A SUPPLY CHAIN APPROACH TO ENHANCING RETURN IN UPSTREAM OFFSHORE OIL AND GAS FINANCE —— A LEGAL PERSPECTIVE

PhD Thesis submitted by

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Abstract

This thesis explores how returns to upstream offshore financing in oil and gas projects could be better enhanced through law and contracts. It investigates the matter from the lenses of the entire supply chain, an approach which is different from the other perspectives on achieving and preserving value. Conventional methods of inquiry have focused on the bilateral contractual relationship between financier and the oil and gas company, or on the wider question of risk-reward management, or variants of the two. The proposed supply chain perspective is not intended to replace the other methods of inquiry but offers up, in a modest way, a different perspective which can help with better contract design to enable a more stable return to the financing. The thesis will show how the upstream financing would be better buttressed from instability if the downstream revenues are properly protected contractually. While an oil and gas company has a direct contractual relationship with its financiers to secure funding for the project, the oil and gas company also has other direct relationship with third parties in the whole supply chain to secure a smooth operation of the project. An oil and gas company under a financing arrangement of an upstream offshore oil and gas project should be able to rely on some contractual mechanisms to transfer risks via contract chains, thus largely secure its repayment obligation under the financing arrangement.

The thesis in the main uses English law as the legal backdrop; however, where appropriate different legal systems would be alluded to, not only for comparison purposes, but to show how different legal principles affect the matter of contract design in oil and gas financing arrangements.

Downstream sales is the economic core of upstream offshore oil and gas projects. An oil and gas company needs sufficient revenue to fulfil its repayment obligation to its financier. When exploring the contribution of downstream sales, the emphasis of this thesis is on how contract design could be better utilised to secure revenue from downstream sales. A well-designed contract is one that set up a clear and confirmed contractual framework for parties to minimize costs and execute their rights and obligations, so that the original goal can be achieved, and business value can be maximized. In this connection, the thesis tests the function of renegotiation mechanism and pricing provisions under downstream sales contracts between private commercial parties in helping parties to secure sales even in a fluctuated market.

The author posits that although parties cannot change the external social or legal framework, they can still utilize their contracts as a private preventive and protective mechanism. By carefully drafting terms and conditions in those contracts, more capital resources can be utilized, cost can be saved, and risks can be better allocated, while execution and performance of the contracts can run more smoothly, preferably, against the backdrop of a supportive legal system such as English law

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Table of Abbreviations

AIPN	Association of International Petroleum Negotiators
CFR	Cost and Freight
CIF	Cost Insurance and Freight
CNG	Condensed Natural Gas
CO_2	Carbon Dioxide
DAP	Delivered at Place
DAT	Delivered at Terminal
DES	Delivered Ex Ship
EMEA	Europe, Middle East and Africa
FID	Final Investment Decision
FOB	Free on Board
FPSO	Floating Production Storage and Offloading Vessel
GIIGNL	International Group of Liquefied Natural Gas Importers
GSPA	Gas Sale and Purchase Agreements
ICC	International Chamber of Commerce
ICSID	International Centre for Settlement of Investment Disputes
IEA	International Energy Agency
IMO	International Maritime Organisation
IOC	International Oil Company

ITLOS	International Law of the Sea
LIBOR	London Inter-Bank Offered Rate
LNG	Liquified Natural Gas
LPG	Liquefied Petroleum Gas
MGSA	Model Gas Sales Agreement
MSA	Master Sales Agreement
MUSD/BCM	Million USD per Billion Cubic Metre
NOC	National Oil Company
PDP	Proved Developed Producing
PDNP	Proved Developed Nonproducing
PSA	Production Sharing Agreement
PUD	Proved Undeveloped
RBF	Reserve-based Finance
SHT	Societe des Hydrocarbures du Tchad
UAE	United Arab Emirates
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UNCITRAL	United Nations Commission on International Trade Law
UNIDROIT	International Institute for the Unification of Private Law
USA	United States

Chapter 1 Background, Structure, and Rationale of the Thesis

1.1. Introduction

Offshore oil and gas projects require high capital cost. Consequently, most oil and gas companies, including the majors and state-owned enterprises, need to seek out appropriate finance. This thesis examines and tests the rationale for selection between the different financing models customarily adopted in the industry.

In such a process, the thesis discovers that in the bilateral financing relationship between an oil and gas company and its financier, whether a debt financing model or an equity financing model, financiers are more likely take a predominant position and have much stronger bargaining power. Therefore, though it is possible in theory, in reality, an oil and gas company will have less chance to insist on some preferable terms which may be in favour of itself.

It is clear that, for an oil and gas company, there is a need to achieve as best as possible proper repayment or returns on the financing for the finance providers. Although it may be very difficult for an oil and gas company to insist on some favourable terms, the thesis points out that, though an oil and gas company may have less bargaining power, it can still protect itself from disturbance in the financing arrangement if it can secure revenue from downstream sales.

In this connection, the thesis tests and evaluates the appropriateness of the new thinking behind the supply chain approach — an approach which looks to the entirety of the supply chain rather than merely the bilateral relationship between finance providers and oil and gas companies for preserving value in the financing. Such a new approach is different to the traditional ones and demonstrates the originality of this research. Importantly, the thesis will place this supply chain approach under legal lenses and argues for better contract design.

When examining how to utilize contract design to secure revenue from downstream sales even in the fluctuated market conditions from a long-term duration perspective, the thesis tests the function of renegotiation mechanism and pricing provisions, inserted by parties under private contracts, in helping parties to maintain the contractual

relationship.

1.2. Overview of Global Upstream Offshore Oil and Gas Industry

1.2.1. Energy Industry in General

Energy powers the improvement of human society. Along with sustainable development, global energy demand continues to rise. People need more and more sustainable, affordable and reliable energy. Recent statistics reveal that global energy consumption is expected to rise by 25% by 2040. [1] While the fuel mix is evolving from traditional conventional energy to some unconventional or alternative energy, fossil fuels as a major part of conventional energy, will continue being dominant. It is estimated that by 2040, oil demand will still play a major role in global energy and natural gas may grow even more strongly. [2] Although non-fossil fuels (i.e. nuclear, hydro and renewables, etc.) draw more and more attention, they still occupy a much lower share of the market than oil and gas.[3]

1.2.2. Oil and Gas Industry

1.2.2.1. The Importance of Oil and Gas Industry

The oil and gas industry is one of the "largest, most complicated, and crucial industries"[4]. Statistics show that, currently, oil and gas constitute about 55% of global energy consumption and will continue to make up more than 50% of global energy by 2040.[5] The industry affects national security, influences geopolitics, and impacts on

[1] 'BP Energy Outlook 2019 Edition' <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2019.pdf> accessed 21 February 2020.

[2] ibid

[3] ibid

[4] Andrew Inkpen and Michael H. Moffett, *Global Oil and Gas Industry: Management, Strategy and Finance* (PennWell 2011) .

[5] ExxonMobil, '2019 Outlook for Energy: A Perspective to 2040' 4 <https://corporate.exxonmobil.com/-/media/Global/Files/outlook-for-energy/2019-Outlook-for-Energy_v4.pdf> accessed 21 February 2020.

international disputes.[6] The industry and international affairs are so closely linked that it is inevitable that it has a significant effect on national infrastructure and is so closely bound to everyone's daily life.

The chemical industry largely relies on oil and gas products as both a fuel and as stock. Chemicals are the building blocks for a wide variety of products People rely on a wide range of chemicals to provide daily essentials, such as clothing, textiles, plastics, paints, detergents, fertilizers, and even medicines. Oil and gas products are also the most important raw materials to produce cement, steel, metals, etc. which support a nation's industrialization. Such products are also critical for transportation and are used to generate power and heat, fuel airplanes and vehicles, and launch machinery.[7]

The oil and gas industry not only supports manufacturing but also offers numerous working opportunities for population around the world. It is quite obvious that the industry supports human being's daily life and even provides a living to some individuals. As the human population being will continue expanding[8], the consumption and demand for oil and gas will grow accordingly. All human beings have a stake in a sound development of the industry.

1.2.2.2. Oil

Oil is expected to remain the primary source of energy supply.[9] The oil industry includes the supply chain of exploration, extraction, refining, transporting, and marketing petroleum products.

For over 150 years, global oil supply has continually expanded to serve rising demand, mainly for transportation fuels and other petroleum liquids. This tendency will remain true through 2040 and oil will continue to lead the global energy mix, driven by the

[6]Betty Simkins and Russell Simkins, *Energy Finance and Economics: Analysis and Valuation, Risk Management, and the Future of Energy* (Wiley 2013) .

[7] ExxonMobil (n 5)

[8] The world population will continue to grow sharply. It is estimated that from now to 2040 the world population will increase from 7.5 billion to 9.2 billion, ExxonMobil (n 5)

[9] ExxonMobil (n 5)

demands of transportation and chemicals industry.[10] In 2018, global oil production amounted to 94718 in thousands of barrels per day. Meantime, global oil production has amounted to 99843 in thousands of barrels per day.[11] These two statistics illustrate the tendency that demand is exceeding supply in the oil industry. This suggests that more production is required to balance the gap.

1.2.2.3. Natural Gas

Natural gas is produced naturally over millions of years from hydrogen and carbon molecules of ancient organic matter trapped within geological formations. [12] In the world energy mix, natural gas has shown the strongest growing momentum and accounts for a quarter of all energy demand.[13] While oil is more conventional, natural gas is a future-oriented and more environment-friendly energy.

Natural gas can be classified as "conventional" and "unconventional" types. The former is much easier to produce while production of the latter is technically more difficult and costly.[14] Conventional gas is explored from porous rock formations and may be associated with oil reserves. Unconventional gas includes coal seam gas[15], tight gas[16], and shale gas[17], etc.[18] Historically, conventional gas has been almost the core focus of

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[10] ibid

[11] BP, 'Statistical Review of World Energy 2019' 16 <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf> accessed 21 February 2020.

[12] Canadian Association of Petroleum Producers, 'Conventional and Unconventional' <http://www.capp.ca/CANADAINDUSTRY/NATURALGAS/CONVENTIONAL-UNCONVENTIONAL/Pages/default.aspx> accessed 21 February 2020.

[13] ExxonMobil (n 5)

[14]Inkpen and Moffett (n 4)

[15] also referred to as coal-bed methane, which is extracted from coal seams around 300–1000 meters underground

[16] From rock formations with very low permeability at depths greater than 1000 meters

[17] Extracted from low permeability sedimentary rock at 1000 to over 2000 meters underground

[18] Australian Government Bureau of Resources and Energy Economics, 'Gas Market Report' (2014) 1<https://www.aph.gov.au/~/media/Committees/economics_ctte/estimates/add_1617/Industry/answers/AI-87_Whish-Wilson_Attachment4.pdf> accessed 21 February 2020.

the gas industry. Recently, thanks to the technological breakthroughs in exploration, extraction of unconventional gas has become viable and brought revolution to the gas industry.[19] However, conventional gas is still and, in the foreseeable future, will remain the main source of gas supply:

In 2018, global natural gas production was slightly larger than its consumption demand. Statistics showed that the global production of gas was 3867.9 in billion cubic meters while the consumption was 3848.9 in billion cubic meters.[20] However, in 2018, both world consumption and production of natural gas increased by over 5%, showing the strongest increase in rates in the past 30 years.[21] Considering that world demand for natural gas is estimated to be the largest volume growth of any energy source through 2040, increasing by 65 percent from 2010 to 2040[22], it can be predicted that gas production will still have to increase to meet the growing demand.

1.2.3. Current and Predicted Production in Upstream Offshore Oil and Gas Industry

Based on current industry practice and future outlook, it can be predicted that oil and gas projects are and will play a major role in global energy supply. Among those projects, some are offshore[23] while others may be onshore. Supply generated from offshore is a major constituent of global oil and gas production. More than 25% of today's oil and gas production comes from offshore supply, mainly from the North Sea, the Gulf of Mexico, Brazil, the Middle East, and the Caspian Sea. While offshore oil supply has become quite stable since 2000, natural gas offshore supply has increased

[19] Canadian Association of Petroleum Producers (n 12)

[20] BP (n 11).

[21] ibid

[22] ExxonMobil (n 5)

[23] Offshore structures are large platforms providing the necessary facilities and equipment for exploration and production of oil and natural gas in a marine environment (e.g. offshore oil platforms and offshore gas fields). 'Offshore Book Oil and Gas 2014' <http://www.offshoreenergy.dk/Files/Filer/Publications/OffshoreBook_2014.pdf> accessed 21 February 2020.

by more than 50%. Looking forward to 2040, offshore activities relating to the oil and gas industry will keep growing.[24]

Like most other industries, the offshore oil and gas industry also consists of various activities. Based on different functions (i.e. raw materials oriented or customer oriented), those activities can be described as upstream, midstream, and downstream. Each segment has its own character, involves different activities, and has unique risks.

The upstream segment includes exploration, development, and production, which are all of the procedures necessary to get oil out of the ground and also the subsequent installation, operation and maintenance of the oil producing platform.[25] Midstream activities mainly focus on transportation and trading while at the downstream end products are sold to end users where refining and marketing are the most important activities.[26]

The upstream segment is considered to be more capital intensive and risky than the midstream and downstream segments.[27] Compared with midstream and downstream, upstream still dominants the whole industry—it is estimated that, between 2019 and 2030, approximately $510 billion will be invested on average annually on upstream oil and gas while, between 2030 and 2040, the number will be around $390 billion.[28]

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[24] International Energy Agency, 'Offshore Energy Outlook 2018' <https://www.iea.org/reports/offshore-energy-outlook-2018#the-future-of-offshore-energy> accessed 21 February 2020.

[25] 'Offshore Book Oil and Gas 2014' <http://www.offshoreenergy.dk/Files/Filer/Publications/OffshoreBook_2014.pdf> accessed 21 February 2020.

[26] Inkpen and Moffett (n 4)

[27] Andy Brogan, 'Funding Challenges in the Oil and Gas Sector: Innovative Financing Solutions for Oil and Gas Companies' (*Ernst & Young*) <http://www.ey.com/Publication/vwLUAssets/EY-Funding-challenges-in-the-oil-and-gas-sector/$FILE/EY-Funding-challenges-in-the-oil-and-gas-sector.pdf> accessed 27 February 2020.

[28] International Energy Agency, 'WORLD ENERGY OUTLOOK 2019' (IEA 2019) <https://www.iea.org/reports/world-energy-outlook-2019> accessed 3 November 2020.

Beginning with shallow water projects, the global upstream offshore oil and gas industry has been expanding to deep water or even ultra-deep water areas[29]. While deep water production was barely existent several decades ago, nowadays deep water oil and gas production is estimated to soar by more than 150 percent from 2010 to 2040, supporting more than 12 percent of global energy supplies.[30]

1.2.4. Stages in Developing an Upstream Offshore Oil and Gas Project

To run an upstream oil and gas project is a long-term business. The major stages of a project are identification of oil and gas field targets (due diligence), gaining legal access to exploration and development targets (pre-qualification and license awarded), exploration seismic and site surveys, exploration drilling, analysis of exploration discoveries, commercial arrangements, final investment decision (FID), drilling of appraisal wells, development, production[31], and decommissioning.[32]

Before applying for an exploration license, due diligence is important and a thorough risk-screening process should be undertaken to evaluate whether there are any potential safety, health, environmental, social, human rights, political, corruption impacts, etc. This kind of due diligence is also critical even if one does not actually explore and develop the project but only engages as an investor.

After the preliminary assessment, the next step is to apply for the legal right of the target field; normally this is the right to explore and develop. At this stage, the applicant should examine the ownership of the target——who owns the property? Generally speaking, most natural resource rights are held by government. However, in Canada and the United States, a private person can also own the rights.[33] To apply for a license

[29] The depth of deep water and ultra-deep water is around more than 500 meters and more than 1,5000 meters respectively. See Infield Systems, 'Global Offshore Oil and Gas Outlook' (2013) 20 <http://www.gaselectricpartnership.com/HOffshore%20Infield.pdf> accessed 21 February 2020.

[30] ExxonMobil (n 5)

[31] Gas processing and LNG liquefaction

[32] See Cairn, 'Oil and Gas Exploration, and Production Life Cycle' <https://petrobazaar.com/oil-and-gas-exploration-and-production-life-cycle-11146.html> accessed 21 February 2020.; Inkpen and Moffett (n 4).

[33]Inkpen and Moffett (n 4).

for exploration and development, one needs to provide a wide range of documents. Application materials may vary among different jurisdictions. Generally speaking, the necessary documents include information about the legal and financial status, technical competence, contributions to local community, and health, safety and environmental risk management plan. At this stage, the applicant shall also consider the fiscal regime for international petroleum agreements[34] in the target jurisdiction. The fiscal regimes may consist of a concession, a production sharing agreement (PSA), and a risk service contract.[35]

Seismic and site surveys are necessary and crucial to ensure the success of a project. Seismic surveys help to find out geological structures below the surface and to identify whether the target area contains hydrocarbons. Site surveys are conducted to decide where an exploration well may be drilled. At the same time, the site survey is carried out to ensure the safety of the target drilling location.

Exploration drilling is carried out to confirm whether the target well truly contains oil or gas. All the preliminary exploration and surveys still cannot give a one hundred percent confirmation of the output of the target well. This can be only clarified through an exploration drilling process. Based on the result of the exploration drilling, the developer may adjust its next business strategy — whether to continue or stop. The result will also influence the financers' investment decision — whether to support or to walk way.

If the exploration drilling renders a promising result, analysis of the exploration discoveries will follow to determine the size and traits of the target well. The appraisal will also include the determination of the optimal method for further exploration and development.

[34] Most countries have a legal framework covering both the responsibility and rights between the developer (lessee) and the natural resource rights owner (lessor). These agreements are called the fiscal regime for international petroleum agreements. See Inkpen and Moffett (n 4).

[35] Further analysis on documentation of the fiscal regimes and their impact on the financing arrangements will be discussed in the subsequent charters.

If the appraisal confirms the technical and commercial feasibility of the well, further commercial arrangements will follow. At this stage, arrangements for detailed long-term financing and contracts for production output will be negotiated.

The sound final investment decision ("FID") can only be made upon completion all the above-mentioned work. Nowadays, most developers will only book reserves once a FID has been confirmed.[36] For investors, an FID is a key indicator.[37] If the decision confirms that the well should be developed, a detailed development plan is served and submitted to the relevant authorities for approval. The plan shall cover rigorous evaluation of the potential risks and the long-term social and environmental impacts. Delicate design is crucial to eliminate and mitigate risks and to keep negative impacts within an acceptable level. In general, company practice has evolved such that a field will only be included as recoverable once an FID has been taken, committing the company to the development of its acreage.

The production phase can last 40 years or even longer and it is capital intensive as well as cost oriented.[38] As the size of many projects become larger, the production in these projects involves not only traditional well drilling and oil and gas recovery but also a wide range of supporting facilities and activities, namely residential camps for workers, fire stations, .power stations, etc. These supporting facilities are also costly and accompanied by various risks. They need to be sufficiently funded and properly managed to ensure the normal operation of a project.

Offshore oil and gas is not a renewable resource, which means eventually the project can no longer produce enough hydrocarbons and enters the end phase of its life-cycle. At this stage, decommissioning is necessary and obligatory for the developer.

[36]Inkpen and Moffett (n 4).

[37] Deutsche Bank AG/London, 'Oil & Gas for Beginners' [2013] Deutsche Bank Markets Research 99, 99.

[38]Inkpen and Moffett (n 4)..

Without doubt, to run an oil or gas field engages multi-stage work. The whole period needs to be fully funded, from the initial exploration stage to the final decommissioning. Each stage has its unique cost and risk profile.[39]

1.3. Costs in the Upstream Sector

The offshore oil and gas industry is highly capital-intensive. In the upstream sector, substantial preproduction costs are needed to propel exploration. Such high upfront costs also involve numerous uncertainties. The high upfront cost is a hurdle for oil and gas companies as well as their financiers. Financiers are reluctant to contribute unless the oil and gas company can convince them that revenue generated from the production is sufficient to cover costs plus a profitable return. In order to reduce uncertainty and seek more funding, it is wise for an oil and gas company to adopt diversification when develop a project. Dividing the cost of developing an upstream offshore oil and gas project into different stages can strengthen financing flexibility and reduce uncertainty. A hybrid financing arrangement consists of a portfolio of financing sources and models can not only attract more financiers and funding but also spread risks and uncertainties.[40]

1.3.1. General Costs

Generally, costs in upstream oil and gas projects are divided into two basic groups — preproduction costs and production costs.[41]

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[39] Michael A. Johnson, 'Capital Budgeting in Upstream Oil and Gas: A Review of the Techniques, Processes, and Context' [2006] Petroleum Accounting and Financial Management Journal 48.

[40] Cheuk Wing Lee and Jin Zhong, 'Financing and Risk Management of Renewable Energy Projects with a Hybrid Bond' [2015] Renewable Energy 779. During the whole lifespan of an upstream offshore oil and gas project, an oil and gas company has to explore all the funding possibilities to fuel the development of the project and the growth of the company. New cost can be paid by hybrid financing arrangements. For example, attracting external equity financiers by trading new shares or raising new debt financing when there is sufficient cash flow. Ruud Weijermars, 'Credit Ratings and Cash-Flow Analysis of Oil and Gas Companies: Competitive Disadvantage in Financing Costs for Smaller Companies in Tight Capital Markets' [2011] SPE Economics & Management 54.More details regarding different financing sources and models are addressed in Chapter 2.

[41]Inkpen and Moffett (n 4)..

1.3.1.1. Preproduction Costs

Preproduction costs can be further divided into two sub-groups — finding costs and development costs. Finding costs consist of the costs of the acquisition of acreage, exploration, appraisal, and acquired reserves. To be more detailed, this portion of costs includes the purchase and leasing of equipment, drilling, geological research (e.g. seismic analysis)[42], costs of purchasing and acquiring reserves, and all labour costs in exploration. Development costs can be subdivided into the costs of construction and installation of all the facilities used to produce and transport oil and gas.[43]

Normally, finding costs are more fixed and specified as an individual company has its own annual budget for exploration. After successful exploration has been completed, the company will decide whether and when to move into the development stage. Compared to finding costs which are more specific, development costs are more case by case and may vary significantly between individual projects.[44]

1.3.1.2. Production Costs

Production costs occur during the operation and maintenance of wells and related facilities and equipment. The costs include depreciation and the costs of support facilities and equipment. Two sub-groups of costs under the production costs heading are direct lifting costs and production taxes. [45] Direct lifting costs include all production costs but exclude production taxes. Examples are operation labour, insurance, well workovers, etc. Production taxes may include property taxes, severance taxes, ad valorem taxes, etc.[46]

[42]Peter C Reiss, 'Chapter 7: Economic and Financial Determinants of Oil and Gas Exploration Activity' in R Glenn Hubbard (ed), *Asymmetric Information, Corporate Finance, and Investment* (University of Chicago Press 1990).

[43]Inkpen and Moffett (n 4).

[44]ibid..

[45]ibid.

[46]ibid.

1.3.2. Potential Increase of Costs

Oil and gas companies' expenditure on geological exploration, development and production has more than tripled since the beginning of the century. In addition to the general costs, quite a few factors may also cause a potential increase in costs. These factors include, but are not limited to, extra costs for deep water and ultra-deep water projects and increased operating costs due to change in regulations. For example, a shorter decommissioning timeline, a greater redundancy required in drilling safety, more stringent and objective inspection by industry regulators, the exclusion of companies with poor safety records from offshore oil exploration permits, an increase in legal penalties, an increase in insurance premiums, and a higher standard on environmental protection (e.g. CO_2 emissions). [47]

As more explorations are carried out in deep-water and as regulation on CO_2 emission becomes more and more restricted, the costs have grown even larger, thus needing even stronger financial support. In such a process, a hybrid financing arrangement will be ideal as it can attract more funding sources, enlarge the funding pool, and reduce risks and uncertainty undertaken by an individual financier.

In the deep water (including ultra-deep water) segment, the risk level as well as the technical standards requirements are much higher than those of shallow water. Correspondingly, when one refers to capital expenditure, the deep water market no doubt requires higher capital expenditure than its shallow water counterparts.[48] Deep water investment has shown a recent increase and such increase will continue until 2030 at least.[49]

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[47] Alain Fanaie, 'New Financial & Environmental Challenges for Independent & Junior Oil & Gas Players' (2012) 9 <http://www.chinasonangol.com/misc/news_2012_world_independent_slides.pdf> accessed 21 February 2020. LUKOIL, 'Global Trends in Oil & Gas Markets to 2025' <http://www.lukoil.com/materials/doc/documents/Global_trends_to_2025.pdf> accessed 21 February 2020.

[48] Infield Systems, 'Deep, Ultra-Deepwater Capex to Continue Growing to 2017' (2013) <http://www.offshore-mag.com/articles/print/volume-73/issue-8/departments/subsea-systems/deep-ultra-deepwater-capex-to-continue-growing-to-2017.html> accessed 21 February 2020.

[49] International Energy Agency (n 28)

CO_2 emissions are another major factor which may cause a large increase in capital expenditure. It was predicted by the International Energy Agency that $48 trillion of cumulative investment in energy supply and efficiency is required by 2035 in regular scenario. However, since global warming is becoming more serious issue and the energy industry is a major source of CO_2 emissions, an even higher sum, $53 trillion, a different composition and a greater accent on energy efficiency is needed to provide an alternative path in order to meet the 2°C climate change target.[50] Annual investment in upstream oil and gas rises in the new policies scenario, in which countries make wide policy commitments and plans to reduce greenhouse-gas emissions and to weed out fossil-energy subsidies, by one-quarter to more than $850 billion by 2035. More than 80% of the cumulative $17.5 trillion in upstream oil and gas spending is required to compensate for the decline at existing oil and gas fields.[51]

1.4. The Players and Their Financing Demand in the Global Upstream Offshore Oil and Gas Industry

The global upstream offshore oil and gas industry is a highly capital-intensive industry. Continuing long-term capital input is needed to ensure that the industry is running soundly. Besides, the industry is also a technology-intensive industry where technology upgrades and innovation are crucial to the development of the industry. These characteristics indicate that financing is essential and indispensable for the industry. Investment in oil and gas is necessary to recover the natural decrease from existing stock and to meet increasing demand in the future.[52]

While data shows that there is and will be an increasing demand for the supply of oil and gas, the demand for energy investment will continue to increase. Some outlook of global energy demand suggests that in order to sustain even modest economic growth needs huge new investments in the global energy industry, especially oil and natural

[50] International Energy Agency, 'World Energy Investment Outlook 2014 Special Report' (2014) 51 <http://www.iea.org/publications/freepublications/publication/weio2014.pdf> accessed 21 February 2020.

[51] ibid

[52] ExxonMobil (n 5)

gas.[53] Among those expected investments, the largest portion was made in the upstream oil and gas sector. Statistics showed that substantial investment had been made into the upstream oil and gas industry for a third consecutive year, and such momentum is still rising. In 2019, upstream capex worldwide for the oil and gas industry was said to grow by 4%.[54]

The oil price also influences the demand for financial requirements in the upstream oil and gas industry. When the oil price is higher, oil and gas companies receive more money from operations to fund their business. Before mid-2011, global oil prices experienced several years of increase. Since mid-2011, the prices have shown a more stable momentum. However, in 2014, the price experienced a collapse, which caused many years of decline in investment in upstream exploration. After many years of decline, investment in upstream increased by 18%, which amounted to $60 billion in 2019.[55]

The global upstream offshore oil and gas industry is a massive industry which consists of thousands of entities. These entities vary from each other in size, structure, business area, etc. Among all those players, international oil companies, national oil companies, independent oil and gas companies, and junior oil and gas companies are the major players. Each of them has unique characteristics, which may influence their financing arrangements.

1.4.1. International Oil Companies (IOCs)

IOCs normally refer to integrated private oil and gas companies which develop and compete worldwide. From the beginning of the nineteenth century to the 1960s, US and European IOCs enjoyed nationwide concessions to extract oil from developing oil-

[53] Simkins and Simkins (n 6)

[54] International Energy Agency, 'Oil 2019' <https://www.iea.org/reports/market-report-series-oil-2019> accessed 21 February 2020.

[55] International Energy Agency, 'World Energy Investment 2019' 99 <https://www.iea.org/reports/world-energy-investment-2019> accessed 21 February 2020.

exporting countries. [56] The industry has long been dominated by several large IOCs.[57] The seven major IOCs are BP, Exxon Mobil, Shell, ConocoPhillips, Chevron, Eni, and Total.[58] The situation has changed gradually as national oil companies have become more active in the industry. However, in 2015, among the top ten biggest offshore oil and companies, six are IOCs — ExxonMobil, Royal Dutch Shell, Chevron, Total, BP, and Eni. [59]

The IOCs major concerns are efficiency technology, profitability, share prices, investor relations, portfolio management, growth regulatory/legal issues, commercial competition, access to opportunities, and risk management.[60] The advantage of the IOCs is that they generally have more advanced technological capabilities, more modernized corporate structure, higher calibre management team, and easier access to commercial equity and debt markets. [61] However, because of the momentum of increased nationalization in the industry, especially in controlling of reservoirs, the IOCs encounter barriers to the access of future projects.[62]

IOCs are more profit-oriented, normally publicly trade, and mainly motivated by shareholder maximization. Those major IOCs are well-run and profitable entities. Since they are publicly traded, the IOCs must value and respond to their shareholders' demands and expectations. They should control cost, show good financial performance, and maximize the shareholders' value. Though most IOCs still list some nonfinancial objectives as their mission, they do this mainly to show their social responsibility and

[56] John V Mitchell, Valérie Marcel and Beth Mitchell, *What next for the Oil and Gas Industry?* (Chatham House 2012) .

[57] See Inkpen and Moffett (n 4).

[58] International Energy Agency (n 50)55

[59] offshore-technology, 'The World's Biggest Offshore Oil and Gas Companies' (*offshore technology*, 2015) <http://www.offshore-technology.com/features/featurethe-worlds-biggest-offshore-oil-and-gas-companies-4516748/> accessed 3 December 2020.

[60] Vahan Zanoyan, 'NOC-IOC Relations and Their Impact on Investment in the Upstream Sector' (2002) <http://www.gasandoil.com/news/features/467d7b463f4ac6f3eb5838f737ee307e> accessed 21 February 2020.

[61] Fanaie (n 47).

[62] Mitchell, Marcel and Mitchell (n 56)

to help them to establish a good reputation. This, in return, helps them to gain business goodwill and raise more capital.

For the IOCs, the maintenance of a good credit rating has always been the priority in their financing strategy. The IOCs use cash flow as a major source of funding. However, cash flow is not easy predictable and can be impacted by uncontrollable factors. This is more obvious in a flatter price environment while capital project inflation is consistent. During such a period, operating cash flows can hardly meet the IOCs' capital expenditure demand.[63] Since the IOCs carry out their business as private companies and normally do not receive a grant from the relevant government, they are more active and flexible in seeking alternative and supplementary financial support to further optimize their capital structure. They are open to use diversified financing portfolios in order to gain sufficient investment. When an opportunity arises, they may act boldly, decisively, and quickly.[64] Besides, the IOCs are always quite active in lobbying and advocacy. Changes in local legislation and policy framework may impact oil companies financing arrangements. In order to fight for their interests, the IOCs use different approaches and do their best to ensure that a change of local legislatures or policies will bring advantages or at least no disadvantage to their business. They will promote laws and regulations which can facilitate their financial arrangements.

1.4.2. National Oil Companies (NOCs)

The dominant status of the IOCs in the international oil and gas industry is changing gradually and the important of the NOCs has stated to rise in the industry. The shape of the industry changed fundamentally from 1971 to 1980, when governments in North Africa, the Middle East, and South America began to take a role in the concession companies. Mostly, they acquired 100% ownership, which was then vested in the state companies.[65] Currently, the NOCs control over 90% of global oil reserves.[66]

[63] Ernst & Young (n 27)

[64] ibid

[65] Mitchell, Marcel and Mitchell (n 56)

[66] Simkins and Simkins (n 6)

NOCs are largely controlled by their parent governments though partial shares of NOCs can still be owned by private investors. Some NOCs carry out their business only in their home countries while others operate worldwide like IOCs.[67] In 2015, four NOCs ranked in the top ten biggest offshore oil and gas companies in the world. They are PetroChina, China Petroleum & Chemical Corporation, Statoil, and Gazprom.[68]

The NOCs have easy and ready access to state-backed financing as well as strong political backing from their home government.[69] More importantly, as they can receive capital and strong diplomatic backing from their parent government, the NOCs have a significant advantage over IOCs in accessing to new oil and reserves.[70]

Similar to the IOCs, the NOCs are also concerned about profits, management skills, as well as access to markets, capital, and technology. However, because of their government background, the NOCs have to pay attention to government bureaucracy, local and organizational politics, accountability, and managing an IOC presence.[71] The main mission of the NOCs is to work for the benefits of their home countries — they pay royalties, taxes, and revenues to their parent government in order to boost domestic economic development. Compare to the IOCs, the NOCs have increased political and social responsibilities. They have to make efforts to provide welfare to their countries, support national infrastructure, create job opportunities and be involved in some political activities.[72] The NOCs put more emphasis on public policy goals, like environmental sustainability, national wellbeing and security, domestic employment problems, etc. Thus, when the NOCs make business decisions, very often they need to balance profit and public policy and even compromise on profit earning in order to achieve public policy goals.[73] Because of this, the NOCs keep a low profile and are always more reserved on lobbying and advocacy when new legislation and regulations may be enacted. In addition, the NOCs are often criticized for allowing government

[67] See Inkpen and Moffett (n 4).

