, one of the main watchdogs that will scrutinize the deal, would block the merge, although it will focus on the combined entity's leading position in the liquefied natural gas market, and could force divestitures in areas of greatest overlap between Shell and BG. The merge will face the anti-trust laws related to Monopoly from Australia, China, EU, USA and Brazil in order to regulate the markets. xxv[24]

CHAPTER 3.

VALUATION

For the valuation of BG Group's acquisition, we will first start by analyzing the merge assuming the proper functioning of the market. Then, we will use a discount cash flow analysis (*DCF* analysis) based on the information provided by Royal Dutch Shell's documents and Annual Reports from both companies. This study will be the main source of assessment. Moreover, we will take into consideration some financial ratios, a regression analysis, comparable transactions, and also, a linear sensitivity analysis that will help to understand the influence of the crude oil's price on the expected results.

3.1 VALUATION BY THE MARKET PERSPECTIVE

Considering the proper functioning of the market and the formula to quantify the value of a merged company;

$$V_{Shell+BG\ Group} = V_{Shell} + V_{BG\ Group} + V_{Synergies}$$

We achieve a valuation of $291,95 billion dollars. (*Appendix 9*)

The value of the BG Group on April 7th of 2015 was $48,16 billion dollars and the value of the synergies for the merge is approximately $25,81 billion dollars – value obtained in *Chapter 3.2.2.1*.

Based on the 90 trading day volume weighted average price, the BG Group had a price per share of approximately $13.395 dollars and, since, Royal Dutch Shell paid a premium of 52%, that gives a total amount of $73,73 billion dollars. By considering the difference between the total value of the BG Group with the total amount paid, we conclude that, by the current market valuation, Royal Dutch Shell has paid approximately the maximum premium in order to obtain benefits from this acquisition.

In order to obtain the gain/loss of Royal Dutch Shell by acquiring the BG Group, we will use the previous formula and decompose into the following equation:

$$Gain/Loss\ of\ Shell = V_{Synergies} - Premium\ paid\ for\ BG$$

Which can be translate into:

$$V_{Shell+BG\ Group} - V_{Shell} - P_{BG} = \left(V_{Shell+BG\ Group} - V_{Shell} - V_{BG\ Group}\right) - \left(P_{BG} - V_{BG\ Group}\right)$$

And so, the gain that Royal Dutch Shell will incur is $244,3 million dollars. (*Appendix 10*)

It's understandable that Royal Dutch Shell does not agree with the market perspective and is counting with the oil's price turnover, as well as with other factors that allow it to obtain greater gains from this acquisition.

3.2 DISCOUNTING CASH FLOW ANALYSIS

The Discounted Cash Flow, as we have said before, will be our main valuation method to appraise the attractiveness of the investment opportunity. *DCF* analysis uses future free cash flow projections and discounts them to reach at a present value estimate, which is used to assess the potential for the investment. Our *DCF* analysis is divided in three steps.

3.2.1 BG Group - Standalone Valuation

The first step for our Discounting Cash Flow analysis is the valuation of the BG Group as a standalone company, i.e. the valuation of the acquired company by itself, considering the development that will be achieved by implementing Royal Dutch Shell's strategy.

To make this valuation possible, it was necessary to use several assumptions. Those assumptions are based on market research, Royal Dutch Shell documents and data from previous BG Group's Annual Reports.

The assumptions used for this first step were the following:

- We have assumed a growth rate equal of 2,99% which is the growth rate obtained by considering a development of a $62,5 billion (*cash flow*) amount by 2020 - combined company vs. sum of the present companies. [xxvi][20] [25] [xxvii][26]

- The discounting cash flow analysis is based on the weighted average cost of capital method (*Wacc*), which means, we will consider the capital structure approximately constant over time (*Appendix 10*);
- The Debt-to-Equity (*D/E*) is calculated with the Equity value of the BG Group, at the moment of the acquisition, and the reformulated Debt value that the BG Group will obtain after the acquisition. This ratio will remain constant (*Appendix 11*);
- The cost of debt was obtained using the following formula:

$$R_b = Rate + Spread$$

The $Rate$ used is the *USD Swap 10-years*, which represent the 10-year US market interest rate, and the $Spread$, is based on the *CDS US 10-years* (*credit default swap*) for ConocoPhilips, which had the same credit rating than the BG Group at the time, providing the risk of BG Group's credit financing; *[source: Bloomberg]*

- The leverage Beta is obtained in Bloomberg, as the adjusted beta for the linear regression analysis - 5 years, subsequently, reformulated, based on the new Debt-to-Equity (*D/E*) ratio; *[Bloomberg source]*

- The cost of equity is calculated using the *CAPM* formula, in which we use as risk-free the US Government Bonds 10-year yield (*2015*) and as the market risk premium the total equity risk premium for UK (*July 2015*) obtained in Damodaran; *[source: Damodaran]*

$$r_e = r_f + \beta_L(E(r_m) + r_f)$$

- 41% of taxes, which is the average of taxes from 2012 to 2014; [25] xxviii[27]xxix [28]
- The weight average cost of capital (*Wacc*) used in the *DCF* analysis is the weighted average of the individual *Waccs* of the BG Group and Royal Dutch Shell, based on the companies' market caps. We have called it – *WAWacc*;
- We have considered working capital requirements as accounts receivable plus inventory minus accounts payable (+/- *others*). Then, we calculated the change in the operation

cycle *(t - (t - 1))* and, based on the relation between the working capital requirements and revenues, we discovered the values that will be obtained in the future; [25] [27] [28]

- It is expected a reduction of 30% for 2015's capital expenditures, in relation to 2014, but also that this reduction continues for years to come – "As our development of QCLNG's second LNG train nears completion, and both the Australia and Brazil projects continue to ramp up production and generate stronger cash flows, our capital expenditure will fall naturally." [25] – For valuation purposes, we have assumed a reduction of *CAPEX* between 2015 to 2020. Although the reduction seems too aggressive, the current levels of capital expenditure are unsustainable for BG Group's revenue, and this fact is supported by the average *CAPEX* from the comparable companies, which are much lower; [25]
- To calculate the terminal value, we have assumed a perpetuity after 2020, with the previous growth rate – 2,99%.

The value obtained for the BG Group's standalone valuation was $56.96 billion dollars, approximately a premium of 18.26% (*Appendix 13*).

3.2.2 Valuation of Synergies

The second step for our valuation is the quantification of the synergies resulting from the acquisition. Those synergies can be divided in two different types: the synergies regarding the reduction of costs and the synergies that Royal Dutch Shell will achieve for its own business.

3.2.2.1 Cost Savings

For the valuation of the cost savings we have used the data indicated by the acquisition report:

- The percentage of its allocation was split from 2015 to 2018 as it is written in *Chapter 2.2.1.* [21]
- We have used a discounted cash flow analysis considering the cost of equity unlevered (R_0), once the cash flows obtained are not dependent from the capital structure;
- WAR_0 is a weighted average, based on the market capitalization, between the R_0 of the standalone BG Group and the R_0 of Royal Dutch Shell;

- The taxes assumed for the calculation of the cost savings is 46%, which results from the weighted average, based on the market capitalization, of BG Group and Royal Dutch Shell taxes. [25] [27] [28]xxx [29] xxxi[30]

- The synergies are recurring and from 2018 onwards it will achieve an amount of $3,5 billion dollars. We have assumed a perpetuity without growth rate.

We valued the cost savings that Royal Dutch Shell will obtain with the acquisition of the BG Group of approximately 25,81 billion, which provides an isolated premium of 52% (*Appendix 14*)

3.2.2.2 Development of Royal Dutch Shell by acquiring the BG Group

Beyond the improvements that the BG Group will incur with this acquisition, Royal Dutch Shell will also obtain a significant increase of its business. Moreover, these improvements are clear in the reports related to the acquisition, when it is stated that only with the combination of both companies it is possible to achieve the amounts referred in *Chapter 2.2*.

