



Investment Analysis Project

Petrofac Ltd.

Yani Wang

Dissertation written under the supervision of Dr. Antonios
Kassanis

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Abstract

My dissertation is an analysis for Petrofac which is a leading service provider to the oil and gas production and processing industry. The aim of this dissertation is to value the company and give a BUY or SELL or HOLD recommendation. The dissertation starts with a company overview, and I analyze it from the overall economics, industry and the Petrofac's financial statement. The projection is based on the macroeconomics, industry and the Petrofac's development goal. The valuation in the final part is based on the projection by using Discount Dividend Model, Discount Cash Model and Abnormal Earnings Model. The final conclusion of the share price is given as BUY.

Title: Investment Analysis Project for Petrofac Ltd.

Author: Yani Wang

Keywords: Petrofac; Share Price Valuation; Oil and Gas; DDM; DCM; AEM

Resumo

A minha dissertação consiste numa análise para a Petrofac, empresa líder no fornecimento para a produção de petróleo e gás. O principal objectivo desta dissertação é avaliar a firma mencionada e emitir uma recomendação de BUY, SELL ou HOLD. Começarei por dar uma visão geral e analisar de forma global a indústria, a empresa ao nível financeiro e operacional. A projecção é baseada em factores macroeconómicos, industriais e nos objectivos de desenvolvimento da Petrofac's. A avaliação apresentada na parte final é efectuada através do Dividend Discount Model, Discount Cash Model e Abnormal Earnings Model. A conclusão final dada o preço actual da acção é BUY.

Título: Projeto de Análise de Investimentos da Petrofac Ltd.

Autor: Yani Wang

Palavras-chave: Petrofac; Avaliação de preço de ações; petróleo e gás; DDM; DCM; AEM

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Company Overview

1.1 Company Background

Petrofac is a leading service provider to the oil and gas production and processing industry and a FTSE 250 company with a 36-year track record.

Building trust with long-term clients helped to established a leading position with \$320millions Net Profit in 2016 (\$9millions in 2015). Petrofac employs 13,500 persons worldwide. Through the

oil and gas life cycle, the company assists clients to transform the value of their assets. Their services are divided into three parts: design and build oil and gas infrastructure; operate, maintain and manage assets; and train personnel.

Company name	Petrofac
Address	4 th floor, 117 Jermyn Street, SW1Y 6HH London United Kingdom
TEL	+44 20 7811 4900 +44 20 7811 4901
Website	https://www.petrofac.com
Ticker	PFC
Exchange	LSE
Revenue	\$7.9 billion
Backlog	\$14.3 billion
Net Profit	\$320 million
Employees	13,500
Industry	Oil Related Services and Equipment

1.2 Company Operations

Petrofac comprises oil and gas production and processing, their projects span over 29 countries, which are located in Middle East, Africa, Europe, Americas, Asia Pacific, India and CIS. Including seven operational centers in Sharjah, Abu Dhabi, Chennai, Mumbai, Aberdeen, Woking and Kuala Lumpur; 24 offices and a number of training facilities.

	KUWAIT US\$M	OMAN US\$M	UNITED ARAB EMIRATES US\$M	UNITED KINGDOM US\$M	SAUDI ARABIA US\$M	ALGERIA US\$M	MALAYSIA US\$M	OTHER COUNTRIES US\$M	CONSOLIDATED US\$M
2015	2,185	1,477	1,326	668	798	463	357	599	7,873
2016	555	1,408	1,395	804	332	833	520	997	6,844

Table 1 Geographical Revenues - taken from Petrofac Annual Report 2016

In 1981, Petrofac was established in Tyler, Texas, USA with 25 staffs. After 10 years, Petrofac became a Multinational Corporation with an operational center in Sharjah, United Arab Emirates. In the following years, Petrofac expanded their business globally and was awarded a lot of projects in different regions. Table 1 presents the disclosed revenues with major income from the Middle East (Oman US\$1,408 million, United Arab Emirates US\$1,395 million).

	ENGINEERING& CONSTRUCTION	ENGINEERING& PRODUCTION SERVICES	INTEGRATED ENERGY SERVICES	CORPORATE & OTHERS	CONSOLIDATION ADJUSTMENTS& ELIMINATIONS	BUSINESS PERFORM ANCE	EXCEPTIONAL ITEMS AND CERTAIN RE- MEASUREMENTS	TOTAL
	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M	US\$M
2015	4,821	1,739	379	-	(95)	6,844	-	6,844
2016	5,928	1,725	271	-	(51)	7,873	-	7,873

Table 2 Segments Revenues - taken from Petrofac Annual Report 2016

In order to fit the new group organizational structure, the reporting segments have been rearranged to: Engineering & Construction, Engineering & Production Services and Integrated Energy Services. The trading results are monitored separately to assess their performance and decide the resource allocation. As we can see from the *Table 2*, the major revenues arose from the Engineering & Construction segment (2016: US\$5,928 million)



Image taken from: <https://www.petrofac.com/en-gb/about-us/where-we-operate/>

1. Abu Dhabi – SARB3 field development project which worth US\$0.5 billion
2. Algeria – In Salah southern fields development project which is an important milestone
3. Iraq – Badra field development which have been completed successfully
4. Kuwait – Lower Fars heavy oil development project which worth US\$ 4 billion

1.3 Corporate Governance and Shareholders



Rijnhard van Tets

2014
Non-Executive Chairman
Chairman of Nominations
Committee








	Ayman Asfari	<u>2002</u> Group Chief Executive
	Alastair Cochran	<u>2016</u> Chief Financial Officer
	Thomas Thune Andersen	<u>2014</u> Senior Independent Director Chairman of the Remuneration Committee
	Andrea Abt	<u>2016</u> Non-executive Director
	Matthias Bichsel	<u>2015</u> Non-executive Director
	René Médori	<u>2012</u> Non-executive Director Chairman of the Audit Committee
	George Pierson	<u>2016</u> Non-executive Director

Table 3 Board

The board is the core of the corporate governance, the effectiveness of the board impacts the business performance and the equity of shareholders. The board of Petrofac will be analyzed from 5 different factors as following.

The first factor is the size of board, Lipton and Lorsch (1992) put forward that the lack of meaningful discussions because of the size of board, which should be limited with a maximum of 10 members. However, if the size of the board is too small, it will limit the viewpoints. Conversely, the members in a big size board have difficulties to communicate with each other in a limited time. The board of Petrofac consists of a non-executive chairman, group chief executive, chief operating officer, chief financial officer, senior independent director and four non-executive directors. This 8-member board allows directors to know each other well and have effective meetings.

The second factor is the frequency of meetings. The strategy making, supervision of management and other relative activities from the board are through board meetings. According to Korn and Ferry’s survey (1992), the directors would be expected to spend at least 94 hours on board-related business. In Petrofac, besides six scheduled face-to-face meetings, the board also communicates via telephone conferences. Additionally, face-to-face meeting were held in the form of a two-day conference. Lipton and Lorsch (1992) also suggest additional meetings resulting in salutary effects.



Image taken from: Petrofac Annual Report 2016

Third, the separation of management and control can help to improve the problem of power, when everything is concentrated on the chairman or CEO. The chairman of Petrofac (Rijnhard van Tets) is responsible for leading the board and ensuring the effective board governance and represents the shareholders’ equity. The CEO of Petrofac is Ayman Asfari, who is responsible for leading and motivating management team. In addition, Ayman Asfari is the major shareholder with 62,958,426 shares (18.2%, Table 4). Therefore, Ayman as a major shareholder and the CEO, has the same goal with the chairman to improve the business performance and maximize the equity of shareholders.

	NUMBER OF ORDINARY SHARES	PERCANTAGE OF ISSUED SHARE
AYMAN ASFARI AND FAMILY	62,958,426	18.2%
MAROUN SEMAAN AND FAMILY	18,034,399	5.2%

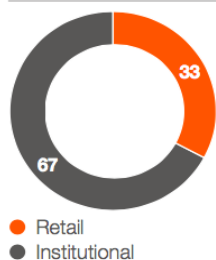
Table 4 Major Shareholders - taken from Petrofac Annual Report 2016

Fourth, the intensive plan for the board is an effective way to improve business performance. The major shareholders can focus on the long-term development, and avoid the short-term decision. The intensive plans are divided into cash and shares. Petrofac has Annual Bonus and Performance Share Plans. The award from Annual Bonus is based on the performance in the relevant financial year, which can be up to 200% of the basic salary. The Performance Share Plan strengthens Executive Directors’ performance over the long-run and usually rewards conditional shares. This is in line with the target about the long-term strategy of company and alignment with long-run shareholder value.

Finally, the role of the Independent Director will be analyzed. According to NASDAQ Rule 4200 a(15): “Independent Director means a person other than an executive officer or employee of the company or any other individual having a relationship which, in the opinion of the issuer's board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director” (Security and Exchange Commission, 2017). Thomas Thune Andersen has extensive international experience with well-established knowledge of the energy industry and the market. Andrea Abt, René Médori and George Pierson are non-executive Independent Director of the company. While Andrea has a good understand in sales, finance, procurement and logistics; René has a wide-ranging international financial experience with strong background in governance, operational and strategic management. George is a lawyer and engineer with strong background in risk management, contracting, construction law, compliance and cost efficiency. As the results from Dahya & McConnel’s study indicate that there is a significant positive correlation between the representation of independent director and the board decision. The four Independent Directors are specialists in finance, law, management respectively, therefore, they can provide advices from different areas, which can lead to an improvement in business performance and ensures that no single individual can dominate the decision-making process.

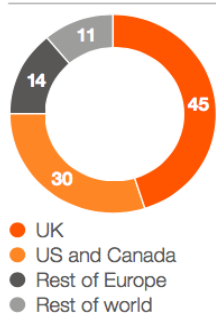
Petrofac issued 345,912,747 ordinary shares, which are quoted on the London Stock Exchange. According to the Annual Report 2016, the major shareholders with shares greater than 5% voting rights are Ayman Asfari and Maroun Semaan.

**Shareholder splits (ownership)
– by holding (%)**



Petrofac shareholdings are composed of 33% retail and institutional 67%. The major regions of shareholders are from the UK, U.S. and Canada.

**Shareholder splits (ownership)
– by territory (%)**



Petrofac believes that useful and accessible engagement is the cornerstone to interact with shareholders. The Investor Relations team will schedule meetings with existing and potential shareholders, analysts and investors. This meeting consists of presentations and question & answer sessions. For some people who cannot attend, the presentations are streamed by internet.

Image taken from: Petrofac Annual Report 2016

1.4 Peers

There are many competitors of Petrofac in the oil and gas market. The major competitors of Petrofac are Amec Foster Wheeler (AMFW), Hunting (HTG) and John Wood Group (WG). The reason why I choose these companies is that they are operating within the FTSE250 with similar business activities.

Amec Foster Wheeler is an international company focused on the Oil, Gas & Chemicals, Mining, Power & Process and Environment & Infrastructure market with more than 160 years of history. Their business expands to 55 countries, employs around 35,000 staff throughout their global operations.

Hunting is an international company which provides oil and gas services worldwide. They established in 1874 and provide their energy service to 13 countries through a workforce of 2,107 employees. A unique feature of Hunting are the 428 patents (2016).

John Wood Group provides energy service, products and support for oil and gas industry, they started their business in Scotland in 1912. Their operations exceed 40 countries employing more than 8,000 staff in total.

Performance of Petrofac’s competitors shown as below:

Identifier	Company Name	EV/Revenue (SmartEstimate®) (NTM)	EV/EBITDA (SmartEstimate®) (NTM)	Price/EPS (SmartEstimate®) (NTM)	Price/Revenue (SmartEstimate®) (NTM)
PFC.L	Petrofac Ltd	0.37	3.65	5.60	0.27
SPMI.MI	Saipem SpA	0.54	5.05	16.85	0.37
SUBC.OL	Subsea 7 SA	0.94	4.16	15.52	1.20
AMFW.L	Amec Foster Wheeler PLC	0.61	9.92	10.09	0.39
WG.L	John Wood Group PLC	0.69	9.09	14.17	0.62
HTG.L	Hunting PLC	1.49	14.84	56.84	1.46
AKSOL.OL	Aker Solutions ASA	0.55	8.41	46.16	0.48
FTI.PA	TechnipFMC PLC	0.64	5.54	16.63	0.87

Identifier	Company Name	Price/Cash Flow Per Share (SmartEstimate®) (NTM)	Price/Book Value Per Share (SmartEstimate®) (NTM)	Dividend Per Share Yield (SmartEstimate®) (NTM)
PFC.L	Petrofac Ltd	4.09	1.36	9.2%
SPMI.MI	Saipem SpA	5.86	0.64	0.9%
SUBC.OL	Subsea 7 SA	7.86	0.75	3.6%
AMFW.L	Amec Foster Wheeler PLC	10.68	1.89	3.4%
WG.L	John Wood Group PLC	9.38	1.39	4.1%
HTG.L	Hunting PLC	20.42	0.96	0.5%
AKSOL.OL	Aker Solutions ASA	20.57	1.52	0.5%
FTI.PA	TechnipFMC PLC	16.81	1.00	1.4%

Table 5 Performance, taken from Thomson Reuters

1.5 Market Sectors

From January 2016, Petrofac reorganize their Group structure. The three new reporting segments are listed below:

Engineering & Construction, E&C (Revenue: US\$5,928m)

E&C provides onshore and offshore lump-sum engineering, procurement, construction, installation and commissioning services. Petrofac provides brownfield and greenfield developments with a 35-year history record. In December 2016, they received an order worth US\$600 million. As a result, the revenue in E&C increased from US\$4,821 million in 2015 to

US\$5,928 million in 2016 stipulating a growth of 23%. In addition, the net profit significantly grew by 31,200%, compared to a loss of US\$1 million in 2015.

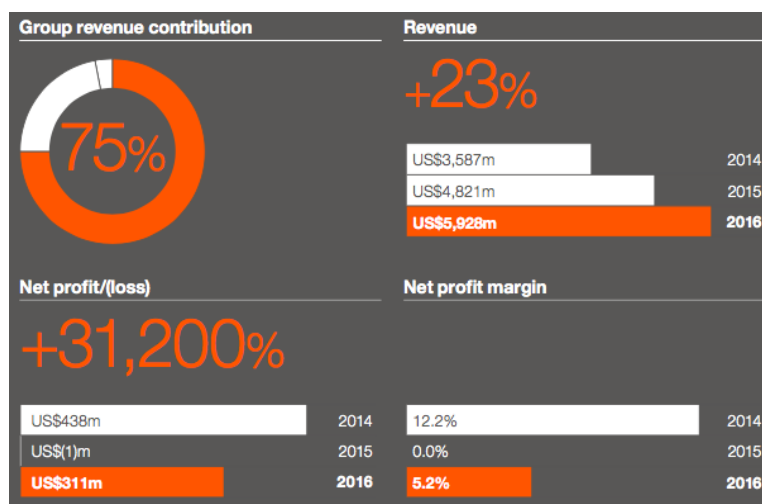


Image taken from: Petrofac Annual Report 2016

Engineering & Production Services, EPS (Revenue: US\$1,725m)

EPS delivers modified solutions for onshore and offshore products to clients across the asset life cycle. Moreover, EPS covers Engineering, Procurement and Construction Management (EPCm) service line, Duty Holder and Service Operator models, Integrated Specialist Services. Through these services, EPS is worth close to US\$1.3 billion in 2016. The revenue for 2016 stayed nearly unchanged at US\$1,725 million (US\$1,739 million). However, the net profit increased by 91% from US\$58 million (2015) to US\$111 million (2016).

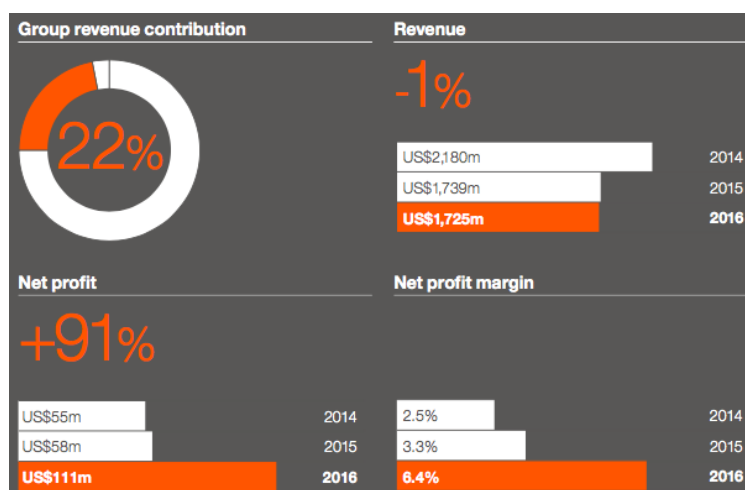


Image taken from: Petrofac Annual Report 2016

Integrated Energy Services, IES (Revenue: US\$271m)

An integrated service is provided by IES for clients, which includes the greenfield and brownfield, energy infrastructure projects and investments. Under a range of commercial models Petrofac is able to meet client requirements. This service is composed of Production Enhancement Contracts (PECs), Risk Service Contracts (RSCs), and Traditional Equity Upstream Investment models. The lower production and the lower oil and gas prices brought a decline in revenue in 2016 combined with a net loss of US\$42 million.

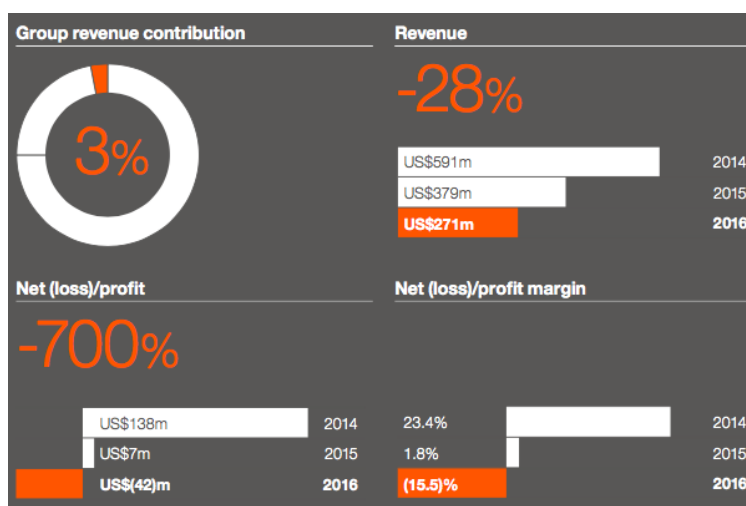


Image taken from: Petrofac Annual Report 2016

1.6 News

The impact of news announcements on the share price can be seen in the graph below. Good news positively influences the share price and vice versa. From Figure 1 we can see a negative impact of news announcements on the stock performance in 2017.