[68] See offshore-technology (n 59).

[69] Fanaie (n 47).

[70] ibid

[71] Zanoyan (n 60).

[72] Saud M Al-Fattah, 'The Role of National and International Oil Companies in the Petroleum Industry' [2013] SSRN Electronic Journal 2 <http://www.ssrn.com/abstract=2299878> accessed 29 January 2020.

[73] See Inkpen and Moffett (n 4).

intervention their affairs and for being corrupt. They also suffer from overstaffing and underinvestment problems.

Historically, the NOCs have been regarded as conservative and cautious. They tend to use conventional financing models more often and will rarely be speculative when making decisions. However, as more NOCs begin to explore in the global market, they are now more actively pursuing efficient ways to fund their development plans. More NOCs are looking for diversified financing sources.[74] The NOCs have also sought opportunities to establish joint ventures with large and experienced IOCs.[75]

1.4.3. Independent Oil and Gas Companies

Independent oil companies are non-integrated oil companies which generate revenue solely from either the exploration and production segment or downstream activities.[76] Sometimes, the term is more strictly used to refer only to oil and gas producers, with no downstream marketing or refining activities.[77] Independent oil companies vary in size, from small proprietorships to large publicly-held ones.

Because of their limited business areas and simpler corporate structure, independent oil companies can make decisions even quicker than the IOCs. Besides, independent oil companies also have an advantage over the IOCs and NOCs as they can be more committed to and can establish closer personal relationships with their clients. As a result, it is much easier for independent oil companies to succeed in international bids. Moreover, they are more willing to explore unconventional and underexplored overseas markets.[78]

Despite of this advantage, capital requirements and unacceptable political risks are the main obstacles for the independent oil companies to expand their global business. Because of the potential funding constraint they face, independent oil companies are even more creative and flexible in seeking financial support. In addition to finding

[74] Ernst & Young (n 27)

[75] ibid

[76] See Inkpen and Moffett (n 4).

[77] Fanaie (n 47).

[78] Al-Fattah (n 72)

traditional financial support, independent oil companies have a more open mind to innovative financing arrangements. Compared to their larger counterparts (i.e. IOCs and NOCs), independent oil companies are pioneers in trying to introduce innovation, to the industry, both in the form of financing arrangements and technology.[79]

1.4.4. Junior Oil and Gas Companies

Junior oil and gas companies refer to small oil and gas companies of which the producing capacity is limited to 500 to 10,000 oil equivalent barrels per day.[80] They usually focus solely on exploration and production, with no downstream activities.[81]

While enjoying similar advantages as the independent oil and gas companies do, the main challenge faced by junior oil and gas companies are hindrances in raising funds. Unlike their larger peers, junior oil and gas companies can hardly exploit their balance sheet advantage. It is very difficult for junior oil and gas companies to secure debt financing due to their relatively weak balance sheets. They also lack enough proven reserves for seeking asset-backed financing. In addition, because of their smaller size and weaker financial status, junior oil and gas companies are much more vulnerable and are very easy targets in takeover activities.[82] However, despite the aforementioned weakness in seeking capital, junior oil and gas companies may still find financial support by pursuing corporate financing from their larger peers. [83]

1.5. Features of Upstream Offshore Oil and Gas Projects

When considering financing, a more direct approach is to examine the relationship between oil and gas companies and their financiers — how these two parties use their bargaining power, use contractual arrangement, and work together to ensure the transaction succeeds. However, when dealing with financing in a more complicated project, in addition to the direct contractual relationship between the parties, the feature

[79] Ernst & Young (n 27)

[80] See Inkpen and Moffett (n 4).

[81] Fanaie (n 47).

[82] ibid

[83] ibid

of the project will also be very critical to and can bring genuine impact on the original financing arrangement.

This is typically true in financing for upstream oil and gas projects. These projects have some peculiar but critical features including unique geographical location, long-term periods, capital intensive high risk, internationalism, and government involvement.[84]

1.5.1. Capital Intensive Investment

Based on the above-mentioned analysis and statistics, it is quite clear that offshore projects are capital intensive ones. Capital intensive means that a huge amount of money is needed throughout the process of the long-term investment. A single financier may not be able to support the whole project and an oil and gas company may have to seek further financing from various financiers via different financing models.[85]

While financiers may insist on more strict terms to protect themselves from loss in a capital intensive investment, as quite a few parties are required to work together, it would be even more challenging and critical to ensure that the distribution of rights, obligations, and risk can be coordinated harmoniously among different parties and contract chains. When facing an expensive and long-term investment, parties are always very cautious at each stage. Contract design is even more important and receives more attention from the parties.

1.5.2. Long Project Lifespan

To run an upstream oil and gas project is a long-term business, especially those sited offshore in deep water or even ultradeep water areas.[86] The major stages of a project are the identification of oil and gas field targets (due diligence), gaining legal access to

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[84] Maxwell Michael Gidado, *Petroleum Development Contracts with Multinational Oil Finns: The Nigerian Example* (Maiduguri : Ed-Linform Services 1999).

[85] For more detailed analysis, please refer to Chapter 2.

[86] Mario Mansour and Carole Nakhle, 'Fiscal Stabilization in Oil and Gas Contracts: Evidence and Implications' (Oxford Institute for Energy Studies 2016) 11 <https://www.oxfordenergy.org/publications/fiscal-stabilization-in-oil-and-gas-contracts-evidence-and-implications/> accessed 29 January 2020.

exploration and development targets (pre-qualification and license awarded), exploration seismic and site surveys, exploration drilling, analysis of exploration discoveries, commercial arrangements, final investment decision, drilling of appraisal wells, development, production, and decommissioning.[87] Since so many stages are involved, it is unsurprising that the time lag is significant. It often takes several years from initial due diligence to the first production. The production phase can last 40 years or even longer.[88]

The long-term character of an upstream offshore oil and gas project brings a lot of uncertainty and instability to the investment. Initial expenses may not be recovered and the expected return on an investment may not be obtained if the economic conditions, domestic laws, local government, oil prices, etc. of the project fluctuate during the whole process of production and commercialization. Even in an ideal situation without any fluctuation, payback on the upstream investment for initial exploration may take decades with significant sunk costs.[89] As a result, financiers are even more cautious regarding their investment and may insist on strict terms.

1.5.3. More Projects Are Located in Emerging Markets

The location of offshore oil and gas fields is an important fact that both an oil and gas company and its financiers should think about when they make a business decision. The location is an indicator for potential risks as it is closely related to legal, commercial, and political risks—jurisdiction, legal framework, local industry practice, geopolitics, etc. Notable offshore fields[90] include the North Sea, the Gulf of Mexico[91], Persian Gulf, the Caspian Sea[92], California[93], the Campos and Santos Basins off the coasts of Brazil,

[87] Cairn (n 32); Inkpen and Moffett (n 4).

[88] Inkpen and Moffett (n 4).

[89] Mansour and Nakhle (n 86)

[90] See‘Offshore Drilling’ (*wikipedia*) <https://en.wikipedia.org/wiki/Offshore_drilling#Main_offshore_fields> accessed 22 March 2020.

[91] Offshore in Mississippi, Louisiana, Texas, and Alabama.

[92] Notably some major fields offshore Azerbaijan.

[93] In the Los Angeles Basin and Santa Barbara Channel, part of the Ventura Basin.

Newfoundland and Nova Scotia in Canada, West Africa [94] , South East Asia and Sakhalin, Russia, and fields in India[95].

The geographical distribution of global oil reserve is quite concentrated, with more than 80% of the g proven lobal oil reserves located in just 10 countries.[96] These top 10 countries are Venezuela, Saudi Arabia, Canada, Iran, Iraq, Kuwait, United Arab Emirates ("UAE"), Russia, Libya, and Nigeria. When focusing on offshore oil reserves, the Persian Gulf, Saudi Arabia, contains the world top three offshore oil fields. The other two mega offshore oil fields are located in Brazil's Santos Basin and in the Caspian Sea. [97]

Just like the geographical distribution of global oil reserves, nearly 80% of the proven global natural gas reserves are located in ten countries. Russia is at the top of the list, followed by Iran, Qatar, Turkmenistan, the United States of America ("USA"), Saudi Arabia, UAE, Venezuela, Nigeria, and Algeria.[98]

From the geographic location of the top oil and gas reserves, it can be seen that most resources are located in emerging markets. As a result, there may be issues with the host country having a poor legal framework or potentially being unable to offer sufficient legal protection. Dealing with these kinds of transnational legal issues, especially legal inefficiency, is a big challenge when designing financial arrangements.

1.5.4. Trans-Border Contract Chains

Activities relating to offshore oil and gas projects involve more international and trans-border elements, as more parties (foreign investors, local government, international oil

[94] Mainly in the west of Angola and Nigeria.

[95] Tapti Field Gujrat, Mumbai High, India, K G Basin-East Coast Of India,.

[96] Hydrocarbons-technology, 'Countries with the Biggest Proven Oil Reserves' <http://www.hydrocarbons-technology.com/features/feature-countries-with-the-biggest-oil-reserves/> accessed 21 February 2020.

[97] Offshore-technology.com, 'The Largest Offshore Fields in the World' <http://www.offshore-technology.com/features/feature-largest-oil-fields-world-gulf-uae/> accessed 21 February 2020.

[98] Hydrocarbons-technology (n 96)

and gas companies, local oil and gas companies, equipment suppliers, joint ventures, SPVs, etc.) may be linked together through contract chains. Such a network and involvement demonstrate a clear feature of internationalism in those projects.

There is no doubt that the operation of an offshore oil and gas project constitutes a range of international commercial transactions. As a result, the possibility that an unforeseen event influencing the performance of one party may cause a more serious domino effect than in a scenario of pure internal domestic contracts, in which all parties are only subject to the same domestic legal, economic, or political impact.[99] Consequently, the performance of trans-border contracts are more vulnerable than that of internal domestic contracts[100], as they are subject to a high level of uncertainty.[101] A dispute in one contract may eventually bring a negative impact on the smooth performance of other contracts in the same chain. This also highlights the importance of aligned contract design in contract chains.

1.5.5. Government Involvement

Unlike other more common private transactions, transactions relating to upstream oil and gas are more likely to be controlled or at least influenced in by government at certain stages. The reasons are quite obvious. Firstly, generally speaking, most oil and gas resources are held by government.[102] Secondly, oil and gas products are the raw materials for daily essentials, infrastructure and even the military industry, thus they are essential considerations in national strategy as well as geopolitics and have been

[99]Christoph Brunner, 'Chapter 1: Introduction, Section 1: Force Majeure and Hardship in International Commercial Transactions', *Force Majeure and Hardship under General Contract Principles: Exemption for Nonperformance in International Arbitration*, vol 18 (Kluwer Law International 2008) .; Michael Joachim Bonell, 'The Law Governing International Commercial Contracts and the Actual Role of the UNIDROIT Principles' (2018) 23 Uniform Law Review 16.

[100] Brunner (n 99)

[101] Joern Rimke, 'Force Majeure and Hardship: Application in International Trade Practice with Specific Regard to the CISG and the UNIDROIT Principles of International Commercial Contracts', *Pace Review of the Convention on Contracts for the International Sale of Goods* (Kluwer 1999).

[102] However, in Canada and the United States, private person can also own the rights. See Inkpen and Moffett (n 4).Bret-Rouzaut and others, *Oil and Gas Exploration and Production - Reserves, Costs, Contracts* (3rd edn, Editions Technip 2011) 171..

regarded as one of the most crucial commodities in the world.[103] Thirdly, in some countries, especially those developing ones, governments also provide government backed loans to some players, normally the NOCs.[104] Therefore, a government will always prefer to have some control and power over those oil and gas projects sited within their territories. This is even more true in the upstream sector as an oil and gas company needs to seek authorization from the government to grant rights of exploration and production.

Financiers as well as oil and gas companies should be very aware of potential involvement from the government. The capital-intensive and long-term features of investment in the oil and gas industry highlight the vulnerability of private parties to unilateral alteration of the relevant contracts or even legislation enacted by the host country. The involvement of the host country as the resource owner and as a contracting party makes it possible for a government to unilaterally modify a contract or even effect premature termination. A host country may also use its legislative, administrative, or regulatory power to alter its fiscal or tax regime, which may will have a substantial impact on the operating cost.[105] In a worst case scenario, changes to the regulatory or legal regime made by the host country may result in partial or total expropriation**.**[106]

1.5.6. High Risks

Running an oil or gas project involves work in different stages and each stage has its

[103]MTB Coale, 'Stabilization Clauses in International Petroleum Transactions' (2001) 30 Denv. J. Int'l L. & Pol'y 217, 218.. See ZHIGUO GAO, *International Petroleum Contracts: Current Trends and New Directions* (1st edn, Kluwer Law International 1994)..

[104] For example, beginning from the early 2000s, the Chinese government strengthened its support to its NOCs and encouraged its NOCs to invest in overseas upstream projects. Meanwhile, the Chinese government has also offered oil-backed loans to producer countries. In practice, the two approaches have proceeded hand in hand. Chinese policy banks have provided recipient countries with loans for their local infrastructure development in exchange of exports of petroleum products to China. Michal Meidan, 'China's Loans for Oil: Asset or Liability?' [2016] Oxford Institute for Energy Studies 2

[105]Faruque Abdullah, Shifman, Bette and Hascher, Dominique, 'Validity and Efficacy of Stabilisation Clauses Legal Protection vs. Functional Value' (2006) 23 Journal of International Arbitration 317. Mansour and Nakhle (n 86)10; De Macedo and José Veiga, 'From Tradition to Modernity: Not Necessarily an Evolution – The Case of Stabilisation and Renegotiation Clauses' (2011) 9 OGEL.

[106] Hadiza Tijani Mato, 'The Role of Stability and Renegotiation in Transnational Petroleum Agreements' (2012) 5 Joumnal of Politics and Law 33.

own risk profile.[107] Compared to its midstream and downstream counterparts, the upstream sector in an offshore oil and gas projects has more risks. The upstream sector is where raw materials are explored and produced. It has a capital-intensive feature, and since it is the beginning of the whole supply chain, it largely relies on financing or the revenue from downstream trading. Another factor that may influence the decision making of financiers is that upstream exploration and production activities are very often far away from the headquarters of an oil and gas company and can be situated in politically unstable emerging markets. All these factors raise further concerns of financiers when evaluating risk regarding their investment, as such a level of risk will also influence their financing and dividend decisions.[108] Financiers will assess such risks very carefully[109] and may insist on preferable yet strict terms to protect their own interest.

Due to limited bargaining power, an oil and gas company may not be able to object such terms proposed by financiers and may find it difficult to obtain terms which are favourable to itself. However, risks taken by a party under a contract can possibly be transferred to third parties via contract chains. Such an approach is commonly used as one of the risk mitigation mechanisms in finance arrangements.[110]

1.6. Theoretical Framework of the Research

While financing is a hot topic among businessmen and econometrists it also has a close relationship with law.

Financing in the global upstream offshore oil and gas industry is made by way of international investments, involving a large amount of negotiation and contracting processed, which result in agreed contracts in the end. Contracts have an impact on

[107] Johnson (n 39).

[108] Ken Brown and others, 'Finance for the Oil and Gas Industry' (*Edinburgh Business School, Heriot-Watt University*) <https://www.ebsglobal.net/EBS/media/EBS/PDFs/Finance-Oil-Gas-Industry-Course-Taster.pdf> accessed 21 February 2020.

[109] Robert Clews, *Project Finance for the International Petroleum Industry* (1st edn, Academic Press 2016).

[110] Other risk mitigation methods involve cash reserves, insurance, third party guarantee, derivative contracts, etc. Clews (n 109)

transaction and enforcement costs and allocation of rights, duties, and risks among parties and relevant stakeholders. This research advocates the idea that contracts are not used to set up traps or loopholes for any future use. On the contrary, a well-designed contract is one that sets up a clear and confirmed contractual framework for parties to minimize costs and execute their rights and obligations, so that the original goal can be achieved and business value can be maximized.

Unlike a country level legal framework, which reflects the intention and interest of the country's governing authorities, contracts are a manifestation of party autonomy. While the country level legal framework is closely connected with the regulatory and legislative processes of a particular state, contractual framework is a bargaining and negotiation process between interested parties.[111] Moreover, the country level legal framework is much more generally as basic principles. On the contrary, a contractual legal framework, though it sometimes still has quite standard forms, is more a single transaction oriented on a case by case basis. Compared to country level laws and regulations, contract terms and conditions have a much higher degree of specificity, uniqueness, and detail.[112] Whereas an external legal framework is out of the control of individual parties, parties can still use a contractual framework to protect themselves.

Although contracts rely upon country level laws and regulations to grant them obligatory and enforceable effect[113], they can also be used by the parties as a self-defence to give them extra protection under the existing external legal framework. This is even more important in the upstream offshore oil and gas industry, as many projects are located in emerging markets where the local legal framework is not well developed and is sometimes even vulnerable because of the unstable social and political environment.

[111] Jeswald W. Salacuse, *The Three Laws of International Investment: National, Contractual, and International Frameworks for Foreign Capital* (1st edn, Oxford University Press 2013)

[112] ibid

[113] ibid. For example, even though certain terms (e.g. good faith clause, penalty clauses, etc.) are agreeable by the contractual parties under private contracts, the enforceability of such clauses may still be subject to the applicable law. Bonell (n99)22

Though, theoretically, a party can always utilise direct contractual arrangement to protect its interests, the precondition is that both parties have balanced bargaining power and are willing to cooperate with each other to maximum mutual benefit. However, in the real world, a 50-50 situation hardly even exists, and parties are always more concerned about their own interests. This is what we have in upstream oil and gas financing. Financiers often have stronger bargaining power and, due to the capital-intensive and high-risk features of the projects they invest in, will be extremely cautious to insist on strict terms which are in favour of themselves. As a result, oil and gas companies often have little room to argue for their own interest in the contractual relationship directly with their financiers — just like a typical tight market, in which demand exceeds supply.

Nevertheless, does this mean that the borrower can do nothing about the strict terms and conditions? The answer is "yes" if we only examine the financing arrangement formed directly between the oil and gas companies and their financiers. However, if we think "out of the box" and have a more holistic view towards an upstream offshore oil and gas project, we see that while the oil and gas company has a direct contractual relationship with its financiers to secure funding for the project, the oil and gas company also has other direct relationships with third parties in the whole supply chain to secure the smooth operation of the project. If everything goes well, the oil and gas company will surely gain sufficient revenue to fulfil its repayment obligation to its financier. If following this approach, the oil and gas company could find alternative protection for itself.

This research aims to explore how to strengthen financing from a legal perspective — only focusing on commercial terms may not be sufficient and sometimes may even be too theoretical as oil and gas companies have less bargaining power than their financiers. From a legal point of view, an oil and gas company under a financing arrangement of an upstream offshore oil and gas project can rely on some contractual mechanisms to transfer risks via contract chains, thus largely securing its repayment obligation under the financing arrangement. In such a process, how to secure revenue in downstream sales is one of the paramount issues which should be considered by oil and gas companies. The pricing provisions in downstream sales contracts are the contractual mechanisms which may help oil and gas companies to achieve the goal.

After all, this research elaborates that though parties cannot change the external social or legal framework where their projects are located, they can still utilize contract as a private preventive and protective mechanism. The current application is based on long-term industrial practice. However, there is still room for further improvement, especially for parties/projects which are from the emerging markets. By carefully drafting terms and conditions in those contracts, more capital resources can be utilized, cost can be saved, and risks can be better allocated, while execution and performance of the contracts can run more smoothly.

1.7. Delimitation of the Research Scope

The upstream offshore oil and gas industry is a very broad topic. In addition, this research will also examine the relationship between downstream sales and upstream financing. Therefore, it is necessary to delimit the scope of the research, especially from an industry and legal perspective.

As for the industry perspective, firstly, is the meaning of an oil and gas company. There a too many players in the industry, including but not limited to various kinds of oil and gas companies, different types of financiers, and a wide range of downstream buyers. Nevertheless, this research will mainly focus on the perspective of oil and gas companies. When talking about oil and gas companies, they vary from each other in size, structure, business area, etc. Among all those players, international oil and gas companies, national oil and gas companies, independent oil and gas companies, and junior oil and gas companies are the major players.[114] Each of them has unique characteristics, which may influence their financing arrangements. After examining the basic background of their industry status and financing needs, this research limits its scope to independent oil and gas companies as they are more like an ordinary private party in general commercial contracts. Therefore, unless stated otherwise, oil and gas companies referred to in this thesis should be those independent oil and gas companies.

Secondly, when talking about downstream sales, this thesis refers to those activities of an oil and gas company within its own supply chain rather than the downstream sector

[114] See Inkpen and Moffett (n 4)

in the offshore oil and gas industry as a whole, which mainly means marketing or refinery services.

As for the legal perspective, firstly, unless stated otherwise, this thesis will mainly examine the relevant issues from an English law approach, as English law is still the predominate applicable law in the offshore oil and gas industry, even frequently chosen by parties without a direct link to the United Kingdom ("UK").[115]

Secondly, when referring to contracts, although contracts relating to offshore oil and gas projects may reflect a public element and regulate relationships between government entities and private commercial entities[116], unless otherwise indicated, the research will focus on those private contracts signed between private commercial entities which have a more equal economic and social status.

Thirdly, in some parts of the thesis, certain legal principles or notions may be discussed, for example, sanctity of contracts, doctrine of good faith, etc. However, as the research takes a more "bird's eye view" perspective to examine the potential interaction among different contract terms or even diversified contracts as a whole, unless otherwise stated, the thesis will not make micro-lens analysis on those terms but rather use them as background information or a basis upon which to advocate a more holistic interaction among different contract terms and contracts. In this regard, this thesis adopts a conceptual approach rather than a purely doctrinal analytical approach.

1.8. The Research Questions

Given the background and theoretical framework set forth, the more concrete research questions can be summarized as follows:

[115]Peter Roberts, *Petroleum Contracts: English Law and Practice* (1st edn, OUP 2013) 3.

[116] There are many legal forms that these types of agreements can take: concessions (license for exploration and production to a company under certain terms), productions sharing agreements or contracts, service contracts (the company is hired as contractor by the host government) and joint ventures (between company and host government). For further information about company-host government contracts, See Frank C. Alexander, 'Production Sharing Contracts and Other Host Government, Contracts' [2005] OGEL 3.; KING and SPALDING LLP., 'An Introduction to Upstream Government Petroleum Contracts: Their Evolution and Current Use' 1.

- To classify key financing resources and models in the upstream offshore oil and gas industry, and examine the importance of revenue gained by oil and gas companies in all kinds of financing arrangements.

- To argue a supply chain approach when examining the interactive relationship between oil and gas companies and their upstream resource owners, financiers, service providers, and downstream buyers.

- To demonstrate the function of contract design, based on a supply chain approach, in providing security to financing of upstream exploration and production activities by maintaining stability in downstream sales.

After exploring the general background of the upstream offshore oil and gas industry as well as the financing demand within the industry, this research firstly examines the common practice regarding financing arrangements in the industry. To that extent, different financing sources, i.e. internal financing and external financing (including debt financing, equity financing, and mezzanine financing) as well as common models i.e. corporate finance, project finance, reserve-based finance, Islamic finance, are examined from an industry and legal perspective.

After such study, this research comes to a conclusion that financing arrangements in the upstream offshore oil and gas industry are rather complex while an oil and gas company may not have much bargaining power or choice. Nevertheless, in order to secure the performance of an oil and gas company under those financing arrangements, revenue for repayment is most critical.

This discovery leads the research to take a more holistic view, towards the smooth running of the financing arrangements of an upstream offshore oil and gas project rather than limiting it to the direct relationship between an oil and gas company and its financiers. In such a process, a supply chain approach comes into the picture. As the revenue is a paramount element, it is reasonable and natural to underpin the importance of downstream sales. Another reason that the research pays more attention to downstream sales is that this is the sector where parties may have more equal bargaining power thus the role of contract design will not be only theoretical but also have its practical value.

After delimiting the focus on downstream sales, the research mainly explores the contractual mechanism which can be used by parties to maintain stable performance in those contracts. The research advocates that it may be possible for parties to promote renegotiation thus saving their contractual relationship by inserting certain clauses. The research also admits that in an English law context, such efforts are possible yet quite limited. Therefore, the research goes further and argues that some more specific contractual terms, such as pricing provisions, may offer additional assistance. However, the research proves that it is not a simple task to draft a good pricing clause and parties may also pay attention to the interactive relationship between pricing provisions and other contractual terms, especially the dispute resolution clauses.

After all, the research argues that when targeting the smooth running of the financing arrangement of an offshore oil and gas project, a supply chain approach should be valuable, and parties should pay more attention to the interactive relationship among different contracts and terms.

1.9. Methodology

Based on abovementioned research questions and theoretical framework, the following methodology is used in this research:

1.9.1. Doctrinal Research

In this research, the doctrinal research approach is used to identify and analyse the relevant content of laws relating to the background and questions of the research, including but not limited to industry background, financing arrangements, different types of related contracts, and pricing provisions. Under this approach, the research is more library-based, focusing on searching, reading, and analysis of the primary (e.g. legislation and case law) and secondary materials (e.g. case review, law books, journal articles, etc.).

Compared to some other law research, this research has a practical and industry context, therefore, after undertaking a general study on the traditional academic sources, this research also focuses on industrial materials, such as article written by law firms,

consultant firms, research institutions, industry associations, leading oil and gas companies, etc.

As pricing is one of the most sensitive elements contained in contracts, the public domain contains very limited information. Therefore, this research also focuses on case studies to explore such information. When searching in case law, both deductive reasoning and analogy reasoning are used under this research approach. Through deductive reasoning, general rules can be more appropriately applied to a specific case. On the other hand, via analogy, reasoning from one specific case can be analogized to another specific case. This is imperative for the research since each upstream offshore oil and gas project has its unique features because of the various parties involved, different jurisdictions, diverse potential risks, etc.

1.9.2. Multi-disciplinary Research

While doctrinal research is research in law, multi-disciplinary research is research about law. Rather than studying black letter law, multi-disciplinary research studies the law in context. It is quite obvious that a financing arrangement is more than a simple legal question. Within a financing arrangement, quite a few issues interact with each other. Financing is closely related to law but still involves other disciplines, like finance, business, banking, etc.

In order to fully understand the function of legal factors, multi-disciplinary studies are conducted under this research to gain background information and practical understanding of the research questions. Literature regarding business, finance, and banking have been reviewed on a general basis. Although such studies are not directly shown under this thesis, they actually assist greatly to build up the comprehensive understanding of industry practice.

1.9.3. Empirical Research

Since the research questions are examined and explored from a private practice perspective, more empirical studies are needed. Through this approach, practical observation, empirical data, as well as actual contract forms are collected and examined. By doing so, theory or hypothesis can be tested and further refined.

1.9.3.1. Real Case Study

The concept of "project-oriented" and "case by case" is crucial in this research because the research not only focuses on a single player or country but rather incorporates a global insight. Thus, it is crucial to carry out good studies on typical cases relating to the key issues under the research questions. Case study will work as an evaluation of current practice, including effectiveness and sufficiency of current legislations, transaction patterns, etc. In addition, an in-depth study of various cases can provide an important indication as to how to improve current practices. Target cases have been selected to reflect either the general principles or a particular industry practice. Selection has been carefully made to ensure the depth and breadth of the research.

1.9.3.2. Interview

Compared to other transactions, financing an upstream offshore oil and gas project is very much more intricate because it involves multinational players, lasts much longer, and is large-scale. When trying to draw conclusions or make suggestions, one should not do so theoretically. Those suggestions and guidelines must be practical and feasible. In order to meet these tests, focusing only on literature review or paperwork is far from sufficient. Quite a few concerns or reasons behind certain actions are not shown in written documents. Thus, industry studies and interviews are necessary and crucial to ensure that the output of the research is not only academically based but also has its genuine practical value.

During the research process, some interviews have been conducted. Such interviews are not aimed to provide this research with a profound database, but mainly used to gain insight and experience from law practitioners as well as commercial professionals. Interviews have been arranged to talk with businessmen who work in financial and legal departments of some of the industrial players, lawyers who specialize in providing professional service for the industry, and bankers who deal with the industry. Based on these interviews, the relevant interview notes have been kept and some industry insights, transaction documents, as well as suggestions on the research directions have been obtained, which eventually contribute to this thesis.

1.9.4. Comparative Research

The relevant cases, industrial practice, different financing models and key contractual terms have been comparatively analysed. During this research, both primary and second sources have been used. As for the primary sources, some comparisons have been made based on statutes and cases. The difference shows the divergent legislative intent and judicial attitude in different legal regimes. As for the secondary sources, this research has mainly based on law books, law reviews and journals. Those sources help the author to explore the target areas and to examine some issues which, due to the language barrier, would be rather difficult to fully understand based on the primary sources.

Such a comparative approach is critical to find out some advantages and disadvantage. More importantly, through comparative research, some potential linkage and interactive relationship can be found among different financing models, contracts and individual contract terms. Besides, although the research examines the research questions mainly from an English law point of view, some comparative research has still been made in order to illustrate the unique features of English law relating to some key issues under the research questions. Constructive suggestions and feasible solutions are provided after comprehensively examining and analysing all those common practices in the field.

1.10. Originality and Potential Contribution

As the global upstream oil and gas industry has had to reach ever farther and deeper to find new reserves, the capital demand has increased dramatically. In the current market, NOCs usually receive strong government support while IOCs have quite strong balance sheets and good revenues. Compared with these deep-pocket players, independent and junior oil and gas companies do not have sufficient internal financing resources and depend more on external ones. However, as the oil price is very vulnerable these days, even IOCs' revenues are very unstable and have decreased a lot, let alone those of independent and junior oil and gas companies. Besides, these remote and complex projects in the upstream offshore oil and gas industry carry significantly more risk than ever before.[117] Thus, all the players are struggling to find capital support and even those

[117] Inkpen and Moffett (n 4).

deep-pocket players can hardly run a project all alone. Players are eager to find out a better to finance and maintain the smooth running of their projects.

Financing in the upstream offshore oil and gas industry is a quite practical topic which is mostly concerned by businessmen and legal practitioners. The concern of businessmen is more about how to find more money through financing models and tools. As for legal professionals, their concern is the detailed terms and conditions contained in the relevant legal documents. Until now, limited academic research has been conducted in the field. While quite a few articles are written from a pure business or industrial point of view, these kinds of works are more practical-oriented. Even those articles focusing on the topic from an academic and legal perspective tend to use a more traditional approach to analyse the direct relationship between oil and gas companies and their financiers. Nevertheless, such analysis may be too theoretical and lack a practical insight since oil and gas companies and their financiers very often do not have equal bargaining power.

However, this research aims to explore the in-depth interactive relationship among contract chains and individual contract terms via a supply chain approach. This is where the originality comes in. When trying to ensure smooth performance under the financing arrangements, parties should be long sighted and realise the impact of the downstream sales contract on the upstream financing. Based on analysis of the interaction among contract chains and individual contract terms, the role and function of private contracts is much clearer.

Whereas the external social and legal framework can be hardly changed in a short time, an oil and gas company can still take advantage of private contracts as a self-defence mechanism to transfer and allocate risks throughout the supply chain, thus giving itself extra protection and stability. After a profound and in-depth study, this research will contribute to the contract design, from a supply chain perspective, for financing arrangements in the global upstream offshore oil and gas industry.

1.11. Structure Overview

1.11.1. Chapter 1 Background, Structure, and Rationale of the Thesis

In this chapter, background analysis is made to work as a basis for the overall research, from the general introduction of the whole industry to the more specific financing needs in the upstream offshore sector. It explains how financing is involved in the industry, how law comes in, and it leads to what kind of work can be done to enhance financing from the private commercial contract perspective.

1.11.2. Chapter 2 Financing Source and Models in the Upstream Offshore Oil and Gas Industry

In this chapter, more detailed analysis is made on different financing sources, i.e. internal financing and external financing (including debt financing, equity financing, and mezzanine financing). The key issue under this chapter is to explain and clarify the advantages and disadvantages of each model in different situation. It points out that although in an oil-backed funding, financiers provide funding in exchange for the petroleum products, it is more common that the major financing models in the upstream offshore oil and gas industry rely upon the revenue of the financed projects to fulfil the repayment obligation owed by oil and gas companies.

Based on the chapter conclusion, further in-depth analysis and argument can be made in the following chapters to examine the interactive relationship between different contracts in other related sectors, especially the downstream sales sector and to prove how contract design, via a supply chain approach, can be used to enhance the financing arrangement for the industry.