For this purpose, besides the standalone valuation of the BG Group and valuation of the synergies of the acquisition, there is a third variable that is important to add to the final valuation in order to define which premium should Royal Dutch Shell pay to obtain the BG Group.
This third variable we have called it - the development of Royal Dutch Shell by acquiring the BG Group - in terms of growth of its own business. Once again, we need to take in consideration several assumptions:

- We have assumed a growth rate equal to 2,99% which is the growth rate obtained by considering a development of a $62,5 billion dollars (*cash flow*) amount by 2020 - combined company vs. sum of the present separate companies. [20] [25] [26]
- The discounting cash flow analysis is based on the weighted average cost of capital method (*Wacc*), which means we will consider the capital structure approximately constant over time. Royal Dutch Shell will be affected by BG Group's structure, in order to maintain the coherence with the valuation done for the BG Group (*Appendix 10*);

- The Debt-to-Equity (*D/E*) is calculated with the Equity value of Royal Dutch Shell, at the moment of the acquisition, and the reformulated Debt value that Royal Dutch Shell will obtain after the acquisition. This ratio will remain constant *(Appendix 12)*;
- The cost of debt was obtain using the following formula:

$$R_b = Rate + Spread$$

  The $Rate$ used is the *USD Swap 10-years*, which represent the 10-year US market interest rate *[source: Bloomberg]*, and the $Spread$, which is based on the *CDS US 10-years* (credit default swap) for Shell providing the risk of Royal Dutch Shell credit rating. *[source: Reuters]*
- The leverage Beta was also obtained in Bloomberg, as the adjusted beta for the linear regression analysis - 5 years, subsequently, reformulated, based on the new Debt-to-Equity (*D/E*) ratio; *[Bloomberg source]*

- The cost of equity is calculated using the *CAPM* formula, in which we used as risk-free the US Government Bonds 10year yield and as the market risk premium the total equity risk premium for Netherlands (*July 2015*) obtained in Damodaran. *[Damodaran source]*

- We have considered working capital requirements as accounts receivable plus inventory minus accounts payable (+/- others). Then, we calculated the change in the operation cycle *(t - (t - 1))* and, based on the relation between the working capital requirements and revenues, we discovered the values that will be obtained in the future; [26] [29] [30]
- The capital expenditures had reduced 21% from 2013 to 2014 and Royal Dutch Shell intends to continue to decrease their capital expenditure as this is the great challenge that the industry will face in the coming years. We have assumed that Royal Dutch Shell's *CAPEX* will be equal to the average of the past 4 years; [26] [29] [30]
- 47% of taxes, which is the average from 2012 to 2014 Royal Dutch Shell's taxes; [26] [29] [30]

- To calculate the terminal value, we assumed a perpetuity after 2020, with the previous growth rate;

- The improvements to Royal Dutch Shell will be the difference between the growth of 2,99%, obtained with the acquisition of the BG Group, and the expected 2014 GDP growth, which we consider as the development that Royal Dutch Shell would have by itself. (GDP growth rate 2014 – 2,47%) [xxxii][31]

The result of this third variable for the final valuation is, approximately, $9,25 billion dollars, which represents an addition of 19,07% of premium (*Appendix 15*);

3.3 DCF Valuation Amount

By adding the previous three forms of *DCF*, we will obtain a final amount of approximately $92,02 billion dollars and, based on the 90 trading day volume weighted average price, BG Group was quoted as $48,50 billion (*07.04.2015*), which means, the premium that Royal Dutch Shell could pay, as the maximum amount to get benefits from the acquisition, it would be approximately 90% of premium over the original price of BG Group. However, it is important to emphasize one point. The assumptions taken into account, have a certain level of subjectivity, in which it is not prudent to state that the valuation obtained gives a fair indication if the amount paid was the appropriate or not. (*Appendix 16*)

3.4 Sensitive Analysis

Our sensitive analysis will focus in two variables, the weighted average cost of capital and the possible growth rate that the combined company may achieve. Thus, we can understand how much sensitive is the valuation of the *DCF* analysis when confronted with possible constraints that may cause a departure of Royal Dutch Shell's strategic intentions on this acquisition.

The results obtained give us a view in which the success of this acquisition depends if the oil price is capable to overpass the barrier of $80 to $85 per barrel. What we can see from the perspectives of the evolution of the oil price is that the expected values are between $65 to $70, meaning, it is unlikely for this acquisition to obtain gains, regarding the premium that is being paid. (*Appendix 17* and *18*)

3.5 Comparable Transactions

Besides the previous valuation, it was considered as relevant to compare the acquisition of the BG Group by Royal Dutch Shell with other similar acquisition that were carried out in the past. Therefore, we have chosen the acquisition of several other petroleum companies, such as Burlington Resources by ConocoPhilips, Amoco Corp by BP, Exxon Corp. by Mobil Corp., or, Total Fina SA. by Elf Aquitane. The average premium that was paid for the acquisition of the companies aforementioned was approximately 33,3%, which is far less than the premium paid by Royal Dutch Shell for the BG Group. Once more, there are some factors that can explain the difference between the premiums that were paid in the past when compared with the acquisition that it is being studied. The first one is, of course, the fact that different companies offer different synergies to the companies that were acquiring them. The second factor is more important and it is the fact that the previous acquisitions were carried out in a stage in time when the perspectives for the evolution of the oil price were a steady rise, which in fact, when compare to the volatility that the oil price is facing today, in 2015, changes the valuation and consequent reasons to execute mergers or acquisitions. In addition, petroleum companies are fighting to maintain with their reserves stable, consolidate the oil's market in an attempt to avoid the constant drop of the price and to increase their bargaining power.

Regarding these three factors, and mainly due to the second, comparable transactions of the past, although important, requires caution when assessing this deal. (*Appendix 19*).

3.6 Regression analysis

The regression analysis is very simple. It consists in the valuation of BG Group's market capitalization and enterprise value based on the past crude oil's price. With this analysis we will be able to obtain a trend, in which, by adding the foreseen value of the oil price we can predict the possible market value for the BG Group.

Assuming an oil price between $65 and $70 dollars, the market valuation of the BG Group is approximately $51,93 - $56,21 billion dollars, which is a premium of 7% - 16% (*Appendix 20* and *21*).

3.7 Financial Ratios and Comparable Companies

The oil industry is characterized by high levels of debt, therefore, the most significant measure of performance in oil and gas producers is core cash flow. This measure will sustain in meeting debt commitments.

The lack of sustainable future cash flows on the oil and gas producers may cause financial flexibility problems. Net income could remain solid, but if cash flow doesn't increase, financial issues could arise without the ability to cover its debt. Focusing on free cash flow, cash flow from operations and core cash flow are the most relevant metrics for the oil and gas industry. Oil and gas display a significant level of costs associated as non-cash items (examples: depreciation, and amortization coupled with a large amount of deferred taxes). Cash balances, cash flow and bank credit lines develop the liquidity for current and future commitments. The adequacy of cash flow is used to identify a company's capability to finance capital needs internally vs. externally. This effect on capital spending indirectly impacts a company's ability to change the timing of projects without impairing operations.

The reasons above, explain why the price-to-cash flow ratio (*P/CF*) is an essential tool for analyzing oil and gas companies. The higher this multiple, the riskier the stock is. Due to the complexity of the oil and gas industry, a price to cash flow multiple should be used, as it removes the effects of non-cash metrics such as depreciation. [xxxii][32]

Based on the data obtained from Bloomberg, we can state that even with the decrease of the market capitalization of the BG Group, price-to-operational cash flow ratio was able to remain constant, including, drop in the last year, which indicates that the company is capable of obtaining significant value from their operations notwithstanding the fact of the markets consider the company more fragile. This ratio, however, does not take leverage into account, so it can be misleading when used by itself. *P/CF* is not a value that should be used alone.

In order to have a general overview of BG Group's performance, we will analyze and compare some global multiples with similar companies. The global multiples studied are *EV/EBITDA*, *EV/Sales*, *P/E* and *P/Book*.

Both *EV/EBITDA* and *P/Book* provide us the information that the BG Group was always overvalued by the market. However, the *EV/EBITDA* is much more incisive, particularly in the year of the acquisition, where the multiple achieved a value of 58,22, which is extremely high, while *P/Book* is not that aggressive.

As to *EV/Sales*, which gives to investors an important measure of how much it costs to purchase the company's sales, the values of this ratio are stable and do not differ from the comparable firms.

The *P/E* of the BG Group is higher than the industry average, which means that the market has high expectations over the next few months or years. (*Appendix 22, 23 and 24*).

CHAPTER 4.

CONCLUSION

The conclusions obtained, from our evaluation of the acquisition of BG Group by Royal Dutch Shell, do not fall away from what was expect. However, the assessment is not conclusive, since it depends on certain factors, a lot of times, unrelated to mathematical models and susceptible to a high level of subjectivity.

On the one hand, this acquisition represents a good opportunity to Royal Dutch Shell to purchase an enormous company that is facing a decrease of its market value and, in the near future, will be able to assimilate the profits from their previous investments. Furthermore, it is incontestable that Royal Dutch Shell will increase its bargaining power and will also mitigate the dependency on the oil price volatility, by expanding its business portfolio even more to the LNG business. The divestment that Royal Dutch Shell has to undertake does not represent a harmful factor for this acquisition, as Royal Dutch Shell already had made most of it in the past years.