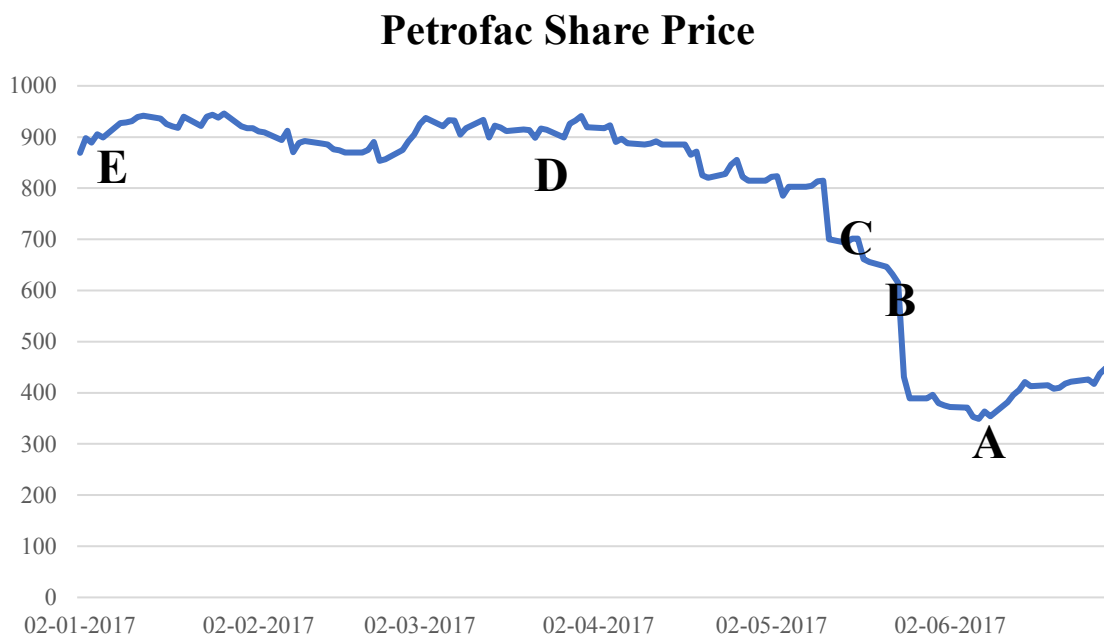


Figure 1 Share Price News Impact

A) 13 June 2017 – PETROFAC SECURES FIVE-YEAR TRAINING AGREEMENT WITH KUWAIT OIL COMPANY (KOC) (+13.83%)

The team of Petrofac's EPS will undertake this work within Kuwait, improve the ability of operations and maintain personnel by developing KOC's training program. The competency system of KOC will be updated to a new stage after this work.

B) 25th May 2017 – UPDATE ON SFO INVESTIGATION AND BOARD CHANGE (-37.85%)

Petrofac announced the investigation by Serious Fraud Office (SFO), related to Unaoil and other agents. Ayman Asfari will continue in his role as Chief Executive Officer, Marwan Chedid has resigned from the Board in the meantime.

C) 18th May 2017 – BOARD CHANGE (-11.09%)

Petrofac announced that Jane Sadowsky has resigned as a Non-Executive Director with immediate effect. Ms Sadowsky has been a Board member since 1st November 2016.

D) 28th March 2017 – Petrofac awarded US\$1.3 billion project in Kuwait (+2.07%)

Petrofac has been awarded a contract from Kuwait Oil Company's (KOC). This project is a lump-sum EPC project which worth close to US\$1.3 billion. And the work will begin soon and is expected to be completed in mid of 2020.

E) 09th January 2017 – PETROFAC AWARDED OMAN GAS PROJECT (+3.97%)

Salalah LPG SFZCO LLC (SLPG) is the wholly owned subsidiary of Oman Oil Facilities Development Company LLC (OOFDC), Petrofac has signed a contract worth close to US\$600 million to undertake the EPC of Salalah LPG extraction project in the southern part of Oman.

2 Economic Analysis

As we can see from Section 1.2, Petrofac is a diverse company with business operations in the Middle East, Africa, Europe, Americas, Asia Pacific, India and CIS. The main corporate office is in London and the Middle East is their key operation region. The transaction currency of Petrofac is U.S. dollar, since the commodity is traded in this currency. The UK and Middle East economy will be discussed in this part as well as the U.S. economy.

2.1 General Economic

Real GDP Worldwide

(percent change from previous year)

	2014	2015	2016	2017	2018	2019	2016	2017	2018	2019
	Estimates			Projections			Percentage point differences from January 2017 projections			
World	2.8	2.7	2.4	2.7	2.9	2.9	0.1	0.0	0.0	0.0
Advanced economies	1.9	2.1	1.7	1.9	1.8	1.7	0.1	0.1	0.0	0.0
United States	2.4	2.6	1.6	2.1	2.2	1.9	0.0	-0.1	0.1	0.0
Euro Area	1.2	2.0	1.8	1.7	1.5	1.5	0.2	0.2	0.1	0.1
Japan	0.3	1.1	1.0	1.5	1.0	0.6	0.0	0.6	0.2	0.2
Emerging and developing economies (EMDEs)	4.3	3.6	3.5	4.1	4.5	4.7	0.1	-0.1	-0.1	0.0

Image taken from: World Bank

The global growth in terms of Real GDP is predicted to accelerate to 2.7% in 2017 and 2.9% in 2018-2019. As we can see from the Table above, the World Real GDP in 2016 anticipated to fall from 2.7% (2015) to 2.4% which is in line with the January 2017 projections. The advanced economic growth has decreased by 0.4% from 2.1% (2015) to 1.7% (2016) while the growth in EMDEs is projected to accelerate to 4.1% in 2017, up from 3.5% in 2016, before strengthening further to 4.5% and 4.7% in 2018-2019.

As predicted in January, the global activity is picking up and the global growth is expected to strengthen in 2017.



Figure 2 Downside Risks to Global Growth Forecasts

Sources from: Bloomberg, Consensus Economics, World Bank.

However, according to the world bank report, risk to the global outlook remain tilted to the downside, which is caused by the increase in the uncertainty of advanced economic policy, elevated trade protectionism and the possibility of financial market disruptions. Those factors may cause a weaker potential global growth in the long-run.

2.2 Major Economy

The activities in major advanced economies could lead to stronger than expected impacts to the global outlook, notably in the U.S.

In the 19th century, the UK was the economic superpower in the world, its trading partners suffered indirect losses when it was involved in a financial crisis. Until the 20th century, the UK lost his position and the U.S. has become the largest economy measured by the nominal GDP (\$16.58 trillion) which accounts for 24.68% of gross world product in 2016. Figure 4 shows that China performs better than the U.S. measured in terms of GDP based on PPP after 2013 – approximately \$21,269 billion in China compared to \$18,562 billion in the U.S.

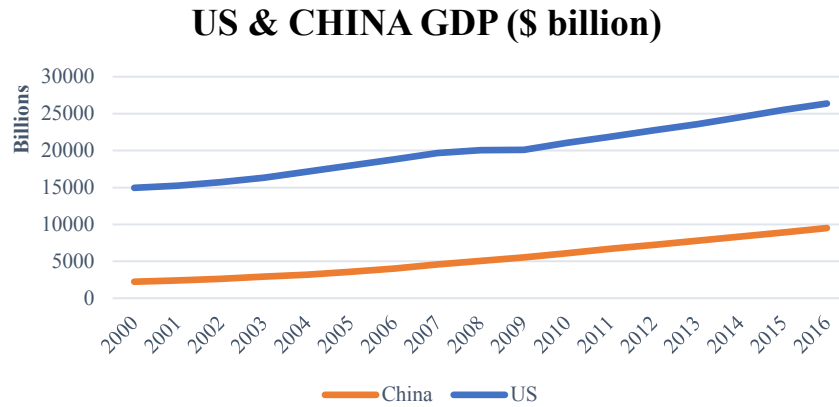


Figure 3 U.S. & China GDP in Constant US\$ Dollar

Source from: the World Bank

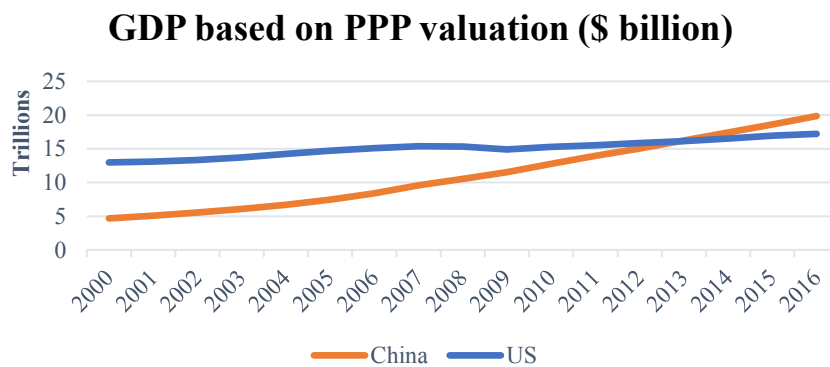


Figure 4 U.S. and CHINA GDP based on PPP

Source from: the World Bank

First of all, the U.S. has been the leader in the world economic development. The data in Figure 5 is provided from the World Bank from 2000 to 2016 and shows the percentages of the U.S. of the world GDP. The average value for U.S. during this period is around 26.12%. The minimum value is 21.55% in 2011 while the maximum is 32.46% in 2001. It indicates that the U.S. GDP is the major part of the global GDP. This means if the U.S. is hit by an economic slowdown world GDP will decrease significantly. This can be shown on the example of the Subprime Mortgage Crisis. A Subprime Mortgage is a type of mortgage which is issued by lending institutions to low credit borrowers. According to Amadeo (2017), this crisis started in the late 2006 and peaking in 2009. The main reason is banks sold too many mortgages to borrowers with low credit ratings, the falling home prices occurred with defaults. In the

following years (2007-2008), banking crisis, financial crisis and the worst recession occurred due to Subprime Mortgage Crisis.

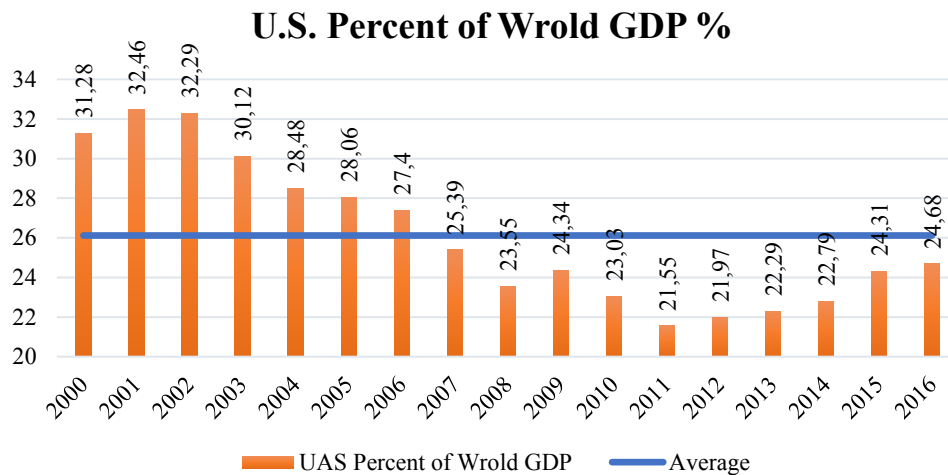


Figure 5 U.S. Percent of world GDP

Source from: the World Bank

Secondly, the U.S. implements the trade liberalization policy which leads to global integration. In addition, there is a board economic link between the U.S. and the rest of the world. According to the Economic Complexity Index (ECI), the United States is the 2nd largest export economy with \$1.38T and largest importer with \$2.16T in the world (see Figure 6). As a result, a negative impact from the U.S. economy can easily spread out to the world through the interactions in trade, financial, monetary, investment, confidence and policy channel. The main cause is the import and export trade. When the U.S. is experiencing a recession, there should be a receding in consumption of residents, the capital expenditure and production of companies, which leads to a reduce in imports about consumer goods, capital goods, intermediate product and raw materials. The imports of the U.S. are the exports of other countries. Therefore, a decrease in global trade will result in a global economic downturn.

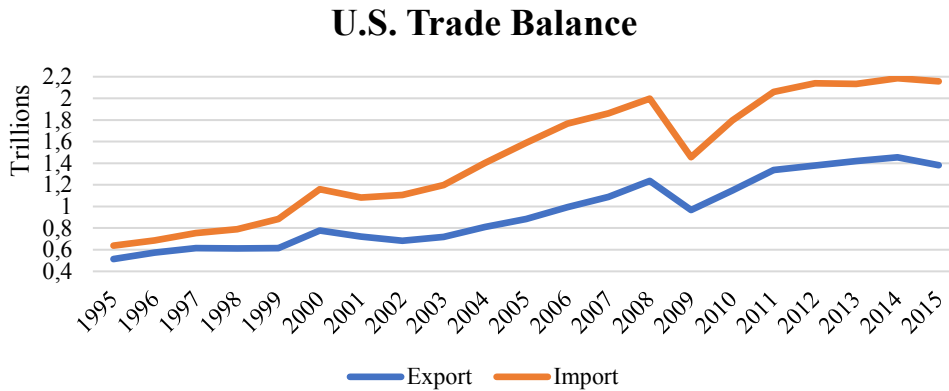


Figure 6 Trade Balance of U.S.

Source: The Observatory of Economic Complexity

According to Figure 7, it can be known that China is the top import origins of the U.S. with \$457 Billion. The reduction of consumption from U.S. residents will directly affect the export of consumer goods from China to U.S. As a result, exporting Chinese companies will reduce their production and lay off employees.

THE IMPORT ORIGINS

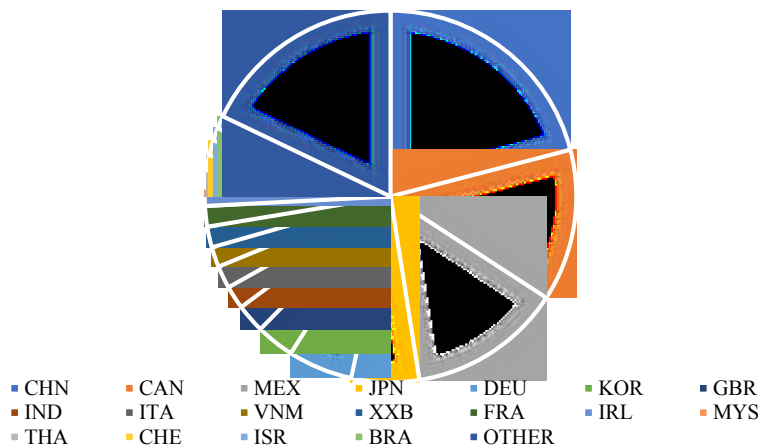


Figure 7 The Import Origins OF U.S.

Source: The Observatory of Economic Complexity

Third, the U.S. dollar is the benchmark pricing instrument for most commodities in international trade. Foreign traders purchase or sell goods with dollars. According to the data released by International Monetary Fund (IMF) in the end of March 2017, more than half (63.96%) of all known central bank foreign currency reserves were denominated in U.S. dollars. The following one is Euros, which makes up 19.74% of currency reserves (Figure 8).

WORLD - ALLOCATED RESERVES BY CURRENCY

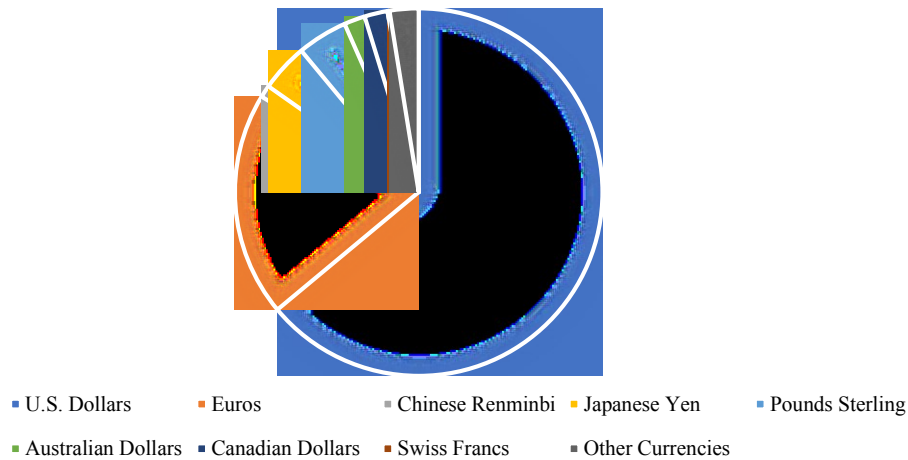


Figure 8 World – Allocated Reserves by Currency for 2016Q4

Source: International Monetary Fund

The reason why foreign holders prefer U.S. banknotes is because of the monetary stability. Goldberg (2010, p2-3) mentioned that the U.S. dollar stipulates an improved medium of exchange relative to their home currency. However, countries might suffer massive wealth destruction, because of the depreciation of the U.S. dollar and even might lead to a global deflation. The benefit derived by dollar weakness is the increase of export competitiveness of U.S., but it is bad news for the import origins of U.S. and the data mentioned before proved that the U.S. is a powerful importer. Their home currencies appreciated against U.S. dollar that means there will be a lower export competitiveness of their commodities due to the increasing price, which affect the development of economy in export countries directly.

2.3 Other indicators

Inflation

The inflation rate in February 2017 is around 2% within advanced economies, which is more than double the rate compared to 2016 (0.8%), with a revival within emerging market driven by the increase in fuel prices (IMF, 2017). The main reason behind this is that the increased oil price between August 2016 and February 2017, with growth rates up to 20%., caused by the production cut agreement from the OPEC. In most advanced economies, headline inflation remains below central bank targets and the core inflation has been stable. It has remained

broadly stable in emerging economies, whereas Brazil and Russia, experiencing a strong decline.