1.11.3. Chapter 3 Contract Chains Relating to Financing of Upstream Offshore Oil and Gas Projects

Financing upstream offshore oil and gas projects involves a wide range of participants, mixed financing models, high risks, and transnational elements. Therefore, it is not surprising that bundles of documents are generated throughout the whole transaction to identify parties' rights and duties. Under this chapter, analysis will be made as to a wide

range of contracts which are involved in the whole supply chain and how these kinds of contracts relate to the financing arrangement.

The chapter points out that financing in an upstream oil and gas project can never stand alone — interactive relationships between different contracts throughout the supply chain is so important. A smooth performance of a series of contracts is critical to make sure that financing arrangements can be maintained undisrupted. Therefore, it is even more critical for the oil and gas companies to make sure their business transactions run without issues throughout the whole supply chain.

At the end of this chapter, further analysis will be made to identify how much space to leave an oil and gas company to obtain favourable terms and conditions under such contracts and concludes that an oil and gas company may have the most flexibility to negotiate contract terms in downstream sales contracts.

1.11.4. Chapter 4 Contractual Approach to Safeguard the Downstream Sales — General Terms

In a long-term timeframe, when considering the stability of downstream sales, some contractual mechanism can be used, mainly reflected as some terms and conditions which impose duties on parties to keep their active involvement in the contractual arrangement rather than walking away freely when difficulties happen under changed circumstances.

There are various contract clauses which may be able to set up such an obligation. Some are more general, and can be applied to much broader circumstances, such as renegotiation clauses, force majeure clauses, hardship clauses, etc. This chapter focuses on the more general terms and explores the possibility of utilizing renegotiation (in good faith), hardship, and force majeure clauses to maintain the stability of the performance in contract chains, thus eventually reducing the number of potential breaches under financing arrangements.

Nevertheless, it also points out that under English law, though there has already seen some change and development, such a contractual mechanism may still have limited

application. Therefore, it promotes an idea that parties may further look at some more specific and concrete terms for more reliable assurance.

1.11.5. Chapter 5 Utilizing Particular Contractual Mechanisms to Stabilize Downstream Sales

Under this chapter, more analysis will be based on gas sales contracts to show how price provisions may help parties to maintain the contractual relationship even in changed circumstances from a long-term perspective. Under gas sales contracts, one key element is the pricing provisions. To that extent, two main types of price provisions, namely price adjustment clauses and price review clauses have been examined in-depth to show how those clauses may help parties to maintain the contractual relationship.

It further avers that as pricing is one of the key elements under contracts, parties are more likely to have a dispute regarding the application and interpretation of those clauses. Indeed, a pricing arbitration is one of the major types of dispute under gas sales contracts. The interpretation of pricing provisions may have a close relationship with arbitration clauses. Quite different from other contract terms, the interrelationship between pricing provisions and the arbitration clauses can be imperative which substantially influence the outcome of the arbitration. By carefully dealing with the interactive relationship between pricing provisions and arbitration clauses, parties can direct arbitral tribunals in a better way to resolve the pricing disputes. This also points out one critical yet easily ignorable point — parties should, again, take a holistic view when drafting contracts.

1.11.6. Chapter 6 Conclusion and Outlook

This chapter summarises the final conclusions on the research questions, identifies certain inevitable limitations of the thesis due to the finite manpower, and suggests interesting areas which worth further in-depth research in the future.

Chapter 2 Financing Source and Models in the Upstream Offshore Oil and Gas Industry

2.1. Introduction

In this chapter, more detailed analysis is made on different financing sources, i.e. internal financing and external financing (including debt financing, equity financing, and mezzanine financing) as well as popular models of financing chosen by players in the upstream offshore oil and gas industry, i.e. corporate finance, project finance, reserve-based finance, and Islamic finance. This research examines these sources and models from an industry and legal perspective.

The key issues under this chapter is to first distinguish different financing sources and point out the key concerns when oil and gas companies try to allocate their capital structure. Secondly, this research strives to explain and clarify the advantages and disadvantages of each financing model for upstream offshore oil and gas projects, then points out the main difficulties or obstacles met by oil and gas companies when financing their projects. Based on such an analysis, this thesis avers that no matter what kind of financing sources or models adopted by oil and gas companies, revenue is always very important.

2.2. Sources of Capital

Broadly speaking, there are two major sources of financing for the upstream offshore oil and gas industry, namely internal financing and external financing. Under each category, capital enters into to the projects from more detailed and specific sources.

2.2.1. Internal Financing

An oil company will have two main sources of internal funds available: the remaining net income after it has perhaps paid a dividend to its shareholder and

depreciation/depletion.[118] Internal financing can optimize internal leverage as well as arbitrage tax rates across various jurisdictions.[119]

Generally speaking, companies prefer internal funding.[120] Internal financing is ideal for an oil and gas company because it is always the cheapest option of finance when considering transaction costs, repayment obligation owed to debt creditors, dividend expectations from equity investors, costs of covenant restrictions, etc. Additionally, in an internal financing situation, information asymmetry will not be a big problem. However, it can be a substantial issue in an external financing situation. When raising capital externally, information asymmetry will be a big concern because external financiers cannot precisely evaluate the investee.[121] When this happens, external financiers may either be reluctant to contribute or insist on very strict terms.

In past years, oil and gas companies, no matter what types, were mainly self-financed in relation to their upstream exploration and production activities. The funds generated by existing activities were sufficient to finance new ones. However, from the late 1960s and early 1970s[122], the industry developed into a large-scale sector while the exploration and development activities became more and more expensive. Gradually, oil and gas companies discovered that they could not generate the money they needed to finance new projects. At that stage, seeking external finance become an urgent affair for the industry.

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[118] Shell International Petroleum Company Limited, *The Petroleum Handbook* (Elsevier 1983).

[119] Internal leverage is the amount of debt created on affiliate balance sheets via the parent extending intercompany loans. The leverage is invisible to outside observers. In accounting, it is netted our in consolidation and never appears in published financial statements. However, the debt is a real obligation owed by the affiliate to the parent. More important, it generates interest expenses that are tax deductible in the local jurisdiction. See Betty Simkins and Russell Simkins (n 6) 324.

[120] Elsas and others, 'Financing Major Investments: Information about Capital Structure Decisions' Review of finance2018 ,1343.

[121] Robert Flannigan, 'The Debt-Equity Distinction' (2011) 26 Banking & Finance Law Review 451.

[122] Shell International Petroleum Company Limited (n 118) 192.

2.2.2. External Financing

Since internal financing has begun to be an inefficient way to support the industry, players started seeking resort to external financing. External financing is capital from outside investors, such as corporations, households, and governments.[123]

Upstream offshore oil and gas projects are capital-intensive ones which need access to equity and debt funding from diverse sources, including but not limited to export-import banks, regional development banks, commercial banks, institutional investors, multilateral institutions, equity and bond markets, credit offered by equipment suppliers, and other ad hoc sources.[124]

In the upstream oil and gas industry, sources for external financing are mainly found in the banking sector and capital market (including bonds, securitization, and equity markets).[125] Other institutional investors like pension funds, insurers, and sovereign wealth funds also step in. However, compared to banks and capital markets, their performance in the industry is still limited to a small portion.[126]

It should be noticed that unlike in the United States, where capital markets are deep and well-developed[127], the banking sector is still playing a dominant role in external financing in other parts of the world. However, many of the international commercial banks have constrained their lending as a result of the global financial crisis, especially in those emerging markets where the risk is high. Banks have also become much more

[123] 'Long-Term Finance and Economic Growth' (Group of Thirty 2013) <https://group30.org/images/uploads/publications/G30_LongtermFinanceEconGrowth.pdf> accessed 3 December 2020.

[124] Hossein Razavi, 'FINANCING ENERGY PROJECTS IN DEVELOPING COUNTRIES' [2007] PennWell 29.

[125] International Energy Agency, 'Special Report: World Energy Investment Outlook' 36, 48.

<http://www.iea.org/publications/freepublications/publication/weio2014.pdf>accessed 29 January 2020

[126] ibid.

[127] Banks provide only 19 percent of long-term external financing in the United States, while the remaining 81 percent is provided through capital markets. See Group of Thirty (n 123) .39

selective about the projects that they support.[128] In addition to risk aversion, certain structural and regulatory constraints also limit commercial banks' financing activities.[129] Moreover, while offshore oil and gas projects generally need long-term financing support, commercial bank lending is typically short term, particularly in emerging economies. Commercial banks can provide very limited long-term loans because of risk limits, sector limits, and reserve requirements.[130]

Due to limited access to commercial financing by banks, more channels of external financing are necessarily utilized for the industry. Potential alternative sources include commercial financing other than banks, multilateral development institutions, bilateral agencies, and ad hoc sources of financing.[131]

Other than seeking loans from banks, an oil and gas company can still obtain funding through some commercial sources. Examples are commercial equity via stock markets and specialized energy funds as well as debt financing offered by bond markets or long-term institutional financiers.[132] As banks have reined in their investment, other ideal candidates, such as pension funds, sovereign wealth funds, insurance companies, endowments, and foundations, would all be able to provide long-term financing for the industry.[133]

Multilateral development institutions include global and regional ones. Global ones include institutions like the World Bank and International Finance Corporation. Regional development institutions are much like global ones but tend to have a more concentrated focus on some specific regions. Examples are Asian Development Bank

[128] See International Energy Agency (n125) 38.

[129] Bill Francis Iftekhar Hasan, LiuLing Liu and Haizhi Wang, 'Senior Debt and Market Discipline: Evidence from Bank-to-Bank Loans' (2019) 98 Journal of Banking & Finance 170.; David Blumental, 'Sources of Funds and Risk Management for International Energy Projects' (1998) 16 Berkely Journal of International Law 273. <http://scholarship.law.berkeley.edu/bjil/vol16/iss2/6> accessed 29 January 2020.

[130] Blumental (n 129)

[131] Razavi (n 124)40.

[132] ibid

[133] 'Long-Term Finance and Economic Growth' (n 123)

and Asian Infrastructure Investment Bank. Traditionally, these institutions only assisted state entities but more recently they have begun to provide funding support to private sector businesses. In practice, the actual amount of finance provided by these institutions is still relatively small but the contribution from them is still very important as their participation is a kind of endorsement for the funded project. Other financiers feel more secured if multilateral development institutions have also invested in the project. [134]

Similar to multilateral development institutions, bilateral agencies also once limited their lending to state entities but now they also open their doors to the private sector. They provide finance in the forms of buyers' credit, suppliers' credit, and guarantees. A typically example is a country's export-import bank. However, when making a financing decision, unlike some neutral institutions, these agencies often take national interests into consideration — funding is provided to support certain projects or purchase equipment for the sake of that country only.[135]

Compared with fore mentioned sources, financing via ad hoc sources is more flexible and case by case, depending on certain project and target country. In emerging markets, energy projects are still commonly receiving subsidies from governments. Though it seems that governments are constraining their direct contributions to finance projects, they still support projects through indirect ways, e.g. providing a subsidy, tax exemption, etc. Other ad hoc sources of finance include project contractors, who sometimes offer to finance the project in order to win the bid; sources of equipment, these usually are giant multinational companies with extensive resources; and output purchasers.[136]

2.2.3. Changes in the Sources of Funding

During the history of the development of the global offshore oil and gas industry, the sources of funding have been changing through the years. Before the 1970s, IOCs were

[134] Razavi (n 124)40.

[135] ibid

[136] Razavi (n 124)41

mostly self-funded. During that period of time, IOCs had low debt-to-equity ratios and rarely borrowed money from outside financiers. At that time, projects were mostly funded through internal cash flow. Even when IOCs had to seek external funding, they also had good creditworthiness and strong balance sheets which meant they could have long-term financing with favourable terms. By the early 1980s, NOCs began to be prominent in the global oil and gas industry as governments began to intervene in the industry. Because of the participation of governments, the industry began to receive capital from state-sponsored borrowing as well as state funds. Since governments had stepped into the industry, lenders felt more secured and confident towards the industry and thus banks and IOCs were all willing to provide financing.[137]

However, by the early 1990s, the situation had changed considerably. From 1986 to the 1990s, the global oil price collapsed. As a result, lenders were more cautious and began to step back from the industry. As both governments and banks substantially limited their funding and support to the industry, IOCs faced financial hardship. Currently, though governments, IOCs and banks as well as other financial institutes still provide financial support to the industry, players have to seek more innovative and creative external financing arrangements in order to obtain sufficient funding for their project development.[138] Besides, though the public sector will still play an important role for the foreseeable future[139], as commercial banks as well as governments are now substantially limiting their lending to the industry in order to control exposure to high risks, most projects have to seek funding from a mix of public and private sources.[140] It is better that the public and private sectors supplement each other to invest in most energy projects.[141] Alongside this changing tendency, a wide range of various new mechanisms have been used to provide funding resources for both equity and debt financing for the global offshore oil and gas industry. In the meanwhile, oil and gas companies have tried to keep project debt off their balance sheets for long-term

[137] ibid

[138] Razavi (n 124)32

[139] ibid.

[140] Blumental (n 129)

[141] Razavi (n 124)39

periods.[142]

2.3. Further Analysis on External Financing

It is quite clear that the current trend and reality is that oil and gas companies have to seek more funding from the external financing resources. There are various external financing resources which can be utilized to fund a project. The two basic categories are debt and equity[143] while mezzanine finance may play as a role as a gap-filling.

2.3.1. Debt Finance

In the financing context, debt means the amount of money a borrower should repay, often plus interest. Debt financing could be classified into specific sub-categories and the classification may vary as different standards are used.

From a borrowing-base perspective, two basic categories under debt finance are asset-based loans and cash- flow based loans, i.e. whether the loan is based by the borrower's assets or its business cash flow. Under an asset-based loan, lenders take collateral based on the borrowers' assets, for example accounts receivable, inventories, machinery, real estate, etc., rather than on borrowers' income and credit rating, which is demonstrated by their income statements, balance sheets, financial ratios, etc.[144]

When considering whether the lender asks for security or not, debt financing can be further classified as secured loans or unsecured loans.[145] Popular forms of collateral given to lenders in secured loans for upstream offshore oil and gas projects include real

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[142] ibid29

[143] Marina Martynova and Luc Renneboog, 'What Determines the Financing Decision in Corporate Takeovers: Cost of Capital, Agency Problems, or the Means of Payment?' (2009) 15 Journal of Corporate Finance 290.; Elsas and others (n 120)1342.

[144] Irving Klier, 'Asset Based Financing' (1984) 54 The CPA Journal (pre-1986) 71.; Jared Lewis, 'Asset Based Lending Vs. Cash Flow Based Lending' <http://smallbusiness.chron.com/asset-based-lending-vs-cash-flow-based-lending-37924.html> accessed 26 February 2020.

[145] Look Chan Ho and Eilís Ferran, *Principles of Corporate Finance Law* (2nd edn, Oxford University Press). EI Sykes and Walker, *The Law of Securities* (5th edn, Law Book Company 1993).

estate belong to the oil and gas company, mineral and drilling rights of the project, related equipment, as well as an interest in the sales of oil and gas products.[146]

Nevertheless, as this research focuses more on the repayment of oil and gas companies under their obligation to the related financing arrangements, classification would be made on a pecking order theory.[147] Considering the priority in which the debt is repaid by a company in a bankruptcy situation, debt financing can be sub-categorised as senior debt and subordinated debt. When a company distributes its assets in bankruptcy or liquidation, pecking order is that senior debt has the highest ranking followed by subordinated debt and equity.[148]

2.3.1.1. Senior Debt

Senior debt is cheaper than subordinated debt, but it has stricter and broader covenants and gives the lender a claim for remedies when the covenants are not satisfied. Compared with subordinated debt and equity, senior debt is the most secured one for it has the highest priority over subordinated debt and equity when liquidation

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[146] See Christopher L Culp and J Paul Forrester, 'Structured Financing Techniques in Oil and Gas Project Finance', *Energy & Environmental Project: Finance Law & Taxation* (Oxford University Press 2010).

[147] When considering which kind of financing should be used, corporate finance theory comes in. Standard corporate finance theory avers that general principles can be applied to all kinds of financing of companies. Company management is assumed to choose the capital structure which can maximise the value of the company. In such a process, a company may explore diversified types of external financing. However, it is also criticized that standard corporate finance theory was originally fit into large companies but may not absolutely apply to middle and small-sized companies. In such a background, some new theories come up. One is the trade-off theory while the pecking order theory is its major defier.

Trade-off theory suggests that companies decide how to assign their resources collating the tax saving of debt with the bankruptcy costs thereof and aiming for an optimal capital structure and debt ratio. Pecking order theory challenges trade-off theory, attempting to snatch asymmetric information which influences companies to rank their financing sources from internal to external and further prioritize between debt and equity. Pecking order theory avers that companies would be rather in favour of a sequential choice or order over financing sources, i.e. companies would first have a strong favour of internal financing and avoid external financing if internal financing is available. Under an external financing situation, they would prefer debt to equity if any new debt financing is available.

See Philippe Adair and Mohamed Adaskou, 'Trade-off-Theory vs. Pecking Order Theory and the Determinants of Corporate Leverage: Evidence from a Panel Data Analysis upon French SMEs (2002–2010)' (2015) 3 Cogent Economics & Finance 1.; Wiley ,15 This research does not make a conclusion on which theory is better or more suitable for oil and gas companies but rather just using the pecking order theory as a classification mechanism to categorize external financing sources.

[148] Moorad Choudhry, *The Principles of Banking* (Wiley 2012).

happens. Besides, even in a normal business context, lenders will also require collateral for the senior debt, like accounts receivable, real estate, guarantees, or some other form of company asset as a backup for repayment in case of insufficient cash flow to repay the debt.[149]

Because of its relative high security, senior debt is the least expensive financing vehicle. If the situation permits, raising capital by senior debt is the most ideal choice for a company. [150] Banks are a common and popular option. However, to borrow money via a senior debt facility, the borrower has to show good creditworthiness and display a strong balance sheet. [151] Nevertheless, for most fast-growth, emerging companies which have weaker or lighter balance sheets, the capital accessible through senior debt will be insufficient for all of their financing demands, leading them to seek another of the two most common forms of additional financing types, i.e. mezzanine and equity financing.[152]

Because of the high threshold, many oil and gas companies, especially those smaller ones from emerging markets, find their ability to raise funding through senior debt is substantially limited. [153]

2.3.1.2. Subordinated Debt

Subordinated debt is a type of debt which also incorporates equity characteristics. In a liquidation situation, subordinated debt will be repaid after senior debt but still before equity. From a lender's perspective, subordinated debt is more risky than senior debt. The higher risk is balanced by a higher interest rate plus an extra "equity kicker".[154]

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[149] Davin Hsieh, 'Understanding a Firm's Different Financing Options' 7.<http://dcapartners.com/advisory/presentations/DCA_FinancingOptions-EquityvsDebt.pdf> accessed 29 January 2020.

[150] ibid 2.

[151] Hsieh (n 149).

[152] ibid.

[153] ibid.

[154] When talking about equity interests of a company, it typically refers to stock or warrants. Warrants are typically seen in mezzanine debt funding. Warrants are normally issued to facilitate interest and fee as well as driven returns as an investment unit. A warrant coverage can range from just a few percentages

The repayment takes the form of interest which should be paid monthly or quarterly plus an equity right over the company's future cash flow. [155] The interest rates charged for a subordinated debt is much higher than that of a senior debt.[156] Because of the higher interest rate and the extra "equity kicker", subordinated debt is a more expensive choice for borrowers. However, it is still cheaper than equity and the lenders' intervention in the borrowers' daily business is also much less than that in an equity financing situation.[157]

Subordinated debt is a good financing alternative for stable, moderate-growth companies with consistent and predictable cash flows and which are not likely to have a liquidation event within 7 years (the likely threshold waiting period for equity investors).[158] In addition, it is noteworthy that while subordinated debt lenders will certainly actively scrutinize an investee's financial performance and monitor the relevant statutes of covenants, they will in all likelihood avoid taking an active role in helping the investee to develop or run the business. [159]

Subordinated debt financing is generally not the first-rank solution for fast-growth companies or emerging companies which have significant pressure on cash flow because of development and reinvestment needs; have less sufficient operating history to prove the stability of future cash flows required by the lender; have excessive debt repayment of existing senior debt financing; expect inflection points in the business,

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to 100% of the financing amount. A warrant gives its holder an option right to buy a security at a certain price and quantity in future time rather than an obligation. In other words, a warrant allows a mezzanine creditor to avoid downside risk yet still be able to take advantage of the future growth of the investee. See ibid. 5

[155] ibid 2–3.

[156] Jürg M Blum, 'Subordinated Debt, Market Discipline, and Banks' Risk Taking' 26 Journal of Banking & Finance.

[157] For example, though a lender will often sit as an observer on the board of directors, they will prefer rather not to act as an official director in order to avoid potential conflicts in case of when remedies need to be sought. Hsieh (n 147).

[158] Raniero D'Aversa and Peter Amend, 'A Battle in the Making in the Oil and Gas Sector — Second Lien vs. High Yield Debt' <http://blogs.orrick.com/distressed-download/2015/06/11/a-battle-in-the-making-in-the-oil-and-gas-sector-second-lien-vs-high-yield-debt/>.accessed 29 January 2020.

[159] Hsieh (n 149).

for example new products or services, acquisitions, etc. that may lead to potential volatility of future cash flows, or a less experienced the management team. [160]

Moreover, similar to the situation regarding senior debt, subordinated debt lenders are not keen on helping the investee to grow but may only pay attention to general supervision. For example, subordinated debt lenders like to sit on the board of directors as an observer. They prefer not to act as an official director in order to avoid potential conflicts in situations where remedies need to be sought.[161]

2.3.1.3. Creativity and Innovation in Debt Financing

The classic borrowing base facility remains popular with companies because of the flexibility and relatively favourable pricing that it provides. It enables borrowers who have significant production assets to raise financing based on the value of those production assets on a P50 basis (i.e. taking account of reserves which have a 50% or greater probability of being recoverable) and on the value of development assets on a P90 basis (i.e. taking account of reserves which have a 90% or greater probability of being recoverable). For a company that does not yet have production assets sizeable enough to finance the continued growth of its business by developing assets and exploring new ones, it may have already tapped the equity markets for significant sums; equity markets for companies at the early stage of development may be volatile, perhaps making it difficult or unattractive to go back to them. However, at the same time liquidity in the debt markets has remained strong. Industry practitioners have brought creativity and innovation into the debt market. The result has been that oil and gas companies have turned to lenders who are willing to make available short-term "bridge financing"[162], the bridge to be taken out by way of a borrowing base facility at such time as there is production in sufficient quantities. The essence of such a financing will

[160] ibid

[161] ibid.

[162] Bridge financing is a type of interim and intermediate financing, usually in the form of a short-term debt, funds short-term expenses of a company until it can secure long-term financing. See CORY MITCHELL, 'Bridge Financing' (16 April 2019) <https://www.investopedia.com/terms/b/bridgefinancing.asp> accessed 26 February 2020.; Matthias Kahl, 'Short-Term Debt as Bridge Financing: Evidence from the Commercial Paper Market' [2015] The Journal of finance 252.

be that it is a quick and easy transaction for the company; nevertheless, a certain amount of due diligence will be required to satisfy the lenders on the refinancing risk.[163]

2.3.2. Equity Finance

While debt is a kind of borrowing from lenders, "equity" is selling interests in the company to raise money. Equity financing refers to an investment of capital into a company for a share of business ownership, which dilutes the company's existing ownership.[164]

Typically, equity investors realize that their investment is needed to support growth in the business and, therefore, don't request interest payments on a monthly or quarterly basis. In addition, equity terms are generally more flexible than that of debt, with fewer covenants, and less defined remedies in the event an investee fails to perform pursuant to the original business plan.[165]

In addition, equity investors will be willing to align their interests with those of the management team of the investee. This is not always possible in a debt financing situation. Equity investors tend to work actively to assist management in order to maximize the ultimate value of the investment during the investment period, which is typically 3 to 5 years. This value-added element sought by equity investors is one reason why equity is still more expensive than mezzanine debt. The other main reason is that equity lists after mezzanine debt in the capital structure, and 100% of the investment return has to wait until the end of the investment period, causing a riskier security. As a result, equity investments need to be nominally more expensive than debt so that it can provide appropriate risk-adjusted returns to the investors.[166]

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[163] Huw Thomas and Ashurst London, 'Recent Developments in Upstream Oil and Gas Debt Financings' (2007) 1 EnergySource 3. Long, 'An Introduction to Reserve Based Lending and the UK Market' (jdsupra, 9 December 2013) <https://www.jdsupra.com/legalnews/an-introduction-to-reserve-based-lending-89017/> accessed 26 February 2020.

[164] Hsieh (n 149) . Martynova and Renneboog (n 143)295; Armen Hovakimian, Tim Opler and Sheridan Titman, 'The Debt-Equity Choice' 36 Journal of Financial and Quantitative Analysis.

[165] Hsieh (n 149)

[166] ibid

The massive investments and long-term nature of investment in the upstream offshore oil and gas industry have forced oil and gas companies to expand their options for financing. Equity financing now often includes capital raised not only from the traditional financiers, like commercial banks, but also from international and local equity markets, multilateral institutions[167], regional development banks, as well as investment funds.[168] Joint ventures, established by oil and gas companies and local government entities or state-owned companies, are also used to structure projects. Under such structures, capital is normally raised from the host countries or from the World Bank or other regional development banks.[169]

Equity financing is an ideal option when a company wants to allow its owners and investors to withdraw cash out of the investment. Equity is also normally preferred by companies that are at a turning point of increasing development; planning for industry consolidation; seeking extra management support and guidance; having inestimable, unstable cash flows; planning to strengthen balance sheets and aiming to sell within 3 to 7 years; etc.[170]

On the contrary, equity financing is not normally an ideal source of funding for companies that have little senior debt with growing yet stable cash flows; pay more attention to the reduced dilution rather than seeking additional management support or are even not willing to invite outsiders to their management teams; are not keen on seeking initial public offerings, etc.[171]

2.3.3. Mezzanine Finance

Mezzanine debt capital generally refers to that layer of financing between a company's senior debt and equity, filling the gap between the two.[172] Typically, they are higher

[167] For example, the International Finance Corporation

[168] Hossein Razavi, *Financing Energy Projects in Emerging Economies* (Pennwell Books 1996).

[169] Blumental (n 129)275.Razavi (n 168)

[170] Hsieh (n 149)

[171] ibid 3–4.

[172] Corry Silbernagel and Davis Vaitkunas, 'Mezzanine_Finance' <http://pages.stern.nyu.edu/~igiddy/articles/Mezzanine_Finance_Explained.pdf>.accessed 29 January 2020. Libena TETREVOVA and Jan SVEDIK, 'MEZZANINE FINANCING INSTRUMENTS IN

interest term loans with tight covenants and extensive controls on funding[173] plus some form of equity "kicker"[174]. Because of the high-reward and high-risk profile, mezzanine finance is unsuitable for highly regulated commercial banks.[175]

Though mezzanine finance has some drawbacks such as being more expensive than conventional loan financing and more stringent transparency requirement, it still has quite a few advantages. Reducing the overall cost of capital and filling capital gap are the main motivations for a borrower to use mezzanine finance. In addition to debt financing, alternative channels available are raising capital by equity and mezzanine finance. Though mezzanine finance is more expensive than debt financing it is still a cheaper option for a borrower — while mezzanine lenders generally expect an overall internal rate of return in the 18% to 20% range, private equity investors will typically require a rate of at least 25% to 30%.[176]

As mentioned above, though debt financing is the most ideal financing model as it is the cheapest and most straightforward, this approach also has a high threshold as well as a limited capital pool for a single company. Because of the fluctuating oil price as well as high the risk and long-term development nature of offshore oil and gas projects, lenders are more and more likely to expect higher discount rate and more conservative

COMPARISON TO THE CLASSIC FINANCING SOURCES' (2018) 16 Business, Management and Education 133.; N.E. Bondarenko, T.P. Maksimova and O.A. Zhdanova, 'Agro-Industrial Clusters: Opportunities for Innovative Development and Financing' [2016] Journal of Internet Banking and Commerce 10.

[173]Dewey J Gonsoulin Jr. and Jason Fox, 'Reserve Based Finance: A Tale of Two Markets' [2014] Oil & Gas Financial Journal.

[174] In addition to cash interest paid on the loan, a mezzanine lender takes an equity kicker in the borrower or prospect to round out the overall 18% to 20% return it seeks. The equity kicker can take various forms, including direct equity investment in the borrower, warrants, royalty interests and net profits interests. Douglas C. Atnipp and James M. Jordan, 'Mezzanine Financing Alternative Helps Lower Overall Cost of Capital' [2003] Houston Bus. J. <http://www.bizjournals.com/houston/stories/2003/04/14/focus6.html?page=all>accessed 29 January 2020.

[175] Michael P Marek and Robert A Wilson, 'A FUTURE FOR RESERVE-BASED LENDING IN EMERGING MARKETS? LIMITATIONS OF THE TRADITIONAL MODEL' (2014) 10 Texas Journal of Oil, Gas, and Energy Law 163.

[176] Douglas C. Atnipp and James M. Jordan (n 174).

attitude towards investment in project finance and reserve-based finance. In this situation, mezzanine finance can work as a supplement to fill the gap between debt and equity.

Riskier projects or projects with large amounts of non-asset investments or expenditure[177] will have to turn to alternative ways of financing part of their funding needs. One of the alternative ways is via mezzanine financing, which often combines with securitization, options or derivatives, insurance instruments, or other types of collateral enhancement to make the financial mode work or to strengthen the creditworthiness of the project to reduce the funding cost.[178]

Another advantage of mezzanine financing is that this approach may increase the total outside capital available to an oil and gas company. Although the addition of a subordinated debt component may cause a bank to reduce its facility to bear the increase in total debt and linked increase in risk, the total debt available from both sources may possibly exceed the bank's original commitment.[179] Mezzanine finance also improves balance sheet structure and enhances credit rating, and enhances economic equity capital without diluting equity shares or surrendering ownership rights.[180] Thus, mezzanine finance is widely used in transactions to optimize financing arrangement. One of those applications is in project finance transactions.[181]

2.3.4. Key Concerns When Raising External Financing

The above analysis illustrates the general concepts that one needs to think about before making a decision to set up a financing structure. It is quite obvious that external financing has already become an inevitable and a predominant source to support the activities in upstream offshore oil and gas projects.

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[177] These two characters are commonly seen in offshore oil and gas projects.

[178] Luc Nijs, *Mezzanine Financing: Tools, Applications and Total Performance* (Wiley 2014) 193–194.

[179] Douglas C. Atnipp and James M. Jordan (n 174). TETREVOVA and SVEDIK (n 172) 139

[180] Luc Nijs (n 178) 10.

[181] ibid 190.

Debt and equity financing are two basic categories of financing sources and each of them has its own unique features. These features may reflect as an advantage or disadvantage in some specific situations. In order to design a sound financing structure, one should know the features by heart so that one can maximize advantage and minimize disadvantage in a transaction.

After getting to understand a series of concerns regarding the choice of debt and equity, one can then have a more sensible and educated look at the different types. Only by doing so, could one make sensible business decisions as to how to balance the advantages and disadvantages of the two sub-types, combine them with the actual situation of a project/company, then make a sound strategy to utilize external financing and maximize the potential funding with lower cost and risk for a project/company.

2.3.4.1. Different Relationship with the Invested Company

Debt and equity investors have different relationships with the invested company. Debt investors are creditors who mainly focus on the agreed amount of repayment. Creditors are not normally concerned about the company's future growth or development. They only want to make sure that their lending can be repaid thus they do not want to the company to take a high-risk strategy in exchange for potential rapid growth. Creditors are more conservative and may incorporate certain covenants along with the lending to ensure that their investment will be safely repaid.

However, the equity investors' repayment is substantially tied up with the revenue of the company. The more revenue earned by the company, the more repayment will be gained by equity investors. Because of this nexus, equity investors are very concerned about the development and success of the company, so they have a strong incentive to be involved with the daily management and operation of the company.[182]

2.3.4.2. Risk Tolerance

Debt financing, especially senior debt, is also not ideal for risky upstream offshore oil and gas projects, as banking regulations in most jurisdictions are aimed at maintaining

[182] Hsieh (n 149).

a sound banking system, limiting banks from excessive risk-taking, and ensure prudent practices have been adopted by banks to monitor their loans.[183] Since commercial banks are very careful about making large infrastructure investments in emerging markets, and due to the structural problems faced by commercial banks in making such large and long-term loans, traditional commercial financing alone is not capable of providing sufficient debt financing for large and risky upstream offshore oil and gas projects. [184]

Equity investors are also more open and ready for taking risk in order to seek expansion and growth.[185] Unlike debt creditors, equity investors normally do not impose financial covenants. However, in order to maintain their control on the company, equity investors will set up restrictions to prevent action by the company that may negatively impact their status under the capital structure. [186] While equity investors are more tolerant towards risk they expect a higher return in exchange. Equity investors are likely to expect a 25-30% annual return on their equity investment while creditors of subordinated debt usually seek an overall 15-25% return on their debt and equity investment.[187] It is fair to say that equity investment is more expensive but debt financing is more restrictive.