On the other hand, after evaluating the BG Group and comparing with similar companies, we can honestly state, that the premium paid, approximately 52%, is excessive. Royal Dutch Shell is betting in the turnover of the oil market and their expectations to the evolution of the oil prices are overrated. Assuming that the oil price will achieve the predictions of $65 to $70 per barrel, there is no evaluation that sustains or supports the acquisition. Based on our previous analysis, the maximum premium that could be paid, in order to achieve benefits, would be approximately 29% to 32%. (*Appendix 25*)

Finally, we conclude that the acquisition is extremely beneficial to BG Group shareholders, as they will achieve a huge and immediate return upon their current value. Solely based on the premium being paid, which is, in our view, excessive, we would not recommend Royal Dutch Shell shareholders to agree with this acquisition.

APPENDIX

Royal Dutch Shell

• Based in The Hague. Founded in 1907 after Shell merged with Royal Dutch;

• Ben van Beurden, chief executive, was paid €24 million on the last year. He has been with the firm for more than 30 years.

• Biggest company in the FTSE-100, with market value $180 billion dollars;

• A profit of $15 billion dollars in 2014;

• Has 92,000 employees.

• Produces an average of 3 million barrels, oil equivalent, per day;

• Royal Dutch Shell intends to acquire BG because it will diversify the portfolio, needs to expand the reserves and wants to develop in the gas industry. [33]

BG Group

• Based in Reading.

• Formerly state-owned of British Gas focused in the upstream business. In 1997, the company was divide into two separate firms, BG Group and Centrica, in 1997;

• Helge Lund, chief executive, has arrived to BG Group in the beginning of 2014. Royal Dutch Shell wants to replace him, and it will pay more than £25 million;

• 14th biggest company in the FTSE-100, with an approximately market value of $48 billion dollars;

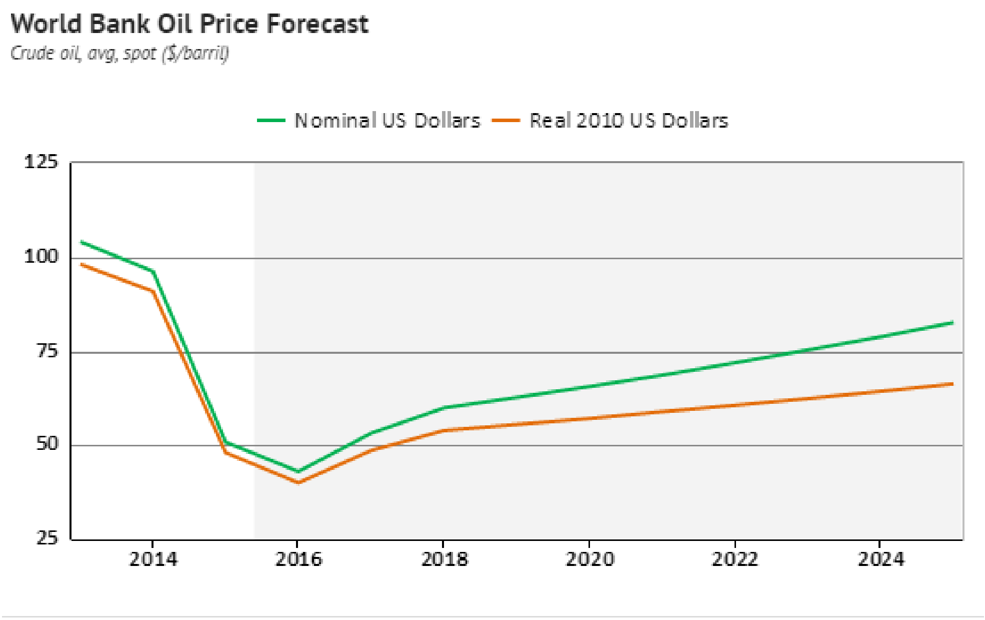
• Had a loss of $1 billion dollars in 2014;

• Has 5,143 employees;

• Produces an average of 606,000 barrels, oil equivalent, per day;

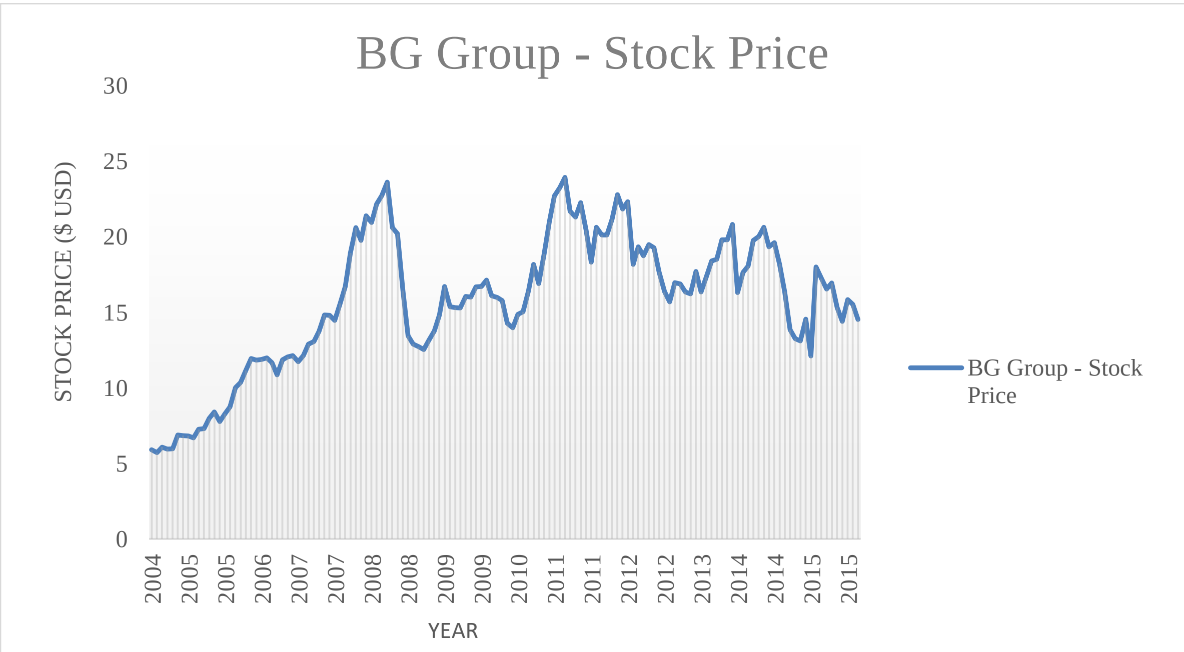
• BG Group is wanted because it is a leader in liquefied natural gas and because of the previous investments realized in Brazil and Tanzania. [xxxiv][33]

Appendix 1 – Overview of BG Group and Royal Dutch Shell [6]

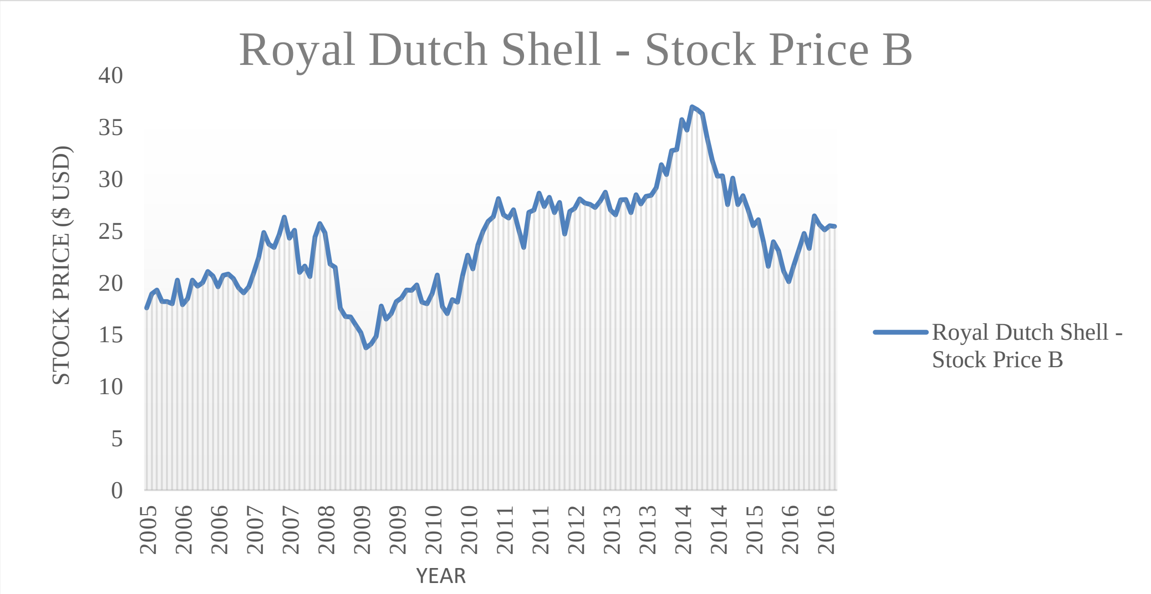


	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Nominal US Dollars	43,0	53,2	59,9	62,7	65,6	68,6	71,9	75,3	78,8	82,6
Real 2010 US Dollars	40,0	48,6	53,9	55,5	57,1	58,9	60,6	62,4	64,3	66,3