Labor Market

10 years after the global financial crisis, the OECD average employment rate reached pre-crisis levels in the Q1 of 2017 and the unemployment rate continues to improve. But unemployment is still a little higher compared to pre-crisis, which has resulted from the rising participation levels and cannot be offset by employment increasing (DECD, 2017). The real wage growth is slow, the unemployment rate still remains high for part-time jobs. All in all, the employment indicators are getting better but the whole labor market is still lagging behind.

Investment, Trade and demand

Investment and trade are picking up modestly, there are three signals showing the investment prospects are good: low policy uncertainties; the regulation will promote competition among investors; and the global demand is in uptrend (OECD, 2017). Because of the strong support from China, the global trade has rebound in the last year. Investment is suggested to be in a high-quality capital with advanced technology, which might improve the global investment chains, but requires the high efficient productivity and output. (World Bank, 2017)

Policy Uncertainty and Geopolitical Risks

At first, there is a change in the U.S., Trump brings a shock to the fiscal, trade, and immigration policies, which affects companies, investments and new hires. On the other side of the Atlantic, the Brexit brings risk to the European economy.

The geopolitical risks in the Middle East might come with a serious problem of oil and gas and refugee flows. The food and water shortages also contribute to risk. The reasons presented in this Section bring downside risk and heighten the uncertainty in the world economy.

Middle East and North Africa (MENA)

A sluggish economic growth in the Middle East and North Africa resulting from the oil production cuts and the fiscal consolidation in recent. Because the influence from the oil production cuts exceeds the bettering circumstances on oil importers, the MENA's growth has been moderate around 3% during 2015-2016, and is projected to fall to 2.1% in 2017. But the growth is expected to increase to 2.9% in 2018, which based on the low geopolitical risk and an increasing oil price (World Bank, 2017). After 2017, the oil price is expected to pick up, the

fiscal consolidation is expected to ease, and several public investments (such as Dubai's World Expo 2020) are ongoing (Callen et al. 2014). It can be told from these factors that the GDP growth will remain low in the fiscal year of 2017 and increase thereafter.

Oil and Gas

Crude oil price rose 8% in Q1 2017 with the support of OPEC production cuts agreement, the gas prices increased 6% in the Q1 2017 on the stronger demand and production restrictions (World Bank, 2017). It should be mentioned that the main driver of the price fluctuation are the supply and demand dynamics. In the following years, the oil price is projected to increase as global supply will fail to satisfy the demand. In the other hand, weaker compliance concerning production cuts might affect the supply and demand balance again.

3 Industry Analysis

In the previous sections, the macro effects have been discussed. In this section, Porter's Five Forces and SWOT analysis will be used to analyze the Oil and Gas Equipment and Services Sector. Then, I determine the current stage of Petrofac in industry life cycle as well as the macro and micro level of industry.

3.1 Porter's Five Force Model

Porter's Five Forces Model focuses on the industry analysis, which is based on the assumption that industries have boundaries. It is a microscopic analysis of the external environment, which indicates the average profit margins of a company in the industry. Therefore, it is a measurement of industry situation rather than the capacity of a company. Determining which market need to be analyzed is the first step. Petrofac is an international company, their projects span over 29 countries, so it will be analyzed in a worldwide scope.

3.1.1 Bargaining Power of Buyers

According to Athanasios Pitatzis (2017), there are different types of buyers – refineries, National Oil Companies (NOC), International Oil and Gas Companies, Distribution Companies, Traders and Countries (USA, China, Japan, etc.). But all of them are Oil & Gas Companies, therefore, the composition of the buyers is single. The business performance of Oil Equipment and Services Companies is closely tied to oil and gas companies. Most of the oil and gas companies require the strict market access and evaluation system. For these reasons, there is a strong bargaining power of buyers in oil equipment and services sector.

3.1.2 Bargaining Power of Suppliers

The global oil and gas chain can be divided into three parts: Upstream, Mid-Stream and Downstream. The whole chain includes designing, building, maintaining facilities; transporting, storing, processing oil and gas and refining.

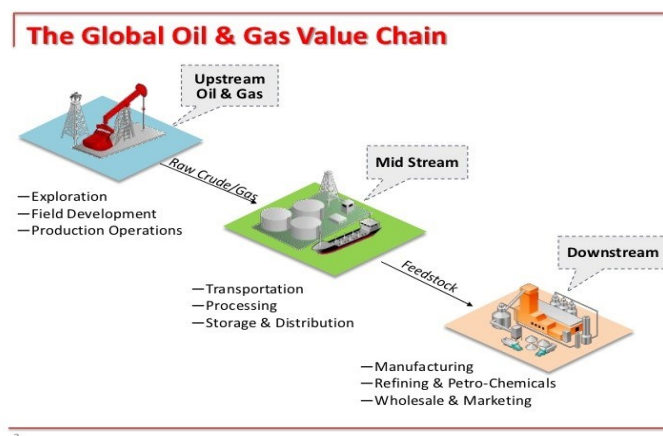


Image taken from: Slideshare <https://www.slideshare.net/theoacheampong/theo-acheampong-presentation>

The suppliers in the Oil and Gas Equipment and Services Sector are the suppliers who provide the technology and the equipment. There are a large number of the suppliers worldwide who have a large impact on the Sector. However, a special phenomenon exists here, many equipment and services providers are competitors as well. Valerus Compression Services, L.P., a United Stated-based company, is one of the suppliers of Petrofac. At the meantime, this company is doing the same things as Petrofac, they provide products and services for oil and gas companies. For this type of company, as a competitor, they intended to invest hugely in research and development (R&D) in order to improve their competitiveness in the industry; but as a supplier, they set strict limits on their equipment and service provision. Due to these factors, the suppliers have a greater impact with strong bargaining power in Oil and Gas Equipment and Services Sector.

3.1.3 Threat of New Entrants

As mentioned above, Petrofac is vertical integrated, their business involvement on all of the segments of Oil and Gas Value Chain, especially the upstream. And the Oil and Gas Equipment and Services Sector can be divided into five different subsectors: Exploration, Drilling, Completion, Production and Capital Equipment and Offshore Services. For different subsectors, different technology or equipment is required, which requires companies to have relatively strong R & D capacity and huge investments. At present, most leading oil service providers have a considerable number of patents which reflects its high level of technology. According to a research form Espacenet, Schlunberger is the biggest oilfield service company in the world with

more than 36,000 patents. In comparison with Halliburton and Baker Hughes, which have 25,000 and 20,000 patents.

Pitatzis, A. (2016) mentioned that most countries have their state-owned national oil and gas companies, and these national oil and gas companies control more than 90% of the oil and gas reserves. These national companies always have their own cooperative partners, so this is another weakness for new entrants.

In the future, with the entire oil industry transforming from conventional energy to unconventional energy, the technical requirements will be higher and more complex. Big oil and gas companies have grown significantly in their business life, in the meantime, they develop their R&D, improve the technology, which bring a cost advantage to company and further strengthen the barriers to new entrants.

3.1.4 Threat of Substitutes

The main current alternatives for oil and gas are: Nuclear Energy, Coal, Hydrogen, Biofuels and other renewables sources (Solar and wind energy). Hence, the alternatives for Oil Equipment and Services Company are the companies who provide the service for other energy.

World primary energy demand by fuel and scenario

Million tonnes of oil equivalent (Mtoe)

	2000	2014	New Policies		Current Policies		450 Scenario	
			2025	2040	2025	2040	2025	2040
Coal	2,316	3,926	3,955	4,140	4,361	5,327	3,175	2,000
Oil	3,669	4,266	4,577	4,775	4,751	5,402	4,169	3,326
Gas	2,071	2,893	3,390	4,313	3,508	4,718	3,292	3,301
Nuclear	676	662	888	1,181	865	1,032	960	1,590
Hydro	225	335	420	536	414	515	429	593
Bioenergy*	1,026	1,421	1,633	1,883	1,619	1,834	1,733	2,310
Other renewables	60	181	478	1,037	420	809	596	1,759
Total	10,042	13,684	15,340	17,866	15,937	19,636	14,355	14,878
Fossil-fuel share	80%	81%	78%	74%	79%	79%	74%	58%
CO ₂ emissions (Gt)	23.0	32.2	33.6	36.3	36.0	43.7	28.9	18.4

Image taken from: Petrofac Annual Report 2016

Under the new policies scenario, International Energy Agency (IEA) estimated the world primary energy demand by 2040. It can be seen from the Image, the demand for oil will increase slightly to 4775 M tone per day. Meanwhile, the gas demand is forecasted to grow by more than 50%. It can be said that the renewables energy may not be able to become the main energy in the long period.

The Financial Times (2017) reported that in 2015, the last deep-pit coalmine (Kellingley) in the UK was officially closed. The British government also announced in the run-up to the December 2015 adoption of the Paris climate change accord that they wanted to phase out coal power by 2025. With the increasing of importance of environment, the using of oil and gas have been encouraged, the proportion of coal consumption is gradually decreasing whereas the proportion of oil and gas consumption is growing. Overall, it seems that there is few threat of the substitutes in Oil and Gas Equipment and Services Sector.

3.1.5 Competitive Rivalry

Oil, equipment and services market is a monopolistic competition market with strong competition, due to the large number of segments and the high technical requirements, and the different services, products from different companies. For example, some grow up with technical advantage, some have a value chain advantage that relies on the vertical integration, and some monopoly companies get ahead because of their monopolization. Petrofac is a typical vertical integrated company which is involved throughout the value chain, from designing to marketing. Services include concluding contracts with the energy end market, helping companies to manage the operations based on changing market demands. Less influence from the oil price volatilities are brought to bear on Petrofac, because the company can hedge profits against declining price by expending the profit margins in refining operations.

The high exit barrier is another difficult situation for firms. Equipment as the major capital of a company whereas R & D expenditure and other intangible assets might be hard to recover due to the specification.

3.1.6 Summary of porter’s five model

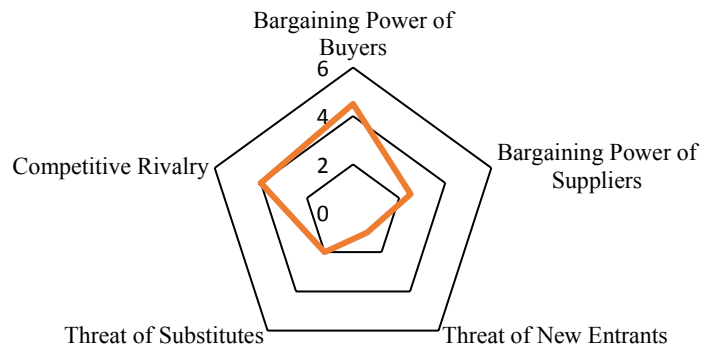


Figure 9 Porter’s Five Model Result

Figure 9 represents that the bargaining power of buyers is relatively high as the threat of new entrants is low. The high exit barrier and the difficulty recovering the investment lead to a high competitive rivalry.

3.2 SWOT Analysis

3.2.1 Strength

- As mentioned above, Petrofac is an integrated company, compared to other independent company, it can get a balance from upstream and downstream operations to hedge profits against the market recessions.
- With 35-year operating experience, Petrofac has built a strong reputation in the market.
- A reorganization of Petrofac has been implemented in January 2016, in order to meet client requirements from a changing environment, such as the Middle East and North Africa.
- The core value of Petrofac is “SAFE”. The high potential incidents (HiPos) rate has fallen from 0.063 (2015) to 0.039 (2016) (Petrofac, Annual report and account 2016, p.54) which is an excellent safety record. Petrofac’s performance keeps substantially ahead of industry norms.
- There is a strong risk management system in Petrofac (image shown below). This helps the management to seize opportunities despite it operates in a challenging environment.

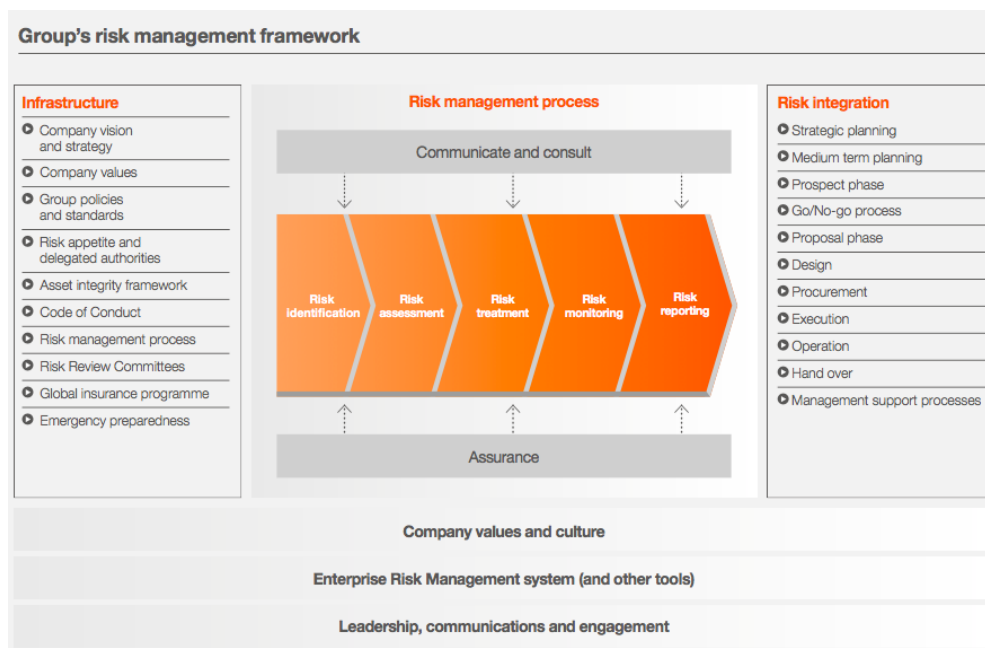


Image taken from: Petrofac Annual Report 2016

- With Petrofac operating in 29 countries, the group employs approximately 13,500 staff in the Middle East, Africa, Europe, Americas, Asia Pacific, India and CIS, even though there is a decline in employee numbers in 2016. This strong workforce ensures that the group can keep operating even when one region stagnates.

- Oil and Gas Equipment and Services Sector is a technology intensive sector, the engineering teams of Petrofac keep finding new techniques to delivery efficiency combined with cost optimization.

3.2.2 Weakness

- The industry is capital intensive, large amounts of investment are needed at the beginning, and it takes a long time to generate profit from the investment.
- The industry is in close ties with the oil and gas industry, hence there is a strong correlation between the performance of IES in Petrofac and oil and gas price volatility. Recently the low price and the uncertainty in forward price influence the level of investment, development and business activity within the industry.
- The number of contracts are relatively small with large value in Petrofac, the termination of contract will bring a significant impact on financial performance.

3.2.3 Opportunities

- As it was mentioned before, the use of coal in the world is declining whereas oil and gas as a main energy is encouraged to use. The demand of oil and gas will be strengthening further.

3.2.4 Threats

- The political risk remains a significant threat in this industry, notably Petrofac which has to face possibility of regime change and legal or regulatory changes. Petrofac should keep an eye on the Middle East and North Africa because of the exposure to policy changes.
- Until 2015, more than 80% of crude oil reserves are located in OPEC countries, but at the end of May 2017, OPEC announced the oil supply cut until March 2018, the OPEC and non-OPEC members agree with it (Meredith, 2017). Oil companies are the main customer of the industry, the oil supply cut might bring along a declining demand in equipment and service industry.
- A strong international competition exists in this industry. The most market is occupied by three major oil equipment and service companies: Schlumberger, Halliburton and Baker Hughes, resulting from technical monopoly.

3.3 Industry Life Cycle & Macro Economics

Finch and Acha (2008) suggest that oil related equipment and services are at the mature stage of the industry life cycle with mature technology, stable and clear industry competition and user characteristic. This sector is a monopolistic competition market with significant high entry barriers, and it is getting difficult to develop new technologies. Some large firms dominate most of the market, such as Schlumberger, Halliburton and Baker Hughes, and there is a strong competition among the others for the rest of the market. It leads to a situation that all of the end products are homogeneous without product differentiation.

There is a strong correlation between the performance of FTSE oil equipment and service sector and the price of oil and gas, and the investment of this industry relies on the stable and healthy oil & gas prices. The prices are determined by many factors, especially the dynamic relationship between the supply and demand. Moreover, there is a long-term inverse relationship between crude oil and gas prices and the value of the dollar (Kowalski, 2017). The current spot dollar index gradually increased to 96.963 index points (6/26/2017) compared to 80 index points in mid-2014 against other foreign exchange instruments. Whereas the crude oil WTI future price fell down from \$105.37 in June 1, 2014 to \$43.84 in June 27, 2017 (Investing, 2017)

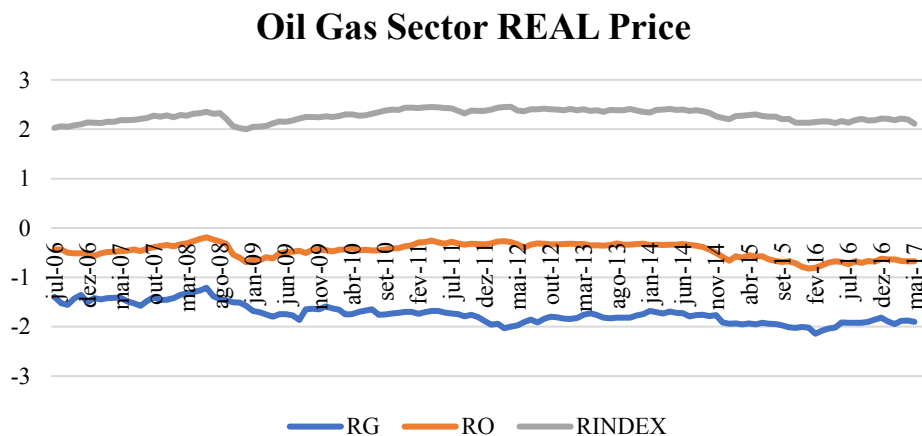


Figure 10 Oil and Gas and Sector Real Price Monthly

Monthly Real Gas, Oil Future Price and Real Sector Index calculated in excel

Based on Natural Gas Price (NG), Brent Crude Oil Price (CLQ7)

and FTSE ALL SHARE Oil Equipment & Services (FTAXS0570).