2.3.4.3. Funding Capacity

Another key difference is the funding capacity. Debt financing is based on the borrower's balance sheet which means the borrower's borrowing capacity is limited to its existing size and each loan will use up the borrower's overall funding capacity. Because of this, a company can only obtain very limited funding through debt financing and it is almost impossible for start-ups to raise funds via debt financing since they

[183] Hasan, Liu and Wang (n 129); Although banks are reluctant to providing senior loan to risky companies, risky companies would rather prefer senior debt to equity financing since banks can help them to go through financial difficulties.P Bolton and X Freixas, 'Equity, Bonds, and Bank Debt: Capital Structure and Financial Market Equilibrium under Asymmetric Information' [2000] Journal of Political Economy 324.

[184] Blumental (n 129) 275

[185] Hsieh (n 149)

[186] ibid 6.

[187] ibid 5.

cannot show strong balance sheets from the very beginning.[188] In practice, only those companies which have sufficient past profits would prefer debt financing to its equity counterpart.[189]

The capacity to borrow through debt financing is also very limited because each loan will reduce a certain portion of the whole balance sheet whereas the collateral or guarantee which can be offered by the borrower is not infinite. Lenders will regard a borrower as a risky one if the borrower holds a large debt-equity ratio.[190]

Compared to debt creditors, equity investors will be more comfortable in investing in a company which has limited debt capacity and insufficient cash flows.[191] Equity investors take a broad view of a company's future growth so they are more willing to provide start-ups with more up-front capital.[192]

2.3.4.4. Maturity and Payment Schedule

Debt must always be repaid on the agreed date. Failure to do so will give lender a claim against collateral and may even substantially increase the possibility of insolvency. Normally, interest needs to be paid periodically. Because of the regular repayments, the actual amount of money which can be used to develop business is largely reduced thus limiting the rapid growth of the borrower. Moreover, lenders often set restrictions on the loan. A borrower's freedom to seek alternative financing options and non-core business opportunities is seriously limited.[193]

Although syndicated bank loans can enlarge the funds available to an investee, they may still fail to resolve the timing pressures on commercial banks. An upstream offshore oil and gas project normally needs to be financed for longer periods than the

[188] Hsieh (n 149)5.

[189] Hovakimian and Titman (n 164)

[190] FindLaw, 'Debt vs. Equity — Advantages and Disadvantages' <http://smallbusiness.findlaw.com/business-finances/debt-vs-equity-advantages-and-disadvantages.html>.accessed 29 January 2020.

[191] Martynova and Renneboog (n 143)292

[192] Hsieh (n 149)

[193] FindLaw (n 190).

normal commercial loan maturity, which lasts for 5 to 10 years.[194] Other sources commonly seen in debt financing include institutional investors, such as pension funds, insurance companies, and mutual funds; government-sponsored energy funds, regional development banks, international and local bond markets, and credit offered by suppliers.[195] However, such kinds of financing still have timing problems as they may not be long enough for an upstream offshore oil and gas project.

In contrast to from debt financing, equity financing does not benefit from payback on a monthly or quarterly basis. Equity investors do not look for short-term cash flow as a return from their investments, but rather are in favour of supporting the investee to reinvest profits into another round of ventures so as to make the long-term equity value of the investment as large as possible. By contrast, debt lenders very often pay more attention to cash flows, asking for some types of short-term return on their investment. Even if such a repayment could be listed as an expense on the income statement of the investee, generating tax benefits, such continuous cash outflow may not only stymie the growth of the investee, but may also increase the minimum level of initial capital funding.[196]

Equity investors normally plan to wait between 5 to 7 years before a liquidating event, for example a sale, a further term of take-out funding or an initial public offering. Most mezzanine lenders will adapt their terms to the institutional equity investors' time schedule if such investors are also financing the investee. Mezzanine debt providers can ask for interest only, hence largely affecting the short-term cash drain on the investee, or completely amortizing over 4 to 7 years which allows the investee to pay back the debt without a subsequent substitute of the financing arrangement.[197]

2.3.4.5. Cost

Compared with equity, debt financing is much cheaper, and it does not dilute the borrower's ownership or control of the company. The repayment scheme is quite

[194] Blumental (n 129)275.

[195] ibid . Razavi (n 168)

[196] Hsieh (n 149)

[197] ibid.

straightforward and clear — the repayment is agreed in advance based on settled principal plus interest. It will not give the lender any equity claims over the business or the future income of the business. While interest rate is agreed and confirmed before the actual lending takes place, the interest can also be deducted on the borrower's tax return — the borrower can be more prepared for the future repayment and the cost of the lending is further reduced because of the tax exemption.[198]

Using debt financing can also save the borrower a lot of communication costs as the borrower does not need to send periodic reports and financial statements to large numbers of investors, hold regular shareholder meetings, or arrange shareholders' voting before taking certain actions. [199]

Nevertheless, a lender under debt financing may disagree with mangers and put extra covenants either because he objects to the project itself or because his business objective of short-term payback diverges with firm's long-term and sustainable business development. Therefore, even though debt financing is cheaper because of tax shield, it can still be quite expensive for the firm as the firm still loses a high amount of autonomy in decision-making because of the covenant limitation. To this extent, debt financing is then a double-edged sword.[200]

2.3.4.6. Local Regulatory Concerns

Unlike equity financing which has to abide by a nation's securities laws and regulations, raising debt capital presents a borrower with no such restrictions.[201] This is even more

[198] FindLaw (n 190).

[199] ibid.

[200] Amy Dittmar and Anjan Thakor, 'Why Do Firms Issues Equity?' [2007] The Journal of Finance 3.

[201] FindLaw (n 190). Equity financing are substantially regulated by the local law in the host country and foreign investors have to make sure due diligence has been conducted to ensure compliance. Nevertheless, local law does not only bring extra requirement to foreign investor but also gives them protection if the law is well developed. The development and maturity of local equity markets are linked with securities regulation and legal institutions. The general concept is that well-developed legal systems can protect foreign investors. In such situation, foreign companies are able to raise more external funding. On the contrary, weak investor protection may cause expropriation by host countries. L Hail and C Leuz, 'International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation

favourable for financing oil and gas projects as many projects are conducted under a transnational situation and less involvement of the host country's legal framework can prevent a lot of potential risks which is a big advantage. [202]

2.3.4.7. Extra Support other than Capital Funding

Though one negative side of equity financing is that it dilutes ownership by letting the shareholders step into the company's daily management and operation, however, this disadvantage, if managed properly, is not always the case and can even bring something positive to the company. Shareholders' intervention sometimes is also welcomed by the company, especially for those ones which are looking for external managerial support and board-level guidance.[203]

This is even true in the upstream offshore oil and gas industry. The industry is both capital-intensive and technology-intensive. For those smaller oil and gas companies, especially those ones in the emerging economies, they may need money as well as expertise for their projects. Therefore, an external equity investor who is more experienced and has more advanced expertise, either in capital or technology management, may be a desired partner. Whereas equity investor may intervene in a company's management and operation, negative intervention will not happen if the investor and the firm have the same business objective from the very beginning. Thus, it is for managers to consider and select investors whose views on business development and expectation on investment return are likely to be aligned with their firms'.[204]

Since equity investors usually have a long-term view of their investment and are willing to take further opportunities to eventually maximize their investment return, throughout careful selection and mutual negotiation, managers can maximize the extent of agreement with their equity investors. While there is no genuine divergence of business

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Matter?' [2006] Journal of Accounting Research 486.; R LAPORTA, F LOPEZ-DE-SILANES and ANDA SCHLEIFER, 'What Works in Securities Laws?' [2006] The Journal of Finance 1.

[202] ibid.

[203] See 'Understanding a Firm's Different Financing Options' (*dcapartners*) <http://dcapartners.com/advisory/presentations/DCA_FinancingOptions-EquityvsDebt.pdf> accessed 16 March 2020.

[204] Dittmar and Thakor (n 200)1.

objectives between the firm and its shareholders, the shareholders may disagree to a business decision only when they have different beliefs about the outcomes. At that time, a second thought about the proposal may be a more sensible choice and the final decision may be an optimal one, which will bring maximum benefits to the firm as well as to the shareholders. [205]

However, this kind of dual contribution, both in capital and in intelligence, can hardly obtain from a debt creditor. A lender may disagree with mangers and put extra covenants either because he objects to the project itself or because his business objective of short-term payback diverges with firm's long-term and sustainable business development. Therefore, even though debt financing is cheaper because of tax shield, it can still be quite expensive for the firm as the firm still loses a high amount of autonomy in decision-making because of the covenant limitation. To this extent, debt financing is then a double-edged sword.[206]

2.4. Major Financing Models in the Upstream Offshore Oil and Gas Industry

While debt and equity financing are two basic type of financing models, they will be incorporated by businessmen into more specific financial models. Within one specific financial model, very often, both debt and equity financing tools will be used.

When financing a particular investment, investors will consider the companies and sector, the risks and returns and the structure and market environment of the project. Based on these factors, different types of financing models will be incorporated in capital raising. The size of offshore oil and gas projects have become bigger than ever and capital demand also keeps growing accordingly. The current huge and yet growing demand requires that a project planner should at least consider all possible ways of capital raising in order to fully fund a project.

2.4.1. Corporate Finance

Corporate finance is a conventional financing approach which is generally used by entities to raise funds for their general portfolio of businesses. There is no separation of

[205] ibid 3.

[206] ibid

general funding and the various businesses and activities in which the company is engaged.[207] Corporate finance raises a claim against the corporate balance sheet and uses up corporate debt capacity — the lenders have recourse to revenues and assets owned by the project sponsor.[208] A financier makes decisions based on the overall corporate balance sheet[209] while the borrowing capacity is linked to a sponsor's credit strength.[210] Achieving the goals of corporate finance requires that any corporate investment shall be financed appropriately. This is the problem of capital structure. Capital structure is the relative proportions of debt, equity, and other securities that a company has outstanding. When corporations raise funds from outside investors, they must choose which type of security to issue.[211]

Corporate finance, also referred as centralized finance, is also the standard paradigm for investment financing.[212] When applying corporate finance in the energy industry, the most prominent approach is to maintain a very strong balance sheet and excellent credit rating.[213] However, a strong credit rating is only the foundation of corporate finance; in order to get efficient investment via this model, lower financing costs after tax as well as risk management and mitigation ability are also critical.

When financing large energy projects via corporate finance, external financing can be made by using a parent company's credit rating while internal financing is used to invest in those operating affiliates and ventures that have funding needs. Under an ideal corporate finance model, the overall mechanism is having a strong parent treasury function. Meanwhile, the mechanism also consists of domestic and foreign financing affiliates as well as an extensive network of intercompany financing facilities. This

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[207] Inkpen and Moffett (n 4)

[208] Blumental (n 129)270.

[209] Scott L. Hoffman, *The Law and Business of International Project Finance* (Cambridge 2008) 7.

[210] Brogan (n 27)

[211] Jonathan Berk and Peter DeMarzo, *Corporate Finance* (Pearson 2014) 479.S; Pierre Vernimmen and others, *Corporate Finance : Theory and Practice* (4th edn, John Wiley and Sons, Ltd 2014).

[212] Betty Simkins and Russell Simkins (n 6) 316.

[213] ibid 317.

system will ensure that oil companies can raise debt capital at the lowest after-tax cost and mitigate risks at the same time.[214]

However, corporate finance is not a very attractive approach to financing for many oil and gas projects, as an individual project may require an amount of capital that is as large as or even larger than the worth of the company itself. Besides, the risk level of capital in this industry is much higher than that of others.[215] Moreover, not every oil company, especially those in emerging markets, has the financial capacity to use a centralized financial system, in which a strong balance sheet and excellent credit rating are needed and not negotiable.

Some major oil and gas companies prefer to use corporate finance and borrow on their own accounts rather than to seek project finance for their projects. Since those companies have strong balance sheets and a good credit rating, they can easily raise capital via a corporate financing approach. In this way, they can also save costs since corporate debt is cheaper than borrowing based on projects.[216]

However, nowadays, quite a few independents and junior oil and gas companies also compete in the industry. As they have much a smaller size and some of them are from emerging markets where the overall credit rating is much lower, their access to sufficient corporate debt is very limited. Besides, even major oil and gas companies find out that corporate finance can be insufficient for a company's overall business. Since every loan using the corporate financing model will reduce the available borrowing capacity, alternative financing resources are needed to fund more projects, especially those mega ones. In addition, large companies may also face issues caused by too much exposure in one country which exceeds its strategic allowance, or when they cooperate with partners whose own balance sheets are much weaker.[217] Because of the changing of market conditions, financial crisis, and the expansion of projects,

[214] ibid 320–321.

[215] Inkpen and Moffett (n 4) 279. Some projects in developing countries may have even higher risk and companies from these countries do not have good credit rating.

[216] Razavi (n 124)

[217] ibid 33.

there has seen a tendency that oil and gas companies are quite reluctant to finance projects solely relying on their own balance sheets.[218]

2.4.2. Project Finance

Project finance is generally used to refer to a nonrecourse or limited recourse financing structure in which debt, equity, and credit enhancement are combined for the construction and operation, or the refinancing, of a particular facility in a capital-intensive industry.[219] The start-up and construction period is the riskiest phase. At that stage, the project sponsor should offer occurrent financial support beyond its equity investment — a typical form of this is a payment guarantee. The guarantee will be released at the completion date once the construction is finished and the facilities have passed all tests. This is when the lenders' rights will convert to nonrecourse status. [220] However, in practice, project finance will not be purely on a nonrecourse basis because some types of corporate or even government guarantees will bring much comfort to investors and can help significantly lower costs in raising equity and debt finance.[221]

Debt terms are not based on the sponsor’s credit support or on the value of the physical assets of the project. Project finance is the financing of a project arranged in such a way that lenders rely solely on the assets and cash flows of the project for interest and loan repayment, which is fundamentally different from corporate finance, where lenders rely on the cash flows and financial strength of the entire corporate entity for debt service.[222]

In a typical project finance transaction, both debt and equity financing are incorporated in a project finance model. Equity can be raised by the project sponsor from local or international equity markets, or through various governmental, regional, and multilateral institutions. Debt financing provided by lenders may consist of commercial loans, international bond offerings, suppliers' credit, and loans from multilateral or

[218] Blumental (n 129) 273.

[219] Hoffman (n 209) 4.

[220] Blumental (n 129)274.

[221] Razavi (n 124)

[222] Inkpen and Moffett (n 4)

governmental institutions.[223] Allocating a proper equity-debt ratio is crucial to the design of the financing structure. Generally, total project investment is 20-40% equity and 60-80% debt financed. [224] The ratio is important because it is related to the risk allocation.

While the project financing approach has many advantages over the traditional corporate finance model, significant risks occur because of the nonrecourse and limited recourse nature. Lenders are very concerned about any potential risk. In order to smoothly raise funds via this approach, project sponsors should take risk allocation into consideration when designing the overall financing structure.[225] Because of the nonrecourse or limited recourse nature of the project finance, lenders bear higher risks so they would prefer project sponsors, as equity investors, to invest more equity to a project. The more equity is committed by the project sponsor, the greater portion of the project risk is undertaken by the sponsor. However, while lenders want to spread risk, project sponsors also want to undertake as little risk as they can. In addition to reducing risk, sponsors also want to reduce investment costs since equity is the most expensive form of investment.

The conflict and tension between lenders and project sponsors always exists. Delicate structure design, profound negotiation, and rigorous documentation should be done before the transaction officially enters into force. When determining the equity-debt ratio, potential factors which should be considered are: the location and economics of the project, the risks inherent in that project, and the creditworthiness of the sponsors.[226]

Because the sponsor's balance sheet will not be encumbered by a single project and creditworthiness can be effectively maintained, the company can access far more capital in a much easier way than through the traditional corporate finance approach.[227] However, compared with corporate finance, which is more easy and straightforward to

[223] Blumental (n 129) 270.

[224] ibid 275.

[225] This again points out the importance of using a supply chain approach to transfer risks undertaken under the financing arrangement via contract chains.

[226] Blumental (n 129) 275.

[227] ibid 270–271.

design, project finance is project-based, which means it is more case-by-case. A project sponsor should design a financing structure with a project-oriented view. Only a tailored structure can successfully gain sufficient financing as well as maximize the return. Identifying, analysing, allocating, and mitigating risk is one of the most imperative key points when designing the transaction structure, which will directly influence the final success of the financing arrangement.

Compared with other infrastructure intensive sectors, such as power and utilities, project finance has been less widely used by the offshore oil and gas industry since the industry is inherently long term in nature while future revenue streams are typically less stable and predictable.[228] Project finance still plays an important role in financing offshore oil and gas projects because of its merits. Some major advantages include the fact that project finance can be done in an off-balance sheet basis thus giving limited recourse to project sponsors while passing on certain risks to the lenders. Another core character of project finance is that it facilitates the separation of project assets from the sponsor and enables the financing of those assets on the basis of future cash flow. This can allow a sponsor to undertake a project with more risk than the sponsor is otherwise willing to underwrite independently[229] and help a sponsor to get funding even if the project is in higher-risk countries. It also generates large debt capacity.[230]

While big players can take advantage of their centralized financing mechanism, project finance helps weaker and smaller oil and gas companies to compete. When raising capital via a project finance model, smaller oil companies are able to minimize the equity funds they must invest in the project. Thus, a smaller player who works as project sponsor can still manage to fund more projects even with a finite amount of cash. This mechanism also helps to minimize a sponsor's exposure to risk of a certain project.[231]

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[228] Brogan (n 27).

[229] Culp and Forrester (n 146)

[230] David Ledesma, Eliza Notides Young and Chris Holmes, 'The Commercial And Financing Challenges Of An Increasingly Complex LNG Chain' <http://www.gastechnology.org/Training/Documents/LNG17-proceedings/14-5-David_Ledesma_209.pdf>.accessed 29 January 2020.

[231] Betty Simkins and Russell Simkins (n 6) 328.

2.4.3. Reserve-based Finance

Reserve-based finance ("RBF") is a generic term used to cover finance where the loan is collateralized by the value of a company's (or project's) reserves and where repayment of the debt comes from the revenue derived from the sale of the field or the fields' production.[232]

With reference to oil and gas industry, the defining feature of RBF is that the size of the facility is determined by reference to the value of the borrower's oil and gas reserves rather than the strength of its balance sheet.[233] RBF is also different from project finance because it does not finance a single asset but rather contains more than one asset.[234] RBF is a kind of borrowing base facility rather than a single asset project financing. Besides, RBF is fundamentally an asset-backed loan — similar to a mortgage on a real estate. Because of this nature, an oil and gas company cannot utilize RBF until they have reserves to borrow against.[235] While upstream project finance is more commonly used in financing the construction of a new greenfield oil or gas field, reserve-based finance is lent against an existing producing oil or gas field.[236] Hybrid RBF with other kinds of financing models during the whole life-span of an offshore oil and gas project may maximize financing volume. Besides, though the application in emerging markets is limited, RBF will still be popular in financing upstream oil and

[232] See Allen & Crawford, '*Reserve-Based Lending (RBL)'*, <http://www.allen-crawford.com/oil_and_gas_ep/reserve-based_lending_rbl> accessed 29 January 2020.

[233] Nick Ross-McCall and Huw Thomas, 'Financing Upstream Developments', *Oil and Gas: A Practical handbook* (Global Law and Business 2014).

[234] ibid 96.; Allen & Crawford (n 232)

[235] Marek and Wilson (n 175) 152.

[236] For example, In the US, each bank providing a senior borrowing base revolving line of credit will make its own calculation of collateral value when determining the borrowing base at each redetermination date. This is done by applying a "risk factor" to each component of the proved reserve category in the reserve report. Each bank has its own approach, but typically banks will give value to 100% of Proved Developed Producing Reserves and perhaps 75% of Proved Developed Non-Producing Reserves and 50% of Proved Undeveloped Reserves. See Gonsoulin Jr. and Fox (n 173)

gas operations, both domestically and internationally, so long as small to midcap oil and gas companies cannot obtain other cheaper forms of financing.[237]

It should be recognised that although RBF has some similarities to traditional working capital asset-based lending facilities, such types of facilities still have a few key differences. Under RBF, lenders will have a unilateral discretion to modify commodity pricing assumptions and other assumptions so as to evaluate the reserves and thus to set the credit limit.[238]

The traditional reserve-based loan consists of a bank loan, a borrowing base, and collateral. Although the bank loan may take on various forms, the parties typically negotiate a revolving facility that allows the borrower to withdraw funds up to a specified amount, repay the funds with project cash flows as they become available, and then withdraw again once the need for capital arises. The revolving nature of the facility comports well with the cyclical capital needs of the upstream industry, in which an E&P company might drill one field with facility proceeds, repay a portion of the loan with revenues from the working interest, and then draw down on the facility a second time to finance the development of another field.[239]

In addition, while RBF agreements normally impose more restrictive covenants on oil and gas companies to have new debts, quite a few RBF lenders are willing to compromise on the condition that the proceeds of the new debts will be used to pay back a part of the existing RBF debt. [240]

The global RBF market can broadly be divided into two subgroups based on the norms of their respective deal structures as well as the location of the participating lending banks. First, there is the North American market, which is comprised of the United States and Canadian markets but which excludes Mexico. Secondly, there is the international RBF market which is centred in London and covers most markets outside

[237] Marek and Wilson (n 175)151.

[238] KING and SPALDING LLP (n 116)

[239] Marek and Wilson (n 175)153.

[240] D'Aversa and Amend (n 158).

of the North American market (and which includes the EMEA countries in particular).[241] Each market has its own historical background and features. Significant differences exist in these two markets, which cause different paths of financing techniques in the two markets.

2.4.3.1. US RBF market

US RBF markets are quite mature and banks in the US market have been providing reserve-based loans for many decades. Though US banks are willing to lend to small businesses they still set up a restriction upon receivers.[242] Basically, reserves may be categorized as Proved Developed Producing ("PDP"), Proved Developed Nonproducing ("PDNP"), Proved Undeveloped ("PUD") reverses. US lenders generally limit their lending to PDP and rarely calculate PDNP or PUD into the borrowing base. Even if they do, the lenders will sharply discount those reserves.[243] When calculating the borrowing base, US lenders will give full discounted present value of PDP, 50–75% of PDNP, and 25–50% of PUD.[244] Because of its uncertainty of production and revenue, lenders are unwilling to count PUD as a substantial portion of the borrowing base.[245] Emphasis on the actual production of the reserves means that in the US RBF market an oil and gas company can only employ RBF upon its succeed in exploration and reserve booking.[246] Interest on the loan may more likely be LIBOR based and payments are non-amortized so that it does not include principal.[247] Security[248] is a key concern for lenders. Good security is a necessary fallback

[241] Gonsoulin Jr. and Fox (n 173)

[242] ibid

[243] Lynn P Hendrix, 'Reserve-Based Lending' [2013] International Mining and Oil & Gas Law, Development, and Investment

[244] John T. Bradford & Jennifer Mosley, Damn The Torpedoes: Continuing to Finance U.S. Oil and Gas Operations in Tumultuous Times, 55 ROCKY MTN. MIN. L. INST. 22-1, § 22.05 (2009).

[245] Gonsoulin Jr. and Fox (n 173); Marek and Wilson (n 175)153.

[246] Marek and Wilson (n 175)152.

[247] ibid 153.

[248] Security can be offensive - the actual ability to enforce and sell an oil or gas field, or primarily defensive - the ability to stop another creditor from getting ahead in the queue in the case of a borrower's bankruptcy. See

mechanism for debt repayment. Security mechanisms are fundamentally different between the US RBF market and the international market. The US market is one of the few markets where asset-level perfected security can be obtained.[249] In the US market, a mortgage can be directly made over the invested oil or gas field. US RBF transactions create a security interest upon some proportion of the oil and gas properties, typically 80–100%.[250] The security interest can be made against the underlying reserves as well as personal property, such as the equipment.[251] Some lenders will even require more fallback — security in company share, collateral on project accounts, etc.[252] This multilayer security and collateral package, along with the senior status of most reserve-based loans, makes RBF extremely secure for lenders in the US market.[253]

2.4.3.2. International RBF Market

While US lenders secure their loans with the value of the producing reserves, international lenders often feel comfortable to secure the repayment with the future cash flows of large undeveloped reserves.[254] For example, while the US market has an obvious preference for PDP reserves, the UK banks are more open to provide lending against undeveloped reserves. Before the field passes the completion test, the loans are secured with guarantees provided by corporate sponsors.[255] However, with small companies the value of those guarantees has been reduced since the sponsor may have limited value outside of the project being sponsored. In this situation, banks have to bear the reservoir risk on undeveloped reserves from day one of the loan.[256] It is quite obvious that security levels in international markets are much lower than those in the

[249] Kevin Price, 'RESERVE-BASED LENDING MARKETS — FROM PROJECTS TO BORROWING BASES' (2006) <http://www.ogfj.com/articles/print/volume-3/issue-8/features/reserve-based-lending-markets-from-projects-to-borrowing-bases.html>.accessed 29 January 2020.

[250] Gonsoulin Jr. and Fox (n 173)

[251] Hendrix (n 243)

[252] Gonsoulin Jr. and Fox (n 173)

[253] Marek and Wilson (n 175)153.

[254] ibid 152.; Gonsoulin Jr. and Fox (n 173)

[255] Price (n 249).

[256] ibid.

US market. Besides, in contrast to the US RBF market where payments are non-amortized and thus do not include principal, producers in the international RBF market typically make a bullet repayment of the principal upon the maturity date.[257]

While in the US the underlying reserves can be legally owned by an oil and gas company, reserves in most other countries are owned by the state.[258] Thus, in the international RBF market, security cannot be made upon the reserves. Security can be taken over contractual rights via a concession, service contract, production sharing agreement, etc. [259] Oil and gas companies essentially obtain the right to explore the reserves in return for paying the government taxes or sharing the production with host countries. Normally, exploration and production rights over oil and gas reserves cannot be assigned or transferred without prior governmental approval, which, in many cases, are not easy to obtain. In most emerging countries, the benefits of security on domestic nature resources are also quite limited and may be subject to uncertain changes. In many cases the domestic law in emerging markets has not been mature enough to completely

[257] Marek and Wilson (n 173)153.

[258] Price (n 249); Theodore Okonkwo, 'Ownership and Control of Natural Resources under the Nigerian Constitution 1999 and Its Implications for Environmental Law and Practice' 6 International Law Research 173. In principle, the UK government does not own mineral rights, except coal, oil, natural gas, gold and silver. The Petroleum (Production) Act 1934 (repealed by the Petroleum Act of 1998) vested the ownership of oil and gas in the Crown.

Petroleum Act 1998 (UK)

2. Rights to petroleum vested in Her Majesty.

(1)Her Majesty has the exclusive right of searching and boring for and getting petroleum to which this section applies.

(2)This section applies to petroleum (including petroleum in Crown land) which for the time being exists in its natural condition in strata in Great Britain or beneath the territorial sea adjacent to the United Kingdom.

…

3. Licences to search and bore for and get petroleum.

(1)The appropriate authority, on behalf of Her Majesty, may grant to such persons as the appropriate authority thinks fit licences to search and bore for and get petroleum to which this section applies.

…

[259] Ashurst Burns and Julia Derrick, 'United Kingdom: Oil & Gas Laws and Regulations 2020' (3 January 2020) <https://iclg.com/practice-areas/oil-and-gas-laws-and-regulations/united-kingdom> accessed 26 February 2020.

regulate the underlying legal concepts seen in more developed jurisdictions. [260]

Decommissioning cost management is another unique character originated from the UK markets and has already been adopted in the international market. Decommissioning has drawn more attention in the UK because of the restriction set forth under the provisions of the Petroleum Act 1998. Article 28A of the Petroleum Act 1998 set forth restriction on abandonment on oil and gas projects.[261] An oil and gas company has to produce evidence on its ability to fund its decommissioning obligation. In order to do so, an oil and gas company may have to submit evidence of its financial status, reflecting management accounts, predicted decommissioning costs as well as future revenue estimations. If there is a concern on the ability of the oil and gas company to cover its decommissioning cost, the Secretary of State may order the company to produce additional security. [262]

2.4.4. Islamic Finance

The framework of Islamic finance is based on principles of Sharia (the law of Islam) which governs the Islamic world. The fundamental concept of Islamic finance is that money has no intrinsic value and should only be used as a measure of worth.[263] The basic elements of Islamic finance are prohibitions on interest (Riba), avoidance of Islamic vices[264], avoidance of unacceptable risk (Gharar), and participation in the

[260] Price (n 249).

[261] Petroleum Act 1998

28A Restriction on abandonment

A person to whom a notice may be given under section 29(1) in relation to an offshore installation or submarine pipeline may not abandon, or begin or continue the decommissioning of, the installation or pipeline unless an abandonment programme approved by the Secretary of State has effect in relation to the installation or pipeline.

[262] Long (n 163)

[263] .'UK Excellence in Islamic Finance' (*GOV.UK*) <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/367154/UKTI_UK_Excellence_in_Islamic_Finance_Reprint_2014_Spread.pdf> accessed 28 February 2020.

[264] Islamic vices include pornography, alcohol, gambling, and pork products.

performance of assets.[265] Essentially, Islamic finance is non-recourse to the borrower and beyond the particular assets that support the transaction.[266] However, a transaction can still be structured to provide the investment with a fixed or variable return through profit sharing, just like principal and interest payments.

Generally, Islamic finance is a hybrid of debt and equity. [267] Although it is argued that an ideal financing model for Islamic financing should be equity,[268] equity financing is still not prevailing[269] because of the moral hazard concern.[270] In real practice, debt-like financing is the more popular model in Islamic finance.[271]

As the upstream oil and gas industry desires large capital investment, sometimes even conventional financing models may be adequate, they are still very expensive with onerous conditions. Thus, players are eager for low cost capital with fewer operational restrictions as compared to traditional secured lending; Islamic finance seems to be a competitive alternative.

One of the special characters of upstream offshore oil and gas projects is the high level of risk. Risk management and allocation are crucial in financing arrangements. Islamic law "permits and actually encourages the allocation of risks and rewards and sharing in the resulting profits or losses".[272] In a real industrial context, this means the investors

[265] Christopher F. Richardson, 'Islamic Finance Opportunities in the Oil and Gas Sector: An Introduction to an Emerging Field' (2006) 42 TEXAS INTERNATIONAL LAW JOURNAL 128.

[266] ibid.

[267] Jeffrey S. Muñoz, 'Financing of Oil and Gas Transactions' (2008) 4 Tex. J. Oil Gas & Energy L. 223.

[268] Christopher Gan, Baiding Hu and Jamal Roudakia, 'Equity Financing and Debt-Based Financing: Evidence from Islamic Microfinance Institutions in Indonesia, Bayu Arie Fianto' (2018) 52 Pacific-Basin Finance Journal 165.

[269] BS Chong and MH Liu, 'Islamic Banking: Interest-Free or Interest-Based?' [2009] Pacific. Basin Finance Journal 127.

[270] Gan, Hu and Roudakia (n 266)

[271] Rajesh K Aggarwal and Tarik Yousef, 'Islamic Banks and Investment Financing' (2000) 32 Journal of Money, Credit and Banking 94

[272]Ariel Berschadsky, 'Innovative Financial Securities in the Middle East: Surmounting the Ban on Interest in Islamic Law' [2001] U. Miami Bus. L. Rev. 107, 110.

would likely share in the reserve, price, as well as operating risks, which is good news for borrowers.[273]

Types of Islamic financing include Ijara[274], Musharaka and Mudaraba[275], Murabaha[276], Istisna'a[277], and Sukuk[278].

An Ijara can be an ideal mechanism for leveraged lease financing of large oilfield project, especially deep-water platforms or drill ships based on the precondition that the value of such oilfield equipment should be equal to, or represent a material percentage of, the offering amount. [279]

Either Musharaka or Mudaraba is suitable for financing upstream activities. Investors can offer a portion (i.e. Musharaka) or all (i.e. Mudaraba) of the fund, then the project

[273] Christopher F. Richardson (n 265) 128.

[274] Ijara is an exchange transaction in which a confirmed benefit arising from a specified asset is made available in exchange of a payment, but no transfer of the ownership of the asset itself. It is a kind of sale-leaseback, however, unlike traditional leases, there can be no known sales price for the asset at the end of the term, and the lessee cannot be required to purchase the asset at the end of the term. Besides, unlike some traditional leases, the financier would be responsible for maintaining insurance, and the lessee is not responsible for full rent in the case of a casualty loss affecting the asset during the lease. See Kimberly J Tacy, 'Islamic Finance: A Growing Industry in the United States' (2006) 10 Norh Carolina Banking Institute 356.; Richardson (n 265).