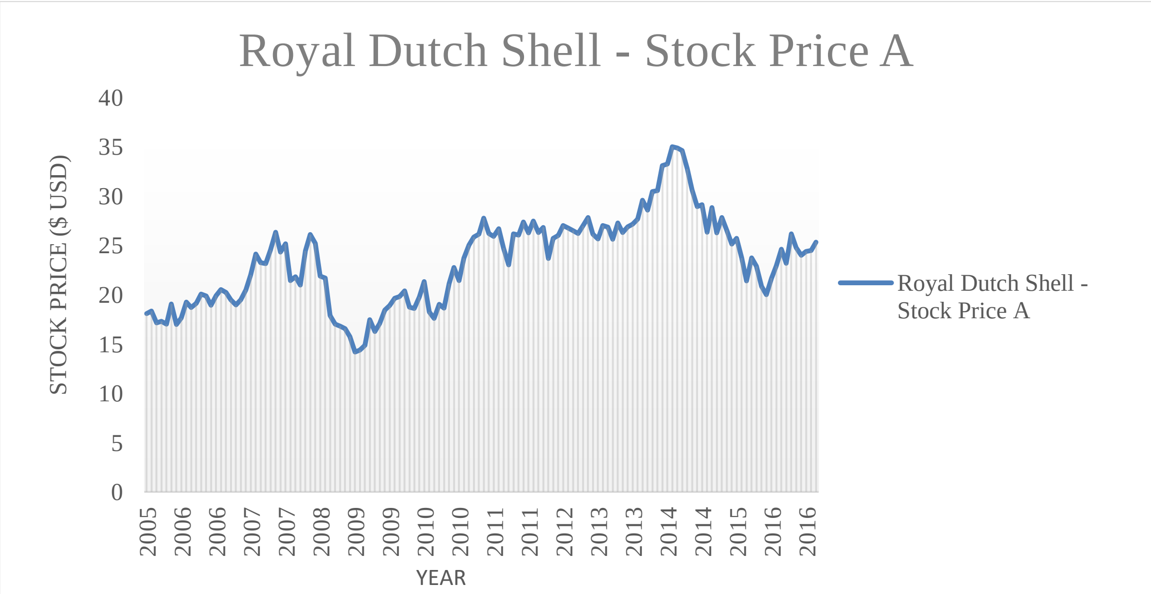
Appendix 2 - Oil Price Forecast – World Bank Report [6]



Appendix 3 - BG Group Share Price (USD) [7]



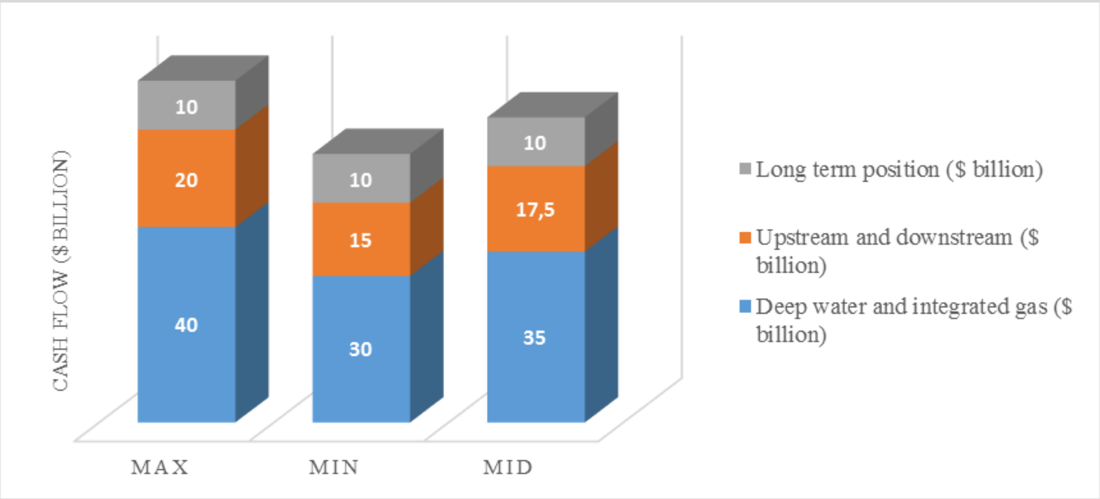
Appendix 4 - Royal Dutch Shell B Share Price (USD) [7]



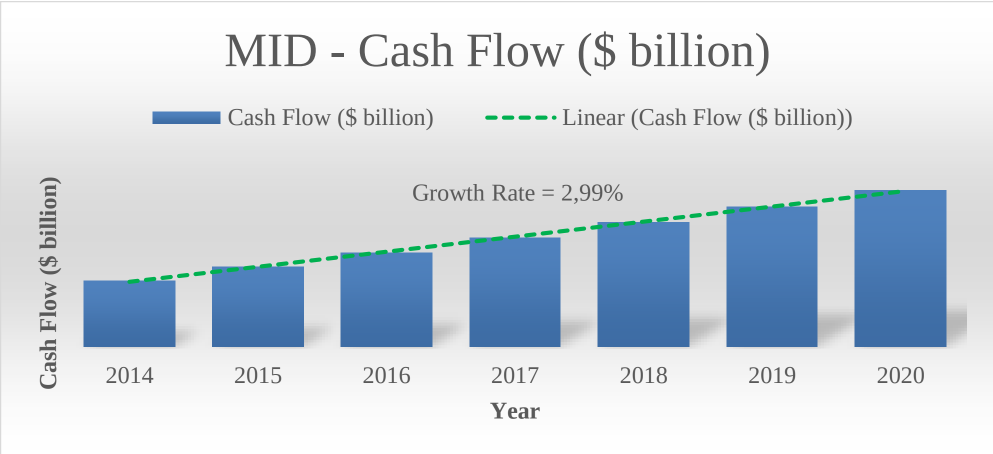
Appendix 5 - Royal Dutch Shell A Share Price (USD)

	Strategic fit and Financial returns - $99 per barrel		
	max	min	mid
Deep water and integrated gas ($ billion)	40	30	35
Upstream and downstream ($ billion)	20	15	17,5
Long term position ($ billion)	10	10	10
Total ($ billion)	70	55	62,5

Appendix 6 -Strategic fit and Financial returns - $99 per barrel



Appendix 7 - Strategic fit and Financial returns – Chart



Appendix 8 - Strategic fit - Growth rate for a middle forecast

BG Group Market Cap. ($ million)	48161,7
- Cash & Equivalents ($ million)	5295,0
+ Preferred Equity ($ million)	0,0
+ Minority Interest ($ million)	0,0
+ Total Debt ($ million)	17507,0
Total Debt ($ million)	12212,0
BG Group EV ($ million)	60373,7

Shell Market Cap. ($ million)	181009,4
- Cash & Equivalents ($ million)	21607,0
+ Preferred Equity ($ million)	0,0
+ Minority Interest ($ million)	820,0
+ Total Debt ($ million)	45540,0
Total Debt ($ million)	24753,0
Shell EV ($ million)	205762,4

Synergies ($ million)	25812,4

Vs+bg ($ million)	291948,5
Price per share BG ($ USD)	13,4
#shares BG Group (million)	3621,0
90 trading day volume weighted average priceMark. Cap. BG Group ($ million)	48506,4
Premium (%)	52,0%
Price paid for BG Group ($ million)	73729,7
Gain of Shell ($ million)	244,3