Source: Thomson Reuters

It can be seen from *Figure 10* above, there is a strong positive correlation between the Brent oil price, Natural Gas price and the FTSEX0570. This strong correlation further illustrates the cyclicity of oil related service and equipment industry – the demand scale and the level of investment of oil and gas company will change with the oil and gas price changes, so that the oil and gas service industry will adjust their investment appropriately. The period from 2005-2008 were boom years for the industry, peak price of FTAXS was 19,100.32 GBP on Jun 1st 2008. From there on the price has fallen sharply and reached a low of 8,568.42 GBP due to the global financial crisis of 2008.

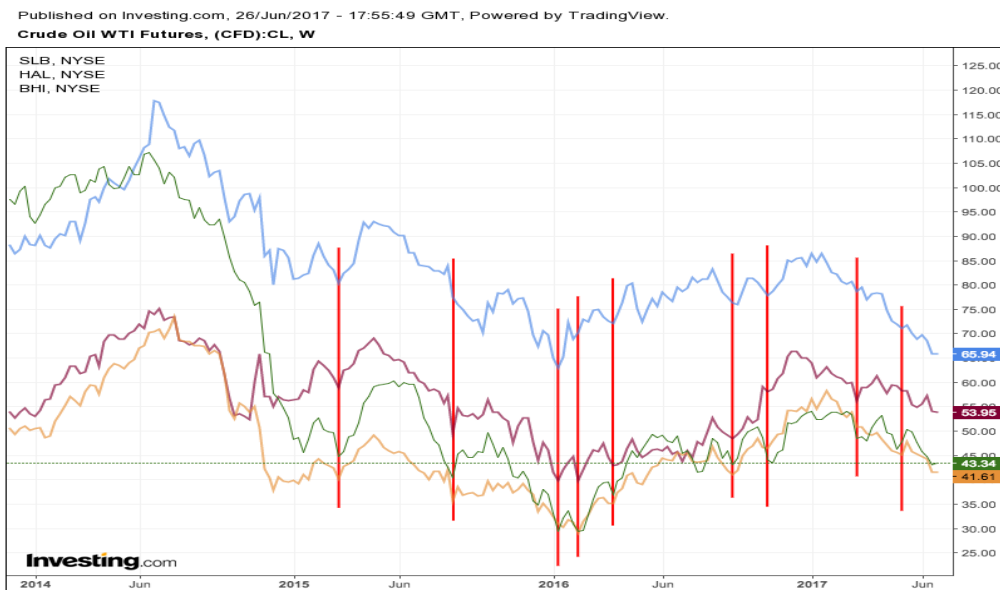


Image taken from: Investing.com

Schlumberger, Halliburton and Baker Hughes are the top three in the industry. The picture above presents the WTI oil future price and stocks of the three companies. We can see directly that the stock prices are consistent with oil price, and the time when extreme points occurred are highly synchronized. Moreover, there were some rebounds recently, the stock prices recovered at the same time as the rebound occurred or even early.

Market fundamentals are projected to be robust in the long-term, the energy demand is expected to grow by 30% until 2040 because of the new policies scenario - Decarbonization (450) scenario (Petrofac, 2016). Oil price is set to continue to increase in the coming years, which has a positive impact on the equipment and services industry. The investment activity will see an

upturn and the growth in China is set to strengthening further in the second half of 2017. The market stability is predicted to increase in line with above factors.

3.4 Correlation with Gas and Oil

Petrofac provides services to the oil and gas production and processing industry, therefore, the gas and oil price will be focused on. From Figure 11 and 12, we can see a significant positive correlation. The Sector (FTSAX0570) shows a higher correlation with real crude oil price with $R^2 = 0.2530$ compared to the gas price with $R^2 = 0.0056$. The reaction of industry is broadly in line with the trend of the real oil price.

	Correlation		
	<i>Covariance</i>	<i>R²</i>	<i>Beta</i>
<i>Sector Index & Gas</i>	0.00006	0.0056	0.0363
<i>Sector Index & Oil</i>	0.00019	0.2530	0.5108

Table 6 Correlation with Gas and Oil

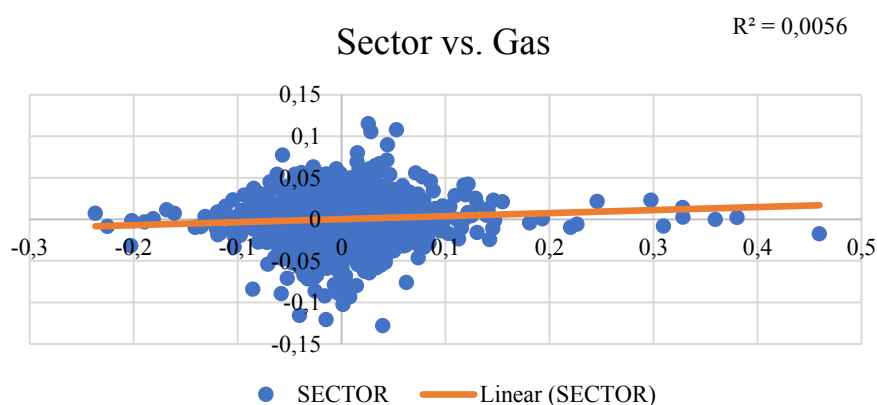


Figure 11 Correlation Sector & Gas

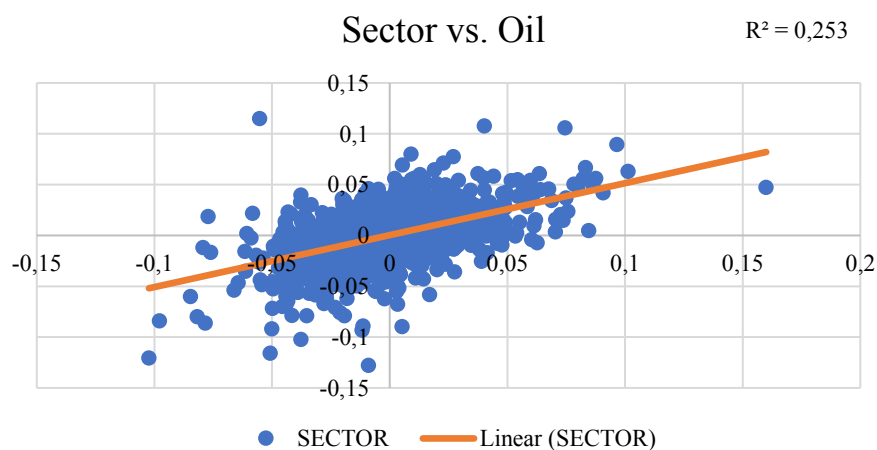


Figure 12 Correlation Sector & Oil

Correlation computed on the daily price change, sources: Thomson Reuters

4 Risk and Return

Data has been compiled using monthly price from investing.com and Thomson Reuters. The FTSE250 has been used as market benchmark, and the Sector benchmark is FTSE All Share Oil Equipment & Services Index (FTSAX0570). Data has been collected from 03/7/2007 until 04/07/2017.

PERFORMANCE	<u>5-DAY</u>	<u>1-MONTH</u>	<u>3-MONTH</u>	<u>6-MONTH</u>	<u>1-YEAR</u>	<u>5-YEAR</u>	<u>10-YEAR</u>
<i>PETROFAC</i>	8.1%	23.79%	-49.81%	-48.72%	-40.54%	-68.44%	8.91%
<i>FTSE 250</i>	-1.85%	-3.41%	1.93%	6.50%	17.34%	72.66%	64.46%
<i>SECTOR</i>	0.08%	-4.79%	-24.22%	-25.23%	-13.78%	-45.57%	-0.62%

Table 7 Cumulative Performance

The performance is poor over the 5 years, 1 year, 6 months and 3 months period, as Petrofac was being investigated by Serious Fraud Office (SFO). However, over the 1 month period they performed well with a 23.79% return. Since that time, it has continued to recover strongly.

YEARLY PERFORMANCE	<u>PETROFAC</u>	<u>FTSE 250</u>	<u>SECTOR</u>
<i>YTD</i>	-46.31%	6.91%	-23.92%
<i>2016</i>	9.17%	3.71%	22.07%
<i>2015</i>	13.23%	8.36%	-19.64%
<i>2014</i>	-42.57%	0.94%	-24.79%
<i>2013</i>	-24.58%	28.77%	-4.71%
<i>2012</i>	12.63%	22.49%	5.88%
Arithmetic Mean (5Y)	-13.07%	11.42%	-7.52%
Geo-mean (5Y)	-17.13%	7.62%	-9.04%
<i>2011</i>	-9.20%	-12.60%	-10.36%
<i>2010</i>	64.64%	24.20%	56.28%
<i>2009</i>	201.45%	46.32%	86.48%
<i>2008</i>	-37.09%	-40.32%	-45.90%
<i>2007</i>	36.56%	-4.65%	42.33%
Arithmetic Mean (10Y)	16.18%	9.27%	7.61%
Geo-mean (10Y)	2.08%	6.78%	1.19%
Geo-mean from 1998 (20-Y)	n/a	7.23%	n/a

Table 8 Yearly Performance

The YTD shows that Petrofac has been facing serious issues this year, the investigation brought a significant influence to their performance. In 2008, the return in FTSE 250, Sector and Petrofac decreased sharply because of the effect of the global financial crisis. And then returned back in 2009, which broadly in line with the tentative growth after the crisis. The demand from

emerging markets and developing economies (EMDEs) such as China and India was strengthening further in the following years. After the Brexit and UK election on 8th Jun, the FTSE 250 has shown a 6.91% YTD performance which substantially ahead of Petrofac and the Sector with a positive translation impact in the constituents of FTSE 250. This implies that most of the constituents are holding dollar instead of sterling and the effects from the Brexit and the election strengthen the dollar and weaken the sterling.

4.1 Return

Data which used to analysis the Beta and Return is from investing.com and Thompson Reuters. The 5-year monthly historic price was used to calculate the return. For beta calculation, the prices of FTSE 250 and Petrofac will be assumed as normal distributed.

4.1.1 FTSE 250 (Market) Return

The Table and Figure present the monthly performance for FTSE 250 in the recent 5 years. The frequency for FTSE 250 return presented in *Figure 5* is compared with normal distribution. The Excel excess kurtosis is -0.100322 (lower than zero) or platykurtic. This graph shows clearly that the skewness is below zero, as the graph skewed to the left.

Return Jul. 2012-Jun.2017	<u>FTSE 250</u>
<i>Highest</i>	7.79%
<i>Lowest</i>	-5.41%
<i>Difference</i>	13.20%
<i>Average</i>	0.98%
<i>Standard Deviation</i>	0.0288232
<i>Variance</i>	0.0008308
<i>Excess Kurtosis (EXCEL)</i>	-0.100322
<i>Skewness</i>	-0.083262

Table 9 FTSE 250 Return

**FTSE 250 RETURN
5-year monthly**

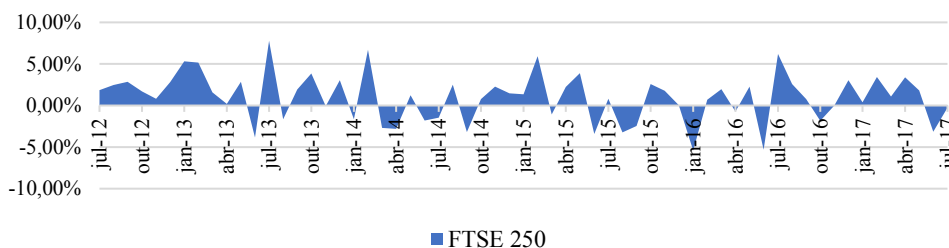


Figure 13 FTSE 250 Return

**Frequency for FTSE 250 v.s Normal Distribution
5-year montly return**

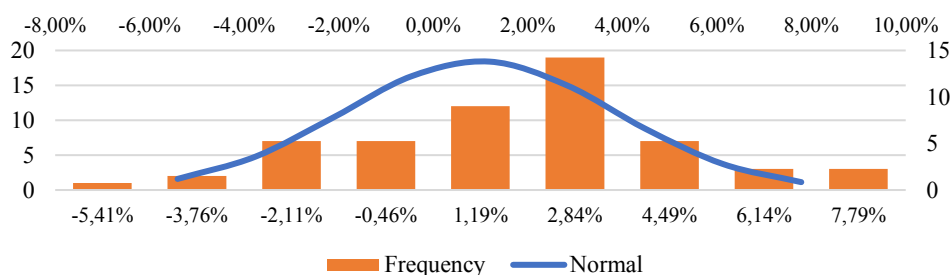


Figure 14 FTSE250 frequency of 5-year monthly return

4.1.2 Petrofac Return

The Figures below show the performance of Petrofac based on 5-years monthly percentage returns. Same as the return of FTSE 250, the stock price is not normally distributed. Compared to the normal distribution, it has a stronger peak as the high excess kurtosis (7.753636). The skewness is -1.611687, which makes the graph skewed to left.

RETURN Jul. 2012-Jun.2017	<i>PETROFAC</i>
<i>Highest</i>	24.58%
<i>Lowest</i>	-53.35%
<i>Difference</i>	77.93%
<i>Average</i>	-1.04%
<i>Standard Deviation</i>	0.109984
<i>Variance</i>	0.012096
<i>Excess Kurtosis (EXCEL)</i>	7.753636
<i>Skewness</i>	-1.611687

Table 10 Petrofac Return

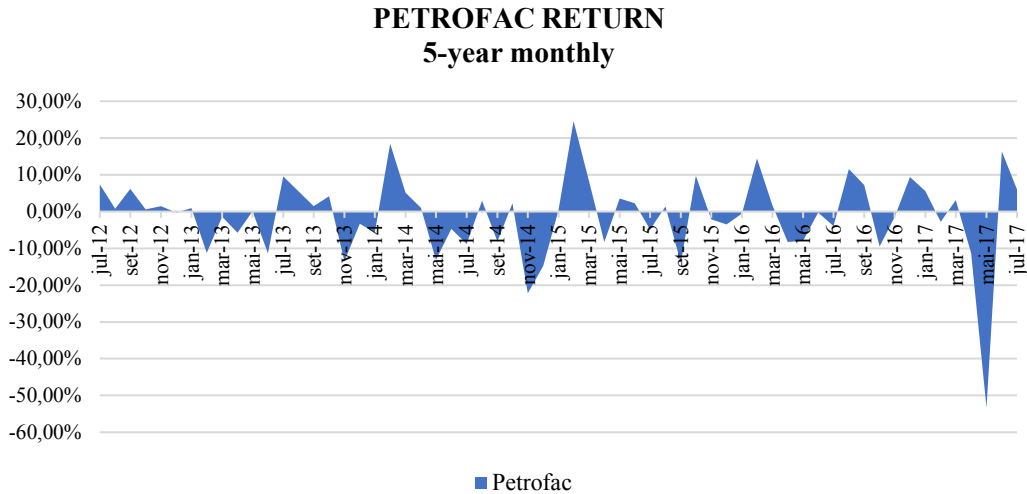


Figure 15 Petrofac Return

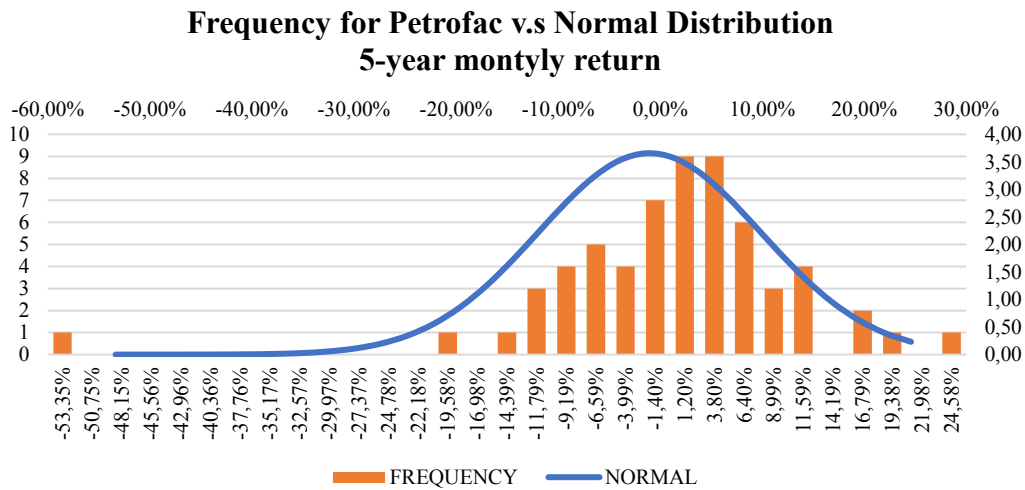


Figure 16 Petrofac frequency of 5-year monthly return

4.1.3 Conclusion

It can be seen from the Table 11 that the 5-year monthly return is different from the yearly return, as the data used are different. However, both two returns show that Petrofac did not performed well in the last 5 years. However, from the monthly returns, we can find that Petrofac price is modestly picking up recently.

	<u>FTSE 250</u>	<u>Petrofac</u>
5-year Yearly Return	11.86%	-13.07%
5-year Monthly Return	0.98%	-1.04%

Table 11 5-year Return FTSE vs. Petrofac

Re-Based Price

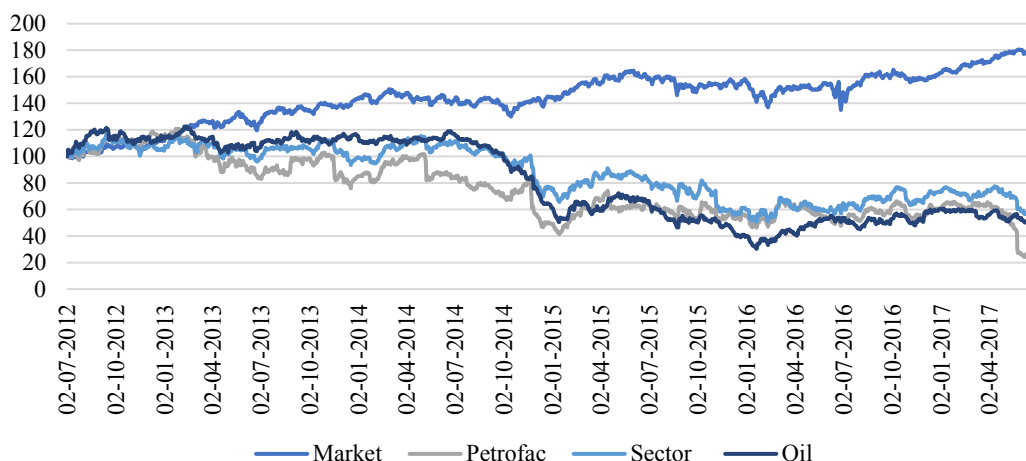


Figure 17 Re-Based Price

The daily price in the graph above are all rebased to 100 (on 02/07/2012). And from this graph we can see it immediately, oil, Sector and Petrofac almost follow the same trend, and there is a slight increase in Oil price in the end of June 2017 which gave Petrofac a significant uptrend.