[275] Musharaka is "partnership" or "sharing" in Arabic. Profits and losses from the partnership venture are shared on a pre-arranged basis. Tacy (n 274)359. In a Mudaraba arrangement, the investors provide capital and the "borrower" puts in only sweat equity by managing the venture; only the investors contribute capital. Hersham M Sharawy, 'Understanding the Islamic Prohibition of Interest: A Guide to Aid Economic Cooperation between the Islamic and Western Worlds' [2000] The Georgia journal of international and comparative law 169.

[276] Murabaha is a form of a sales contract in which investors buy an asset and then later sell it to the borrower at a underpinned price, along with a profit component. See Gohar Bilal, 'Islamic Finance: Alternatives to the Western Model' [1999] Fletcher F. World Aff. 145, 153. See Ariel Berschadsky (n 272) 111.

[277] Istisna'a is a kind of commissioned manufacturing. The target asset is constructed according to requirements set forth by the financial institutions which finance the project. It is the most widely-used Islamic funding technique used for long-term project financings. See Ariel Berschadsky (n 272) 116.

[278] Sukuk is the Arabic name for financial certificates, but commonly refers to the equivalent of bonds in Islamic financing context.

[279] Christopher F. Richardson (n 265) 119.

operators would operate the projects and provide the necessary expertise. In a Musharaka situation, the project operator will also offer some part of the initial capital. A joint venture agreement may be used in the transaction, or, instead, the parties could form a limited liability company while sharing of dividends is predetermined by the parties from the beginning. A development or business plan may also be confirmed in advance to help identify how operations shall be carried out. [280]

Though Murabaha is the most common form of Islamic finance,[281] it would not likely serve as a funding source for significant upstream offshore oil and gas projects because of the long-term duration relating to such projects. However, Murabaha could still be used to purchase equipment for oil and gas operations.[282]

Istisna'a has already been used in several downstream oil and gas projects in the Muslim world. In addition to project finance for large downstream projects, this form of Islamic finance has the potential to be used for financing of large equipment purchases in the upstream segment.[283]

Oil and gas properties can play as underlying assets supporting a Sukuk offering. Investors can use the capital raised by the Sukuk issue to purchase a "passive" economic interest[284] in the oil and gas properties. The "borrower" would then use the funds in upstream activities. The production from the underlying oil and gas properties generates a stream of income for the investors.[285] The International Monetary Fund has regarded Sukuk as something which "could lay the groundwork for the emergence of Islamic capital markets. But while the Sukuk market is developing rapidly, it remains primarily

[280] ibid.

[281] Ariel Berschadsky (n 272) 110.

[282] Christopher F. Richardson (n 265) 119.

[283] ibid.

[284] This can be done in the form of an overriding royalty or profits interest.

[285] Christopher F. Richardson (n 265) 132.

a market where holders keep bonds to maturity, with limited secondary market trading."[286]

2.5. The Importance of Revenue in Facilitating Financing for Upstream Offshore Oil and Gas Projects

Based on the above analysis, it is quite clear that in order to facilitate financing for an upstream offshore oil and gas project, one should consider a massively wide range of things, from basic financing sources to specific financing models; from general business strategy to individual project characteristics. However, although one should consider quite diversified things for different sources and types of financing, there is a core and universal element which almost every oil and gas company should be always thinking about — the revenue.[287]

Although almost all kinds of business entities put emphasis on revenue, as it is the key element relating to sound survival, oil and gas companies should be even more cautious of it — the revenue is the key element when they want to raise funding.

Sufficient net incoming means that an oil and gas company may be able to use internal financing to support its future project. Revenue is also critical for both debt and equity financing. For debt financing, accounts receivable can be a type of collateral while stable and abundant revenue is a convincing sign of good creditworthiness which will be reflected in a strong balance sheet.

As for equity financing, since the return of an equity investor's investment substantially depends on the revenue of its investee, the more earning gained by the investee, the

[286] Mohammed El Qorchi, 'Islamic Finance Gears Up: While Gaining Ground, the Industry Faces Unique Regulatory Challenges' [2005] Fin. & Dev. 45–46 <http://www.imf.org/external/pubs/ft/fandd/2005/12/qorchi.htm.>.accessed 29 January 2020.

[287] Meidan (n104). In practice, a financier may also be willing to provide funding in return of petroleum products. For example, some oil-backed loans offered by governments of those developing countries. However, this thesis holds a view that such a mechanism is more suitable for financiers who have direct demand or confirmed resale of such products. Besides, such kind of mechanism has rarely seen in the gas market. Therefore, as focusing on more general applications, this thesis mainly discusses the revenue-driven mechanism.

more return on investment will be paid to the equity investor. Therefore, an oil and gas company which has large revenue will be more welcomed by equity investors.

It is easy to conclude from the above-mentioned specific financing models that cash flow of a project or reserve along with a strong balance sheet are the two key elements that an investor is concerned about when the investor makes an investment decision.

Cash inflow of a project or reserve is mainly from sales revenue (though it can also come from a stream of funding financed by investors). Strong balance sheet indicators include several important ratios, among which are the average age of the inventory, inventory to sales, days sales outstanding, receivables as well as turnover and they are all closely tied to revenue. Abundant revenue will make sure that these indicators are shown as good ratios, which further reflects a strong balance sheet.

Therefore, revenue, again, shows its important role when an oil and gas company wants to use specific financing models to obtain sufficient funds for its individual project, a group of projects, or its overall corporate running.

2.6. Chapter Conclusion

Financing in upstream offshore oil and gas projects is a complicated commercial arrangement. Since a project is usually quite capital intensive, no oil and gas company can solely rely on a unitary financing source or single financing model. It is a more complex process to decide the capital structure and apply various financing models in order to successfully fund upstream offshore oil and gas projects. Nevertheless, although there is no general formula when considering the financing arrangement for a project, there are still universal concerns which both oil and gas companies as well as the investors put emphasis on.

One of these core concerns is the sales revenue. Sufficient streams of revenue not only mean a strong balance sheet which may attract debt creditors but also generous profits which give confidence to equity investors. This indicates that financing never stands alone but is closely related to the overall running of an oil and gas company. Although the financing arrangement is used to fund the upstream exploration and production, the revenue of downstream sales steps in as a key influential indicator during the process

of seeking funds. It will not only determine whether an oil and gas company can fulfil its repayment or dividend obligations, but also whether the oil and gas company can get more financing.

Based on the chapter conclusion, further in-depth analysis and argument can be made in the following chapters to examine the interactive relationship between different contracts in other related sectors, especially the downstream sales sector and to prove how contract design, via a supply chain approach, can be used to enhance the financing arrangements for the upstream offshore oil and gas industry. In this process, more contribution can be made by law as contract design can help parties to allocate rights, obligations, and risks.

Chapter 3 Contract Chains Relating to Financing of Upstream Offshore Oil and Gas Projects

3.1. Introduction

As mentioned in previous chapters, financing upstream offshore oil and gas projects involves a wide range of participants, diversified interests, high risks, and long-term input. Therefore, it is not surprising that bundles of documents are generated throughout the whole transaction to identify parties' rights and duties.

Meanwhile, it should also be noted that financing has never stood alone. Other elements in the supply chain (i.e. relationship with upstream resource owners; the relationship with service provider; the relationship with downstream product buyers, etc.) will also bring substantial impact on the financing arrangements for the upstream exploration and production projects. The stability of upstream production, steady midstream processing, and the firmness of the downstream sales all contribute to smooth performance under the financing arrangement.

In the upstream production side, the relationship with resource owners is critical. Such a relationship has a direct impact on whether an oil and gas company can have stable production. After securing the upstream production, the downstream sales begins to be more critical, as any upstream production will be valueless if such production cannot be converted into sales profits. It can be seen that while the upstream production backs up the downstream sales, both are the support for an oil and gas company to secure its repayment under the financing arrangement. That is to say, a financing arrangement for upstream products is always secured by the whole supply chain.

Under this chapter, analysis will be undertaken to illustrate the unique character of contracts in the offshore oil and gas industry. Then focus will be given on a wide range of contracts which are typically used in the whole supply chain (i.e. relationship with upstream resource owners; the relationship with service provider; the relationship with downstream product buyers, etc.) and how these kinds of contracts are related to the financing arrangement. At the end of this chapter, further analysis will be made to identify how much space to give to an oil and gas company to obtain favourable terms and conditions under such contracts.

3.2. Key Characters of Contracts in Offshore Oil and Gas Industry

In the offshore oil and gas industry, a series of contracts are used relating to the development, exploration, production, financing, sale and purchase and exchange of titles of petroleum interest. While such contracts share the common ground of ordinary commercial contracts, they also have further unique commercial and technical characteristics, which distinguish them from general commercial contracts.[288] As this thesis focuses more on the relationship between different sub-sectors within the whole supply chain and intends to explore the potential role and possibility of efficient re-negotiation between parties, it will concentrate more on the interrelationship between contracts as well as the elements of negotiation and re-negotiation as shown in contract chains. Therefore, although there are various of unique characters of offshore oil and gas contracts, the thesis will throw spotlight on the following four characteristics.

3.2.1. heavy Pre-contract Negotiation and Input

Regardless of technological progress in the modern world, upstream oil and gas activities remain a risky business. In addition to physical risks, such as collapse and explosion, the investment return is also at stake — a substantial percentage of oil and gas exploration investments have ended in dry wells. During the last decades, the rate of success in exploration worldwide has been only around 25%.[289] Such a hard truth urges a party to look before it leaps into the business.

Under such a background, it is not a surprise that pre-contract negotiation may be very lengthy and heavy. As for an oil and gas company, such negotiation never stands alone with a single business partner. Rather, it involves negotiation with governments, financiers, service providers, as well as downstream buyers respectively, which results in diversified steps and complexities. Various contracts have to be negotiated and

[288] Roberts (n 115)

[289] Nadine Bret-Rouzaut, *Oil and Gas Exploration and Production - Reserves Costs Contracts* (3rd edn, Editions Technip 2011).

signed throughout the whole supply chain.[290] While each contract is executed individually, they still interact or even are integral parts among each other, such a delicate relationship makes the pre-contract negotiation even more complicated and one has to keep an eye on a large number of different yet interrelated contracts and make sure that they are harmonious with each other and can work together to ensure the smoothness of the project eventually.

To make negotiation even more complicated, parties have varied interests and very often encounter conflict of interests between each other. As for oil and gas companies, they detest the expensive yet speculative investments in the upstream exploration stage and may have already suffered plenty of dry wells. Therefore, they are very cost-sensitive and are extremely motivated to seek recovery of their costs in any negotiations.[291] Besides, as a commercial entity, an oil and gas company would like to gain as much profit as possible while still enjoying a high degree of freedom and autonomy.

When it comes to the view of governments, as they are resource owners in most cases,[292] very often they care a lot regarding how much they can gain from the oil and gas fields.[293]

Meanwhile, governments also have to consider the public welfare and have to take into account as to whether certain environmental and health standards can be met by oil and

[290] Aicha Amrani, Jean-Christophe Deschamps and Jean-Paul Bourrières, 'The Impact of Supply Contracts on Supply Chain Product-Flow Management' (2012) 31 Journal of Manufacturing Systems 253

[291] J Radon, 'How to Negotiate an Oil Agreement', *Escaping the Resource Curse* (Columbia University Press 2007).

[292] Generally speaking, most natural resource rights are held by government. However, in Canada and the United States, private person can also own the rights. Inkpen and Moffett (n 4)..

[293] When negotiating with oil and gas companies, governments usually benchmark the competitiveness of tax regimes. Normally, governments have selected a group of countries with which they make the comparison. Generally, comparisons are made with countries of similar geography, resource reserves, cost structure, etc. Mansour and Nakhle (n 86)

gas companies during the exploration and production phase. [294] As a result, while very much caring about a profit return, governments also seek more control over the projects.

Financiers also have their own concerns. Before deciding to invest in an individual project, a financier will examine all the parties involved by due diligence investigation and by going through all the documentary archives. In order to guarantee its return, a financier will also prefer a certain degree of involvement in or even control of the invested project,[295] starting from the early exploration and production stage to the daily routine operating phase.[296]

The above examples only reflect a certain degree of intricate and variegated interrelationships among different parties. Such relationships cooperate yet conflict with each other. It is no exaggeration to say that the resilience of an upstream offshore oil and gas project is only as firm and stable as its weakest connection.[297] The main objective of negotiations for oil and gas contracts is to achieve a reasonable and acceptable balance between the interested parties.[298] This has never been an easy job and makes the pre-contract negotiation and input substantially heavy and lengthy. This also means that those contracts concluded by parties after such lengthy and expensive negotiations are even more imperative and should be drafted carefully to reflect all the fruit gain during the pre-contract negotiation process.

3.2.2. Long-term Contractual Relationship

In the offshore oil and gas industry, either the upstream exploration and production, the midstream processing, storage and transportation, or the downstream product sales

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[294] J Radon, 'How to Negotiate the Right Petroleum Contract' (*UNDP Discussion Paper*) <http://www.un.org.kh/undp/images/stories/special-pages/extractiveindustries/docs/negotiating_contracts_eng.pdf> accessed 9 October 2014; Amrani, Deschamps and Bourrières (n289)

[295] This is even more true in an equity financing situation (see Chapter 2). Dittmar and Thakor (n 202)1.

[296] 'Parties to a Project Financing' (*Design Computation*, 2019) <http://52.209.31.230/home/index.php/Parties_to_a_Project_Financing> accessed 28 February 2020.

[297] ibid.

[298] Radon (n 291)

transactions are more likely to be long term commercial relationships rather than a one-shot business.[299]

Such a desire for long term stability in business relationships can also be seen from a financiers' perspective in financing arrangements. Equity investors would prefer that their invested projects thrive as long as possible so that they can obtain more investment return. Debt creditors, although they do not own equity rights in the project, may still want to maintain their business relationship with the oil and gas companies — although repayment to debt creditors does not link with the duration of the invested projects, since the amount of loan is usually quite large and SPVs rarely have sufficient assets for creditors to claim against[300], debt creditors would prefer to keep the relationship and seek repayment in a long term perspective.

The long-term business relationship among parties directs the contractual relationship under upstream offshore oil and gas projects different from other contracts. In other contracts, parties more tend to push each other to make the commitment as originally promised. However, in a long-term business relationship, parties have invested so profoundly in a project which makes them locked into each other. In contrast to the traditional 'arm's length bargaining' contracts where parties' goal is to maximise their own interest[301], in many upstream offshore oil and gas contracts, which reflect a long-term character, parties' aims are aligned while more benefits may be obtained through mutual collaboration.[302]Because of the heavy pre-contract negotiation and input as well as the long-term lifespan of an upstream offshore oil and gas project which also reflects

[299] Although there is trend for spot market for oil and gas in EU and some Buy Back Agreement is a short term Risk Service Contract. See Mike Bunter, 'The Iranian Buy Back Agreement' (*OGEL*, 2009) <https://www.ogel.org/article.asp?key=2855> accessed 28 February 2020.

[300] As offshore upstream projects often involve diversified parties from different regions and countries, although certain kind of dispute resolution mechanism can be take (international arbitration, mediation, or even cross border litigation), such measure can be very expense and time consuming while the enforcement has never been a easy task, especially in those emerging markets.

[301] Ewan McKendrick, 'The Regulation of Long-Term Contracts in English Law', *Good Faith and Fault in Contract Law* (Clarendon Press 1995)

[302] Petter Osmundsen, Terje Sørenes and Anders Toft, 'Offshore Oil Service Contracts New Incentive Schemes to Promote Drilling Efficiency' (2010) 72 Journal of Petroleum Science and Engineering 220.

as the long-term business relationship among parties, contracts involving upstream offshore upstream oil and gas projects tend to be long-term in nature.

While the physical lifespan of an offshore upstream oil and gas project is very likely to be long,[303] the overall business relationship among the parties may also show the long-term character of the project. Nevertheless, the definitive character is the nature and duration of the relationship among the parties. Long-term contracts should not be merely referred to as contracts which last for a long duration.[304] A "long-term contract"' is a sociological rather than a simple legal concept. The definitive feature is not the long period of contractual time, but rather the nature and effect of the long-term business relationship between the parties.[305]

3.2.3. Willingness of Renegotiation from Contractual Parties

Under traditional contract law, the purported goal is that the remedies which it provides protects the expectation which is created by a binding promise to perform.[306] On the other hand, long-term contracts, under which parties have been locked in the relevant project, classical legal remedies (such as liability of breach of contract, compensation of loss and damage, etc.) may play a secondary role when disputes arise. Whereas other non-legal elements (for example, the maintenance of stable business relationships) are

[303] Generally, there are five major stages under the whole the lifespan of most oil and gas fields, namely exploration, appraisal, development, production, and decommissioning. Each stage may last for several years. For example, depending on the different sizes of projects, the development phase of an offshore oil and gas project alone can take 5 to 10 years while a well may last 10 to 20 years on averagely in the production stage before it comes to decommissioning stage. Therefore, taking account of all the 5 stages, the total lifespan of an offshore project is typically up to 20-40 years. ROBERT Lamb, 'How Offshore Drilling Works' (*HowStuffWorks*) <https://science.howstuffworks.com/environmental/energy/offshore-drilling2.htm> accessed 28 February 2020.

'The Differences Between Offshore and Onshore Oil Drilling' (*oilscams.org*) <http://www.oilscams.org/offshore-vs-onshore-oil-drilling> accessed 28 February 2020

[304] McKendrick (n 301)

[305] Paul Griffin, 'English Law in the Global LNG Business: International LNG Sale and Purchase—a Relational Arrangement' (2019) 12 The Journal of World Energy Law & Business 216

[306] Classically expressed by Parke B in Robinson v Harman [1848]1 Ex [850], [855]; 154 ER [363], [365].

very likely to play an important role in the dispute resolution process.[307] The demand of stable business relationships as a first resort when disputes come up may be more prevalent in long-term contracts.[308]

During such a long-term period of time, quite a few external factors may impact or influence the projects, such as the development progress of the project, the price of the oil and gas products, as well as the business and financial status of the parties which may go through a lot of change. The original terms and conditions under the relevant contracts may no longer fit and modification may be preferred to accommodate new situations or even some unforeseen events. Parties may struggle between keeping the relationship alive or terminating their contracts.

When this happens for oil and gas companies, because of the large substantial investment which has been made and expensive cost which has been incurred in the early stages (i.e. the exploration, appraisal, and development stages), they would very much prefer to maintain their projects in order to recover the cost of the production stage during which it may be possible to make considerable profits.

While unforeseeable impediments also exist in short term contracts, parties are more likely to step out of the one-time shot and find an alternative more easily. However, in the whole lifespan of an upstream offshore oil and gas project, while parties still cannot foresee every impediment, they may nevertheless want to keep the deal and move on together even under such impediments. It is the long-term profits in future which the parties really care about. They understand that only when parties work together can they obtain full benefit.[309]

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[307] Terence Daintith, 'The Design and Performance of Long-Term Contracts', *Contract and Organization: Legal Analysis in the Light of Economic and Social Theory* (1st edn, Walter de Gruyter 1986). McKendrick (n 301)

[308] See generally H Beale and T Dugdale, 'Contracts between Businessmen: Planning and the Use of Contractual Remedies' (1975) 2 Brit J Law & Soc 45; S Macaulay, 'Non-Contractual Relations in Business: A Preliminary Study' (1963) 28 Am Soc Rev 55; S Macaulay, 'An Empirical View of Contract' 1985 Wise L Rev 465.

[309]Osmundsen, Sørenes and Toft (n 302).

It is not a surprise to see that under long-term contracts, when potential breach is likely to happen because unforeseen events arise, parties may be reluctant to seek legal remedies directly.[310] Because of the ongoing long-term commitment and aligned goals between the parties, potential breach only serves as a trigger for compromise, renegotiation, modification, and settlement. Legal remedies may play a limited role to resolve disputes in long-term contracts.[311] In long term contracts, under which parties have close relationships, maintenance of the relationship is more important. Continuous specific performance, not compensation of loss and damage, may be preferred by parties as the primary remedy.[312]

This gives a base for parties to work together when difficulties or even unforeseen events come up. In order to do so, contract design is important to leave room for possible rebalance of the contractual relationship while maintain an extent of certainty to ensure the validity and enforcement of the contact.

3.2.4. Interrelationships between Different Contracts

No single upstream offshore oil and gas project can stand alone with a simple set of general contracts. Such projects are possessed of contract chains in upstream exploration and production, midstream processing and transportation, and downstream sale and purchase respectively. In addition to these typical contracts specifically relating to the oil and gas industry, a range of more general contracts also step in, such

[310] For example, in 2014, Glencore (a British multinational commodity trading and mining company), supported by banks, lent the Chadian state oil company SHT (Societe des Hydrocarbures du Tchad) about $1.45 billion. After the crash in global oil prices, the loan was restructured in 2015 but Chad still failed to make the repayment. The parties renegotiated for years and finally reached a deal in February 2018. See Julia Payne, 'Glencore, Banks and Chad Reach Deal on $1 Bln-plus Oil-Backed Loan' (*reuters*, 2018) <https://www.reuters.com/article/us-glencore-chad/glencore-banks-and-chad-reach-deal-on-1-bln-plus-oil-backed-loan-idUSKCN1G52B9> accessed 16 March 2020.

[311] Moshe Gelbard and Adar Yehuda, 'The Role of Remedies in the Relational Theory of Contract: A Preliminary Inquiry' [2010] European Review of Contract Law <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1416750> accessed 28 February 2020.

[312] DONALD ROBERTSON, 'Symposium Paper: Long-Term Relational Contracts and the UNIDROIT Principles of International Commercial Contracts' (AUSTRALIAN INTERNATIONAL LAW JOURNAL 2008) <http://www.austlii.edu.au/au/journals/AUIntLawJl/2010/9.pdf> accessed 28 February 2020.

as interest transfer contracts, construction contracts, operation and maintenance contracts, and financing contracts.[313]

It is not an exaggeration to say that an upstream offshore project inevitably involves a sophisticated series of contracts which contain twisted relationships and interrelationships.[314] Those wide range of contracts involve diversified parties from different legal regimes. Coordination regarding covenants, remedy coverage, dispute resolution mechanism and default are expected and inevitable.

In financing the upstream offshore oil and gas industry, contract chains are closely related to each other and all of them have genuine impact of the final success of a project. A financing arrangement can never stand alone — initial upstream rights of exploration and production granted by host countries serve as the minimum basis to attract financiers; midstream processing ensures all the efforts made in the upstream sector can be transformed into physical oil and gas products, while the downstream sales of such a product guarantees the adequate and stable revenue which is also a key consideration for any financier, whether equity or debt investors, before making substantial capital commitment to a project.

The internal linkage among different contracts brings more complexity into the financing arrangement: any negative interruption from either the upstream exploration and production rights, the midstream processing, or downstream sales revenue will make any financiers think twice before they make an investment or even opt out of the existing commitment. Vice versa, any turbulence in the financing side will also cause a default by the oil and gas companies re their obligations to the upstream host countries or downstream product buyers.

3.3. A Supply Chain Approach to Secure a Steady Repayment under the Financing Arrangements

To run an upstream oil and gas project is a long-term business. Although a large amount and wide range of contractual documents are involved, those contracts may take

[313] Roberts (n 115)

[314] ibid

diversified forms and, in order to target the main problems, it is critical to classify those contracts which are substantially important from those less important ones.[315] Some research indicated that when deciding a company's financial arrangement, it is imperative to align with its operation management.[316] Therefore, if an oil and gas company isolates its financial arrangement and does not integrate the arrangement with its overall operation management or business strategy, information asymmetry may cause serious problems.

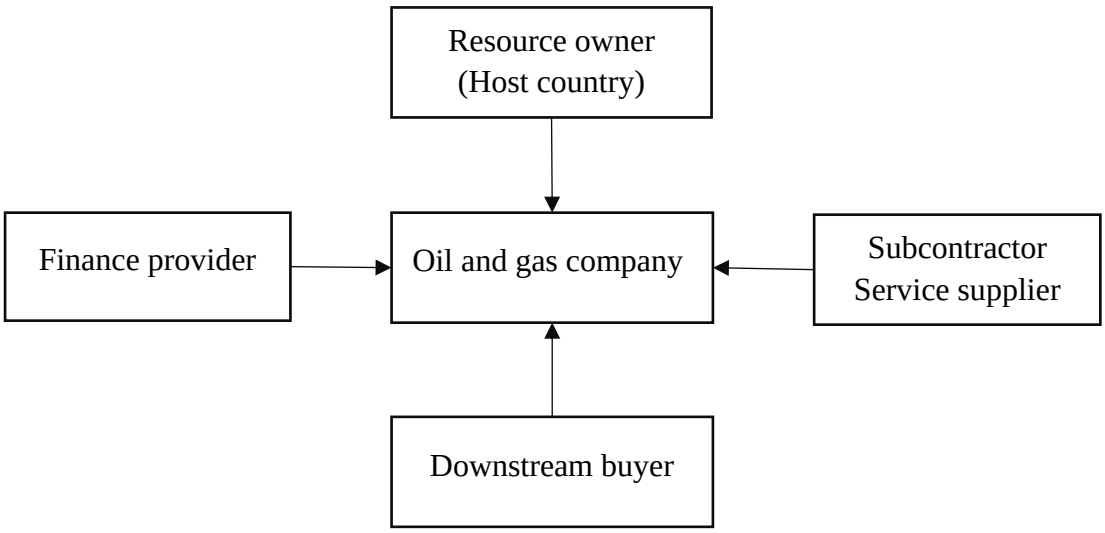
It is submitted that a supply chain approach would be suitable. A supply chain approach is to configurate, coordinate and improve of a sequentially structured string of activities. As information, materials, and capital run through the supply chain, a company is linked to its upstream suppliers, midstream service or finance providers, as well as downstream buyers or distributors. Integrating and aligning those activities and transactions throughout the supply chain efficiently will reduce risks and costs. Under a supply chain approach, oil and gas companies are suggested to integrate and cohesive their business decisions within their chain of supply.[317]

Though a series of activities interact with each other (i.e. relationship with upstream resource owners; the relationship with midstream service provider; the relationship with downstream product buyers, etc.), a simpler picture can be drawn after extracting the most important relationship from an perspective of an oil and gas companies:

[315] Clews (n 109)

[316] Xiaoyan Xu, Xiaoying Cheng and Yanhong Sun, 'Coordination Contracts for Outsourcing Supply Chain with Financial Constraint' (2017) 183 nternational Journal of Production Economics 316.; Yan Bai and Jing Zhang, 'Financial Integration and International Risk Sharing' (2012) 86 Journal of International Economics 17.

[317] M Christopher, 'Supply-Chain Management Issues in the Oil And Gas Industry' [2011] Journal of Business & Economics Research 31.



From the above chart, when operating its business, an oil and gas company inevitably meets some interfacing with different parties from different sectors. One obvious example is that, as a seller, an oil and gas company has to deal with its downstream buyers. If the achieved downstream sales are low, the oil and gas company may not be able to fulfil its repayment obligation under the financing arrangement.[318]

In the following sub-sessions, detailed analysis will be made to illustrate the relationship, both commercially and contractually, between oil and gas companies and their main business partners shown in the above chart.

3.3.1. Relationship with the Finance Provider

For an upstream offshore oil and gas project, because of the extensive capital demand, an imperative and critical relationship should be sought by the oil and gas company in its funding resource. Nowadays, even more funding demand is faced and has to be solved by an oil and gas company.

[318] Panos Kouvelis and Wenhui Zhao, 'Supply Chain Contract Design Under Financial Constraints and Bankruptcy Costs' 62 Management Science 2342. For example, Chad and its state oil company SHT (Societe des Hydrocarbures du Tchad) failed to make the repayment to Glencore due to the crash in global oil prices. Payne (n 310)

However, although funding is extremely important, the oil and gas company capacity at this stage to insist on favourable terms under a financing arrangement is very limited. Though it could try its utmost to utilise different financing sources (i.e. debt, equity, or mezzanine, etc.) and models (i.e. corporate finance, project finance, reserve based finance, Islamic etc.), an oil and gas company, as an investee, still has far less bargaining power than its investors.

Though, theoretically, a party can always utilise direct contractual arrangements to protect its interests, the precondition is that both parties have balanced bargaining power and are willing to cooperate with each other to maximum mutual benefit. However, in a real world, a 50-50 situation hardly ever exists, and parties always care more about their own interests. This is what is shown in upstream oil and gas financing — while the investor has aa stronger bargaining power, it also concentrates on its own interest. As a result, an oil and gas company has little room to argue for its own interest in its contractual relationship with its investors — just like in a typical tight market, in which demand exceeds supply.

Nevertheless, is that to say an oil and gas company can only await its doom and do nothing as to those strict terms and conditions? The answer is "yes" if one only examines the financing arrangement directly between the investor and the investee. However, if one thinks out of the box and has a more holistic view towards an oil and gas project, it could be seen that while an oil and gas company has a direct contractual relationship with its investors to secure funding for its project, the company also has other direct relationships with third parties in the whole supply chain to secure a smooth operation of the project. If everything goes well, the company will surely gain sufficient revenue to fulfil its repayment obligation to its investors. By following this approach, an oil and gas company could find alternative protection for itself.

3.3.2. Contracts and Relationship with the Resource Owner

After finishing the preliminary assessment and confirming the positive outcome, one of the most important next steps for an oil and gas company is to apply to the owner of the target oil and gas field for the right to explore and develop the field. Whilst attracted by

potential rewards, an oil and gas company should also consider political and geological risks when structuring the fiscal system for its projects.[319]

In most cases, natural resource rights are owned by states.[320] Governments usually set up fiscal regime for international petroleum agreements[321] relating to the exploration and development of oil and gas fields with their jurisdictions and territories.

Generally speaking, states mainly have three options to exploit their oil and gas resources. First is to establish state-owned companies, such as in Iran, Mexico, Oman, Saudi Arabia, Venezuela, etc. Second is to invite private oil and gas companies to develop the oil and gas fields, as in Canada, Russia, United Kingdom, United States, etc. Thirdly, a hybrid of these two mechanisms. For example, Azerbaijan, Indonesia, Kazakhstan, Nigeria, etc.[322]

In the upstream offshore oil and gas industry, the contracts relating to the fiscal regimes give an oil and gas company with the rights of exploration and production are one batch of the most critical contracts.[323] In financing arrangements, such contracts with states are often referred to as "core documents"[324] and investors may insist that a sound and

[319] Amrani, Deschamps and Bourrières (n289).D Johnston, *International Petroleum Fiscal Systems and Production Sharing Contracts* (PennWell Books 1994).

[320] . However, in Canada and the United States, private person can also own the rights. SeeInkpen and Moffett (n 4) . Bret-Rouzaut (n 289).

[321] Most countries have a legal framework covering both the responsibility and rights between the developer (lessee) and the natural resource rights owner (lessor). These agreements are called the fiscal regime for international petroleum agreements. See ibid..

[322] Jenik Radon, 'The ABCs of Petroleum Contracts: License-Concession Agreements, Joint Ventures, and Production-Sharing Agreements', *Covering Oil: A Reporter's Guide to Energy and Development* (Open Society Institute 2005).

[323] Clews (n 310).

[324] For example, see Loan Agreement (Petroleum Development and Pipeline Project) between REPUBLIC OF CHAD and INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, item (l) of Section 1.02 under Article I "*General Conditions; Definitions*" stipulates that "(l) *'Core Documents' means the ATP, the DAP, the Three Fields Production Concessions,…*" see 'Loan Agreement (Petroleum Development and Pipeline Project) between REPUBLIC OF CHAD and INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT'

effective implementation of the financed project is made in accordance with the core documents and an investee "*shall not take or concur in any action, including amending, suspending, abrogating, repealing, assigning or waiving pursuant to which a party consents to the assignment of any provision of the core documents to which it is party, which shall have, or could reasonably be expected to have, a material adverse effect*". [325]

The three main fiscal regimes[326] worldwide are concession[327], production sharing agreements[328], and risk service contracts.[329] Others are joint venture, absolute monopoly by national oil and gas companies, etc. Though, in some countries, only one regime takes the predominant role, it is quite common that different regimes may still coexist within the same country.[330] Different types of fiscal regimes offer different levels of autonomy granted to oil and gas companies, provide different compensation mechanisms, and involve different levels of state control.[331]

<http://siteresources.worldbank.org/INTCHADCAMPIPE/Resources/td_la_en.pdf> accessed 28 February 2020.

[325] See Loan Agreement (Petroleum Development and Pipeline Project) between REPUBLIC OF CHAD and INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, ARTICLE IV "*Other Covenants*" Section 4.01. see ibid.

[326] See Haroun Alfarsi, 'Fiscal Regimes: Types of Oil and Gas Agreements' (*PROFOLUS*, 2018) <https://www.profolus.com/topics/types-oil-and-gas-agreements> accessed 28 February 2020.; Karla Urdaneta, 'Transboundary Petroleum Reservoirs: A Recommended Approach for the United States and Mexico in the Deepwaters of the Gulf of Mexico' [2010] Houston journal of international law 355.