Appendix 9 - Calculations for the Market Perspective

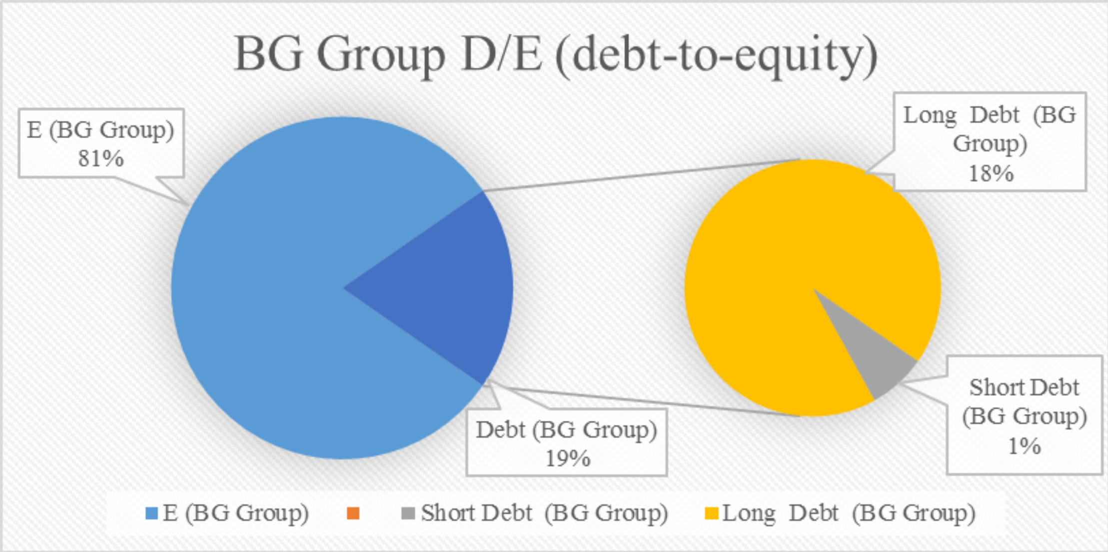
BG Group		Royal Dutch Shell	
Rate	2,37%	Rate	2,37%
Spread	1,43%	Spread	1,22%
Rd	3,80%	Rd	3,59%
Beta leverage	1,329	Beta leverage	1,077
Rf	2,269%	Rf	2,269%
MRP	5,81%	MRP	5,81%
Re	9,99%	Re	8,53%
Taxes	41%	Taxes	47%
D (debt - $ million)	17529	D (debt - $ million)	44562
E (equity- $ million)	48802,24	E (equity- $ million)	226382,86
D/E (debt-to-equity)	0,359	D/E (debt-to-equity)	0,197
Betad	0,431	Betad	0,373
Beta0	1,172	Beta0	1,010
D (corrected - $ million)	16741	D (corrected - $ million)	58379
E (corrected - $ million)	48161,65	E (corrected - $ million)	181009,44
D/E (corrected)	0,35	D/E (corrected)	0,32
Beta Leverage (corrected)	1,32	Beta Leverage (corrected)	1,12
Re (corrected)	9,96%	Re (corrected)	8,77%
D/(E+D)	0,258	D/(E+D)	0,244
E/(E+D)	0,742	E/(E+D)	0,756
Wacc	7,97%	Wacc	7,10%
Market cap. ($ million)	48161,65	Market cap. ($ million)	181009,44

WAWACC	7,281%

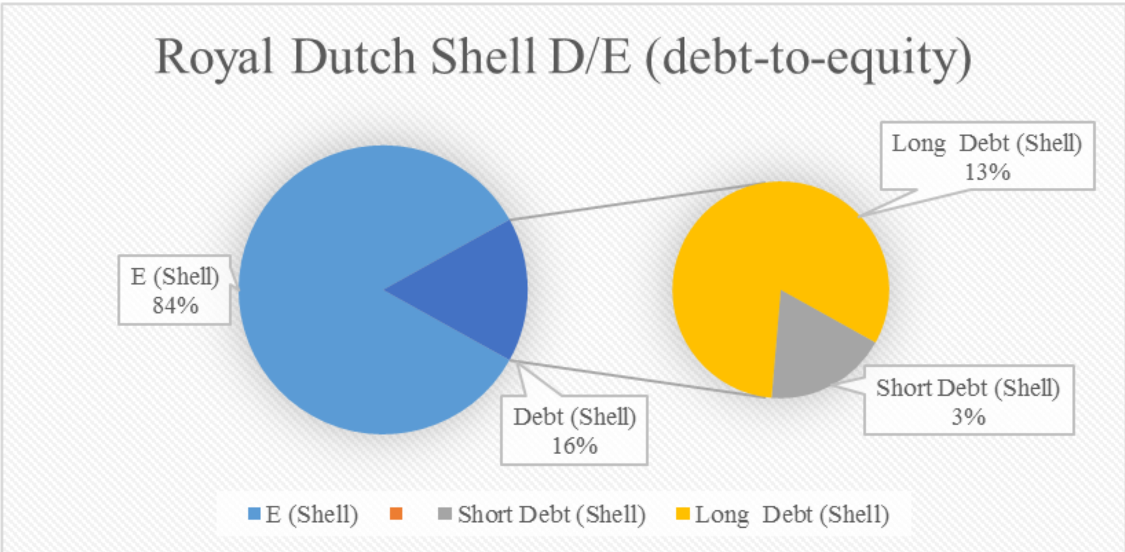
R0 (corrected)	9,96%	R0 (corrected)	8,77%
Market cap. ($ million)	48161,65	Market cap. ($ million)	181009,44

WAR0	9,023%

Appendix 10 - Financial data from BG Group and Royal Dutch Shell



Appendix 11 - BG Group D/E (debt-to-equity) - Historical Average



Appendix 12 - Royal Dutch Shell D/E (debt-to-equity)- Historical Average

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Business Performance ($ million)									
Group Revenue	$ 18 933,00	$ 19 192,00	$ 19 289,00	$ 19 865,74	$ 20 459,73	$ 21 071,47	$ 21 701,51	$ 22 350,38	$ 23 018,66	
Other operating income	$ 30,00	$ -91,00	$ 257,00	$ 65,33	$ 65,33	$ 65,33	$ 65,33	$ 65,33	$ 65,33	
Group revenue and other operating income	$ 18 963,00	$ 19 101,00	$ 19 546,00	$ 19 931,07	$ 20 525,06	$ 21 136,81	$ 21 766,84	$ 22 415,72	$ 23 083,99	
Operating costs	$-11 355,00	$-11 981,00	$-13 391,00	$-12 702,47	$-13 082,27	$-13 473,43	$-13 876,28	$-14 291,19	$-14 718,49	
Profits and losses on disposal of non-current assets and impairments	-	-	-	-	-	-	-	-	-	
Operating profit/(loss) EBITDA	$ 7 608,00	$ 7 120,00	$ 6 155,00	$ 7 228,61	$ 7 442,79	$ 7 663,38	$ 7 890,56	$ 8 124,53	$ 8 365,50	
Depreciation of property, plant and equipment	$ 2 525,00	$ 2 946,00	$ 2 788,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	
Amortisation of other intangible assets	$ 68,00	$ 9,00	$ 11,00	$ 29,33	$ 29,33	$ 29,33	$ 29,33	$ 29,33	$ 29,33	
EBIT	$ 5 015,00	$ 4 165,00	$ 3 356,00	$ 4 674,28	$ 4 888,46	$ 5 109,04	$ 5 336,23	$ 5 570,20	$ 5 811,17	
Taxes	$ -2 193,74	$ -1 661,54	$ -1 195,59	$ -1 919,51	$ -2 007,47	$ -2 098,05	$ -2 191,34	$ -2 287,43	$ -2 386,38	
Noplat	$ 2 821,26	$ 2 503,46	$ 2 160,41	$ 2 754,76	$ 2 880,99	$ 3 010,99	$ 3 144,88	$ 3 282,77	$ 3 424,79	
Depreciation of property, plant and equipment	$ 2 525,00	$ 2 946,00	$ 2 788,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	$ 2 525,00	
Amortisation of other intangible assets	$ 68,00	$ 9,00	$ 11,00	$ 29,33	$ 29,33	$ 29,33	$ 29,33	$ 29,33	$ 29,33	
Operational profit	$ 5 414,26	$ 5 458,46	$ 4 959,41	$ 5 309,10	$ 5 435,32	$ 5 565,33	$ 5 699,21	$ 5 837,11	$ 5 979,12	
CAPEX	$ 11 291,00	$ 11 634,00	$ 8 877,00	$ 6 213,90	$ 4 971,12	$ 4 225,45	$ 3 802,91	$ 3 612,76	$ 3 522,44	
Changes in NWC	$ -624,87	$ 279,80	$ -445,21	$ 529,97	$ 133,03	$ 145,63	$ 159,42	$ 174,52	$ 191,05	
Cash flow	$ -5 251,87	$ -6 455,34	$ -3 472,38	$ -1 434,77	$ 331,17	$ 1 194,24	$ 1 736,88	$ 2 049,82	$ 2 265,63	
WACC	7,28%									
free cash flow				$ -1 337,40	$ 287,75	$ 967,22	$ 1 311,23	$ 1 442,45	$ 1 486,11	
Continuous CF										$52 798,58
Market Value			$ 56 955,93							

Appendix 13 - Standalone Valuation for BG Group

	2014	2015	2016	2017	2018	2019
	Cost Savings ($ billion)					
Corporate, administrative, organisational and IT operational efficiencies		$ 1,40	$ 1,40	$ 1,40	$ 1,40	
Efficiencies in marketing and shipping costs		$ 0,05	$ 0,05	$ 0,05	$ 0,05	
Efficiencies in operated procurement spend		$ 0,52	$ 0,52	$ 0,52	$ 0,52	
The reduction in exploration expenditure enabled by high-grading and optimisation of the combined exploration portfolio.		-	$ 0,86	$ 1,23	$ 1,50	
Pre-tax synergies		$ 1,97	$ 2,83	$ 3,20	$ 3,47	
Taxes		$ 0,90	$ 1,29	$ 1,46	$ 1,59	
After tax synergies		$ 1,07	$ 1,54	$ 1,74	$ 1,88	
WAR0	9,02%					
Free Cash Flow		$ 0,98	$ 1,29	$ 1,34	$ 1,33	
Continuous CF						$ 20,87
Total Cost Savings	$ 25,81					