4.2 Beta and correlation

Beta is a measure of systematic risk, which was calculated by using monthly price, and it describes the volatility of Petrofac price relative to the market (FTSE250 as the market benchmark, FTASX0570 as the Sector index). The data of calculation is used as following numbers (and all of them were calculated by excel functions):

M = Market (FTSE250), PFC = Petrofac, S = Sector

	<u>M/PFC</u>	<u>S/PFC</u>	<u>M/S</u>	Beta	<u>M/PFC</u>
Correlation	0.1503	0.7203	0.2626	5-Year	0.3632
Covariance	0.0005	0.0054	0.0005	Monthly	
Beta	0.5736	0.4503	0.1101	Self-	0.5736
R ²	0.0226	0.5188	0.0690	Calculated	
	<u>M</u>	<u>PFC</u>	<u>S</u>		
Variance	0.00083	0.01210	0.00473		
Standard D	0.02882	0.10998	0.06876		
Sharpe Ratios		-1.6194	-1.4139		
Expected R		4.66%	1.86%		

Table 12 Beta Components

Beta Formula:

$$\beta = \frac{COV(r_i, r_m)}{Var(r_m)}$$

Sharpe Ratio:

$$S_p = \frac{E(r_p) - r_f}{\sigma_p}$$

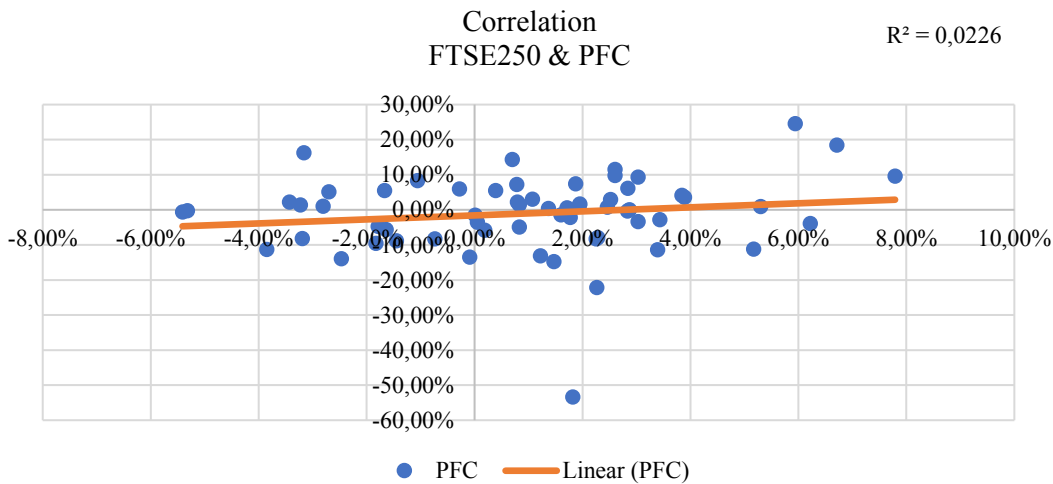


Figure 18 Correlation FTSE250 & Petrofac

Systematic Risk

The beta value (M/PFC) taken from Thompson Reuters is different from my calculations because the data used is different (Adjusted or unadjusted), despite I covered the same period. The self-calculated beta is 0.5763 and the correlation of PFC and the market is 0.1503, which means if the market increases by 1% the price of PFC increase by less than 1%. While the R-squared (0.0226) tells us that there are only 2.26% of the movements of stock can be explained by movements of market. The unsystematic risk (1 - 2.26% = 97.74%) cannot be eliminated and could be explained by the investigations from the SFO.

Political and Geographical Risk

This risk arises principally from Petrofac’s over-sea operations, especially from the Middle East and North Africa caused by the changing political landscape. The over-concentration in specific market is another problem. As a result, the security risk assessments are used by Group Risk Committee to ensure the completion of all projects.

IT Resilience

A business disruption and a loss of competitive position might happen because of IT risk. In 2016, the business secret data has been moved to new data centers. Moreover, company invested heavily in cyber intrusion detection and prevention tools. Additionally, cyber seminars were held to raise awareness for employee.

Lack of Effective Talent

It should be highlighted that the products of Oil and Gas Equipment and Services Sector are homogeneous, the company wants to be ahead with the help of employee's knowledge. To solve the lack of employee with insufficient skills and experiences, Petrofac developed a systematic talent performance management and leadership excellence program.

Financial Capacity

Petrofac maintains a healthy capital by using a mixture of external and internal financing. The capital of equity has been calculated as 4.66% via CAPM. In order to fund ongoing projects, Petrofac needs more finance in the future so that the company is exposed to liquidity risk. The board has defined a maximum level of leverage, and improved the debt position over 2016 to avoid the losing of financial capacity. As shown on the balance sheet, there is a 10% reduction in Net Debt from US \$686 million to US \$617 million (2015), while they are projecting to complete a global cash management program in 2017.

Interest Rate

According to Annual Report 2016, the interest rate risk arising from Petrofac's long-term debt rate and its cash and bank balances. The company works against its interest cost by mixing the fixed and variable debt rate, the cash and bank balances are using floating rates.

Foreign currency risk

Petrofac uses US dollar to calculate almost all of the financial capital, as the operations has been spread to 29 countries. This makes the company vulnerable to exposure against the exchange rate. The forward exchange contracts are used to hedge this risk. In the end of 2016, a series of contracts have been formed during January 2017 to June 2019

Cost of Equity

Capital Asset Pricing Model (CAPM) should be used to value the company through the cost of equity, which describes the relationship of the systematic risk and expected return of the stock.

Expected Return Formula:

$$R_i = r_f + \beta(r_m - r_f)$$

Where:

R_i : Expected Return on Asset (**Cost of Equity**)

β : Beta, Systematic Risk

r_f : Risk Free Rate

$r_m - r_f$: Risk Premium

According to Burfield, the Gilts are the most common benchmark in UK, and our data collected for five-year period. Therefore, the UK Gilt 10 Year Yield has been used as the risk-free rate, which was taken from Bloomberg. The value is 1.20% for 3rd July 2017.

$$r_f = 1.20\%$$

Risk Premium is needed to estimate the cost of equity, which is the difference of expected return between risky asset and the risk-free rate (UK Gilts rate). According to Section 4.1 the equity market premium was calculated by using the yearly FTSE price (which is 20-year Geometric Mean 7.23%) from 1998 to date.

$$r_m - r_f = 7.23\% - 1.20\% = 6.03\%$$

Cost of Equity of Petrofac:

$$R = 1.20\% + 0.5736 \times 6.03\% = 4.66\%$$

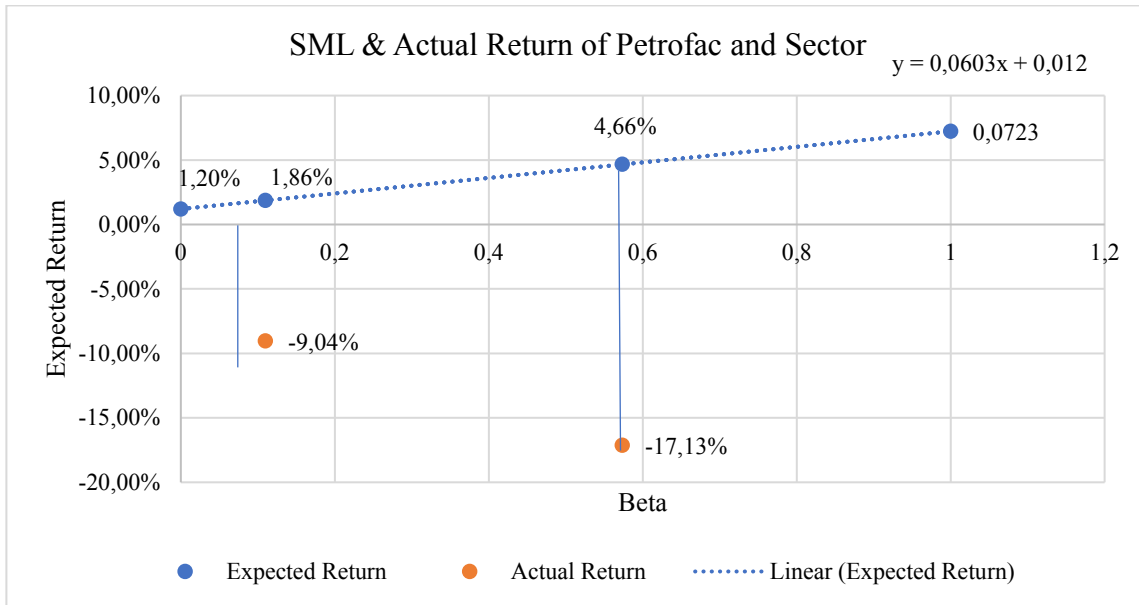


Figure 19 SML & Actual Return

5 Capital Structure

Petrofac is a large international company with US \$1.86 Billion market capitalization. The leverage ratios have been used to discuss the performance of Petrofac, the market and the industry. The cost of debt is the interest paid by a company for their debt, which is tax deductible.

Cost of Debt

Cost of Debt Million\$	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>
<i>Interest Expenses</i>	91	97	73	24	-
<i>Short Term Debt</i>	-	-	-	-	-
<i>Long Term Debt</i>	1,759	1,901	2,448	1,297	362
<i>Total Debt</i>	2,380	2,660	2,691	1,361	362
<i>Equity</i>	1,123	1,232	1,871	1,992	1,550
<i>D/E</i>	2.12	2.16	1.44	0.68	0.23
<i>D/D+E</i>	0.6794	0.6835	0.5899	0.4059	0.1893
<i>Cost of Debt</i>	3.82%	3.65%	2.71%	1.76%	-
<i>Net Gearing Ratio</i>	56.2%	55.8%	39.4%	36.6%	-

Cost of Debt Million \$	
<i>4-year Debt Avg.</i>	2,273
<i>4-year Interest Avg.</i>	71.25
<i>Pre-Tax Cost of Debt</i>	3.13%
<i>Tax Rate Avg.</i>	34.70%
<i>After-Tax Cost of Debt</i>	2.05%

Table 13 Cost of Debt

Cost of Debt Formula:

$$\text{Cost of Debt} = \text{interest expense} / \text{total debt}$$

After tax Cost of Debt Formula:

$$\text{After Tax Cost of Debt} = \text{Cost of Debt} \times (1 - \text{Tax Rate}) = 2.05\%$$

Because there are no interest expenses in 2012, the data from 2013-2016 will be used to calculate the average cost of debt.

It can be seen from the Table 13 that Petrofac using a combination of debt and equity financing, but there is no short-term debt on its Income and Financial Statement. In 2016, Petrofac improved their free cash flow position with a 10% reduction in Net Debt to US\$617 million because of a strong cash generation, but the 56.2% Net Gearing Ratio is still high which reflecting a greater risk. However, interest bearing debt brings a major benefit from tax since it

is tax deductible. The above Table shows that there is a dramatic increase in effective tax rate, which led to a great tax benefit. A reduction in finance leads interest costs to offset the increase in debt interest expenses since the finance cost remained unchanged in 2016. The graphic below shows the equity and debt, the debt amount has increased over the past 5 years. The D/E ratio has a significant increase from 0.23 to 2.12, which stipulates a high level of debt within the company.

DEBT-EQUITY

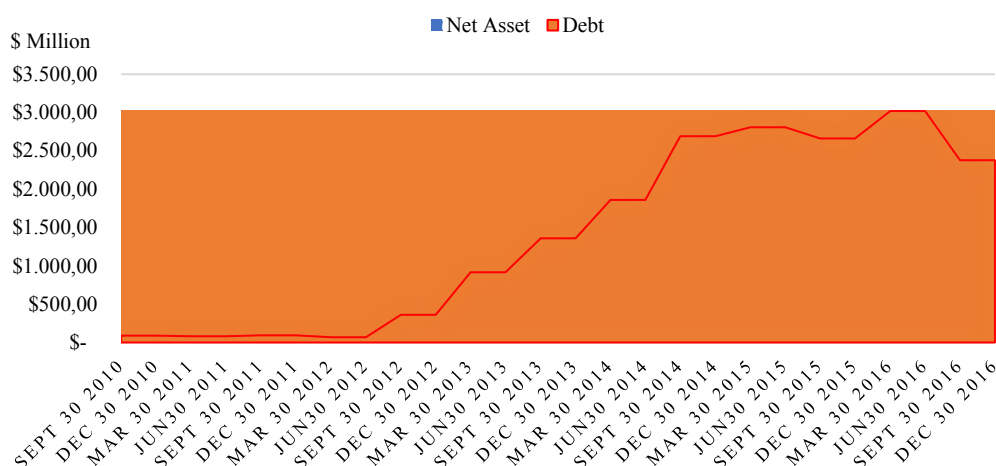


Figure 20 Debt-Equity

The weighted average cost of capital (WACC) helps to measure the cost of capital for a firm. Equity is measured by the market capitalization (\$1,868.48 Million). The market value of debt is difficult to calculate, to be in line the four-year average book value of debt will be used, which is \$2,273 Million.

WACC Formula:

$$WACC = \frac{E}{D + E} \times R_e + \frac{D}{D + E} \times R_d \times (1 - T)$$

Million \$	Explanation	Value
Equity	Market Cap (M)	1,868.48
Debt (2013-2016 Avg)	Book Value of Debt	2,273
E+D		4,141.48
Re	Cost of Equity	4.66%
Rd(1-T)	Cost of Debt (after-tax)	2.05%
WACC		3.23%

Table 14 WACC

According to the *Table 15* that relates the interest coverage ratio to a credit rating (see Appendix 4), because the Market Cap of Petrofac is around \$1.86 billion, we will look at small non-financial service companies), the rating of a company is Aa2 and the default spread should be 0.80%, as the Interest Coverage is 5.67 which was calculated by using data from the Finance Report 2016. However, Moody’s Investors Service has announced on 31st May 2017 that they have downgraded the rating of Petrofac to a Ba1 rating, the spread is 2.50%. There is a big difference between self-calculate rating and the Moody’s rating, because the rating is not only a reflection of statistical factors, the principle of rating includes an appraisal of long-term risks.

Interest Coverage Million	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>
EBITDA	704	312	935	1031	883
EBIT	516	112	691	793	758
Interest Expenses	91	97	73	24	-
<i>Average Interest Exp.</i>	<i>71.25</i>				
Interest Coverage (Earning-based)	5.67	1.15	9.47	33.04	-
<i>Average Interest Coverage (2013-2016)</i>	<i>12.3325</i>				

The interest coverage in 2016 shows that the earning can give an excellent protection and a high liquidity for the company whereas the Moody’s rating is in line with the net gearing ratio that there is a serious default issue, which increases the uncertainty of profitability, even there is just a slight sudden increase in interest rate or a recession. Furthermore, the financial penalty will happen with a long-term influence for financial leverage (Moody, 2017).

Leverage & Liquidity	<u>Petrofac</u>	<u>FTSE 250</u>	<u>Industry Median</u>
<i>Quick Ratio</i>	0.77	3.49	1.13
<i>Current Ratio</i>	1.21	3.91	1.31
<i>LT Debt to Total Capital</i>	50.2%	25.4%	17.6%
<i>Total Debt to Total Equity</i>	2.12	0.80	0.38
<i>Net Debt to EBITDA</i>	1.29	5.37	0.60

Table 15 Leverage & Liquidity

The Quick Ratio and Current Ratio of Petrofac are the lowest compared to FTSE250 and the Oil and Gas Equipment and Services Industry. The quick ratio of 0.77 means that Petrofac has only US\$0.77 liquid assets available to cover 1-dollar current liabilities. This is in line with the

low current ratio, which means the company has less capacity to pay off its debt. The higher debt level has a negative consequence when interest rates are high, even though there is a great tax benefit, as the tax benefit cannot offset the high interest rates.

6 Dividend Policy

Millions \$ (except DPS)	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	
DPS (A)	0.658	0.658	0.658	0.658	0.64	
Basic Weighted Average Shares (B)	340	340	341	341	340	
Amount of Dividend (C=A×B)	223.72	223.72	224.38	224.38	217.6	
Net Income (D)	1	-349	120	650	632	
Retained Earnings	1,107	1,335	1,909	2,014	1,589	
			1,589.00	2,014.00	1,589.00	1,335.00
Dividend Cover (D/C)	0.0045	-1.56	0.53	2.90	2.90	
EPS (D/B)	0.0029	-1.03	0.35	1.91	1.86	
Pay-out Ratio%	22372%	-64%	187%	35%	34%	
Dividend Yield	6.15%	5.32%	5.74%	3.21%	2.42%	
ROE	0.1%	-22.6%	6.2%	36.7%	47.5%	
Sustainable Growth Rate	-19.13%	-37.05%	-5.42%	24.06%	31.13%	
Average growth					-1.28%	

Table 16 Dividend

Shareholders have the right to elect their dividend currency (UK Sterling or US Dollars), together with the interim and final dividend, which gives the full year dividend maintained at 65.80 cents per share, in line with the prior year. However, the Pay-out Ratio has a significant increase during the 5 years period, the net profit in 2016 of US\$1 million is less than the dividends paid of US\$223.72 million. This reflects the profit trends to decrease, the dividends paid are not well covered by Net Income, especially in 2015 with the abnormal Pay-out Ratio (-64%). In order to deliver a sustainable and long-term value to shareholders, Petrofac has paid the financial returns from the growth of share price. It can be seen from the *Table 17* that the Retained Earnings cover the dividend payed, which helps to achieve the goal to give the shareholders satisfaction.