[327] Such fiscal regime has been seen in most OECD countries as well as in Abu Dhabi, Angola, Argentina, Brazil, Brunei, Colombia, Gabon, Nigeria, Russia, etc. See Bret-Rouzaut (n 289).

[328] Such fiscal regime has been seen in Algeria, Angola, Azerbaijan, China, Congo, Egypt, Gabon, Indonesia, Kazakhstan, Libya, Malaysia, Nigeria, Peru, Qatar, Russia, Tobago, Trinidad, Turkmenistan, etc. See Bret-Rouzaut (n 289)

[329] Such fiscal regime has been seen in Algeria, Iran, Iraq, Kuwait, Qatar, Venezuela, etc. See Bret-Rouzaut (n 289)

[330] ibid

[331]Andrew R Thomas, 'OVERVIEW OF OIL AND GAS CONTRACTS' (oil and gas contracts for a continuing legal education program, Cleveland State University) <http://levin.urban.csuohio.edu/epc/docs/Oil_and_Gas_Contracts.pdf> accessed 28 February 2020.

3.3.2.1. Concession

Concession mechanism was first introduced in the early 1900s and has evolved remarkably since then. Such a mechanism is largely reflected as a one-sided contract and has been adopted by many colonies, dependencies, or protectorates.[332]

Concession agreements grant title to an oil and gas company upon capture. [333] Under a concession agreement, a state grants an oil and gas company exclusive rights regarding the exploration, development, and production for each commercial discovery in the specific oil and gas fields for a fixed duration.[334] Meanwhile, a host state reserves very few rights or controls on the disposition of the oil and gas.[335] By paying a bonus[336] and a monetary royalty or royalty in kind (e.g. hydrocarbons produced), an oil and gas company becomes the owner of all the hydrocarbons produced.[337]

Concession regimes are most often seen in developing countries. The reason behind this is that from a developing country's perspective, the advantage of adopting a concession regime is quite material and substantial. Firstly, such a mechanism is much more straightforward and involves less contractual provision than other types of fiscal regimes. Secondly, such regimes can attract those oil and gas companies which have rich experience and a high standard of know-how. Such companies are more likely to bring with them a higher degree of expertise, stronger financial funding, and more sophisticated technical support.[338]

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[332] Radon (n 322).

[333] Thomas (n 331).

[334] Bret-Rouzaut (n 289)

[335] Thomas (n 331).

[336] for example, signature bonus paid by an oil and gas company to the state on the date when concession agreement is signed or license is granted and production bonus paid by the company upon certain threshold production is reached. see Bret-Rouzaut (n 289)

[337] ibid

[338] Radon (n 322).

Nevertheless, from the perspective of an oil and gas company, the risks are obvious. While undertaking all the financial risks, an oil and gas company also has to encounter other drawbacks for the host state.[339] It has to deal with all the financial and technical issues. The fact that the concessionaire (i.e. an oil and gas company) bears the financial risk is widely recognised[340] and it has to absorb all financial uncertainty.[341] Moreover, for an oil and gas company which steps into a concession regime in developing countries where the local legal systems are not advanced or even underdeveloped, the company not only has to deal with the commercial terms under the concession but also has to focus on contractual terms and conditions to fill in gaps in the local legal system. Nevertheless, some geopolitical risks still cannot be remedied.

As for a host country as well as for an oil and gas company, a common problem under a concession regime is commercial uncertainty. Before granting the right, since exploration has not even been comprehensively conducted, the problem of information asymmetry can be serious. The bidding is more like an auction. When bidding for the license, an oil and company may not be able to calculate the price based on very detailed and well-founded information and have to bear the risk if the specific oil and gas field turns out to be not so productive. When considering such potential risks that the concession may not cover all the costs and the target field may be completely unprofitable, it is not surprising that an oil and gas company will be quite cautious when offering its bidding price. Since the potential bidders tend to be more conservative and cautious in their offers, a host state may not be able to maximize its return by granting concession of a certain oil and gas field.[342]

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[339] ibid.

[340] Trevor Witton, 'The Concession and Oil in Iran: The Evolution of a Concept' [2016] Journal of Energy & Natural Resources Law 458.

[341] See also Alfarsi (n 326).

Another advantage of a concession is that the lessee absorbs all financial risks, including the costs of oil exploration. In case there is a failure to determine the existence of an economically viable oil or gas reserve, financial burden is largely shouldered by the lessee.

[342] Radon (n 322).

3.3.2.2. Production Sharing Agreement

The production sharing agreement ("PSA") was first introduction in Indonesia in 1966.[343] Although Indonesia proclaimed independence in 1945, the activities of foreign oil and gas companies were still regulated by the *Indische Mijnwet*, the mining law entered into force during the Dutch colonial period.[344] After independence, the concession mechanism established by the *Indische Mijnwet* was criticized by patriotists as an evil legacy rooted back in colonialism and imperialism[345].[346]

As a result, the new government refused to grant new concessions and promoted the "Indonesian formula", now known as the PSA. Under a PSA regime, a state retains the ownership of the oil and gas resources and negotiates with an oil and gas company for a profit-sharing mechanism. At the beginning, oil and gas majors strongly object this transfer, worrying that such a change would become a precedent which would further bring negative impact on concessions in other countries. Nevertheless, independent oil and gas companies signed PSAs with the Indonesian governments, which eventually pushed the majors to follow. [347] Now, the PSA regime has spread all over the world and even become predominant in Caucasus and Central Asia.[348]

Under a PSA regime, the State obtains all rights and title to the oil and gas field[349] while the private oil and gas company has the decision-making power regarding the development, exploration, and operation of the oil and gas field. [350] The regime

[343] Kirsten Bindemann, 'Production Sharing Agreements: An Economic Analysis' [1999] Oxford Institute for Energy Studies.

[344] See 'Coordinating Committee for Geoscience Programmes in East and Eastern Asia (CCOP)' (*ccop*) <http://www.ccop.or.th/> accessed 28 February 2020.

[345] See generally Bindemann (n 343).

[346] Radon (n 322).

[347] ibid.

[348] See generally Bindemann (n 343)

[349] Radon (n 322).

[350] Abbas Ghandi and CY Cynthia Lin, 'Oil and Gas Service Contracts around the World: A Review' (2014) 3 Energy Strategy Reviews 63.

actually establishes a state-monopoly on oil and gas exploration and production, while an oil and gas company only acts a service provider or contractor. Even though the state or its state-owned oil and gas company relies on the technical expertise and funding of the private oil and gas company, it still keeps the ownership of the oil and gas field as well as most portions of the production. The private oil and gas company may merely obtain a small proportion of the production to cover its costs and as a reward of its services.[351] Eventually, the state shares ownership of the production with the private oil and gas company. [352]

Since there is a profit-sharing mechanism between the private oil and gas company and the state (the state-owned oil and gas company), both parties are more likely to have objectives which focus on the maximization of profit. Under a profit-sharing regime, a skilful private oil and gas company has the decision-making power regarding the operation of exploration and production and further owns a certain amount of the oil and gas produced. Hence, the private oil and gas company will have a strong incentive to optimize operation. Meanwhile, as it owns an interest to the oil and gas produced, the state or the state-owned oil and gas company may be more willing to cooperate with the private oil and gas company. As a result, the private oil and gas company and its state-owned business partner are more likely to be aligned with each other and work together to obtain more profit under such a fiscal regime. [353]

As for a host state, although it owns an interest in the project, since it itself does not make substantial investment while all financial and operational risk is still borne by the private oil and gas company,[354] the state will not suffer any material loss other than the preliminary negotiation cost.[355] In addition, the state can further take advantage of the capital and expertise brought in by the private oil and gas company, which will

[351] Bret-Rouzaut (n 289)

[352] Ghandi and Lin (n 350).

[353] ibid.

[354] See also Alfarsi (n 326). Another advantage of a concession is that the lessee absorbs all financial risks, including the costs of oil exploration. In case there is a failure to determine the existence of an economically viable oil or gas reserve, financial burden is largely shouldered by the lessee.

[355] Radon (n 322) 0

accelerate the development of its state-owner oil and gas company as well as the local industry.[356]

Similar to concession, within a PSA regime, an oil and gas company undertakes most financial risks in the upstream exploration and production activities. Nevertheless, the state also bears some risks. For example, the state-owner oil and gas company may join the project, become an interested party under the PSA, and contribute part of its profits to the project.[357] Therefore, compared to a concession regime, under which the state tends to merely grant a license, the state may put more emphasis on contractual terms under a PSA regime. PSA is like an all-in-one contract, under which detailed terms regarding commercial, environmental, financial, legal, and technical should all involve professional negotiations by the relevant expert. This may be a disadvantage for the state, especially those in the emerging markets, as it may not have as much negotiation expertise and has much less data and knowledge of the oil and gas fields than the private oil and company does.[358] Such potential involvement of complexity is one of the remarkable challenge for the state,[359] especially those ones in the emerging market.

Another disadvantage to the parties, both the private oil and gas company and the state (including the state owned company), is inflexibility since parties will be restricted by the contract in a long-term period.[360] During the long-term duration, the local commercial, legal, and political climate may change. If this happens, the terms and conditions under the PSA may no longer fit into the new situation[361] and a rebalance of interests may be desired by one party or even both parties.

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[356] Svetlana Tsalik and Anya Schiffrin, *Covering Oil: A Reporter's Guide to Energy and Development* (OPEN SOCIETY INSTITUTE 2005)..

[357] Radon (n 322).

[358] ibid.

[359] See also Alfarsi (n 326). Another advantage of a concession is that the lessee absorbs all financial risks, including the costs of oil exploration. In case there is a failure to determine the existence of an economically viable oil or gas reserve, financial burden is largely shouldered by the lessee.

[360] Tsalik and Schiffrin (n 356).

[361] Bret-Rouzaut (n 289)

Among those contractual clauses, financial concern is a key element under a PSA. The state is likely to insist on strict supervision of the financial status of the private oil and gas company. Provisions such as purchase obligation, accounting and financial procedures, corporate guarantee, financial guarantees, financial and operational audit and state's rights (maybe via the state-owned company) of inspection are all core terms under a SPA.[362]

3.3.2.3. Service Contract

A service contract is a long-term contract that is used by some host countries to obtain expertise and financing from oil and gas companies, mainly big IOCs, without having to hand over the oil and gas reserve or ownership rights of the production to these contracted IOCs.[363] This mechanism was first created in Argentina in the 1950s.[364]

Under service contracts, there are several sub-categories. Risk service contracts grant the contracted company a share of oil or gas revenues. The key character of risk service contracts is that the host countries maintain the exclusive operating rights on the oil and gas reserves while IOCs offer all the capital and technology to explore and develop the reserves yet undertake all the risks.[365] A buy-back service contract offer an IOC a priority right to buy a portion of the oil and gas projects produced from the contracted

[362] 'Production Sharing Contract Between Sociedade Nacional De Combustíveis De Angola, Empresa Pública - (Sonangol, E.P.) and Cie Angola Block 20 Ltd., Sonangol Pesquisa E Produção, S.A., BP Exploration Angola (Kwanza Benguela) Limited, China Sonangol International Holding Limited' (*sec.gov*) <https://www.sec.gov/Archives/edgar/data/1471261/000104746912001183/a2207234zex-10_20.htm> accessed 28 February 2020.

[363] Ghandi and Lin (n 350)., Ernest E Smith, 'Service Contracts, Technology Transfers, and Related Issues', *INTERNATIONAL PETROLEUM TRANSACTION* (2nd edn, Rocky Mountain Mineral Law Foundation 2000).

[364] See also Alfarsi (n 326).

[365] D Luo and X Zhao, 'Modeling Optimal Oil Production Paths under Risk Service Contracts' [2013] Petroleum Science 596.

reserve with a discounted rate. Under a technical service contract, an IOC will provide the host country purely with its technical expertise in the exchange of a commission.[366]

Although service contracts were used less in volume by countries and areas than concessions or PSAs. They are still quite popular ones, especially in countries and areas with massive oil and gas reserves in the South America as well as Middle East. They have become more popular choices since 2008 while countries and areas abandoned previous concessions or PSAs.[367] The increasing preference of service contracts might be due to the increased sovereignty concerns on the one side, and the demand for capital and know-how[368] in developing upstream offshore oil and gas projects in the host countries on the other side. [369]

Service contracts may offer the contracted IOCs with stable service fee, especially under those ones with fixed service fee[370] and even be quite profitable if a portion of oil or gas revenues is granted to the contracted IOCs. In some countries where mineral rights are strictly control by government or the state-owned companies, service contract is the only available type of agreement offered to foreign IOCs.[371]

Nevertheless, not every oil and gas company is capable of entering into service contracts. Those contracts are usually for large IOCs. Smaller IOCs, independent oil and gas companies or juniors could not afford the risks under a service contract as the contracted company has to bear substantial operational as well as financial risks on the

366 Ataka Valentine, 'THE FEATURES & MERITS OF PRODUCTION SHARING AGREEMENTS WITH SERVICE CONTRACTS FROM THE VIEW POINT OF AN IOC' [2013] Business, Economy & Finance 7.

367 Luo and Zhao (n 365).

368 By involving the IOCs under service contracts, host countries, especially those in the emerging markets, will not only be benefit from the capital contributed by large ICOs, but also the know-how owned by those ICOs. Sometimes, the know-how means a boarder concept than just technical expertise. It also consists of project management skills as for how the capital is used for the contracted oil and gas projects. Ghandi and Lin (n 350)., Jingchen Hou and Andy Neely, 'Investigating Risks of Outcome-Based Service Contracts from a Provider's Perspective' (2018) 56 International Journal of Production Research 2109

369 ibid.

370 Helmut A Merklein, 'Iraq Contract Options' (2009) 52 Middle East Economic Survey.

371 Karla Urdaneta (n326);Smith (n 363).

project. If there is no oil or gas is found, the contracted company may have to undertake all the costs.[372]

3.3.2.4. Limited Bargaining Power Hold by Oil and Gas Companies under Fiscal Agreements

While an oil and gas company may not have sufficient bargaining power over its financiers (especially for middle and independent oil and gas companies under recent market situations, where the price is not high), the bargaining power hold by an oil and gas company is also not so strong when trying to get favourable terms in fiscal agreements. Even though, in the pre-contract negotiation stage, an oil and gas company may have know-how or capital and thus may be able to get some favourable terms. In the post-contract performance period, the government surely has more strong bargaining power and can even break its promise. The riskiest issue faced by the oil and gas company is whether the host country could fulfil its promise under the agreement. In emerging markets, where local governments and legal environment are not so stable, transparent, or predictable, the oil and gas company is always bearing high legal and political risks which may cause undesired or even adverse changes in the local investment environment. Unfortunately, as might be expected, there may not be much room for an oil and gas to obtain favourable terms in a re-negotiation period.

It is possible for an oil and gas company to ask for a stabilisation clause and thus impose an obligation on the host country or its sate-own entities not to alter contract terms, either by legislation or by other means, without the mutual consensus from the contracting parties.[373] Theoretically, stabilisation clauses aim to provide protection for oil and companies against political risk as well as assure legal certainty. [374] Nevertheless, in reality, as a contract term, stabilization clause tends to yield to state

[372] See also Alfarsi (n 326).

[373] Margarita TB Coale, 'Stabilisation Clauses in International Petroleum Transactions' [2003] journal of international law and policy 217.; Thomas W Waelde and George Ndi, 'Stabilising International Investment Commitments: International Law versus Contract Interpretation' (1996) 67 Texas international law journal 215..

[374] Abdullah and Faruque (n 105)321; A stabilization clause, as a kind of government guarantee, is designed against arbitrary raising of taxation, changes of fiscal regimes, legislation amendments, expropriation and any other type of intervention by the host country. Mato (n 105) 34

sovereignty and public interest of the host country.[375] Even though an oil and gas company may successfully obtain a wining judgement or arbitral award, it may find that the enforcement is almost impossible in the host country. In a worst scenario, it is very realistic that the oil and company in question would be exiled by the host country.[376]

3.3.3. Contracts and Relationship with the Service Provider

After obtaining the right to explore and develop the field and confirming the high possibility of the existence of petroleum after the seismic survey, an oil and gas company needs to drill an exploration well to confirm whether petroleum actually exists and to ascertain the quantity. At this stage, a wide range of service contractors will be involved. Among them, two major kinds are drilling rigs and floating production storage and offloading units (FPSOs). In practice, it is more common that an oil and gas company recruits such equipment and services from a service provider.[377]

3.3.3.1. Drilling Rigs

The types of drilling rigs are different between offshore and onshore rigs. In the offshore sector, the main rig types included are deep-water semi-submersible, drill ship, jackups, platform rigs, posted barge and submersibles, semi-submersibles, ultra-deep-water drill ships, etc.[378] When hiring a drilling rig various types of contracts may be used, such as day-rate, turnkey, footage, inventive, etc. [379]

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[375] Abdullah and Faruque (n 105) 321. Stabilization clause tends to yield to state sovereignty and public interest of the host country. Nevertheless, if the host country is a Contracting Party of the Energy Charter Treaty, an oil and gas may still be able to start dispute resolution on the Energy Charter Treaty terms. Under the Energy Charter Treaty, an oil and gas company, as an investor, has the right to seek arbitration or other dispute resolution mechanism. The mechanism of arbitration is set out in Article 26 of the Energy Charter Treaty and is arguably the most significant. Kaj Hobér, 'Investment Arbitration and the Energy Charter Treaty' [2010] Journal of International Dispute Settlement 153.

[376] Mansour and Nakhle (n 86) 17.

[377] Peter Robert, *Oil and Gas Contracts: Principles and Practice* (1st edn, Sweet & Maxwell 2016).

[378] ibid.

[379] ibid.

Day-rate

Under a day-rate contract, an oil and gas company pays a contractor a stipulated rate for a 24-hour period, no matter how long it will take the contractor to complete the drilling. The rates depend on the type of rig recruited, the number of the workers involved, ancillary equipment needed, etc. In addition, the fee for mobilization and demobilization may be paid in a lump sum or still be a daily rate for the period of the move. The rates may change at different stages of the contract's duration, for example, the "standby time", when the rig in on site but does not drill. [380]

Traditionally, in a day-rate contract, the contractor works under the instruction of an oil and gas company and bears very limited risks, such as the risk of safety of the rig and its personnel. An oil and gas company, as the operator, assumes most of the risks, for example, the risk of delay, the design of the reservoir, and liabilities which are not assumed by the contractors remains with the contractor. [381]

However, modern forms, especially those operator-oriented ones, have tried to transfer more risk to the contractors. Some modern forms try to alter the operator-contractor relationship under which a contractor is only directed by the operator. These modern forms adapt new mechanism under which a contractor works as an independent contractor[382] and the operator focuses only on the results obtained.[383]

As for the financial perspective, since it is paid by a day rate, there is no financial incentive for the contractor to complete the drilling more quickly which may negatively affect the cost which should be paid by an oil and gas company.[384] In order to solve this problem, inventive contracts appear. They are just a variation of day-rate contracts.

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[380] ibid., Owen L Anderson, 'The Anatomy of an Oil and Gas Drilling Contract' [1990] Tulsa Law Review359.

[381] Robert (n 377); Anderson (n 380)

[382] See, for example, API DRILLING CONTRACT, IADC daywork form

[383]Robert (n 377) , Anderson (n 380)374.

[384] 'Upstream Oil and Gas Drilling Rig Contractors' (*EKT INTERACTIVE*) <https://www.ektinteractive.com/upstream-oil-and-gas-drilling-rig-contractors/> accessed 28 February 2020

Under an inventive scheme, the parties agree a duration in which the drilling operation should be finished while reward will be given to the contractor if the completion is made ahead or on time. If there is a delay, due to the contractor's fault, liquidated damages should be paid by the contractor to the operator.[385]

Turnkey

Turnkey contracts are more often tailored to specific conditions. Under a turnkey contract, a lump sum fee is paid by the operator to the contractor for drilling a well to a specified formation. The operator is responsible for designing the well and a deadline for the drilling will be fixed by the operator. Prior to starting the drilling, an oil company needs to draw up a drilling specification, which could be very time-consuming and expensive.[386] The contractor who finishes the drilling will simply turn the key to the operator who then starts the production. However, a contractor does not guarantee the production of the well. [387]

Compared to a day-rate contract, the contractor assumes more risk under a turnkey contract. As the operator yields much of the flexibility during the drilling period,[388] the contractor should assume those operational and budget risks. As it controls all the drilling operations, a contractor has to make contracts on its own regarding all associated well services. Nevertheless, an operator may still bear the risk of loss caused by the operator's negligence, the risk of loss of the operator's equipment, the risk of damage to the oil and gas property, etc. [389]

[385] Robert (n 377).

[386] Corts, K., 'Turnkey Contracts as a Response to Incentive Problems: Evidence from the Offshore Drilling Industry'(2000)Harvard University, Working paper. Osmundsen, Sørenes and Toft (n 302).

[387] Anderson (n 380)378.

[388] Corts (n 381); Osmundsen, Sørenes and Toft (n 302).

[389] Anderson (n 380)379.

As a contractor is paid by a lump sum fee, a turnkey contract gives the contractor more incentive to reduce cost, thus it may help an oil and gas company to reduce its drilling costs.[390]

Footage

Under a footage contract, a contractor is paid by a stipulated rate per foot drilled from the surface through a certain depth or for some other prescribed objective. [391] Footage contracts are more commonly used in drilling more mature fields and more often found in the United Kingdom Continental Shelf ("UKCS").[392]

In a footage contract, a contractor assumes more general drilling than under a daywork contract.[393] A footage contract is similar to a day-rate contract, but payment is made based on the specified rate per foot rather than per day. Nevertheless, a footage contract may also contain provisions requesting daywork compensation. That is to say under a footage contract, daywork rate may also apply. When this happens, i.e. the drilling is done based on a daywork rate as per daywork provisions under a footage contract, the operator, rather than the contractor, bears the general risks of drilling. In this situation, the contractor assumes only those risks that would be specifically assumed under a daywork contract. To avoid any potential dispute between the operator and the contractor as for which rate should apply to certain work, careful and precious drafting should be used to specify the situations under which daywork rates apply.[394]

A footage contract can be used to give contractors more incentives to drill faster and more efficiently as the contractor is paid for every foot drilled. Meanwhile, however, the operator needs to pay special attention to the safety and compliance issues in the drilling activities.[395] Besides, under some circumstances, such as when some difficult

390 Corts (n 381); Osmundsen, Sørenes and Toft (n 302).

391 Anderson (n 380)376.

392 'Upstream Oil and Gas Drilling Rig Contractors' (n 384); Robert (n 377)

393 Anderson (n 380)377.

394 Anderson (n 380)377.

395 'Upstream Oil and Gas Drilling Rig Contractors' (n 384).

reservoir conditions exist, the operator may also want to slow down in order to be more careful.[396]

Choice among the Three

The above mentioned three types are mostly chosen by oil and gas companies, depending on the market conditions, types of well being drilled, and operational preference and risk assessment. [397]

Traditionally, the day-rate contract has been deemed as more favourable to the contractor than the footage or turnkey contract as the contractor assumes less risk. However, this advantage may be diminished in some modern forms since the operators have tried to shift risks to the contractors and some contractors have even found that, though riskier, footage and turnkey contracts could be more profitable.[398]

Day-rate contracts are widely used in a buyer's market where the demand for drilling is high. When the market demand is high, a contractor may request a day-rate contract, especially when the rigs are tailored for a particular project.[399] Besides, after repeated business relationships established between an oil company and a drilling contractor, a day-rate contract, rather than the turnkey one, is more likely to be concluded between the two parties. In such circumstances, the established cooperative relationships and mutual trust between the parties can reduce the incentive problems under a day-rate contract.[400] Day-rate contracts are also more frequently found when the risks relating to the drilling are particularly high. [401]

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[396] Robert (n 377)

[397] 'Upstream Oil and Gas Drilling Rig Contractors' (n 384).

[398] Anderson (n 380)375.

[399] Anderson (n 380)376.

[400]KS Corts and J Singh, 'The Effect of Repeated Interaction on Contract Choice: Evidence from Offshore Drilling' (2004) 20 Journal of Law, Economics, and Organization 230.; Osmundsen, Sørenes and Toft (n 302).

[401] Anderson (n 380).377

Nevertheless, when the oil price is low and in a slow oil-patch economy, an operator may try to get a footage or turnkey contract in order to obtain a competitive price and transfer the drilling risk to the contractor.[402] However, as mentioned above, the choice of contract types really depends on the market conditions, and a contractor may find a footage contract or turnkey contract even more profitable even in a typical day-rate condition.[403]

3.3.3.2. Floating Production Storage and Offloading Vessels

Floating Production Storage and Offloading vessels ("FPSOs") are specialised vessels for the production and storage of oil located in offshore fields, either shallow or deepwater projects. They were first used in 1977 by Shell on its Castellion field in Spain Mediterranean.[404] The vessels have processing facilities for the separation, storage and offloading of oil and gas produced from offshore oil wells or platforms. During the processing, oil and gas is safely stored in the FPSO before being transported ashore by tankers or pipelines. In addition to processing equipment, FPSOs may also have accommodation for crew and even recreational facilities. [405]

The market for FPSOs is not a spot one and even large oil and gas companies only have a few FPSO contracts. The FPSO Contract is a long-term one which can be 3-4 times longer than for other units.[406] Compared to rigs or fixed platforms, FPSOs have quite

[402] Robert (n 377)

[403] Anderson (n 380) 377

[404] UNCTAD and ITE PLC, 'THE FINANCING ASPECTS OF THE ACQUISITION OF FPSOs – a Legal Perspective' (2003) <http://www.trp-ng.com/pdf-files/The%20Financing%20Aspects%20of%20the%20acqusition%20of%20FPSOs-%20a%20legal%20perspective.pdf> accessed 28 February 2020.

[405] Adam Muspratt, 'Guide to FPSO (Floating Production Storage and Offloading)' (*OPEX*, 19 July 2018) <https://www.oilandgasiq.com/fpso-flng/articles/guide-to-floating-production-storage-and-offloading-fpso> accessed 28 February 2020

[406] Jeffrey A Sim, 'THE STANDARDIZED FPSO CONTRACT' (2015).

a few advantages and become more and more popular. [407] They have been regarded as the future of offshore oil and gas projects.

Reduced Investment with Quicker Profits.

FPSO conversions or newbuilds could be substantially cheaper than rigs.[408] Besides, by using FPSOs, oil and gas companies will not have to construct permanent facilities such as pipelines and can utilise FPSOs to store oil and gas then offload it to tankers for transportation.[409] While lessening overheads, FPSOs also have fast roll-out, which guarantees quicker profits.[410]

Mobility with Coping Capacity for Harsh Weather and Marginal Fields

An FPSO can move and navigate on its own. The mobility ensures that FPSOs can evade perilous weather conditions. In addition, as mobile units, FPSOs are ideal for marginal fields. For example, smaller fields that will be exhausted rapidly or those remote areas far from the general infrastructure facilities. Once the source of oil and gas has levelled out in a particular field, a FPSO unit can navigate to the next targeted site.[411]

Safer and More Environmentally Friendly

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[407] Huixing Meng, 'Production Availability Analysis of Floating Production Storage and Offloading (FPSO) Systems' (2018) 74 Applied Ocean Research 117

[408] For example, the rig, Deepwater Horizon, costed for $560 million in 2001 while the largest FPSO in operation today, Exxon's Kizomba A, costs $800 million to construct, yet can be easily refitted. See '10 Reasons Why FPSOs Are the Future of Oil and Gas' (*Oil & Gas IQ*) <https://www.oilandgasiq.com/oil-gas/news/ten-reasons-why-fpsos-are-the-future-of-oil-and-ga> accessed 28 February 2020

[409] Muspratt (n 400)

[410] Averagely, the construction of semi-submersible oil rig will take 3-4 years while a jack-up rig will take 2-3 years. In contrast, a FPSO could be rolled out in months and even less if the conversion is made based on an existing vessel. '10 Reasons Why FPSOs Are the Future of Oil and Gas' (n 403); The FPSO Network, 'FPSO 2019: The State of the Market' (*UPSTREAM*, 21 June 2019) <https://www.upstreamonline.com/sponsor-content/fpso-2019-the-state-of-the-market/2-1-625946> accessed 28 February 2020.

[411] '10 Reasons Why FPSOs Are the Future of Oil and Gas' (n 403); Muspratt (n 400)

Unlike fixed platforms, in severe weather conditions, FPSOs can be disconnected from the pipelines or wells they are moored to. This ensures the safety of the crew. When compared to rigs, which have been used for decades with permanent ecological footprints, FPSOs can be designed and conversed into more environmentally friendly models. [412] This could be a significant advantage when attracting financial institutions which commit to climate alignment.[413]

Lessening Asset Integrity Costs

The three aspects as mentioned above have already shown that FPSOs can be very cost-effective. In addition, the decommissioning costs of FPSOs are less than for fixed platforms as FPSOs substantially reduce the abandonment expenditure as few permanent facilities have to be depleted. With smaller crews, fewer fixed facilities, the ability to adapt into adverse weather, the mobility from site to site, less safety and

[412] ibid ; Muspratt (n 400)

[413] For example, due to expected impact of IMO 2020 regulations (a new cap by the International Maritime Organisation ("IMO") on sulphur content in marine fuels, which mandates a 0.50% global sulphur cap for marine fuels), some players have already moved into the FPSOs market. See 'Half Year Report 2019' (Euronav 2019) <https://www.euronav.com/media/65786/20190820_euronav_halfjaarverslag-2019_en_lr-final.pdf> accessed 16 March 2020. . In response to shipping and sustainable finance, 18 leading banks (ABN Amro, Amsterdam Trade Bank, BNP Paribas, Bpifrance Assurance Export, Citi, Credit Agricole CIB, Credit Industriel et Commercial, Credit Suisse, Danish Ship Finance, Danske Bank, DNB, DVB, Export Credit Norway, ING, Nordea, Société Générale, and Sparebanken Vest), jointly representing approximately $ 150 billion in shipping finance, have committed to the Poseidon Principles. The Poseidon Principles aim to enable financial institutions to align their portfolios with responsible environmental impacts. The four Principles are: assessment of climate alignment, accountability, enforcement, and transparency. The Principles aim to gather a group of aligned financial institutions to commit to integrate climate considerations into lending decisions in ship finance. Although the Principles do not mandatory apply to FPSOs (the Principles must be applied by Signatories in business activities where a vessel or vessels are subject to the IMO Data Collection System. This System does not apply to FPSOs), it indicates a future tendency that financiers will have to integrate environment considerations into their financing decisions. See 'Half Year Report 2019' (Euronav 2019) <https://www.euronav.com/media/65786/20190820_euronav_halfjaarverslag-2019_en_lr-final.pdf> accessed 16 March 2020. , Poseidon principles, 'SIGNATORIES' (*poseidonprinciples*) <https://www.poseidonprinciples.org/signatories/> accessed 16 March 2020

'IMO Data Collection System (DCS) - FAQ' (*verifavia-shipping*, 2018) <https://www.verifavia-shipping.com/shipping-carbon-emissions-verification/news-imo-data-collection-system-dcs-faq-367.php> accessed 16 March 2020.

environment concerns, FPSOs solve the problem of asset integrity in offshore projects.[414]

Still, every coin has two sides and FPSOs also have some limitations, such as conversion time, self-competition, initial cost, etc. Nevertheless, considering their numerous advantages, FPSOs are becoming more and more popular all over the world. Statistics showed that the number of FPSOs has increased by 33% in the last ten years — from 151 units, by the end of 2009, to 201 units, by the end of 2018.[415] It is also very convenient for oil and gas companies to use an FPSO. They can employ or lease an FPSO based on their own individual circumstances.[416] Leasing FPSOs gives oil and gas companies greater flexibility when reacting to market conditions.[417]

3.3.3.3. The Importance of Cost Reduction under the Overall Financing Strategy for Offshore Oil and Gas Projects

Investment on an offshore drilling rig or FPSO project can cost millions.[418] The main relationship between drilling or FPSO contracts and financing of upstream offshore projects is that drilling or FPSO is one of the major costs for those projects. Therefore, cost reduction may bring a positive contribution to a smooth financing arrangement. Depending on the varied local environment (including social, legal, commercial perspectives) of the field, capital expenditure structures may vary substantially. Such

[414] '10 Reasons Why FPSOs Are the Future of Oil and Gas'(n 408); Muspratt (n 405)

[415] Growth in the FPSO Sector and Outlook for New Orders, February 12, 2019, http://imastudies.com/Articles/Article/growth-in-the-fpso-sector-and---outlook-for-new-orders-500038

[416] Muspratt (n 405)

[417] ibid

[418] 'Upstream Oil and Gas Drilling Rig Contractors' (n 384). The typical capital expenditure (CAPEX) of an FPSO is around $700m, see '2018 State of the FPSO Nation Report' (*Oil & Gas IQ*, 27 June 2018) <https://www.oilandgasiq.com/fpso-flng/whitepapers/2018-state-of-the-fpso-nation-report> accessed 28 February 2020

diversification further emphasizes the relative importance of cost control in the overall financing arrangement.[419]

When financing a rig or FPSO project, a financier will consider the type of oil company involved (i.e. whether it is a multi-national, national or independent oil and gas company); risk exposure of the oil company; types of the fiscal regimes obtained from the host government (i.e. whether it is a concession, PSA, or risk service contract, plus the terms and conditions); taxation; types of field; duration of the lifecycle of the field; etc.[420]

In addition to the above-mentioned elements, a financier will further focus on the return on investment. The drilling cost is a substantial part when considering the potential return on investment.[421] For example, for a large gas field, reducing drilling costs by 50% can reduce initial project breakeven by up to 17 million USD per billion cubic metres (MUSD/BCM) and mid-plateau breakeven by up to 8 MUSD/BCM.[422] When considering cost reduction in a drilling rig or FPSO contract, technical advancement is very crucial and plays a decisive role. Field practises have proven that automation can

[419] Daniel JG Crow and others, 'Impact of Drilling Costs on the US Gas Industry: Prospects for Automation' [2018] Energies 4

[420] UNCTAD and ITE PLC (n 404)

[421] Daniel JG Crow and others (n 419)11

[422] ibid 4

reduce the time to drill wells, thus substantially reducing drilling costs.[423] Besides, digitization[424] and drone technologies can also dramatically reduce costs.[425]

From a cost-saving perspective, although an oil and gas company can still utilize a contractual approach to reduce cost, such a reduction is limited and more from a risk management perspective. Under the relationship with the service providers, substantial cost reduction may expect from the use of modern technology.