Appendix 14 - Cost Savings Valuation

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Business Peformance ($ million)									
Revenue	$ 467 153,00	$ 451 235,00	$ 421 105,00							
Share of profit of joint ventures and associates	$ 8 948,00	$ 7 275,00	$ 6 116,00							
Interest and other income	$ 5 599,00	$ 1 089,00	$ 4 123,00							
Total revenue and other income	$ 481 700,00	$ 459 599,00	$ 431 344,00	$ 444 241,19	$ 457 524,00	$ 471 203,96	$ 485 292,96	$ 499 803,22	$ 514 747,34	
Purchases	$ 369 725,00	$ 353 199,00	$ 327 278,00	$ 339 811,34	$ 349 971,70	$ 360 435,85	$ 371 212,88	$ 382 312,15	$ 393 743,28	
Production and manufacturing expenses	$ 26 215,00	$ 28 386,00	$ 30 038,00	$ 27 516,67	$ 28 339,42	$ 29 186,77	$ 30 059,46	$ 30 958,23	$ 31 883,88	
Selling, distribution and administrative expenses	$ 14 465,00	$ 14 675,00	$ 13 965,00	$ 13 969,11	$ 14 386,78	$ 14 816,95	$ 15 259,98	$ 15 716,25	$ 16 186,17	
Research and development	$ 1 307,00	$ 1 318,00	$ 1 222,00	$ 1 245,95	$ 1 283,21	$ 1 321,57	$ 1 361,09	$ 1 401,79	$ 1 443,70	
Exploration	$ 3 104,00	$ 5 278,00	$ 4 224,00	$ 4 104,85	$ 4 227,59	$ 4 353,99	$ 4 484,17	$ 4 618,25	$ 4 756,34	
EBITDA	$ 66 884,00	$ 56 743,00	$ 54 617,00	$ 57 593,26	$ 59 315,30	$ 61 088,83	$ 62 915,39	$ 64 796,56	$ 66 733,97	
Depreciation, depletion and amortisation	$ 14 615,00	$ 21 509,00	$ 24 499,00	$ 20 207,67	$ 20 207,67	$ 20 207,67	$ 20 207,67	$ 20 207,67	$ 20 207,67	
EBIT	$ 52 269,00	$ 35 234,00	$ 30 118,00	$ 37 385,60	$ 39 107,64	$ 40 881,16	$ 42 707,72	$ 44 588,89	$ 46 526,31	
Taxation	$ 24 566,43	$ 16 428,40	$ 14 042,98	$ 17 571,23	$ 18 380,59	$ 19 214,15	$ 20 072,63	$ 20 956,78	$ 21 867,36	
Noplat	$ 27 702,57	$ 18 805,60	$ 16 075,02	$ 19 814,37	$ 20 727,05	$ 21 667,02	$ 22 635,09	$ 23 632,11	$ 24 658,94	
Depreciation, depletion and amortisation	$ 14 615,00	$ 21 509,00	$ 24 499,00	$ 20 207,67	$ 20 207,67	$ 20 207,67	$ 20 207,67	$ 20 207,67	$ 20 207,67	
Operational Income	$ 42 317,57	$ 40 314,60	$ 40 574,02	$ 40 022,03	$ 40 934,71	$ 41 874,68	$ 42 842,76	$ 43 839,78	$ 44 866,61	
CAPEX	$ 32 576,00	$ 40 145,00	$ 31 854,00	$ 32 878,75	$ 32 878,75	$ 32 878,75	$ 32 878,75	$ 32 878,75	$ 32 878,75	
Change in working capital		$ 191,55	$ -5 783,05	$ 12 486,02	$ 2 407,64	$ 2 522,31	$ 2 642,45	$ 2 768,31	$ 2 900,17	
Cash flow				$ -5 342,74	$ 5 648,33	$ 6 473,62	$ 7 321,56	$ 8 192,71	$ 9 087,69	
WACC	7,28%									
free cash flows				$ -4 980,13	$ 4 907,65	$ 5 242,98	$ 5 527,27	$ 5 765,17	$ 5 960,94	
Continuous CF										$ 211 781,15
Market value			$ 234 205,03							

Appendix 15 - Development of Royal Dutch Valuation

DCF Valuation Amount	
BG Group Valuation ($ billion)	56,96
Cost Savings Valuation ($ billion)	25,81
Development of Royal Dutch Shell ($ billion)	9,25
Total amount ($ billion)	92,02
BG Group Market Cap. ($ billion)	48,51
Premium	90%

Appendix 16 - DCF Analysis - Final Valuation Amount

	Amount of the Acquisition ($ billion)									
Wacc / growth	0,00%	0,33%	0,66%	1,00%	1,33%	1,66%	1,99%	2,33%	2,66%	2,99%
6,081%	83,48	88,35	93,23	98,10	102,97	107,85	112,72	117,59	122,47	127,34
6,281%	77,59	82,47	87,34	92,21	97,09	101,96	106,83	111,71	116,58	121,45
6,481%	71,71	76,58	81,45	86,33	91,20	96,07	100,95	105,82	110,69	115,57
6,681%	65,82	70,69	75,57	80,44	85,31	90,19	95,06	99,93	104,81	109,68
6,881%	59,93	64,81	69,68	74,55	79,43	84,30	89,17	94,05	98,92	103,79
7,081%	54,05	58,92	63,79	68,67	73,54	78,41	83,29	88,16	93,03	97,91
7,281%	48,16	53,03	57,91	62,78	67,65	72,53	77,40	82,27	87,15	92,02
7,481%	43,74	48,76	53,78	58,80	63,81	68,83	73,85	78,87	83,88	88,90
7,681%	39,33	44,49	49,65	54,81	59,98	65,14	70,30	75,46	80,62	85,78
7,881%	34,91	40,22	45,53	50,83	56,14	61,44	66,75	72,05	77,36	82,66
8,081%	30,50	35,95	41,40	46,85	52,30	57,75	63,20	68,65	74,10	79,54
8,281%	26,08	31,68	37,27	42,87	48,46	54,05	59,65	65,24	70,83	76,43
8,481%	21,67	27,41	33,14	38,88	44,62	50,36	56,09	61,83	67,57	73,31
8,681%	17,25	23,14	29,02	34,90	40,78	46,66	52,54	58,43	64,31	70,19
8,881%	12,84	18,87	24,89	30,92	36,94	42,97	48,99	55,02	61,04	67,07

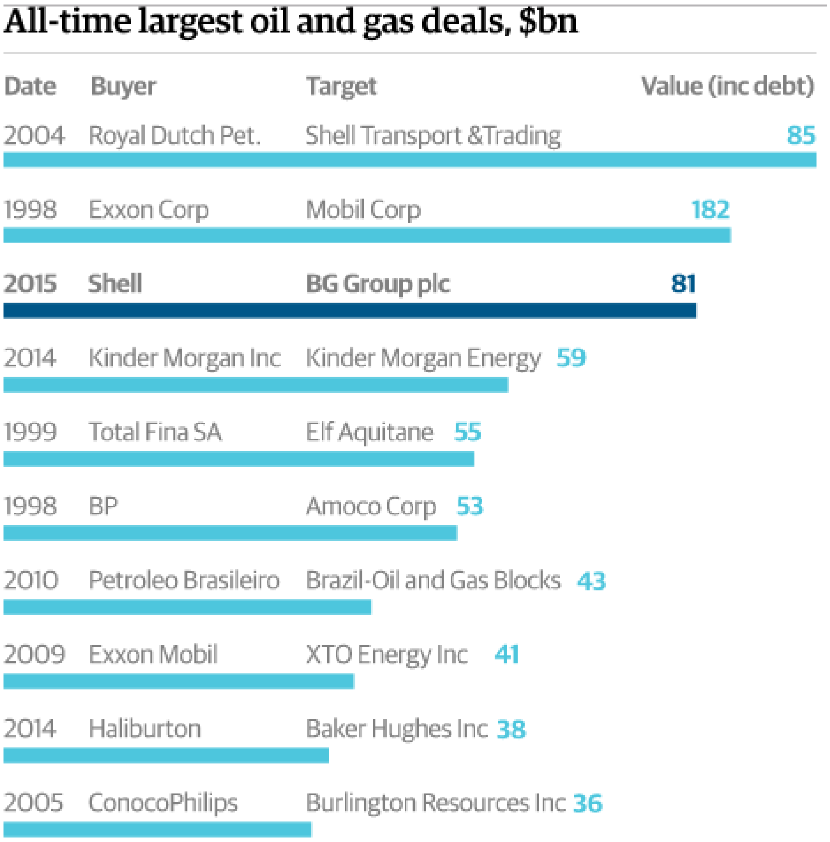
Appendix 17 - Sensitive analysis based on Wacc/Growth variation – Amount to be paid for the acquisition.