The Performance Share Plan has been used to reward the delivery of targets related to long-term business strategy, the awards can be up to 300% of base salary. The Board forecasted that the company has been placed in a stressful situation against several risks that might affect its future financial activities, the risks include the decline in oil price, the reduction in future orders, the poor performance of E&P Services, the increase in working capital and a significant

financial loss. In considering all of the impacts, the company might decrease the dividends in the following years.

7 Ratio Analysis

In this section, the key ratio from Financial Statement will be analyzed to measure the performance of Petrofac compared to the Market benchmark, Sector and competitors. This Section is divided into: Profitability Ratios, Working Capital Management, Liquidity & Leverage, Dividend Ratios and Market Value. As mentioned before, **FTSE250** has been chosen to be the market benchmark, **FTSE ALL Share Oil Equipment and Services (FTNM0570)** as the Sector and the competitors are **Amec Foster Wheeler (AMFW)**, **Hunting (HTG)** and **John Wood Group (WG)**. All ratios and data was downloaded from Thomson Reuters.

7.1 P/E Ratio & Others

PFC	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
ROE	47.48%	36.74%	6.23%	-22.57%	0.09%
ROA	12.47%	10.40%	1.48%	-3.99%	0.01%
ROIC	37.50%	22.60%	3.30%	-8.20%	0.40%
NP Margin	10.13%	10.27%	1.92%	-5.10%	0.01%
GP Margin	17.08%	18.39%	16.01%	6.06%	9.39%
EBITDA Margin	14.30%	16.00%	14.10%	4.30%	8.70%
P/E	14.31	10.72	31.38	-	3,671.21

Table 17 Petrofac P/E & Other Ratios

AMFW	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
ROE	16.80%	17.00%	7.00%	-14.10%	-40.60%
ROA	8.32%	7.59%	2.51%	-4.35	-9.70%
ROIC	13.90%	13.60%	4.10%	-7.20%	-15.70%
NP Margin	5.04%	4.50%	2.05%	-4.70%	-9.52%
GP Margin	12.82%	13.66%	12.97%	12.25%	10.81%
EBITDA Margin	7.90%	8.20%	7.90%	0.80%	-3.70%
P/E	15.63	17.4	24.34	-	-

Table 18 Amec Foster Wheeler P/E & Other Ratios

HTG	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
ROE	7.80%	7.70%	4.90%	-18.10%	-10.30%
ROA	4.84%	5.15%	3.55%	-13.36%	-8.67%
ROIC	6.10%	6.30%	4.30%	-15.80%	-9.90%
NP Margin	15.45%	9.11%	4.99%	-27.96%	-25.38%
GP Margin	31.92%	32.62%	32.02%	24.08%	11.43%
EBITDA Margin	18.80%	18.70%	20.10%	7.70%	-8.60%
P/E	20.37	18.64	18.45	-	-

Table 19 Hunting P/E & Other Ratios

WG	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
-----------	--------------------	--------------------	--------------------	--------------------	--------------------

ROE	10.30%	11.20%	14.00%	2.60%	1.20%
ROA	5.39%	6.23%	8.31%	1.68%	0.79%
ROIC	8.30%	9.00%	11.40%	2.40%	1.10%
NP Margin	4.20%	5.14%	4.90%	1.58%	0.67%
GP Margin	17.62%	14.55%	15.35%	16.34%	15.10%
EBITDA margin	7.86%	8.83%	8.54%	9.43%	8.72%
P/E	20.41	16.32	10.02	52.27	148.03

Table 20 John Wood Group P/E & Other Ratios

FTSE250	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
ROE	31.00%	31.46%	28.96%	28.89%	21.40%
ROA	7.49%	8.87%	8.75%	7.05%	8.44%
ROC	12.57%	18.00%	18.92%	18.84%	17.69%
NP Margin	96.50%	174.90%	219.10%	199.70%	82.50%
GP Margin	36.83%	37.86%	40.46%	39.51%	42.53%
EBITDA Margin	26.58%	24.78%	7.69%	10.97%	32.14%
P/E	19.87	23.14	18.87	18.48	18.35

Table 21 FTSE250 P/E & Other Ratios

Sector Avg.	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
ROE	4.20%	16.70%	13.50%	-1.00%	-15.10%
ROA	1.12%	6.45%	5.73%	-0.20%	-5.57%
ROC	3.48%	10.36%	7.93%	-0.76%	-7.76%
NP Margin	3.76%	9.67%	9.27%	1.10%	-6.95%
GP Margin	15.59%	17.96%	26.25%	14.58%	10.97%
EBITDA Margin	16.12%	19.31%	19.72%	15.72%	11.01%
P/E	17.32	17.61	16.19	14.96	89.33

Table 22 FTASX0570 P/E & Other Ratios

Since the beginning of 2014 the oil price continued to lower which led to a negative impact in the Oil and Gas Equipment and Services Sector. Simultaneously the return on equity, asset and capital went down although the market operated well in the meantime. The performance of Amec Foster Wheeler and Hunting is in line with the Sector trend, whilst a rebound came on Petrofac in 2016 that ROE and ROIC went back to positive. The John Wood Group has followed a downward trend, but it still kept positive Return on Equity, Asset and Capital.

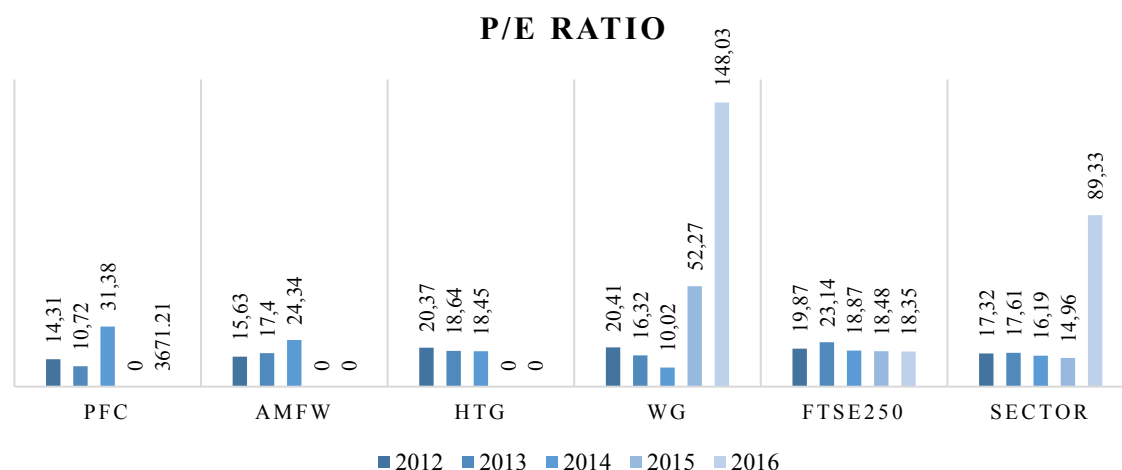


Figure 21 P/E ratio

In order to display the ratio clearly, the P/E Ratio of PFC in 2016 (which is 3,671.21) is not shown in the graph. John Wood Group got an over-million dollar exceeding contract from Husky Energy which is one of the largest energy companies in Canada, and in the end of 2017 the group will complete the acquisition of Amec Foster Wheeler. Therefore, John Wood Group reach the 148.03 P/E Ratio in 2016, 1.65 times compared to the Sector.

It is clear to see that the P/E Ratio of the whole Sector and almost all of the companies have bottomed out in 2015. In general, investors should be keen to buy the shares because of the low P/E Ratio, but a slump can be found in ROE during 2016.

	<u>PFC</u>	<u>AMFW</u>	<u>HTG</u>	<u>WG</u>	<u>FTSE250</u>	<u>SECTOR</u>
<i>P/E NTM</i>	7	8.93	50.43	13.45	18.64	8.69
<i>Current P/E</i>	2,042.69	-	-	107.32	34.84	719.7

Table 23 Current P/E Comparison

The current P/E Ratio still shows that Petrofac is overvalued based on earnings compared to both overall Market and the Sector, with an extreme high Current P/E Ratio (2,042.69). However, the satisfaction of investors cannot be guaranteed by a huge investment, for an existence of big difference between the share price and value.

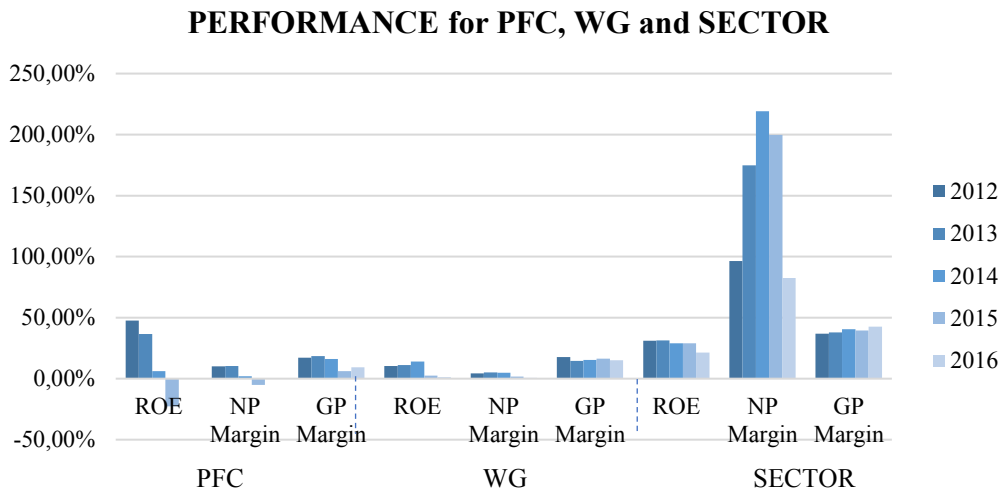


Figure 22 Performance – PFC; WG; SECTOR

It can be found from the above P/E Ratio graph that Petrofac, John Wood Group and the Sector have a great increase in P/E Ratio over 2015 and 2016, especially for Petrofac. P/E Ratio indicates the current valuation of the company, and the high ratio means the investors believe that profits of the company are stunning in the long-run, they are willing to bear high risk in order to get a better return. All of the other ratios are following a slight downward trend. But it should be noticed that every ratio of Petrofac has been elevated in 2016, as the revenues were up by 15% to US\$7.9 billion, a strong growth happened in the net profit to US\$1 million in 2015. Ayman Asfari (Chief Executive) said, the large order backlog (US\$14.3 billion) brings the company excellent revenue prospects for 2017. This can explain part of the significant P/E Ratio.

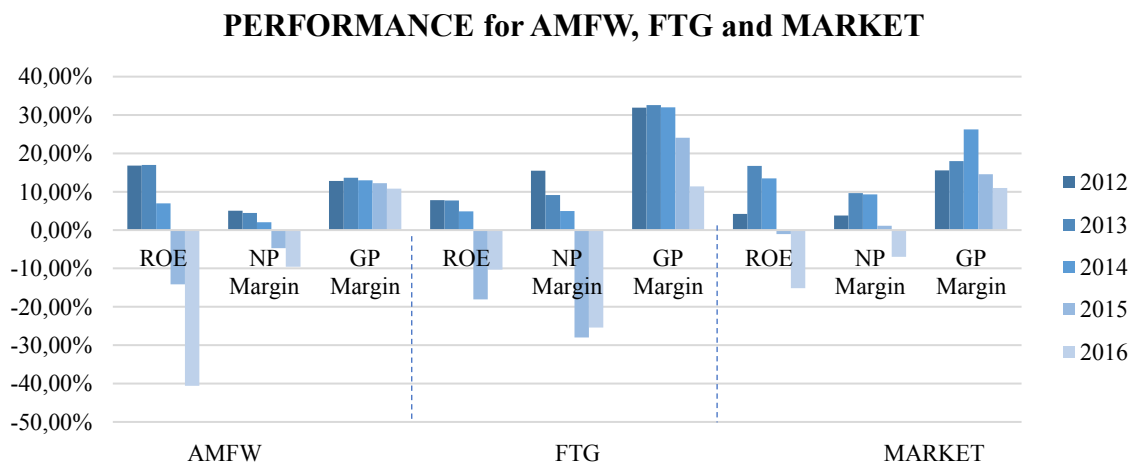


Figure 23 Performance – AMFW; FTG; MARKET

This group includes the company with a negative performance. First of all, it can be seen from the P/E Ratio that Amec Foster Wheeler and Hunting got worse in the recent 2 years, while the market still remains at the same level. There is a slight change in current valuation, the market got a higher P/E Ratio. Then the other ratio of Amec, Hunting are in line with the P/E Ratio overall trend.

From both sides (current and history), the P/E Ratio indicates that Petrofac are overpriced. On the other hand, the investors are paying more for each unit of profit as a result of the high P/E Ratio. But for cyclical companies in the oil or oil services industry the period of extreme high P/E Ratio might be a suitable time to enter the market for investors.

7.2 DuPont Analysis

US\$ Million	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
Tax Complement	0.83	0.82	0.70	-	0.01
<i>Net Inc./Pre-tax Inc.</i>	632/765	650/789	120/171	-	1/100
Operating Margin	12.2%	12.2%	3.5%	-3.7%	2.4%
<i>Op. Profit/Revenue</i>	764/6,240	771/6,329	221/6,241	-252/6,844	186/7,873
Net Profit Margin	10.13%	10.27%	1.92%	-5.10%	0.01%
<i>Net Inc. After Tax/Revenue</i>	632/6,240	650/6,329	120/6,241	-349/6,844	1/7,873
Asset Turnover	1.23	1.01	0.77	0.78	0.94
<i>Revenue/Avg. Assets</i>	6,240/5,068	6,329/6,251	6,241/8,094	6,844/8,739	7,873/8,394
ROA	12.47%	10.40%	1.48%	-3.99%	0.01%
<i>NP Margin × Asset Turnover</i>	10.13% × 1.23	10.27% × 1.01	1.92% × 0.77	-5.1% × 0.78	0.01% × 0.94
Leverage	3.81	3.53	4.20	5.65	7.21
<i>Avg. Assets/ Avg. Equity</i>	5,068/1,331	6,251/1,769	8,094/1,925	8,739/1,546	8,394/1,164
ROE	<u>47.48%</u>	<u>36.74%</u>	<u>6.23%</u>	<u>-22.57%</u>	<u>0.086%</u>
<i>ROA × Leverage</i>					

Table 24 DuPont Analysis

Which should be noticed is that every ratio has decreased from 2012 to 2015 (except Financial Leverage Ratio), but a reversal occurred in 2016. At first, increasing Total Assets have been driven by a strong cash generation and short-term investments, an increase in Inventory and Property & Plant & Equipment. And it can be found from the Total Assets, the Non-Current assets has remained the same level, around US\$2000-3000 million while current assets have increased from US\$3,218 million in 2012 to US\$6,018 million in 2016. However, the Asset Turnover Ratio is moving down during 2012-2015, even though the Revenue has been in an uptrend, as the growth rate of Revenue is lower than Total Assets. This indicates the efficiency of Petrofac to deploy assets for revenue generation declined over the period, and the key driver is the low utilization efficiency of Current Assets in production and business operations.

2012-2015 is a challenging period for the Oil and Gas Equipment and Services industry, the large decrease in oil price (from US\$98.78/BBL in 2012 to 36.6 in 2015) forced oil companies to cut down investments, which brought a decrease in Net Profit Margin to the whole industry. Only John Wood Group still keeps profitable performance. In 2016, the oil picked up modestly to 53.72, Petrofac's Net Profit Margin was in line and got back to positive.

The D/E ratio of company reflect the impact of Financial Leverage Ratio on ROE, the company can increase their debt to get a high ROE despite weak operating profits. The Financial Leverage of Petrofac in 2016 (7.21) was around twice the Leverage in 2012 (3.81), and the D/E ratio stands at 2.12, which is extremely high compared to the industry medium (0.38). We need to be cautious about the ROE with a rapid rising debt and weak profits.

7.3 EV/Financial Metrics

PFC	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Current</u>
<i>EV</i>	8,751.80	7,634.82	5,012.39	5,090.48	4,337.56	2,745.38
<i>EV/Revenue</i>	1.4	1.21	0.8	0.74	0.55	0.35
<i>EV/EBITDA</i>	9.79	7.53	5.68	17.2	6.32	3.99
<i>EV/EBIT</i>	11.46	9.84	7.86	53.03	8.71	
<i>EV/OCF</i>	-	-	7.74	7.61	6.66	
<i>EV/FCF</i>	-	-	28.16	10.18	8.93	

Table 25 Petrofac EV

AMFW	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Current</u>
<i>EV</i>	2,921.08	3,119.28	4,095.78	2,641.60	2,905.88	2,822.03
<i>EV/Revenue</i>	0.71	0.78	1.03	0.48	0.53	0.52
<i>EV/EBITDA</i>	9.07	9.54	13	58.7	-	-
<i>EV/EBIT</i>	10.94	11.64	16.38	-	-	
<i>EV/OCF</i>	12.07	13	28.05	18.73	21.06	
<i>EV/FCF</i>	14.04	14.37	35.62	25.65	25.95	

Table 26 Amec Foster Wheeler EV

HTG	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Current</u>
<i>EV</i>	2,172.47	2,144.60	1,390.08	806.85	1,288.68	1039.04

<i>EV/Revenue</i>	1.66	1.66	1.00	1.00	2.83	2.28
<i>EV/EBITDA</i>	8.82	8.85	4.98	12.89	-	-
<i>EV/EBIT</i>	13.47	13.84	7.55	-	-	
<i>EV/OCF</i>	13.09	11.91	6.06	5.67	28.77	
<i>EV/FCF</i>	23.31	20.17	10.72	12.97	54.84	

Table 27 Hunting EV

WG	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Current</u>
<i>EV</i>	4,568.52	4,537.30	3,841.52	3,763.21	4,479.57	3,443.62
<i>EV/Revenue</i>	0.75	0.79	0.58	0.75	1.09	0.84
<i>EV/EBITDA</i>	9.50	8.93	6.84	7.98	12.46	9.57
<i>EV/EBIT</i>	13.00	12.55	9.22	11.91	21.23	
<i>EV/OCF</i>	23.73	11.79	8.35	8.07	23.64	
<i>EV/FCF</i>	69.96	18.19	10.98	9.81	43.62	

Table 28 John Wood Group EV

FTSE250	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Current</u>
<i>EV/Revenue</i>	0.75	0.79	0.58	0.75	1.09	10.3
<i>EV/EBITDA</i>	9.50	8.93	6.84	7.98	12.46	30.13
<i>EV/EBIT</i>	16.68	22.50	17.99	22.97	31.25	

Table 29 FTSE250 EV

Sector Avg.	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Current</u>
<i>EV</i>	2,987.13	2,997.48	2,118.61	2,021.49	2,093.79	1614.62
<i>EV/Revenue</i>	0.87	0.90	1.21	1.15	1.27	1.21
<i>EV/EBITDA</i>	9.26	7.72	6.46	16.02	6.34	6.14
<i>EV/EBIT</i>	13.18	10.82	8.59	17.02	11.47	

Table 30 FTASX0570 EV

Enterprise Value is an advantageous instrument to value companies with different capital structures, which is a better indicator compared with P/E Ratio, as EV considers the Liquid Asset, outstanding Debt and cash equivalents which can affect the market valuation of a company greatly.