In its relationship with the service providers, special attention should be paid by oil and gas companies to smooth operation of all the technical equipment and how to reduce operational and capital expenditure. Although an oil and gas company can still utilize a contractual approach to reduce such kinds of cost, such reduction is limited and more from a risk management perspective. Substantial reduction may expect from the use of modern technology, such as automation which will provide an oil and gas company with more inefficacy in a cost-effective way.

3.3.4. Contracts and Relationship with the Downstream Buyer

For an oil and gas company, profits normally derive from the revenue of sales. Thus, another important relationship steps into the supply chain. That is the sale and purchase agreement between the oil and gas company and its downstream buyer.[426]

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[423] ibid1

[424] Digitisation, includes but not limited to 4D seismic imaging, fleet big data and analytics tools, mobile technology, autonomous operations and robotics, blockchain, cybersecurity solutions, digitally enabled marketing and distribution, can be used to increase operational efficiency, promote sustainable production with a reduced financial cost. See Oil & Gas: Transforming through digital technology, 'Oil & Gas: Transforming through Digital Technology' (*Oil & Gas IQ*, 7 June 2018) <https://www.oilandgasiq.com/market-outlook/whitepapers/oil-gas-transforming-through-digital-technology> accessed 28 February 2020; Here and now: 'KwIDF GC1 in South East Kuwait' (*kockw*) <https://www.kockw.com/KWIDF/Pages/South%20and%20East%20Kuwait/News/KwIDF-South-East-Kuwait.aspx> accessed 28 February 2020 ; Hongfang Lu and others, 'Oil and Gas 4.0 Era: A Systematic Review and Outlook' (2019) 11 Computers in Industry 69.

[425] 'Oil & Gas: Transforming through Digital Technology' (n 424); '2018 State of the FPSO Nation Report' (n 418)

[426] The downstream buyer here refers to any party buying oil and gas products directly from the oil and gas company at a lower level of the supply chain. The downstream sales contracts here refer to contracts

3.3.4.1. Crude Oil Sales Contracts

Generally speaking, there are three major types of crude oil sales contracts, the term agreements, the evergreen agreements, and the spot/strip agreements. Under a term agreement, the sale of crude oil is made for a defined term, supplying for firm or option cargoes as negotiated. An evergreen agreement exists immutably between the parties till one of them terminates the relationship as per the contractual terms. A spot agreement is for sale of a single cargo while a strip agreement is for a defined amount of cargoes.[427]

Despite being traded as commodity widely and internationally, there is no internationally accepted standard contract for the sale and purchase of crude oil. Most of the major oil and gas companies have their bespoke and tailored contract templates.[428] A crude oil sales contract usually contains two parts, the "general terms and conditions" and the "special terms and conditions". The "general terms and conditions" set forth a comprehensive set of the functioning administrative and legal terms whereas the "special terms and conditions" are tailed to suit commercial terms for an individual transaction. Normally, in case of an inconsistency or even conflict between the "general terms and conditions" and the "special terms and conditions", the "special terms and conditions" prevails.[429]

concluded by parties for the physical sale of oil and gas products rather than those deal with derivative ones.

[427] Robert (n 377)

[428] Roberts (n 115)

[429] Robert (n 377)

As for "general terms and conditions", Shell International Trading and Shipping Company Ltd[430], Equinor[431], and BP Oil International Ltd[432] have published or updated their model forms in 2010, 2011, and 2015 respectively. At an industry-level, the Energy Institute has also published its model forms for CIF/CFR and FOB crude oil sales.[433] These are all "general terms and conditions" while the "special terms and conditions" are more transaction-specific and thus not publicly accessible.[434]

Typical provisions under a crude oil sales contract include, but are not limited to: the quantity of crude oil to be sold and purchased, the required quality of the crude oil, the price payable for the crude oil, payment and credit support, measurement of the crude oil, off-specification cargo claims, delivery of the cargo, shipping provisions, implied terms in the contract, restricted destination provisions, force majeure, limitation of liability between the parties, termination and suspension rights, transfer of interests between the parties, law and dispute resolution, miscellaneous provisions.[435] While terms and conditions of crude oil sales contract terms are generally similar even in

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[430] 'Shell International Trading and Shipping Company Limited General Terms & Conditions for Sales and Purchases of Crude Oil' (2010) <https://www.shell.com/business-customers/trading-and-supply/trading/general-trading-terms-and-conditions/_jcr_content/par/textimage.stream/1519764829436/c65ffb5a41871c11c56d42f380b35c23561cd71e/shell-crude-2010.pdf> accessed 28 February 2020.

[431] Formerly known as Statoil.<https://www.equinor.com/content/dam/statoil/documents/conditions-of-sale/Statoil-ASA-General-Terms-and-Conditions-for-Sales-2011-version-6-May.pdf> accessed 28 February 2020

[432] https://www.bp.com/content/dam/bp-trading/en/global/trading/Documents/BPTradingGTCs/BP%20Oil%20GTCs%202015%20-%20version%201.1.pdf

[433] CIF/CFR: 'HM 81. Model General Terms and Conditions for Cost, Insurance and Freight (CIF) and Cost and Freight (CFR) Sale and Purchase of Crude Oil' (*energy institute*, July 2016) <https://publishing.energyinst.org/topics/hydrocarbon-management/model-training-contracts/hm-81-model-general-terms-and-conditions-for-cost,-insurance-and-freight-cif-and-cost-and-freight-cfr-sale-and-purchase-of-crude-oil> accessed 28 February 2020 ; FOB: 'HM 80. Model General Terms and Conditions for Free on Board (FOB) Sale and Purchase of Crude Oil' (*energy institute*, July 2016) <https://publishing.energyinst.org/topics/hydrocarbon-management/model-training-contracts/hm-80-model-general-terms-and-conditions-for-free-on-board-fob-sale-and-purchase-of-crude-oil> accessed 28 February 2020

[434] Robert (n 379)

[435] ibid

diversified markets and market participants, some key difference should also be aware of.[436]

3.3.4.2. Natural Gas Sale Contracts

Natural gas can be sold in different forms, such as row gas, manufactured gas, liquified natural gas ("LNG"), liquefied petroleum gas ("LPG"), and condensed natural gas ("CNG").[437] Whilst a major amount of crude oil is traded directly or indirectly via liquid markets worldwide. By comparison, as it is more difficult to transport, natural gas tends to be bought and sold on in local or regional markets.[438] Globally, there are four major types of gas markets, gas-on-gas (US, UK Canada), prices indexed to substitute energy prices (continental Europe, South East Asia), oil-linked price markets (Japan, Korea), and regulated markets(Middle East, Russia, China). The unique characteristics of such markets will influence the transaction structure and reflect in the contract terms. [439]

As for gas sales, a sales contract could solely depend on the negotiation between the parties, it could also rely on the model forms contract. Currently, the most popular standard gas sales contracts include, but are not limited to, AIPN The Model Gas Sales

[436] Robert (n 377)

[437] ibid

[438] Over 90% of natural gas is transported by pipeline. http://www.natgas.info/gas-information/what-is-natural-gas/gas-pricing-contracts

[439] 'Gas Pricing & Contract' (*natgas.info*) <http://www.natgas.info/gas-information/what-is-natural-gas/gas-pricing-contracts> accessed 28 February 2020.

Agreement ("MGSA") [440], APIN Master LNG SPA[441], Beach 2015[442], and GIIGNL Master LNG Sales Agreement[443]. Parties sometimes also hybrid terms from different model forms. In practice, sophisticated players have their own preferred templates.[444]

Key contractual terms under a gas sales contract include but are not limited to: the nature of the gas to be sold, the quantities of gas to be sold, the buyer's purchase commitment, transportation and delivery, nominations and scheduling, price and

[440] The MGSA is a standard form for the sale and purchase of natural gas which will be delivered to pipeline network, LNG liquefaction plant, power station, etc. The MGSA is neither in favour of the buyer or the seller, but rather reflects as a balanced contract constituting of a sort of alternative agreements of common issues for the contracting parties to choose from and extra optional terms for incorporation if necessary. The MGSA focuses on gas sales based on continuous deliveries and offers options for alternative delivery choices.

<https://www.aipn.org/forms/store/ProductFormPublic/gas-sales-agreement> accessed 28 February 2020

[441] The LNG master sales agreement ("MSA") is designed to be used for spot market of LNG sales and entertains transportation by the Buyer ("FOB") or by the Seller ("DAP" or "DAT"). Like other master agreements, parties under the MSA would enter into the Base Contract, containing a checklist of the MSA options and alternative terms confirmed by the contracting parties, and incorporating the terms under the MSA by reference. Upon concluding the Base Contract, the MSA enters into force but the purchase and sell obligations will not come into effect until certain time, if any, as the parties or their affiliated ones will sign a confirmation memorandum stipulating the commercial terms of specific goods. In line with other AIPN model contracts, the MSA is designed to balance both the interests of the buyer and the seller, being flexible enough for transactions in any geographical area. The alternative terms and options contained in the MSA offer the buyer and seller with great flexibility to personalise the standard forms to meet their individual needs.

<https://www.aipn.org/forms/store/ProductFormPublic/lng-master-sales-and-purchase-agreement-2012> accessed 28 February 2020

[442] The Standard Terms and Conditions for the Sale and Purchase of Natural Gas for UK Short Term Deliveries at the Beach 2000 (the "Beach 2000 Terms") have been the standard terms for gas trading gas for delivery at entry points to the UK national transmission system. Updated versions of the Beach 2000 Terms, i.e. Beach 2015 Terms, have been published.

<https://www.gasgovernance.co.uk/sites/default/files/ggf/Beach%202015%20%286_6%29.pdf> accessed 28 February 2020

[443] This Master LNG Sales Agreement was made by the International Group of Liquefied Natural Gas Importers in 2011. Users can choose from the DES and FOB version of this agreement.

<https://giignl.org/system/files/111231giignl_des_msa2011_final_.pdf> accessed 28 February 2020

[444] Robert (n 377)

payment, the seller's delivery failure liability, impossibility of performance (force majeure), transfer of interests, term, termination events, dispute resolution, liability allocation, operational provisions, boilerplate.[445]

Because of its long-term nature, comparing to crude oil sales contracts, gas sales contracts have two unique issues which should be considered when entering into the contracts, namely the choices between "firm" or "option" contracts, and "depletion-based" or "supply-based" contracts.[446]

"Firm" or "Option" Contracts

Under a firm contract, the seller is subject to a stricter obligation of gas supply than the buyer and shall be liable to the buyer as per the agreed remedy under the contract. Under an option contract, the seller enjoys greater flexibility relating its performance to supplying gas. "Delivery or pay" is a common term which exists in an option contract. Such a clause gives the seller a right not to supply gas by paying the agreed monetary compensation to the buyer instead.

The MSA structure is deemed as a compromise between firm and option contracts. Under such a contractual structure, parties are not obliged to sell or buy gas. Upon planning to trade, the parties will formulate an ancillary transaction schedule[447], under which transaction-specific items, such as the detailed price, delivery point and period, quantity, etc., will be stipulated as a supplementary to the general terms of the original MSA.[448]

"Depletion-based" or "Supply-based" Contracts

[445] Robert (n 377)

[446] US Energy Information administration, 'Natural Gas Power Plants Purchase Fuel Using Different Types of Contracts' (*TODAY IN ENERGY*, 2018) <https://www.eia.gov/todayinenergy/detail.php?id=35112> accessed 28 February 2020

[447] Often known as the "confirmation notice"

[448] Robert (n 377)

For raw gas, the sales contracts can be structured as a "depletion-based contract" or as a "supply-based contract".[449] Under a depletion contract, also known as a dedication contract or an output contract, the seller dedicates a nominated gas field to the buyer with the entire production or at least a substantial percentage of the field to a buyer. [450] In a supply contract, for a fixed term (typically 20 to 25 years), a seller commits to provide its buyer with a fixed volume of gas. The seller, either from its own reserves or from third parties, have to source the gas, if its own reserve is insufficient to fulfil the obligations.[451]

For long term gas sales, from the seller's perspective, especially in a situation where the seller also conducts the exploration and production of the gas field, the seller may want to create a depletion-based contract with a significant take or pay commitment. Thus, the seller can use such contractual commitments from the buyer as collateral to secure its investment and this will also help the seller to attract more investors in its financing arrangements.[452]

Although the depletion-based contract is more traditional, there has also been a trend towards supply-based contracts. One possible reason is that the deregulation and fragmentation of the gas market makes gas markets more integrated and liberalized, making more possible and attractive for the private sector to step into the development of the gas production and transportation infrastructure. [453] With the increased

[449]Efe Uzezi Azaino, 'Natural Gas Contracts: Do Take or Pay Clauses Fall Foul of the Rule Against Penalties?' (2013) 16 CEPMLP Annual Review - CAR.

[450] Robert (n 377)

[451] http://www.natgas.info/gas-information/what-is-natural-gas/gas-pricing-contracts

[452] Robert (n 377)

[453] Via respective reviews and relevant regulatory interventions and amendments, deregulation in the UK gas industry has built up one of the most liberalized gas markets all over the world. Meanwhile, through almost 30 years of deregulation, the US gas market also becomes to be a highly integrated and competitive market. Yanrui WU, 'Gas Market Integration: Global Trends and Implications for the EAS Region' [2011] ERIA Discussion Paper Series 6; Mohammadi Hassan, 'Market Integration and Price Transmission in the U.S. Natural Gas Market: From the Wellhead to End Use Markets' [2011] Energy Economics 227.

production and transportation, facilities are built, the seller has more options for those activities and might come to favour trading gas under a supply-based contract. [454]

A popular view is that with a more stable supply, supply-based contracts favour the buyer while depletion-based contracts favour the seller as they are structured to insulate against non-performance. However, such analysis may be too simplified as it ignores that in reality, parties will negotiate with each other and such a negotiation process will re-balance the contractual rights and obligations between the parties so as to reach a more equal allocation of rights, obligations, and risks between the parties.[455]

3.3.4.3. Downstream Sales as the Economic Core of Upstream Offshore Oil and Gas Projects

Under an upstream offshore project, contracts in the same chain are related to each other. While spending money on most of the stages, an oil and gas company finally may make profits by selling the petroleum products. The value of petroleum products[456] is materialised through sales contracts.[457] Downstream sales contracts play a key role in connection with the financing arrangement because they represent the revenue owned by an oil and gas company as the seller.[458] The economic core of an offshore oil and gas project is the downstream sales contracts. These contracts enable an oil and gas company to exchange the produced petroleum for money. The revenue gained from the sales, hopefully, can be sufficient for the oil and gas company to recover its costs and to further gain a profit. Therefore, it can be said that the downstream sales contract strengthens the economics of the entire projects.[459]

This makes the downstream sales contracts even more important as an oil and gas company will rely on the revenue to payback its expense as well as make profits. It is

[454] Robert (n 377)

[455] ibid

[456] For example, crude oil, natural gas, liquified natural gas.

[457] Roberts (n 115)

[458] ibid

[459] ibid

too simple to say that an oil and gas company, as the seller, has only to worry about the upstream sector and the buyer only has to care about downstream piece. In reality, the twain interacts with each other and the challenge for a petroleum sales contract is to appropriately deal with the inevitable interfaces between the parties throughout the lifespan of the contract.[460] While the oil and gas company has very little power to dominate its relationship with the finance provider, it should do its utmost to ensure that the sale of its oil and gas products goes smoothly so that the company has sufficient income to fulfil its repayment obligation towards its lender or return dividends to its equity investors.

3.4. Chapter Conclusion

To sum up, for the successful financing of an upstream offshore oil and gas project, it involves far more than focusing on financial arrangements. The relationship with the natural resource owner (in most circumstances the host country or the state-owned companies), the relationship with the service provider (i.e. rigs, equipment suppliers, etc.), and the relationship with the downstream petroleum buyer are also critical and substantially contribute to the success of the upstream offshore oil dan gas project as a whole. It is so obvious that smooth performance in contract chains in a supply chain is critical to ensure that both financing and the subject project go successfully.

As a wide range of contracts are linked with each other and the interrelationships between them can be interactive yet have substantial impacts on the overall success of an offshore oil dan gas project. This leads to a question as to what kind of mechanism should be used by oil and gas companies to safeguard the smooth performance under those contracts, so as to ensure the success of the whole project. From a legal perspective, contract design may be the most obvious and feasible choice.

While an oil and gas company may not have sufficient bargaining power over its financiers, the bargaining power of an oil and gas company is also not so strong when trying to get favourable terms in fiscal agreements with the resource owner. On the contrary, in the downstream sales sector, an oil and gas company, as the seller, will have much equal bargaining power to negotiate contract terms with its buyer.

[460] Robert (n 377)

Downstream sales is also the economic core of an upstream offshore oil and gas project. Therefore, in the following chapters, emphasises will be focused on contract design of downstream sales contracts.

Chapter 4 Contractual Approach to Safeguard the Downstream Sales — General Terms

4.1. Introduction

In previous chapters, detailed analysis has been laid out as to the industry background and the different financing models used in upstream offshore oil and gas projects, as well as the linkage between various contracts relating to financing when adopting a supply chain approach. Based on these analyses, it can be seen that in order to ensure the smooth transaction under one financing arrangement, a wide range of contacts may be involved. Besides, based on the long-term features of these projects as well as the diversified risks involved, it is also imperative that contracts work in groups rather than standing alone to ensure the stability of the performance in the potentially fluctuated market.

This thesis mainly focuses on how to maintain the smooth running of upstream offshore oil and gas projects in a long-term timeframe. When considering stability, some contractual mechanism can be used, mainly reflected as some terms and conditions which impose duties on parties to keep their active involvement in the contractual arrangement rather than walking away freely when difficulties happen under changed circumstances.

There are various contract clauses which may be able to set up such an obligation. Some are more general, which can be applied to much broader circumstances, such as force majeure clauses, hardship clauses, renegotiation clauses, etc. Some are more specific, such as price adjustment, price review, variation, relocation clauses, change of tax, etc. It seems quite obvious that the reason that parties adopt such clauses into their contracts is to take advantage of these clauses in changing circumstances, however, in reality, it is very common that such clauses are rendered as invalid or unenforceable, under English law, by courts or tribunals because of the vagueness and uncertainty involved.

This chapter focuses on the more general terms and explores the possibility of utilizing force majeure, hardship, and renegotiation (by good faith) clauses to maintain the stability of the performance in contract chains, thus eventually reducing the number of potential breaches under financing arrangements.

Nevertheless, this thesis takes more of a problem-solving approach when considering the potential function of these clauses in upstream offshore oil and gas projects, and as such the analysis will be more concentrated on the functional contribution of such clauses rather than putting too much emphasis on the exploration of the background of legal principles under each clause.

4.2. Contract Design in Financing Upstream Offshore Oil and Gas Industry

In Chapter 3, analysis has been made on a wide range of contracts which may be signed by oil and gas companies in the supply chain and some key characters of those contracts have also been addressed. It is quite clear that a majority of those contracts reflect a long-term nature, yet the stable performance of those contracts is crucial to the smooth running of the financing for the upstream offshore oil and gas projects. In the conclusion part of Chapter 3, attention has been raised to the importance of contract design and the following subsections will further address this issue.

4.2.1. Financing and Contract Design

Financing in the global upstream offshore oil and gas industry is international investments which are shaped by contracts. These transactions involve a wide range of participants, mixed financing models, and transnational character. Therefore, there is no wonder that a bundle of contracts will be generated throughout the whole transaction to identify parties' rights and obligations, etc.

Actually, most forms of financing can be plausibly regarded as contracts.[461] Contract design is directly linked to allocation of cash flows and risks, distribution of control rights, creditor and shareholder's rights, liquidation preferences, anti-dilution protections, vesting provisions, entry and exit provisions, redemption rights, default and remedies, dispute resolution, etc.[462]

[461]Kevin E Davis, '"Financing Development" as a Field of Practice, Study and Innovation' (2008) 08–61 NYU Public Law, Law and Economics Research Paper 11.

[462] Steven Kaplan et al, "How Do Legal Differences and Learning Affect Financial Contracts?"（2003）10096, NBER Working Paper2.

It is noteworthy that quite a few oil and gas resources are located in the emerging markets, where the local legal regimes have not been fully established with weaker creditor protection laws, more liberal laws regulating compensation to investor expropriation, and less strict financial disclosure laws. Such inefficient legal systems can be detrimental to a financing arrangement as sophisticated investors may be more reluctant to invest when their rights are less guaranteed. Very often, inefficient law cannot be modified in weak legal regimes due to the political barriers to legal reform.[463]

However, poor country-level investor protections could be substituted by well-designed security-level contracts with higher covenant intensity.[464] Unlike a country level legal framework, which reflects the intention and interest of the country's governing authorities, contracts are a manifestation of party autonomy. While the country level legal framework is closely connected with the regulatory and legislative processes of a particular state, the contractual framework is a bargaining and negotiation process among interested parties. Moreover, the country level legal framework is much more generally applied to certain fields. On the contrary, a contractual legal framework, though it sometimes still has quite standard forms, is more a single transaction oriented on a case by case basis. Compared to country level laws and regulations, contract terms and conditions have a much higher degree of specificity, uniqueness, and detail, which can be tailored by the parties to fit into their individual transaction.[465]

This is even more important in the upstream offshore oil and gas industry, as many projects are located in emerging markets where the local legal framework is not well developed and sometimes is even vulnerable because of the unstable social and political environment. Therefore, to ensure business success, good contract design is not only

[463] Coffee, J., 'The Future as History: The Prospects for Global Convergence in Corporate Governance and Its Implications.' [1999] Northwestern University Law Review 641.

[464] Miller DP and Reisel N, 'Do Country-Level Investor Protections Affect Security-Level Contract Design? Evidence from Foreign Bond Covenants' (2012) 25 Review of Financial Studies 408

[465] Salacuse Jeswald W, *Part III The Contractual Legal Framework, 8 The Nature and Functions of the Contractual Framework for Investments*, vol 1 (Oxford University Press 2013)160

needed to minimize transaction costs but also is needed to incorporate necessary protective mechanisms as a remedy to the legal deficiencies.[466]

While local law and policy set up an external framework for financing, contract endows parties with a kind of autonomy and private remedies to arrange business transactions and protect themselves. Contractual protection is important for parties as it gives them an extra protection, especially when the transaction is carried out in some areas where the local legal framework is not well developed, or the local social environment is quite vulnerable. Since quite a few upstream offshore oil and gas projects are located in emerging economies, investors usually have a large concern about local laws when they make investment decisions. In unprotective legal regimes, well designed and customized contracts can offer investors greater rights than the local law can provide.[467]

It is true that security-level contracts still have limits as contracts may differ systematically across various legal regimes and private contracts may be affected by the local legal system since certain contractual provisions may be infeasible or more costly to enforce. Nevertheless, although contracts rely upon country level laws and regulations to grant them an obligatory and enforceable effect,[468] they can still be used by the parties as a self-defence to give them extra protection under the existing external legal framework.

4.2.2. Inevitability of Contract Incompleteness

Although private contracts can help the contractual parties to better structure their rights and obligation under a transaction, in reality, concluding a complete contract is hardly feasible[469] and contracts are never entirely complete for potential future contingencies

[466] Kaplan, Martel and Stromberg (n 462).

[467] Osmundsen, Sørenes and Toft (n 302).Rafael La Porta and others, 'Investor Protection and Corporate Governance' [2000] Journal of Financial Economics 23.

[468] Jeswald W. Salacuse, *The Three Laws of International Investment: National, Contractual, and International Frameworks for Foreign Capital*, (Oxford, 2013) 160.

[469] Osmundsen, Sørenes and Toft (n 302)1

— the thinking process, back and forth bargaining, as well as the drafting may all be costly.[470]

From an economic perspective, contracts are "contingently incomplete" as the contractual parties would not maximize the profits from transactions in every future contingency as per the contract language.[471] From a legal perspective, contracts are "obligationally incomplete" as the parties could not fully stipulate their contractual rights and obligations, either intentionally or by accident.[472]

Some contracts are even more inclined to incompleteness than others. Particularly, long-term contracts with a set of intricate obligations on the parties may be subject to greater future uncertainty and more complexity of contractual rights and obligations of the contracting parties.[473] The bounded rationality and limited thinking process mean that human beings cannot foresee all possible future contingencies, and thus are not able to conclude long-term state-contingent contracts.[474]

In an incomplete contact situation, when those contingencies actually happen, parties tend to think that they have certain discretion regarding how to allocate their contractual commitments.[475] If parties do not agree with each other under such discretion, they will want to reallocate their contractual rights and obligation commitments in relation to new circumstances which have not been decided under the original contract.[476]

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[470] Kimberly D Krawiec and Scott Baker, 'Incomplete Contracts in a Complete Contract World' [2006] Florida State University Law Review 725.

[471] Ian Ayres and Robert Gertner, 'Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules' [1992] Yale Law Journal 730.

[472] ibid.

[473] Krawiec and Baker (n 470). Charles J Goetz and Robert E Scott, 'Principles of Relational Contracts' (1981) 67 Virginia Law Review 1089, 1091. (defining "relational contracts"). Victor P Goldberg, 'Discretion in Long-Term Open Quantity Contracts: Reining in Good Faith' [2002] Davis Law Review 319.

[474] Krawiec and Baker (n 470)

[475] Goldberg (n 473)

[476] Krawiec and Baker (n 470)731. Donald Robertson', 'Symposium Paper: Long-Term Relational Contracts and the UNIDROIT Principles of International Commercial Contracts' Australian International Law Journal 186. Ayres & Gertner (n 471)729.

4.2.3. Cost of Completeness

Although long-term complete and state-contingent contracts are not possible in the real world, it is still possible for parties to write ex ante long-term contracts to form the control structure and governance of their contractual relationship, for example, general rules stipulating how conflicts should be resolved, any room for renegotiation, how renegotiation should proceed, etc.[477]

Nevertheless, the costs of writing complex ex ante contracts may be quite high.[478] These costs are mainly due to the reason that information is expensive. Chronologically, these costs can be divided as the front-end costs and back-end costs during the whole contracting process.

Front-end costs are transaction costs, including research and contracting costs. In considering the potential future contingencies, the contracting parties negotiate the rights and obligations relating to each contingency, bargain over the share of the contracting surplus, and finally record all confirmed terms and conditions under the contracts.[479] Precise terms could cost a lot to negotiate and information asymmetry between the parties at the front end of the contracting process may hinder efficient contract terms.[480]

Back-end costs are mainly monitoring and enforcement costs. For example, the direct costs of enforcing contracts which are used to communicate information to courts or other competent tribunals, the costs of uncertainty and error of enforcement, etc. Terms which are too vague will be prohibitively costly for courts or other competent tribunals to verify.[481]

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[477] Krawiec and Baker (n 470)

[478] W. Bentley MacLeod and J.M. Malcolmson, 'Investments, Holdup, and the Form of Market Contracts' [1993] The American Economic Review 811.

[479] Goetz and Scott (n 473) 1092. Robert E Scott and George G Triantis, 'Anticipating Litigation in Contract Design' (2006) 115 The Yale Law Journal 814, 823.

[480] Ian. Ayres and Robert Gertner, 'Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules' [1989] Yale L.J. 87.; Jason Scott Johnston, 'Strategic Bargaining and the Economic Theory of Contract Default Rules' [1990] Yale L.J. 615.

[481] Oliver Hart, *Firms, Contracts, and Financial Structure* (Oxford University Press 1995) 79.

The balancing of front-end and back-end costs reflects a choice between precise/complete terms and vague/incomplete terms in a contract. Precise terms increase the cost at the front-end since more negotiation is needed, but those terms reduce the back-end cost by reducing verification costs and uncertainty during the contract monitoring and enforcement. In an opposite way, vague terms reduce front-end costs while increasing back-end costs.[482] By balancing front-end and back-end costs, contracting parties can minimize contracting and enforcement costs, reduce the cost of negotiating a more complete contract, and achieve optimal contractual incentives.[483]

4.3. Force Majeure Clause

4.3.1. General

A force majeure clause is a contractual term used by parties to entitle one or both of the parties to cancel the contract, or excuse one or both of them from performance, in whole or in part, or to allow performance suspension or to claim for performance extension, when a specified event or events beyond the parties' control happens.[484] Such a force majeure clause is widely used by the contractual parties in long-term international contracts to suspend performance or even fully exempt them from performance when an extraordinary event, which is out of the control of the parties, hinders one or both parties from performing their obligations under the contract. Force majeure clauses are often inserted into contracts by the parties as a preventative mechanism against certain risks relating to economic, political, natural disaster events, etc.[485]

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[482] Robert E Scott, 'A Relational Theory of Default Rules for Commercial Contracts' (1990) 19 The Journal of Legal Studies 597.;Goetz and Scott (n 473).; Michael Polkinghorne and Charles Rosenberg, 'Expecting the Unexpected: The Force Majeure Clause' (2015) 16 18. Man Schwartz, 'Relational Contracts in the Courts: An Analysis of Incomplete Agreements and Judicial Strategies' (1992) 21 The Journal of Legal Studies 317.

[483] Scott and Triantis (n 479).

[484] Hugh Beale, *Chitty on Contracts* (33rd edn, Sweet & Maxwell 2019).

[485]Polkinghorne and Rosenberg (n 482) 49–50. See Klaus Peter Berger, 'Renegotiation and Adaptation of International Investment Contracts: The Role of Contract Drafters and Arbitrators' [2003] Vanderbilt Journal of Transnational Law; see also Hubert Konarski, 'Force Majeure and Hardship Clauses in International Contractual Practice' [2003] Int'l Bus L J 405, 425. (noting that force majeure clauses

Traditionally, force majeure clauses were intended to deal with acts of God. Recently, such clauses have been drafted to include a wider range of events, for example, cyber-attacks, market collapse, etc. It is now quite common that a force majeure clause not only covers events which make performance impossible, but also those that make performance impractical or commercially inviable.[486]

It should be noted that not all legal systems adopt the concept of force majeure. Such doctrine is generally accepted in civil law jurisdictions.[487] By contrast, force majeure is alien to common law jurisdictions. Nevertheless, in common law jurisdictions, courts may still refer to similar yet distinct doctrines, such as frustration under English law or impracticability in US law.[488]

Although one may treat a force majeure clause as a supplement to the applicable law, such a clause can still be regarded as "self-sufficient" if it is clear, complete, and unambiguous.[489] The applicable law may still play a critical role when interpreting a force majeure clause under a contract or construing the general doctrine of the force majeure generally.[490] For example, many force majeure clauses stipulate a force majeure event as an event out of the control of the parties. However, different jurisdictions may have diversified interpretations as to what should be regarded as out of the control of the parties. Hence, it is critical for contractual parties to fully

'constitute ordinary commercial safeguards as a means of protecting the parties against an unexpected turn of events').

[486] HFW and 20 Essex Street, 'FORCE MAJEURE' 3.

[487] Polkinghorne and Rosenberg (n 482) 51.

[488] Ewan McKendrick, 'Force Majeure and Frustration of Contract' [1995] Lloyd's of London Press 33, 34–35. Polkinghorne and Rosenberg (n 23).

[489] See ICC case *National Oil Company v Sun Oil Company of Libya* (Case No 4462/AS, Award dated 31 May 1985). The tribunal in that case accepted the respondent's argument that the disputed force majeure clause in the underlying contract should not be construed "independently" from the applicable law of the underlying contract as the tribunal held that the force majeure clause was ambiguous.