	Premium (%)									
Wacc / Oil Price	$ 53,98	$ 59,19	$ 64,39	$ 69,60	$ 74,80	$ 80,01	$ 85,21	$ 90,42	$ 95,62	$ 99,00
6,081%	72,10%	82,15%	92,20%	102,24%	112,29%	122,34%	132,38%	142,43%	152,48%	162,52%
6,281%	59,97%	70,01%	80,06%	90,11%	100,15%	110,20%	120,25%	130,29%	140,34%	150,39%
6,481%	47,83%	57,88%	67,92%	77,97%	88,02%	98,06%	108,11%	118,16%	128,20%	138,25%
6,681%	35,69%	45,74%	55,79%	65,83%	75,88%	85,93%	95,97%	106,02%	116,07%	126,11%
6,881%	23,56%	33,60%	43,65%	53,70%	63,74%	73,79%	83,84%	93,88%	103,93%	113,98%
7,081%	11,42%	21,47%	31,52%	41,56%	51,61%	61,66%	71,70%	81,75%	91,80%	101,84%
7,281%	-0,71%	9,33%	19,38%	29,43%	39,47%	49,52%	59,57%	69,61%	79,66%	89,71%
7,481%	-9,82%	0,53%	10,87%	21,21%	31,56%	41,90%	52,25%	62,59%	72,93%	83,28%
7,681%	-18,92%	-8,28%	2,36%	13,00%	23,64%	34,29%	44,93%	55,57%	66,21%	76,85%
7,881%	-28,02%	-17,08%	-6,14%	4,79%	15,73%	26,67%	37,61%	48,54%	59,48%	70,42%
8,081%	-37,12%	-25,89%	-14,65%	-3,42%	7,82%	19,05%	30,29%	41,52%	52,75%	63,99%
8,281%	-46,22%	-34,69%	-23,16%	-11,63%	-0,10%	11,43%	22,96%	34,50%	46,03%	57,56%
8,481%	-55,33%	-43,50%	-31,67%	-19,84%	-8,01%	3,82%	15,64%	27,47%	39,30%	51,13%
8,681%	-64,43%	-52,30%	-40,18%	-28,05%	-15,93%	-3,80%	8,32%	20,45%	32,57%	44,70%
8,881%	-73,53%	-61,11%	-48,69%	-36,26%	-23,84%	-11,42%	1,00%	13,43%	25,85%	38,27%

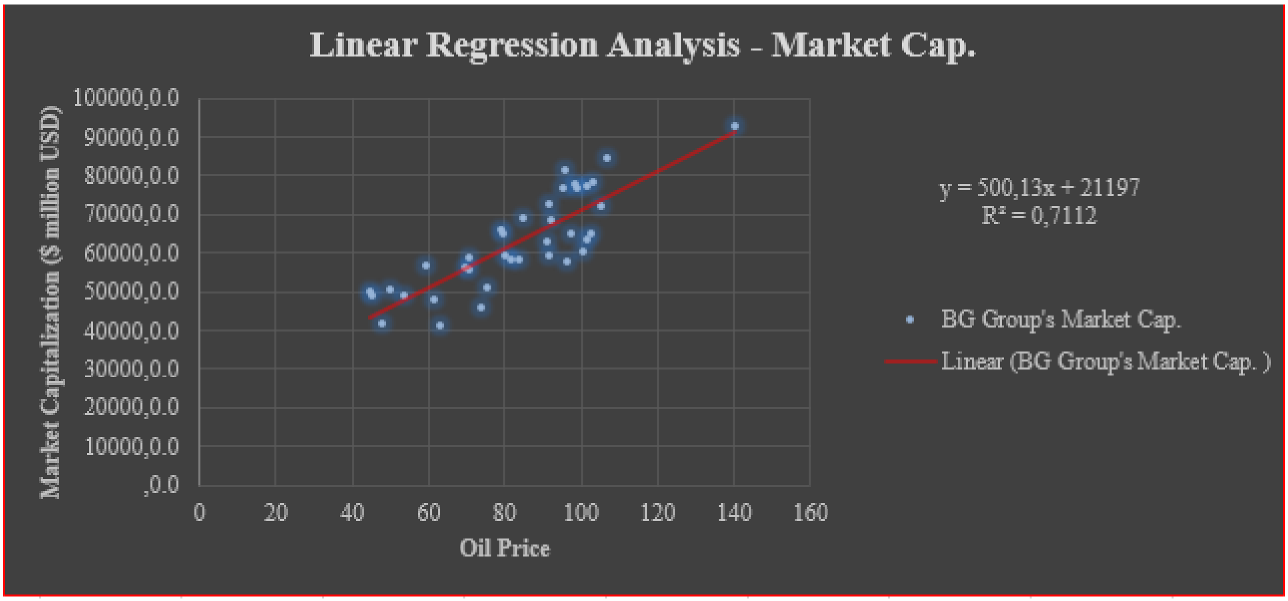
Appendix 18 - Sensitive analysis based on Wacc/Oil Price – Premium to be paid for the acquisition.

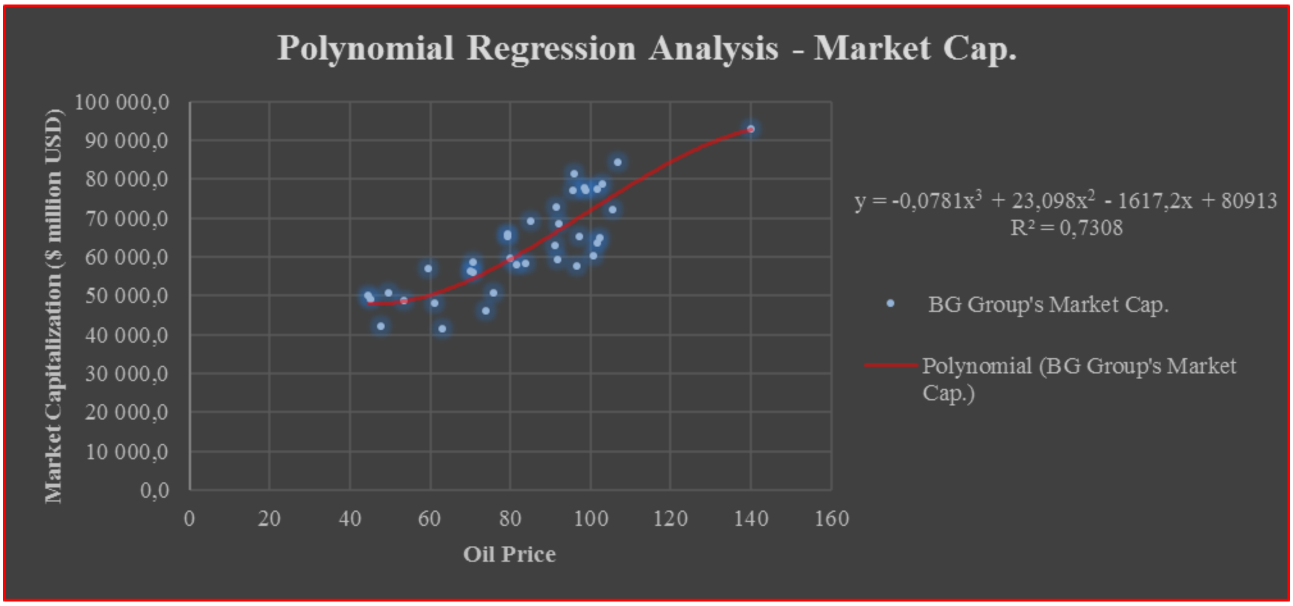
Target Company	Date	Total Value ($ million)	Market Cap.	TV/EBITDA	TV/EBIT	TV/Book Val	TV/Enterprise Val	TV/Market Cap
XTO Energy Inc	12/14/09	41366,82	27752,26	6,51	12,44	2,38	1,2	1,49
Nexen Energy ULC	07/22/12	17431,65	13675,78	4,34	8,88	2,05	1,43	1,27
Petrohawk Energy Corp	07/14/11	14887,12	11546,43	13,89	42	4,06	1,32	1,29
Repsol Oil & Gas Canada Inc	12/16/14	12949,33	7818,01	5,88	53,96	1,46	0,94	1,66
Plains Exploration & Production Co	12/05/12	10172,9	5811,70	6,98	18,58	3,09	1,12	1,75
Addax Petroleum Corp	06/23/09	8826,96	6807,40	3,15	4,07	3,65	1,75	1,30
Athlon Energy Inc	09/28/14	6843,19	4788,07	28,44	54,61	5,55	1,23	1,43
Marathon Oil Canada Corp	07/30/07	6616,33	5661,11	18,13	22,11	7,7	1,09	1,17