Lynch, P and Rothchild, J mention that it does not make sense to buy a cyclical with low P/E ratio after several years of record earnings, which might make you lose half your investment

during a short time (1994). In this situation, EV/EBITDA seems provide an effective valuation for oil services companies. The EV have been chosen to compare their performance in this part.

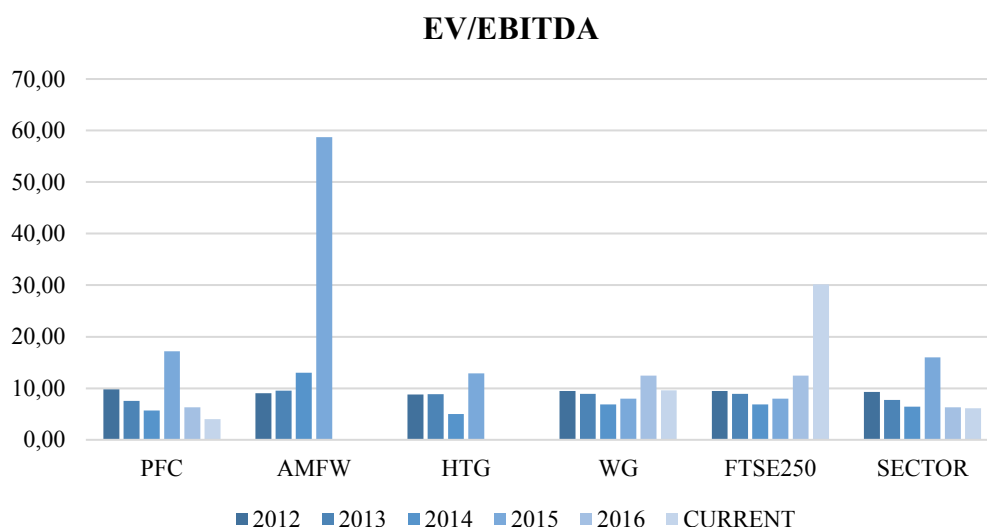


Figure 24 EV/EBITDA Comparison

It should be noticed that EV/EBITDA have followed a different trend with P/E Ratio, this can prove that P/E Ratio did not take into account the Capital Structure (outstanding Debt and Cash). The downward trend of EV/EBITDA of Petrofac has been driven by the decrease in Net Debt from 10% to US\$617 million compared to the US\$686 million, and a pickup in EBITDA from US\$312 million in 2015 to US\$704 million in 2016. It is obvious that EV/EBITDA Ratio of Petrofac is broadly in line with the Sector, although the ratio is a little lower than the Sector in 2016, it still can tell that Petrofac could be a good choice for making an investment.

The whole Market performed better than the Sector because of the continued strong world economy, but the oil industry recovery will take longer than projected. The ratio of Wood Group kept in a stable level during observation, it seems to be the most competitive one within the Sector with a 15.1% gearing ratio and 14.1 interest cover ratio, even the gearing ratio trending upward from 6.9% in 2012 to 15.1% in 2016. The debt financing should be encouraged in Wood Group, which will be cheaper than issuing equity.

8 Projection

8.1 Macroeconomic & Industry

Real GDP Growth %	<u>2016</u>	<u>2017E</u>	<u>2018E</u>	<u>2019E</u>
<i>World</i>	2.4	2.7	2.9	2.9
<i>Advanced Economies</i>	1.7	1.9	1.8	1.7
<i>EMDEs</i>	3.5	4.1	4.5	4.7
<i>US</i>	1.6	2.1	2.2	1.9
<i>China</i>	6.3	6.2	6.1	6.1

Table 31 Real GDP Projection

Oil - Brent	<u>2016</u>	<u>2017E</u>	<u>2018E</u>	<u>2019E</u>
<i>Price US\$ per barrel</i>	44.0	54.2	55.1	54.8
<i>Growth%</i>		23.18	1.66	-0.54

Table 32 Oil Price Projection

The World Economy is projected to pick-up modestly starting from the second half of 2017, because of the long-awaited cyclical recovery in global trade and manufacturing.

For Advanced Economies, Europe and Japan are expected to gain supported by the cyclical recovery in 2016. Since the 2016 U.S. Elections the fiscal policy easing was reflected to increase which encouraged the U.S. dollar to be stronger against other currencies and U.S. Treasury interest rates to increase. In addition, there is a continued growth in UK because of the spending resists the impact of the June 2016 referendum for Brexit.

A mixed performance across EMDEs, the resource misallocation, the reliance on a loose policy and the continued rapid credit expansion make the mid-term projected performance to be clouded. An economic rebalancing just completed in China, which let the GDP growth to be lower but still in a high level. India is expected to gain speed, but it will be offset by Chinese slowing growth to some extent. As a representative of commodity exporters, Brazil is predicted to get out of the most serious recessions, which can be traced back to the policy uncertainty diminishing and fiscal policy easing. In addition, a fiscal turnaround in Russia is emerging because of the recovery in oil price.

As mentioned before, with the support of the agreement about cutting the crude oil output for six months among the members of OPEC, the oil prices could be able to increase, which will stimulate investment in this field with oil demand improving. The oil demand will increase up

to 99 million barrels/day by 2021, OPEC projected that in 2016 World Oil Outlook Report, and there should be significant investment needed. But in the short-term, a revenue decline is still projected to come up, which is driven by the decrease in output.

8.2 Firm Specific

With the long-awaited oil price beginning to pick up (but still in a low level), the confidence in the industry is expected to increase in the coming years. The Middle East and North Africa (MENA) region are the major customers for oil and gas related services. Petrofac has been positioned in the top of region’s EPC Contractor list, ranked by Arabian Oil and Gas Magazine. As a core customer, NOC is continued to invest heavily in Petrofac based on their strong and well-established relationship. Only few upstream investments within IES has exposure to low oil price, but the revenue in the following year may endanger the dividend from the substantial falling-off in backlog from US\$20.7bn in 2016 to US\$14.3bn in 2017.

Net Profit Margin

The Net Profit Margin is a ratio of Net Income after Tax divided by Revenue, which is a good indicator of the health of the company. In the first half of 2017, Petrofac delivered \$135 million Net Income, based on the strong Backlog in 2016. For the projection, the average Profitability Growth during 2012-2016 will be assumed as 3.446% which can be seen from the Table below and is the growth for following years.

NP Margin	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
<i>Petrofac</i>	10.13%	10.27%	1.92%	-5.10%	0.01%
<i>Profitability Growth</i>	3.446%				
<i>Sector</i>	3.76%	9.67%	9.27%	1.10%	-6.95%
<i>Average</i>	3.37%				

Table 33 NP Margin Projection

Dividend Growth

The significant Dividend Pay-out Ratio 22372% in 2016 presents that the dividends paid are not well covered by Net Profits. As the Net Income is only \$1Million in 2016, but the Board

thought that the dividend is the most important thing for their shareholders. The board proposed a final dividend of 43.8 cents per share by using up Retained Earnings. This give rise to doubts whether the dividend can be keep at this level in the following years or not. The dividend growth rate will be calculated for every year on average, which can be seen from the Table 35 below.

Year	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Average</u>
<i>Pay-out Ratio%</i>	34.43%	34.52%	186.98%	-64.10%	22372.00%	
<i>ROE</i>	47.483%	36.744%	6.234%	-22.574%	0.086%	
<i>Growth Rate</i>	31.13%	24.06%	-5.42%	-37.05%	-19.13%	-1.28%

Table 34 Dividend Projection

Growth Rate Formula:

$$\text{Growth Rate} = \text{ROE} \times (1 - \text{Dividend Payout Ratio})$$

Revenue & Cost

In May 2017, an investigation was organized to pursue bribery, corruption and money laundering concerns. During the investigating period which will last for one year decreasing revenue will be driven by the heightened result uncertainty of the investigation. In addition, some of the big projects will finish in 2017, and Petrofac is looking for new orders, which are driving the revenue and backlog in 2018. The Group Chief Executive, Ayman Asfari said in Full Year 2016 Earnings Presentation, there might be a decline in the revenue in the following years, because there are low bidders on some projects (Petrofac, 2017).

For these reasons, the projected revenue will keep going down to around \$5,500 million by 2020. Because some projects will finish in the end of 2017, and if Petrofac cannot take more new projects, there will be a steep fall in revenue in 2018. A considerable cost reduction in 2016 is predicted to continue in the following years, because the engineering teams at Petrofac always concentrate on finding the new way to cut cost and improve the cost effectiveness.

\$M	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Average</u>
<i>Revenue</i>	6,324	6,329	6,241	6,844	7,873	
<i>Growth%</i>		0.1%	-1.4%	9.7%	15.0%	5.85%
Projection	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	
<i>Revenue</i>	7873	7412.43	6300.57	5,689.41	5688.84	
<i>Growth%</i>		-5.85%	-15.0%	-9.7%	-0.1%	

Table 35 Revenue Projection

It can be seen from the growth rate in the past 5 years that the trend is quite similar with our projection for the next 5 years. Therefore, we assume the average growth rate 5.85% as the decline rate for 2017, 15.0% for 2018, 9.7% for 2019 and 0.1% for 2020.

Capital structure

The Petrofac's Debt to Capital ratio increased a lot during 2012-2015, then it started to be constant around 0.68. Therefore, it can be assumed that no changes will be taken for the Capital Structure in the future. The future Debt-to-Capital Ratio is going to be 0.68 for the following 5 years, which is in line with the ratio in 2015 and 2016.

According to the Presentation of Ayman Asfari (2017), a global Cash Management Program is being completed with ongoing rephrasing of Capex in 2017, which helps to get strong cash generation, the amount of Debt will decrease in the following years to the lowest level. In the meantime, there will be a rebound in Equity, it means the Debt amount will go down to around \$700m and the equity will increase to 2012 levels by 2020, which is assumed to be \$1,600m. Assuming that the straight-line method will be used to calculate the growth rate for Debt and Equity in the following years which will be -0.264 and 0.093.

\$ M	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
<i>Debt</i>	362.00	1361.00	2691.00	2660.00	2380.00
<i>growth</i>		0.778	0.494	-0.012	-0.118
<i>Equity</i>	1550.00	1992.00	1871.00	1232.00	1123.00
Projection	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
<i>Debt</i>	2380.00	1752.70	1290.74	950.53	700.00
<i>growth</i>		-0.264	-0.264	-0.264	-0.264
<i>Equity</i>	1123.0	1226.9	1340.4	1464.5	1600.0
<i>growth</i>		0.093	0.093	0.093	0.093

Table 36 Debt Projection

Assets Growth

The data shown in the Section 7.1 P/E Ratio & Others presented that the Petrofac's total Assets and the growth rate started to decrease in 2014. Because of the depression within the whole industry, there was an unexpected decline in Net Income not only for Petrofac, but also for other companies. The growth rate for 2015 and 2016 is -4.29% and -3.58%, but the recovery is

expected together with OPEC policy changes. So, an assumption for the Expected Growth Rate for next five years is -2.50%.

<i>Year</i>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Excepted Rate</u>
<i>Total Assets</i>	8930.00	8547.00	8241.00	
<i>Growth Rate</i>		-4.29%	-3.58%	-2.50%

Table 37 Assets Projection

9 Valuation

In this Section, the Discounted Dividend Model (DDM), Discounted Free Cash Flow Model (DCF) and Abnormal Earning Model (AE) will be used to calculate whether the company is undervalued or overvalued.

9.1 Discounted Dividend Model

The discounted Dividend Model is a standard approach to value a company’s equity, which uses the predicted future dividends and discounts them by the Cost of Equity back to present value.

DDM (Million \$)	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
<i>Dividend Amount</i>	223.72	223.72	223.72	223.72	223.72
<i>PV Dividend</i>		213.76	204.24	195.15	186.46
<i>Cost of Equity</i>					4.66%
<i>Growth Rate</i>					-1.28%
<i>Terminal Value</i>					3,098.08
<i>Equity Value</i>					3,897.68
<i>Shares Outstanding</i>					340
<i>Market Cap</i>					1,868.48
Calculated Share P				£8.96	\$11.46
<i>Current Price</i>				£4.29	\$5.50
Difference				-£4.66	-\$5.97
Conclusion					Undervalued
Recommendation					BUY

Table 38 Discounted Dividend Model

The Equity Value is calculated using formula below:

$$Equity\ Value = \sum \frac{Dividend}{(1 + R_e)^n} + \frac{(1 + g)Dividend_{2020}}{(R_e - g)(1 + R_e)^t}$$

The Terminal Value:

$$\frac{(1 + g)Dividend_{2020}}{(R_e - g)(1 + R_e)^t}$$

This formula consists of two parts: the present value of future dividends and the present value of the terminal value calculated by DDM. The discount rate used is 4.66%, based on the cost of equity given by CAPM in *Section 4.3*. The DDM assume the dividend growth rate of -1.28%, which is calculated from the 2012-2016 average in Section 8 (Dividend Growth) based on the lack of clear projects in the pipeline. According to the historical data, the Dividend per Share and the Shares Outstanding were always at the same level, therefore, \$0.658 and 340 million will be assumed as the DPS and the Number of Shares.

The Market Capitalization of \$1,868.48 million taken from the London Stock Exchange (LSE) is lower than the self-calculated Equity Value of \$3,897.68 million, so the Discounted Dividend Model presents Petrofac is undervalued. The self-calculate share price with \$11.46 is higher than the current price. All in all, a **BUY** signal is given as recommendation.

9.2 Discounted Cash Flow Model

Under the discounted Cash Flow Model, the future free cash flow projection will be discounted back to present value by Cost of Equity (discount rate). And the Free Cash Flow to Equity (FCFE) will be used to measure the amount of cash Petrofac is paying for their shareholders after paying all expenses, reinvestment and debt. The full projection of Debt and Assets and the calculation of Discounted Cash Flow Model can be seen in *Appendix 6*.

DCF (Million \$)	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
<i>Debt</i>	2380.00	1752.70	1290.74	950.53	700.00
<i>Avg. Total Asset</i>	8394.00	8137.99	7934.54	7736.17	7542.77
<i>Change in Asset</i>		-256.01	-203.45	-198.36	-193.40
<i>Change in Debt</i>		-627.30	-461.96	-340.20	-250.53
<i>Net Profit</i>		255.73	217.37	196.28	196.26
FCFE		-115.56	-41.14	54.45	139.14
<i>Cost of Equity</i>					4.66%
<i>SGR</i>					-1.28%
<i>Terminal Value</i>					2,434.64
<i>Equity Value</i>					2,450.12
<i>Shares Outstanding</i>					340
<i>Market Cap</i>					1,868.48
Calculated Share P				£5.63	\$7.21
<i>Current Price</i>				£4.29	\$5.50
Difference				-£1.34	-\$1.71
Conclusion					Undervalued
Recommendation					BUY

Table 39 Discounted Cash Flow Model

FCFE is measured using formula below:

$$FCFE = \text{Net Income} - \Delta \text{ in Book Value of Asset} + \Delta \text{ in Book Value of Debt}$$

Terminal Value of FCFE is calculated by using formula below:

$$TV \text{ of FCFE} = \frac{(1 + g) \times FCFE_{2020}}{(CoE - g) \times (1 + CoE)^t}$$

The assumptions for this model is made in the Section 8.2, the projected FCFE will be calculated as before. The sustainable growth rate (SGR) is calculated in section 6 (Dividend Policy) and assumed as the growth rate in this model, because the -1.28% SGR represents the recession in line with the whole industry. As shown below, the Terminal Value is equal to \$2,434.64 Million. The Self-Calculate Equity Value in this model is equal to \$2,450.12 Million

while the Market Capitalization (from LSE) of Petrofac is \$1,868.48 Million, which means that Petrofac is undervalued.

9.3 Abnormal Earnings Model

The Abnormal Earnings Model shows that investors are willing to pay more than book value if the earnings are higher than expectation and vice versa. The full projection of Equity and the calculation of Abnormal Earnings Model can be checked in Appendix 7.

AE is measured using formula below:

$$AE = \text{Net Income} - (\text{Beginning Book Value of Asset} + \Delta \text{ in Book Value of Debt})$$

Terminal Value of AE is calculated by using formula below:

$$TV \text{ of } AE = \frac{(1 + g) \times AE_{2020}}{(CoE - g) \times (1 + CoE)^t}$$

AE (Million \$)	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
<i>Net Profit</i>		255.73	217.37	196.28	196.26
<i>Equity</i>	1,123.00	1,226.92	1,340.45	1,464.48	1,600.00
<i>Cost of Equity</i>					4.66%
<i>Equity*CoE</i>	52.33	57.17	62.46	68.25	74.56
<i>Abnormal Earnings</i>		203.40	160.20	133.82	128.02
<i>Cost of Equity</i>					4.66%
<i>SGR</i>					-1.28%
<i>Terminal Value</i>					1,773.26
<i>Equity Value</i>					2,337.28
<i>Shares Outstanding</i>					340
<i>Market Cap</i>					1,868.48
<i>Calculated Share P</i>				£5.37	\$6.87
<i>Current Price</i>				£4.29	\$5.50
<i>Difference</i>				-£1.08	-\$1.38
Conclusion					Undervalued
Recommendation					BUY

Table 40 Abnormal Earnings Model

The assumption for AE model is the same as the one for DCF model, including the growth rate and cost of equity. The conclusion from AE model is same as the result from DCF model is undervalued, as the self-calculated Equity Value (\$2,337.28 million) to be higher than the Market Capitalization (\$1,868.48 million) estimated by LSE. The share price is projected to be \$6.87 per share. All in all, a BUY recommendation is given by this model.