Acquirer	Acquisition	Date	Premium
Exxon Corp.	Mobil Corp.	1998	15,13%
BP	Amoco	1998	22,56%
ConocoPhilips	Burlington Resources	2005	11,52%
Total Fina SA	Elf Aquitane	1999	15,00%

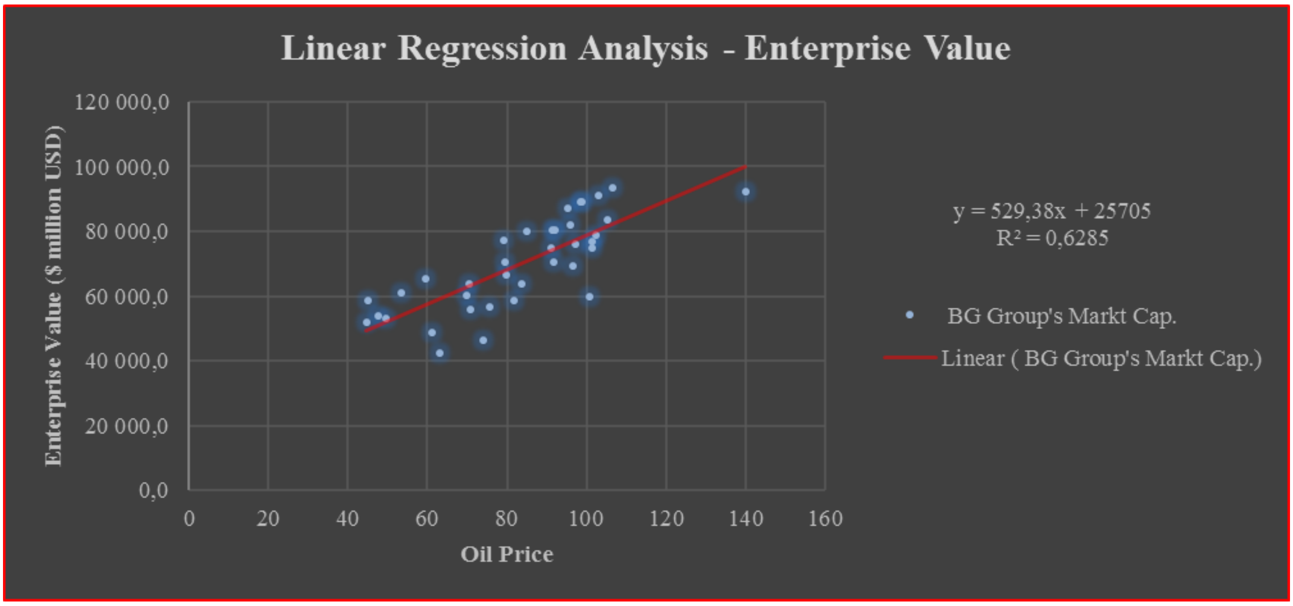


Appendix 19 - Comparable Transactions [source: Bloomberg]. [33]





Appendix 20 – Linear and Polynomial Regression Analysis - BG Group Market Cap. [source: Bloomberg]



Appendix 21 - Regression Analysis - BG Group Enterprise Value [source: Bloomberg]

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
P/E	13,336	13,637	22,295	10,246	17,395	20,186	17,672	16,954	33,170	—	21,280
P/Book	3,305	3,916	5,690	2,687	2,843	2,767	2,623	1,807	2,434	1,675	1,767
P/Tangible Book	3,963	4,666	6,833	3,973	4,510	3,978	3,430	2,093	2,771	1,877	1,983
P/Cash Flow	12,005	9,374	13,460	7,086	10,531	10,750	10,426	7,343	9,876	6,541	12,869
P/Free Cash Flow	32,281	19,028	33,158	18,558	—	—	—	—	—	—	—
EV/Sales	3,662	3,534	4,982	2,829	4,276	4,683	5,033	3,727	4,643	3,163	3,846
EV/EBITDA	7,594	6,952	10,910	5,745	8,853	10,380	9,608	8,006	13,520	58,220	9,866
EV/EBIT	9,328	8,649	13,303	6,698	11,486	14,381	12,770	11,343	24,507	—	20,093
Price/Share	9,874	13,561	22,801	13,948	18,118	20,206	21,348	16,445	21,494	13,478	14,513

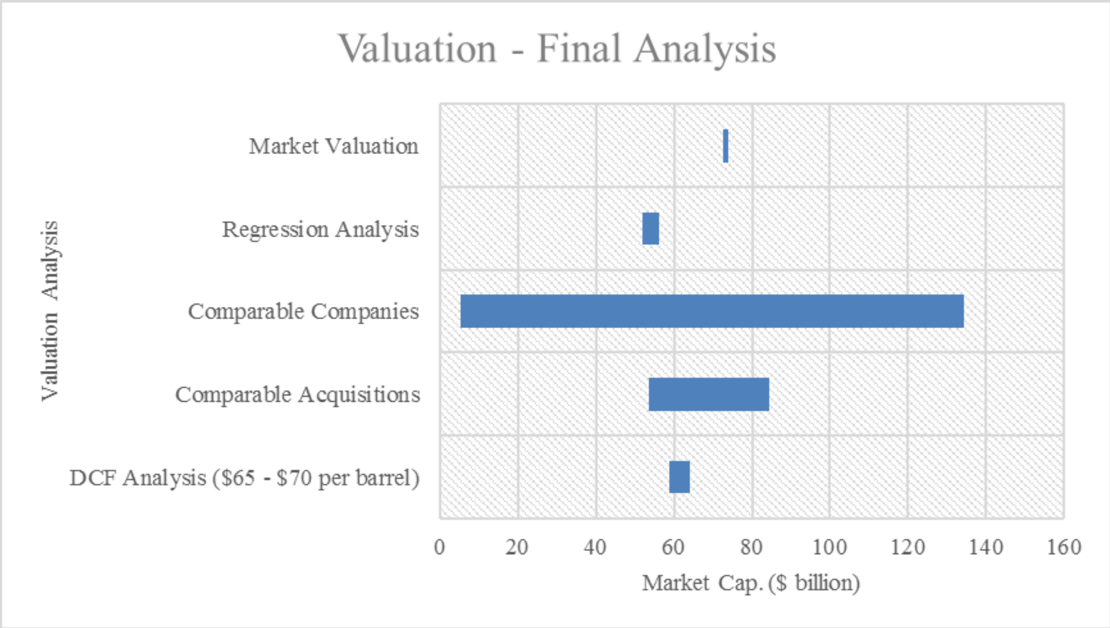
Appendix 22 - Global Quantitative Ratios – Annual Report Values [source: Bloomberg]

	2008	2009	2010	2011	2012	2013	2014
Market Cap. ($ million)	49962,70	65134,43	72862,62	77088,13	59432,30	77788,16	48802,24
Cash Flow To Firm ($ million)	8536,04	5714,41	6472,73	7000,69	7670,39	7496,42	—
Cash Flows From Operations ($ million)	8131,57	5549,61	6386,00	6982,00	7995,00	7817,00	7399,00
P/CF	5,85	11,40	11,26	11,01	7,75	10,38	—
P/CF from Operations	6,14	11,74	11,41	11,04	7,43	9,95	6,60

Appendix 23 - P/CF from Operations. Annual Report Values

	EV ($ million)	**EV/ EBITDA**	**P/E**	**P/FCF**	**P/Book**
Lundin Petroleum AB	60798,09	10,23	58,16	-	10,72
Novatek ojsc.	30346,89	11,23	38,14	30,74	3,69
Aker BP ASA	25642,41	5,65	-	-	2,03
Repsoil Oil & Gas Canada	15966,42	8,46	53,24	-	1,11
KazMunaiGas Exploration	3621,74	3,3	17,7	5,45	0,62
Dragon Oil plc.	2506,67	3,02	6,87	15,61	1,21
Nostrum Oil & Gas plc.	1497,6	4,5	11,42	11,71	1,82
Premier Oil plc.	2114,5	3,1	5,88	-	0,61
Ukrnafta pjsc.	692,89	3,06	12,67	59,55	1,08
EnQuest plc.	923,03	1,3	2,3	-	0,35
Median	**3064,2**	**3,9**	**12,67**	**15,61**	**1,16**
BG Group Ltd.	47366,34	67,19	20,85	-	2,14

Appendix 24 – Financial ratios of comparable companies - at deal announcement date. [source: Bloomberg]



Appendix 25 - Valuation - Final Analysis

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