Recommendation

Influences from 2 sides for the valuation

Negative Side

SFO Investigation - Over the past few months, because the SFO started to investigate, the chief operating officer has been suspended and the share price has fallen by more than 50%. According to US broker Jefferies, the expectation of the fine might be around US\$200 million. Therefore, suspending the dividend could be a rational way to repay this fine and the time needed to rebuild their reputation must be considered.

The SFP Investigation is influencing the current share price of Petrofac. The price was falling sharply since the investigation was commenced by SFO. But investors have overreacted that and sold-off their shares resulting in a further decline.

Positive Side

Weak Exchange Rate – there is a positive translational effect for UK listed companies because of the weak exchange rate, 1.2869\$/£ in 15/08/2017 (taken from Bloomberg) which can be traced back to Brexit.

Cyclical Recovery - As mentioned before, oil and gas service and equipment industry is a cyclical industry, which is same as the oil industry. After the long-time depression, long-awaited rebound is expected in oil industry. The investments from oil companies to Oil and Gas Services and Equipment industry is picking up, especially for Petrofac as the Petrofac (ROE 0.09%) even has much higher return than Sector (ROE -15.10%).

Strong Cash Generation – with the generating of Free Cash Flow of \$500m in 2015 and \$486m in 2016, the price for Petrofac looks cheap. 18% decline in Capex and 10% reduction

in Net Debt driven by this strong cash generation. Which indicates that Petrofac is undervalued if the cash generation is sustainable.

Board Effectiveness – As analyzed in Section 1.3 Corporate Governance and Shareholders, Petrofac’s board performs extremely well from 5 different respects. The strong and effective board could help Petrofac to escape the terrible situation.

In the valuation section, DDM, DCF and AE model were used to value whether the company is overvalued or undervalued, which based on several assumptions of company’s performance. However, the DDM is full of assumptions which regarding too many factors, and most of these factors are beyond the control of investors as the limited information. Moreover, the key shortcoming of this model is DDM assumes there is a correlation between the dividend paid and the Revenue. Nevertheless, it can be seen from this project, Petrofac still tries to maintain a stable dividend pay-out to satisfy their shareholders, even if their Net Income cannot cover the distributions. Therefore, the Dividend Discount Model is not very useful in practice for normal investors. The valuation from this model for Petrofac cannot be very accurate with a significant dividend paid-out ratio (22372%).

Compared to DDM, the Discounted Free Cash Flow to Equity Model is more popular and suitable. A BUY recommendation is given by this model as the company is undervalued. The Abnormal Earning Model proved this recommendation, and the projected share price given by DCF and AE are close to each other. This shows that in both models my recommendations hold.

All in all, the results from DCF and AE will be taken into the final recommendation, the target price will be considered to be the average of the prices from DDM (£5.63) and AE (£5.37), which equals to £5.50.

KEY DATA £	<u>Value</u>
Current Share Price (16/08/2017)	4.29

Report Share Price (30/12/2016)	8.71
Share Price DDM	8.97
Share Price DCF	5.63
Share Price AE	5.37
Shares Outstanding	340 Million

Table 41 Key Data

Final Recommendation

BUY – given the undervalued conclusion of the share price from the DCF and AE model. All bad news should be already included in the price, there is no reason for the performance to be poor in the future. The following Table represents the consensus forecast from 23 polled analysts.

Consensus	<u>1yr ago</u>	<u>3M ago</u>	<u>2M ago</u>	<u>1M ago</u>	<u>Latest</u>
<i>Buy</i>	5	3	5	5	4
<i>Outperform</i>	7	6	6	6	6
<i>Hold</i>	6	7	7	7	7
<i>Underperform</i>	2	5	5	4	4
<i>Sell</i>	0	1	1	1	1

Table 42 Forecast from other analysts

Source from: <https://markets.ft.com/data/equities/tearsheet/forecasts?s=PFC:LSE>

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Appendixes

Appendix 1: Petrofac Income Statement

Income Statement \$M					
	2012	2013	2014	2015	2016
Revenue	6,324.0	6,329.0	6,241.0	6,844.0	7,873.0
Cost	- 5,244.0	- 5,165.0	- 5,242.0	- 6,429.0	- 7,134.0
Gross Profit	1,080.0	1,164.0	999.0	415.0	739.0
Administrative Expenses	-314	-393.0	-778.0	-667.0	-553.0
Operating Income	766.0	771.0	221.0	-252.0	186.0
Net Finance Costs	-6.0	-1.0	-64.0	-87.0	-76.0
Gain(loss) on Sale of Assets	5	19	14	4	-10
Profit Before Tax	765.0	789.0	171.0	-335.0	100.0
Income Tax Expense	135.0	142.0	31.0	9.0	86.0
Net Income After Tax	630.0	647.0	140.0	-344.0	14.0
Attributable to :					
Petrofac Limited Shareholders	632.0	650.0	120.0	-349.0	1.0
Non-controlling Interest	-2.0	-3.0	20.0	5.0	13.0
	630.0	647.0	140.0	-344.0	14.0

Appendix 2: Petrofac Balance Sheet

Balance Sheet \$M					
	2012	2013	2014	2015	2016
Non-current Assets					
Property, plant and equipment	897.00	1,191.00	1,698.00	1,775.00	1,418.00
Goodwill	125.00	155.00	115.00	80.00	72.00
Intangible assets	307.00	330.00	186.00	107.00	96.00
Financial assets	654.00	751.00	1,055.00	1,003.00	383.00
Deferred tax assets	43.00	37.00	34.00	80.00	63.00
	2,026.00	2,464.00	3,088.00	3,045.00	2,032.00
Current Assets					
Assets held for sale					128.00
Total inventories	683.00	1,489.00	1,618.00	1,807.00	2,193.00
Trade and other receivables	1,846.00	2,360.00	2,783.00	2,124.00	2,162.00
Due from related parties	10.00	5.00	2.00	2.00	4.00
Other financial assets	85.00	320.00	435.00	455.00	546.00
Income tax receivable	12.00	2.00	18.00	10.00	9.00
Cash and short-term deposits	582.00	617.00	986.00	1,104.00	1,167.00
	3,218.00	4,793.00	5,842.00	5,502.00	6,209.00

Total Assets	5,244.00	7,257.00	8,930.00	8,547.00	8,241.00
Non-current Liabilities					
Interest-bearing loans and borrowings	292.00	1,291.00	1,710.00	1,270.00	1,423.00
Provisions	100.00	213.00	273.00	331.00	224.00
Other financial liabilities	8.00	2.00	756.00	659.00	348.00
Deferred tax liabilities	143.00	140.00	151.00	141.00	94.00
	<i>543.00</i>	<i>1,646.00</i>	<i>2,890.00</i>	<i>2,401.00</i>	<i>2,089.00</i>
Current Liabilities					
Trad and other payables	1,918.00	2,296.00	2,670.00	2,510.00	1,974.00
Financial liabilities	108.00	93.00	329.00	857.00	729.00
Income tax payable	75.00	140.00	105.00	113.00	188.00
Billings in excess of cost and estimated earnings	307.00	254.00	265.00	201.00	44.00
Accrued contract expenses	743.00	836.00	800.00	1,233.00	2,060.00
Liabilities associated with assets held for sale					34.00
	<i>3,151.00</i>	<i>3,619.00</i>	<i>4,169.00</i>	<i>4,914.00</i>	<i>5,029.00</i>
Total Liabilities	3,694.00	5,265.00	7,059.00	7,315.00	7,118.00
Net Assets	1,550.00	1,992.00	1,871.00	1,232.00	1,123.00
Equity					
Share capital	7.00	7.00	7.00	7.00	7.00
Share premium	4.00	4.00	4.00	4.00	4.00
Capital redemption reserve	11.00	11.00	11.00	11.00	11.00
Treasure shares	-100.00	-110.00	-101.00	-111.00	-105.00
Other reserves	38.00	63.00	31.00	-16.00	73.00
Retained earnings	1,589.00	2,014.00	1,909.00	1,335.00	1,107.00
Equity attributable to Petrofac Limited shareholders	<i>1,549.00</i>	<i>1,989.00</i>	<i>1,861.00</i>	<i>1,230.00</i>	<i>1,097.00</i>
Non-controlling interests	1.00	3.00	10.00	2.00	26.00
Total Equity	1,550.00	1,992.00	1,871.00	1,232.00	1,123.00

Appendix 3: Petrofac Cash Flow Statement

	Cash Flow Statement \$M				
	2012	2013	2014	2015	2016
Cash Flow-Operating Activities (\$ Millions)					
Net Income/Starting Line	765.00	789.00	171.00	-335.00	100.00
Depreciation/Depletion	130.00	238.00	244.00	200.00	188.00
Depreciation	130.00	238.00	244.00	200.00	188.00

Amortization	--	--	--	--	--
Deferred Taxes	--	--	--	--	--
Non-Cash Items	12.00	-1.00	498.00	435.00	430.00
Unusual Items	-30.00	-22.00	407.00	334.00	297.00
Other Non-Cash Items	34.00	43.00	98.00	111.00	141.00
Equity in Net Earnings (Loss)	8.00	-22.00	-7.00	-10.00	-8.00
Changes in Working Capital	-1,308.00	-1,112.00	-265.00	369.00	-67.00
Other Assets & Liabilities, Net	-1,218.00	-1,027.00	-123.00	-186.00	23.00
Other Operating Cash Flow	-90.00	-85.00	-142.00	-183.00	-90.00
Cash from Operating Activities	-401.00	-86.00	648.00	669.00	651.00
Cash Flow-Investing Activities (£ Millions)					
Capital Expenditures	-404.00	-497.00	-470.00	-169.00	-165.00
Purchase of Fixed Assets	-397.00	-487.00	-470.00	-169.00	-165.00
Purchase/Acquisition of Intangibles	-7.00	-10.00	0.00	--	--
Other Investing Cash Flow Items, Total	-140.00	-96.00	-58.00	-149.00	-100.00
Acquisition of Business	-20.00	--	--	--	--
Sale of Business	--	23.00	39.00	41.00	1.00
Sale of Fixed Assets	1.00	2.00	2.00	2.00	6.00
Sale/Maturity of Investment	65.00	0.00	--	--	--
Investment, Net	-25.00	-4.00	-13.00	-2.00	-17.00
Intangible, Net	-165.00	-43.00	-119.00	-17.00	-2.00
Other Investing Cash Flow	4.00	-74.00	33.00	-173.00	-88.00
Cash from Investing Activities	-544.00	-593.00	-528.00	-318.00	-265.00
Cash Flow-Financing Activities (£ Millions)					
Financing Cash Flow Items	--	--	--	--	--
Total Cash Dividends Paid	-201.00	-224.00	-225.00	-223.00	-224.00
Issuance (Retirement) of Stock, Net	-76.00	-47.00	-25.00	-39.00	-36.00
Issuance (Retirement) of Debt, Net	241.00	1,009.00	524.00	42.00	-92.00
Long Term Debt Issued	291.00	1,919.00	1,696.00	985.00	2,293.00
Long Term Debt Reduction	-50.00	-910.00	-1,172.00	-943.00	-2,385.00
Long Term Debt, Net	241.00	1,009.00	524.00	42.00	-92.00
Short Term Debt, Net	--	--	--	--	--
Cash from Financing Activities	-36.00	738.00	274.00	-220.00	-352.00

Foreign Exchange Effects	3.00	1.00	-2.00	-7.00	-12.00
Net Change in Cash	-978.00	60.00	392.00	124.00	22.00
Net Cash - Beginning Balance	1,535.00	525.00	585.00	977.00	1,101.00
Net Cash - Ending Balance	557.00	585.00	977.00	1,101.00	1,123.00
Cash Interest Paid	3.00	14.00	66.00	96.00	94.00
Cash Taxes Paid	83.00	77.00	76.00	49.00	40.00
Free Cash Flow	-805.00	-583.00	178.00	500.00	486.00

Appendix 4: Credit Rating

For large non-financial service companies with market cap > \$ 5 billion

<i>If interest coverage ratio is</i>	<i>Column1</i>	<i>Column2</i>	<i>Column3</i>
>	≤ to	Rating is	Spread is
8.50	100000	Aaa/AAA	0.60%
6.5	8.499999	Aa2/AA	0.80%
5.5	6.499999	A1/A+	1.00%
4.25	5.499999	A2/A	1.10%
3	4.249999	A3/A-	1.25%
2.5	2.999999	Baa2/BBB	1.60%
2.25	2.49999	Ba1/BB+	2.50%
2	2.2499999	Ba2/BB	3.00%
1.75	1.999999	B1/B+	3.75%
1.5	1.749999	B2/B	4.50%
1.25	1.499999	B3/B-	5.50%
0.8	1.249999	Caa/CCC	6.50%
0.65	0.799999	Ca2/CC	8.00%
0.2	0.649999	C2/C	10.50%
-100000	0.199999	D2/D	14.00%

For smaller non-financial service companies with market cap < \$ 5 billion

<i>If interest coverage ratio is</i>	<i>Column1</i>	<i>Column2</i>	<i>Column3</i>
>	≤ to	Rating is	Spread is
12.5	100000	Aaa/AAA	0.60%
9.5	12.499999	Aa2/AA	0.80%
7.5	9.499999	A1/A+	1.00%
6	7.499999	A2/A	1.10%
4.5	5.999999	A3/A-	1.25%
4	4.499999	Baa2/BBB	1.60%
3.5	3.9999999	Ba1/BB+	2.50%
3	3.499999	Ba2/BB	3.00%
2.5	2.999999	B1/B+	3.75%
2	2.499999	B2/B	4.50%
1.5	1.999999	B3/B-	5.50%
1.25	1.499999	Caa/CCC	6.50%
0.8	1.249999	Ca2/CC	8.00%
0.5	0.799999	C2/C	10.50%
-100000	0.499999	D2/D	14.00%

Appendix 5: Discounted Dividend Model

DISCOUNTED DIVIDEND MODEL

\$ MILLION (except DPS)	2016	2017E	2018E	2019E	2020E	Average
DPS	0.658	0.658	0.658	0.658	0.658	
Share Outstanding	340	340	340	340	340	
Amount	223.72	223.72	223.72	223.72	223.72	
Sustainable Growth Rate	31.13%	24.06%	-5.42%	-37.05%	-19.13%	-1.28%
Discounted Rate Cost of Equity					4.66%	
PV Dividend		213.758838	204.241198	195.14733	186.458372	
Discounted Dividend Model						
PV Dividend		213.758838	204.241198	195.14733	186.458372	
Terminal Value					3098.07466	
Equity Value					3897.6804	
Number of Share					340	
<i>Calculated Share Price</i>				£ 8.96	\$ 11.46	
Market Cap £					1,459.75	
Exchange Rate \$/£					1.28	
Market Cap \$					1,868.48	
<i>Current Price per Share</i>				£ 4.29	\$ 5.50	
Difference				£ -	\$ -	
				4.66	5.97	

Appendix6: Discounted Free Cash Flow Model

DISCOUNTED FREE CASH FLOW MODEL

\$ MILLION	2016	2017E	2018E	2019E	2020E
Net Profit	1.00	255.73	217.37	196.28	196.26
Revenue	7873.00	7412.43	6300.57	5689.41	5688.84
Net Profit Margin	0.01%	3.45%	3.45%	3.45%	3.45%
Avg. Total Asset	8394.00	8137.99	7934.54	7736.17	7542.77
Total Asset	8241.00	8034.98	7834.10	7638.25	7447.29
Growth Rate		-2.50%	-2.50%	-2.50%	-2.50%
ROA	0.01%	3.14%	2.74%	2.54%	2.60%
Debt to Capital		0.68	0.68	0.68	0.68
Debt	2380.00	1752.70	1290.74	950.53	700.00
Debt Growth Rate	-0.264	-0.264	-0.264	-0.264	-0.264
Free Cash Flow \$					
Change in Asset		-256.01	-203.45	-198.36	-193.40
Change in Debt		-627.30	-461.96	-340.20	-250.53
Net Profit		255.73	217.37	196.28	196.26

FCFE	-115.56	-41.14	54.45	139.14
Discounted Cash Flow Model \$				
FCFE	-115.56	-41.14	54.45	139.14
SGR				-1.28%
Cost of Equity				4.66%
Terminal Value				2434.64
<i>Equity Value</i>				2450.12
Market Cap				1868.48
Share Outstanding	340.00	340.00	340.00	340.00
<i>Self-Calculated Share Price</i>			£ 5.6	\$ 7.2
			3	1
Current Price			£ 4.2	\$ 5.5
			9	0
<i>Difference</i>			£ -	\$ -
			1.34	1.71

Appendix7: Abnormal Earnings Model

ABNORMAL EARNINGS MODEL

\$ MILLION	2016	2017E	2018E	2019E	2020E
Net Profit	1.00	255.73	217.37	196.28	196.26
Revenue	7,873.00	7,412.43	6,300.57	5,689.41	5,688.84
Net Profit Margin	0.01%	3.45%	3.45%	3.45%	3.45%
Avg Total Asset	8,394.00	8,137.99	7,934.54	7,736.17	7,542.77
ROA	0.01%	3.14%	2.74%	2.54%	2.60%
Equity	1,123.00	1,226.92	1,340.45	1,464.48	1,600.00
Equity Growth Rate	0.093				
Abnormal Earnings \$M					
Net Profit	1.00	255.73	217.37	196.28	196.26
Equity	1,123.00	1,226.92	1,340.45	1,464.48	1,600.00
Cost of Equity	4.66%	4.66%	4.66%	4.66%	4.66%
Equity*CoE	52.33	57.17	62.46	68.25	74.56
Abnormal Earnings		203.40	160.20	133.82	128.02
2017E 2018E 2019E 2020E					
Abnormal Earnings		203.40	160.20	133.82	128.02
Growth Rate					-1.28%
Cost of Equity					4.66%
Terminal Value					1,773.26
<i>Equity Value</i>					2,337.28

Market Cap				1,868.48
Share Outstanding	340	340	340	340
<i>Share Price</i>			£ 5.37	\$ 6.87
Current Price			£ 4.29	\$ 5.50
<i>Difference</i>			£ -	\$ -1.38
			1.08	