[490] Michael Polkinghorne, 'Choice of Law in Oil & Gas Agreements: What Difference Does It Make?' [2010] The Paris Energy Series 2.; Giuditta Cordero-Moss, *Boilerplate Clauses, International Commercial Contracts and the Applicable Law* (Cambridge University Press 2011) 368.

understand the doctrine of force majeure under the applicable law and to see how to draft the clause more efficiently.[491]

4.3.2. Interpretation of Force Majeure Clauses under English law

Although common law and civil law jurisdictions do have different concepts regarding force majeure, either in common law or civil law jurisdictions, courts may treat common law or statutory exceptions in civil law as the default rules, which may still be modified by a force majeure clause under a contract.[492]

The precise meaning of force majeure clauses may vary from contract to contract. When construing a force majeure clause, courts may refer to different rules of construction.[493] Such interpretation also reflects the general doctrine or concept of force majeure under the jurisdiction which the court locates.

Under English law, the doctrine of force majeure is more elusive and no precise definition has been concluded. It is more widely accepted that force majeure is a creature of contractual consent and some case law can be used as a guide to define and apply the doctrine. [494]

Recently, there were two important cases dealt with by the English courts in relation to two important issues when construing force majeure clauses under English law, namely should force majeure be the only reason of performance failure and the so-called "but-for" test.

Seadrill Ghana Operations Ltd v Tullow Ghana Ltd

Seadrill and Tullow entered into a long-term drilling contract relating to the use of a semi-submersible drilling rig to operate in offshore Ghana. The contract term was from 2012 to June 2018. However, in December 2016, Tullow proposed to terminate the

[491] Polkinghorne and Rosenberg (n 23).

[492] Jay D Kelley, 'SO WHAT'S YOUR EXCUSE? AN ANALYSIS OF FORCE MAJEURE CLAIMS' 2 Texas Journal of Oil and Energy Law 92.

[493] ibid.

[494] HFW and 20 Essex Street (n 486) 3.

contract based on force majeure. It relied on an order issued by the International Law of the Sea ("ITLOS") which prohibited "new drilling" in the TEN Field, one of the fields operated by Tullow under the contract. Seadrill objected to Tullow's right to terminate based on the event of force majeure, but averred that the contract was terminated for the convenience of Tullow. Under the contract, such a kind of termination would have entitled Seadrill to an early termination fee, which amounted to 60% of the day rate of the rig for the rest period of the contract term.

Under the contract the force majeure clause stipulated as follows:[495]

"*27.1 Neither COMPANY nor CONTRACTOR shall be responsible for any failure to fulfil any term or condition of the Contract if and to the extent that fulfilment has been delayed or temporarily prevented by an occurrence, as hereunder defined as FORCE MAJEURE, which has been notified in accordance with this Clause 27 and which is beyond the control and without the fault or negligence of the party affected and which, by the exercise of reasonable diligence, the said party is unable to prevent or provide against. Both parties shall use their reasonable endeavours to mitigate, avoid, circumvent, or overcome the circumstances of FORCE MAJEURE."*

27.2 For the purpose of the Contract, Force majeure shall be limited to the following:

……

(h) Drilling moratorium imposed by the government"

The High Court judge, Mr. Justice Teare, found that the ITLOS Order, coupled with a subsequent letter from the Government of Ghana to Tullow inviting it to comply with the order, constituted a drilling moratorium.[496] However, the judge held that since the drilling moratorium imposed by the government was not the only reason which caused

[495] *Seadrill Ghana Operations Ltd v Tullow Ghana Ltd* [2018] EWHC 1640 (Comm), para 28.

[496] *Seadrill Ghana Operations Ltd v Tullow Ghana Ltd*, para 62.

the failure of Tullow to perform its obligation under the contract, Tullow was not allowed to invoke the force majeure clause under the contract.[497]

This case is one of the most recent cases which closely relates to the oil and gas industry. In the very beginning of the judgment, Mr. Justice Teare said that "*[d]rilling for oil is a risky business*".[498] This case also restated the decision in *Intertradex v Lesieur*[499] that a force majeure event must be the sole cause which leads to the failure of performance.[500]

Classic Maritime v Limbungan Makmur Sdn Bhd

This is a court of appeal case.[501] The shipowner, as the appellant, and the charterer, as the respondent, entered into a long-term contract of affreightment dated from June 2009, providing for shipments of iron ore from Brazil to Malaysia. The disputed shipments should have delivered between July 2015 and June 2016. The Samarco dam burst happened on 5 November 2015. After that, the charterer contended that it was prevented from delivery shipment and was exempted from performance as per clause 32 of the contract. Clause 32 stipulates that:

"*EXCEPTIONS*

Neither the Vessel, her Master or Owners, nor the Charterers, Shippers or Receivers shall be Responsible for loss or damage to, or failure to supply, load, discharge or deliver the cargo resulting From: Act of God, … floods…Landslips…accidents at the mine or Production facility … or any other causes beyond the Owners', Charterers', Shippers' or Receivers' Control; always provided that any such events directly affect the performance of either party under This Charter Party..."[502]

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[497] *Seadrill Ghana Operations Ltd v Tullow Ghana Ltd*, para 79. The judge cited Court of Appeal case, *Intertradex v Lesieur* [1978] 2 Lloyd's Reports 509

[498] *Seadrill Ghana Operations Ltd v Tullow Ghana Ltd*, para 1.

[499] *Intertradex v Lesieur*

[500] Sir Guenter Treitel, *Frustration and Force Majeure* (3rd edn, Sweet & Maxwell 2014).

[501] *Classic Maritime v Limbungan Makmur Sdn Bhd* [2019] EWCA Civ 1102.

[502] *Classic Maritime Inc. v Limbungan Makmur SDN BHD & Anor* [2018] EWHC 2389 (Comm), para 15

Although clause 32 was drafted as an "exceptions" clause, it reflected “features of a typical force majeure clause”.[503] At the court of first instance, the high court judge Mr. Justice Teare held that although the dam burst had made performance impossible, the charterer could not invoke clause 32 as the clause required the charterer to satisfy that it would have performed but for the dam burst.[504] To that extent, Mr. Justice Teare distinguished between a force majeure or exception clause and a frustration clause. He held that while the “but for” test had to be satisfied in a force majeure or exception clause, such a test was not necessary for a frustration clause.[505]

However, in the case, even if there was no dam burst, the charterer would nevertheless have defaulted for other reasons, for example, no shipments had occurred during the second half of 2015 because the demand in the Malaysian domestic markets had collapsed.

The Court of Appeal upheld the decision made by Mr. Justice Teare that there was a critical distinction between a "contractual frustration" clause and an exception clause. The former brings the contract “*to an end forthwith and automatically once an event occurs, regardless of the wishes of the parties, thereby relieving both parties from any further obligation to perform under the contract or to accept the other's performance in the future*” while the later “*simply operates to relieve a party from the obligation to pay damages after a breach has occurred*”.[506]

Lord Justice Males held that when construing a contractual clause “*what matters is not the label but the content of the tin*”[507] and held that the disputed clause 32 did not stipulate any automatic future cancellation of the contract, thus was not a frustration

[503] *Classic Maritime v Limbungan Makmur Sdn Bhd*, para31

[504] At paragraph 70, Justice Mr. Teare held that "[a]ll must depend upon the wording of the clause. In this case clause 32 imports a causation requirement by the use of the words 'resulting from' and by the requirement that the force majeure must directly affect the performance of Limbungan's obligations." *Classic Maritime Inc. v Limbungan Makmur SDN BHD & Anor* [2018] EWHC 2389 (Comm)

[505] *Classic Maritime Inc. v Limbungan Makmur SDN BHD & Anor* [2018] EWHC 2389 (Comm), paras 79 to 82.

[506] *Classic Maritime v Limbungan Makmur Sdn Bhd*, para 61.

[507] *Classic Maritime v Limbungan Makmur Sdn Bhd*, para 62.

clause. Therefore, Lord Justice Males held that the "but for" test should be satisfied in order to invoke clause 32 as a defence.[508]

4.3.3. Drafting Force Majeure Clauses in the Oil and Gas Supply Chain

In most cases, long-term international contracts have one of three types of force majeure clauses: clauses explicitly define the concept of force majeure; clauses referring to an external source of law; and clauses containing no definition at all.[509]

Though a force majeure clause is often invoked by the parties, especially the defaulting party, at the breakdown of a contract, such a clause is very often not given enough attention from the parties when conducting the upfront negotiation of the contract.[510] In the contrary, as the re-contract negotiation for oil and gas sales contracts may be lengthy and costly, some businessmen would take a speculative view towards force majeure clauses and skip the substantial negotiation on those clauses. Parties are more likely to insert 'boilerplate' force majeure clauses under contracts and do not allow time to tailor such clauses to reflect the particular character of their individual transactions.[511] Such carelessness may cause serious problems if a force majeure event later occurs.[512] No one could predict what will happen tomorrow. A force majeure event may happen very easily.

A most recent example is the outbreak of coronavirus. After the outbreak was confirmed by local government in Wuhan, a national wide quarantine was implemented very efficiently just in serval days. Thousands of business entities shut down and China's largest gas importer, China National Offshore Oil Corp has invoked force

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[508] *Classic Maritime v Limbungan Makmur Sdn Bhd*, para 62.

[509] Polkinghorne and Rosenberg (n 482).

[510] Karl-Heinz Böckstiegel, *Hardship, Force Majeure and Special Risks Clauses in International Contracts' in Norbert Horn (Ed), Adaptation and Renegotiation of Contracts in International Trade and Finance: Studies in Transnational Economic Law* (Kluwer Law International 1985) 160–161.

[511] For example, the model force majeure clause promulgated by the International Chamber of Commerce in 2003. See International Chamber of Commerce and Debattista C (eds), ICC Force Majeure Clause 2003 - ICC Hardship Clause 2003 (ICC 2003).

[512] Hubert Konarski (n 485) 407.

majeure as a ground to suspend contract performance with at least three suppliers.[513] Disputes have already seen in the market. Common ones include whether coronavirus virus constitutes a force majeure event under the underlying contract; is the quarantine time long enough to meet the minimum waiting period stipulated under the contract; is the notice of force majeure a valid one as per the contractual terms, etc.

Under Chinese law, Article 117 of the *Contract Law of the People's Republic of China* gives parties a statutory protection against force majeure.[514] The second paragraph also gives out the legislative definition of force majeure but rather in a general way, i.e. "*a situation which, on an objective view, is unforeseeable, unavoidable and is not able to be overcome*". Under an international contract, the Chinese party will then invoke force majeure exemption based on Article 117. Nevertheless, the foreign party may have a few defences in different situations. In a situation when there is neither applicable law or force majeure clause under the disputed contract, the foreign party will aver that Chinese law should not apply. In a situation when the applicable law is Chinese law along with a force majeure clause with more detailed yet exhaustive force majeure clause, the foreign party may argue that even though Chinese law apply, coronavirus does not fall within the listed events which give the party a right to invoke force majeure.

UK courts and international arbitrators who come from an English law background tend more to adopt a narrow interpretation of force majeure clauses. Parties are encouraged

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[513] Tom Kirkman, Coronavirus Force Majeure Explainer from Reuters (for Oil & Gas Contracts), see https://community.oilprice.com/topic/9638-coronavirus-force-majeure-explainer-from-reuters-for-oil-gas-contracts/

[514] 《中华人民共和国合同法》*Contract Law of the People's Republic of China*

"第一百十七条

因不可抗力不能履行合同的，根据不可抗力的影响，部分或者全部免除责任，但法律另有规定的除外。当事人迟延履行后发生不可抗力的，不能免除责任。

本法所称不可抗力，是指不能预见、不能避免并不能克服的客观情况。

Article 117

Where it is not possible to perform a contract due to force majeure, then, depending on the extent of the force majeure, the performing party shall be partially or wholly excused from liability, except where laws provide otherwise. Where force majeure occurs after a party has already been late in performing an obligation, the said party will not be excused from liability.

In this Law, "force majeure" means a situation which, on an objective view, is unforeseeable, unavoidable and is not able to be overcome."

to provide an illustrative (non-exhaustive) list of force majeure events and to use more clear and less ambiguous language when defining the events.[515]As this thesis focuses more on the offshore oil and gas industry from a supply chain perspective, insight will be laid on events which are more specifically related to the industry. Namely, source of supply, weather, economic events, and government actions.

4.3.3.1. Source of Supply

Source of supply is very critical and an oil and gas company will want to include it in the force majeure clauses in contract chains. In normal financing instruments (like loan agreement), source of supply is a kind of alien event. However, for the financing of an oil and gas project, as the repayment is mainly tied in with the sales revenue, a shortage of oil and gas products (source of supply) can be detrimental to the investee. This may happen when the oil and gas reserves in the upstream side experience unforeseeable beyond the control of the oil and gas companies.

In contracts involving sales, like a downstream oil and gas sales contract, a seller may aver that an event affecting its source of supply constitutes a force majeure event. To be more precise and ensure the enforceability of such a force majeure clause, it would be much better if a seller can request that a contractual clause specifically identifies the source of supply as a force majeure event.[516]

Besides, it is also very important to make sure that the force majeure clauses in the contract chains are back to back. While it will be more common that source of supply is listed as a force majeure event in the downstream sales contract, it is imperative that such an event is also recorded under force majeure clauses in the financing agreement and upstream resource arrangements.

4.3.3.2. Weather

Compared to other projects, weather-related events are even more important to an offshore oil and gas project and should be fully considered when drafting a force

[515] Polkinghorne and Rosenberg (n 482).

[516] Kelley (n 492).

majeure clause for such a project. The weather condition on the high sea is without doubt more vulnerable and changeable than that of on-shore. One should make sure that when quoting detailed disastrous weather-related events, the same list is used under different force majeure clauses in diversified yet related contracts.

Weather-related events are almost always listed as force majeure events, often with great specificity.[517] Although different case law regarding adverse weather across diversified jurisdiction exists, parties can largely rely on party autonomy to define certain adverse weather as a force majeure event.[518]

4.3.3.3. Economic Events

Compared to other industries, it may be fair to say that the oil and gas industry is exposed to more fluctuating pricing terms. When price changes dramatically, the downstream sales contracts are more likely to incur problematic performance. Such trouble can negatively impact upon the sales revenue, thus further negatively impacting on the repayment under a financing arrangement.

Therefore, it will be ideal if parties can list economic event as acceptable force majeure events. However, it is quite difficult to insert economic events, for example failures of markets, as force majeure events, especially when there is no such specific clause.[519] Nevertheless, even though failures of markets can hardly be regarded as a force majeure event, the parties still have an alternative, at least, to maintain the stability of the transaction — price adjustment and price review clauses.[520]

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[517] For example, in ICC force majeure clause 2003, paragraph 3(e) "*... natural disaster such as but not limited to violent storm, cyclone, typhoon, hurricane, tornado, blizzard, earthquake, volcanic activity, landslide, tidal wave, tsunami, flood, damage or destruction by lightning, drought*;" see https://iccwbo.org/content/uploads/sites/3/2017/02/ICC-Force-Majeure-Hardship-Clause.pdf

[518] Kelley (n 492).

[519] ibid.

[520] More detail analysis on these clauses will be addressed in the next chapter.

4.3.3.4. Governmental Actions

Oil and gas has been one of the most important commodities in the world, regarded as "*critical to national strategies and crucial to international politics*".[521] The investment in upstream offshore oil and gas projects reflects capital-intensive and long-term characteristics. Such features bring more vulnerability to investors and/or oil and gas companies as they may be exposed to unilateral modification of the relevant petroleum contracts by the government of the host country at some point during the lifespan of a project.[522] Furthermore, the government of the host country may even use its legislative power to change the law, which may amount to disguised unilateral change of the relating petroleum contracts.[523] Therefore, it should be imperative for an oil and gas company to aver that governmental actions should be included as a force majeure event.[524]

4.3.3.5. Harmonize Force Majeure Clauses among Contract Chains in the Supply Chain

Commercial contracts never present in a vacuum. Contracting parties should not draft and enter into a particular contract in isolation but put it in the overall background of related business activities. The parties should consider not only whether a specific force majeure event excuses performance under a particular contract, but also the influence of such non-performance on other related contracts. [525] Incorporating a supply chain approach when drafting a force majeure clause in downstream sales contract may help an oil and gas company to transfer its risks in the upstream exploration and production activities. For example, listing natural disaster on the sea which prevents the offshore project from operation or expropriation by the host country under the fiscal regime as

[521] Coale (n 103). See ZHIGUO GAO (n 103).

[522] Cameron, Peter, 'Stabilisation in Investment Contracts and Changes of Rules in Host Countries: Tools for Oil & Gas Investors' [2006] Association of International Petroleum Negotiators.

[523]Abdullah and Faruque (n 105)317.;Mansour and Nakhle (n 86).

[524] For example, in ICC force majeure clause 2003, paragraph 3(d) "*act of authority whether lawful or unlawful, compliance with any law or governmental order, rule, regulation or direction, curfew restriction, expropriation, compulsory acquisition, seizure of works, requisition, nationalisation*" see https://iccwbo.org/content/uploads/sites/3/2017/02/ICC-Force-Majeure-Hardship-Clause.pdf

[525] Kelley (n 492). 92

a force majeure event may suspend performance or exempt an oil and gas company from its obligation owed to the buyer, if the relevant turbulence happens in the upstream exploration and production sector.

4.4. Hardship Clause

4.4.1. General

The term "hardship" usually means a change in factors relating to economic, financial, technological or legal issues which leads to severe adverse economic consequences to a party. Such a change will make it more difficult for that party to perform its obligations under the underlying contract. [526] Typically, a hardship clause usually has two main parts, namely the definition of the hardship and an obligation of renegotiation between the contracting parties to adapt to the new circumstances caused by the hardship.[527]

A hardship clause aims to solve unforeseen events which make it more burdensome for a contracting party to perform its obligation under a contract than is initially forecast. It is generally accepted that the three main elements of the concept of hardship are that, firstly, the event must be out of the control of the contracting parties; secondly, the event must have a fundamental character; and thirdly, the event must be completely unforeseen to the parties.[528]

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[526] The United Nations Commission on International Trade Law, *UNCITRAL Legal Guide on Drawing up International Contracts for the Construction of Industrial Works* (United Nations Pubns 1988).

[527] The United Nations Commission on International Trade Law (n 527); Joern Rimke (n 101). see Wouter Den Haerynck, *Drafting Hardship Clauses in International Contracts, in Structuring International Contracts* (Dennis Campbell ed 1996) 235.

[528] CM Schmitthoff, 'Hardship Clauses' [1980] The Journal of Business Law 85.. Talal Abdulla Al-Emadi, 'The Hardship and Force Majeure Clauses in International Petroleum Joint Venture Agreements' [2011] SSRN Electronic Journal <http://www.ssrn.com/abstract=1878558> accessed 29 January 2020. UNIDROIT Principles of International Commercial Contracts also defines hardship and its legal consequences in Articles 6.2.2 and 6.2.3 respectively. The definition of hardship under Article 6.2.2:

"*There is hardship where the occurrence of events fundamentally alters the equilibrium of the contract either because the cost of a party's performance has increased or because the value of the performance a party receives has diminished, and (a) the events occur or become known to the disadvantaged party after the conclusion of the contract; (b) the events could not reasonably have been taken into account by*

Different from a force majeure clause, which usually leads to suspension or even termination of the underlying contract when a situation has become too onerous or even impossible for a party to perform its obligation under the underlying contract, a hardship clause focuses more on re-establishing the equilibrium between the contracting parties under the underlying contract.[529] In some circumstances, hardship clauses are regarded as "a specific type of renegotiation clause"[530], based on which the contracting parties seek to modify some terms in the underlying contract so as to rebalance the contractual rights and obligations when certain situations occur outside of the expectations of the contracting parties. By doing so, the contracting parties are able to adapt the original contract to fit into the new yet unexpected situations.

4.4.2. Hardship in English Law

Similar to force majeure clauses, the recognition and enforceability of hardship clauses may vary in different jurisdictions. While some jurisdictions have adopted such a legal concept into their law, others have not. There are even some legal jurisdictions in which the validity of such clauses has not been examined in the local legal proceedings.[531]

It is widely accepted that the concept of hardship is rooted and originated in civil law jurisdictions.[532] Not surprisingly, English law generally does not recognise such clauses. However, English law does have a similar yet different legal notion, i.e. frustration. Nevertheless, the application of frustration under English law is very strict. The invoking party has to show that its obligation to perform under the contract has

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the disadvantaged party at the time of the conclusion of the contract; (c) the events are beyond the control of the disadvantaged party; and (d) the risk of the events was not assumed by the disadvantaged party."

[529] Berger (n 485)1352.; H Strohbach, 'Force Majeure and Hardship Clauses in International Commercial Contracts and Arbitration: The East German Approach' 39, 41.

[530] A El Chiati, 'Protection of Investment in the Context of Petroleum Agreements' 1, 99.; W. Peter, *Arbitration and Renegotiation In International Investment Agreements* (2nd edn, Kluwer Hague 1995) 237.

[531] The United Nations Commission on International Trade Law (n 527).

[532] Nevertheless, even within the civil law countries, fundamental divergence still exists. For example, while German courts have recognised such doctrine since World War I, French courts are still reluctant and tend to reject the theory of imprévision (theory of unforeseeability or hardship). See Catherine Pédamon and Jason Chuah, *Hardship in Transnational Commercial Contract: A Critique of Legal, Judicial and Contractual Remedies* (Uitgeverij Paris BV 2013)

been exempted by an adverse changed circumstance, which causes the performance illegal or near impossible.[533]

The reason behind such strict interpretation may be that English law, as a main common law jurisdiction, emphasizes the concept of strict liability when dealing with contract breach. Traditionally, common law holds a notion that those post-execution conditions, which may render it impossible for a contracting party to perform its duty under a contract, still should not be an excuse.[534]

To this point, one of the classic authorities has been seen in *Paradine v. Jane*.[535] The plaintiff brought a lawsuit against the defendant for unpaid rent. The defendant argued that since there had been an invasion from a King's enemy, he was expelled and could not make profits from the land. The King's Bench Division held that when a party "by his own contract creates a duty or charge upon himself, he is bound to make it good, if he may, notwithstanding any accident by inevitable necessity, because he might have provided against it by his contract".[536]

Such a strict interpretation prevailed in English law until 1863. In that year, *Taylor & Anor v Caldwell & Anor*[537] became a milestone case. The Queen's Bench changed the traditional yet rigid opinion in Paradine v. Jane. The court confirmed that where there was a positive and legitimate contract, the contracting parties "must perform it or pay damages for not doing it, although in consequence of unforeseen accidents, the performance of his contract has become unexpectedly burthensome or even impossible". However, the court clarified that this strict rule shall be only applicable when "the contract is positive and absolute, and not subject to any condition either express or implied…a condition is implied that the impossibility of performance arising from the

[533] Edwin Peel, Treitel on the Law of Contract (13th Ed., Sweet and Maxwell, London 2011) 821

[534] Ugo Draetta, 'Force Majeure Clauses in International Trade Practice' [1996] Int'l Bus.L. J. 547, 548., Rimke (n 101). In common law jurisdictions, the degree of acceptance of excusable hardship varies. In the United States, "commercial impracticability" can be a potential exception to strict performance. However, under English law, courts do not uphold any excuse for non-performance if the invoked changed circumstances have not yet amounted to impossibility. See Pédamon and Chuah (n 533) ; Treitel (n 501). Hugh Beale (n 484)23-001-23-006.

[535] *Paradine v. Jane* [1647] 4 (KB)

[536] *Paradine v. Jane*, para 3

[537] *Taylor & Anor v Caldwell & Anor* [1863] EWHC QB J1

perishing of the person or thing shall excuse the performance".[538] With this landmark case in which the theory of implied condition was upheld by the court, the doctrine of common law impossibility was introduced into and recognized by English law.[539]

Rooted from the doctrine of impossibility, the notion of frustration has developed. Similar to the concept of hardship, frustration is solely based on the interpretation of the parties' intent. However, in contrast to hardship which offers a re-balance mechanism, when a contract is frustrated, a tribunal cannot re-balance the rights and obligations between the contracting parties to fit into the new situation. Frustration simply discharges the contract and does not allow the contract adaptation.[540]

Not surprisingly, in the above-mentioned background, English law generally does not recognise hardship clauses unless they are agreed by the contracting parties and stipulated in the contracts. Therefore, in English law, when interpreting a hardship clause, the main reference will be the definition of such clauses agreed by the contracting parties. Unlike in a civil law jurisdiction, under English law, the definition of a hardship clause should be construed in accordance with the contractual terms and there will be no external guidance from codified law.[541]

4.4.3. Advantage and Disadvantage of Hardship Clauses

To insert a hardship clause into a contract, especially a long-term one, may be regarded as an advantage for the contracting parties, especially for the party which may assume more burdensome performance obligation when circumstances change later. In such a kind of situation, as when the changed circumstances lead to severe adverse economic consequences to that party, renegotiation and a re-balance of the underlying contract as per the hardship clause might help the parties to avoid a disruptive failure of the contract even in a substantially changed circumstance. Even if there is not such circumstance which would prevent the contracting parties from renegotiation even without a hardship

[538] *Taylor & Anor v Caldwell & Anor*

[539] Ugo Draetta (n 535). Rimke (n 101). 5

[540] Rimke (n 101).5

[541] Paul Griffin, 'Principles of Price Reviews and Hardship Clauses in Long-Term Gas Contract', *Liquefied Natural Gas : The Law and Business of LNG* (3rd edn, Globe Law and Business 2017).

clause, such a clause may substantially promote renegotiation by providing a contractual obligation to do so and a framework according to which renegotiation can be commenced by the parties. In this way, a hardship clause may eventually facilitate the achievement of an equitable outcome which re-balances the rights and obligations of the contracting parties in the changed circumstances.[542]

Nevertheless, hardship clauses also have disadvantages which may even outweigh their advantages. A main concern is that such clauses may be very likely to bring uncertainty and vagueness into a contractual relationship. Any potential renegotiation of the original underlying contract through a hardship clause may bring a certain degree of unstableness into the contract. Moreover, hardship clauses are by their nature vague and inaccurate.[543] Furthermore, although a hardship clause may largely facilitate renegotiation, such a renegotiation may be lengthy and ultimately fruitless. It may even interrupt the ongoing performance and freedom of the underlying contract. [544]

Hardship clauses have been criticized or the cause of suspicion, especially in common law jurisdictions, as they may be used as an excuse for a party which wants to avoid the obligations to perform. In addition, although a hardship clause obligates the contracting parties to renegotiate, such a clause does not ensure the outcome of the renegotiation and the contracting parties may find it would be quite difficult to secure an adaptation to the contract, even through a formal dispute resolution mechanism.[545]

In a financing contract, a lender or investor may be very reluctant to accept a hardship clause, as such a clause may be very disadvantageous to them. In a financing arrangement, either debt or equity, investors normally have a much simpler obligation and, in most circumstances, was as straightforward as to lend money or make an investment. The borrowers or the investees, on the contrary, have to undertake a wide range of obligations, for example, construct the project or seek to fulfil the promised profit rates, etc. Therefore, from a lenders' or investors' perspective, as the borrowers

[542] The United Nations Commission on International Trade Law (n 527).

[543] Unlike a force majeure clause, in which a list of force majeure events will be agreed by the parties.

[544] The United Nations Commission on International Trade Law (n 527). See Pédamon and Chuah (n 533)

[545] ibid.

or investees may in all likelihood have more grounds to invoke the terms under a hardship clause than they do, they are very reluctant to agree to insert such a clause.[546]

4.4.4. Cooperation with other Clauses to Restore Equilibrium of the Contract

It can be concluded based on the above analysis that both force majeure clauses and hardship clauses may be used by the parties to deal with unexpected circumstances which happen in the contract performance period but after the execution of contracts. However, these two types of clauses still different from each other. Practically speaking, hardship clauses focus more on saving the contractual relationship by restoring equilibrium of the contracting parties while force majeure clauses simply give a party an excuse to suspend performance or exempt itself from its obligation to perform.[547]

As the thesis focuses on an issue as to how to maintain stability in the contractual relationship in contract chains in upstream offshore oil and gas projects, thus eventually contributing to the facilitation and sustainability of the financing arrangements, it elaborates that, compared to force majeure clauses, hardship clauses should fit more into the theme of this thesis.

Nevertheless, it has also been shown in the above sections that since English law does not recognize hardship as a general doctrine within its legal system, the enforceability of a hardship clause largely depends on the contractual language. One critical thing is that, although a hardship clause aims to obligate the contracting parties to renegotiate, it cannot promise the outcome of the renegotiation.[548] Thus, such clauses may lose practical value for the contracting parties and may even not be recognized by courts or arbitral tribunals.

Therefore, the question then comes to how to reinforce the renegotiation requirement set forth by a hardship clause. There may be two possible approaches. One possible way is to see how to impose a duty of renegotiation, which will be enforceable and

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[546] ibid.

[547] *Superior Overseas Development Corp and Phillips Petroleum (UK) Co Ltd v. British Gas Corp* [1982] 1 Lloyds Rep 262. See Pédamon and Chuah (n 533)

[548] The United Nations Commission on International Trade Law (n 527). Griffin (n 305)226

recognized by the courts, under the contract. Compared to a hardship clause which merely obligates the contracting parties to renegotiate, it would be better to obligate the contracting parties to agree on the contract adaptation after renegotiations. In such circumstances, it would be even better if the parties could further agree that if contract adaption fails between in the renegotiation, they can submit their dispute to a competent court or arbitral tribunal to decide the final adaptation. [549] As for how to impose a duty of renegotiation, which will be enforceable and recognized by courts, under the contract, further analysis will be made in the next sections.

Another way is to examine whether a hardship clause may align with another more precise clause. Those clauses may eventually work together to ensure the renegotiation will be conducted by the parties, and more importantly, such a renegotiation will lead to an agreement on adaptation or a similar effect. In the upstream offshore oil and gas industry, such clauses indeed exist. Typical examples have been seen in the downstream sales contracts under which contracting parties may take advantage of pricing clauses to adapt a new price during the period of contract performance in a long-term sales contract. Further analysis on this point will be made in the next chapter.

4.5. Imposing a Duty of Renegotiation under the Contract

The analysis in the previous parts of this thesis has revealed that upstream offshore oil and gas projects are usually long-term ones. In order to steadily fulfil its repayment obligations under the financing arrangements, either debt or equity ones, it's critical for an oil and gas company to secure downstream sales. Nevertheless, the market for downstream sales of petroleum products could still be fluctuated, especially when such sales have been concluded by the parties based on long-term arrangements. Because of the long-term nature of these contracts, one can never predict all of the possible eventualities during the entire project lifespan. While human perception is limited, unforeseen events, including but not limited to natural disasters, political turmoil, legislation changes, market volatility, happen without parties' control.

To make things even more complicated, the capital-intensive nature of the offshore oil and gas project means any undesired walk-out will cause huge losses. Hence, how to

[549] ibid. McKendrick (n 301)

maintain the stability during the long-term contract performance period appears to be a core consideration. If the parties cannot predict the future, they are thus not be able to include everything in their original agreement. A possible way to rectify this situation is to offer the parties a second chance when unexpected things happen. Renegotiation may serve as an ideal remedial measure.[550] Then, the question comes to how to ensure that the parties can conduct a genuine and efficient renegotiation and effect an alternative arrangement?

In such circumstance, a mechanism for contract renegotiation could be very helpful as it offers the parties a second chance to amicably modify their rights and obligations and may finally save the contractual relationship in the new and even unexpected circumstances.

When talking about renegotiation, contractual parties tend to insert renegotiation clauses which impose a duty of negotiating in good faith on the parties. However, such a mechanism may not easily work under English law as, despite the existence of certain dicta to the contrary, it is generally recognized that a simple obligation to negotiate in good faith will be unenforceable under English law.[551]

While English law is widely used in the industry and is one of the legal regimes which are pro contract and party autonomy[552], contract clauses regarding re-negotiation are historically unrecognized by the courts. Good faith, being an important legal principle in the civil law regimes and whilst it can serve as a corner stone of re-negotiation, is also objected to by English courts. Nevertheless, there has been a development in English law which may lead to a way for the parties to incorporate a valid renegotiation clause under the contract.

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[550] See Pédamon and Chuah (n 533)

[551] *Courtney & Fairburn Ltd v Tolaini Bros (Hotels) Ltd* [1975] 1 All ER 453, *Phillips Petroleum Company UK Ltd v Enron Europe Ltd* [1997] CLC 329

[552] The strength of English law and the UK jurisdiction, https://www.judiciary.uk/wp-content/uploads/2017/08/legaluk-strength-of-english-law-draft-4-FINAL.pdf . Roberts (n 115)

4.5.1. Historical Hostility towards the Duty of Good Faith in English Law

It is recognized that there has been a "traditional English hostility" towards the principle of good faith.[553] English courts are reluctant to uphold contractual obligations to negotiate in good faith.[554] Such a norm has been rooted and based on the concept of freedom of contract and, particularly, freedom from contract.[555]

The following cases demonstrate the English position as regards a legal duty of good faith but also how contracting parties do, despite the English law's hostility to good faith, try to incorporate notions of good faith in their commercial relations.

Walford v Miles

Back to *Walford v Miles*[556] in 1992, Lord Ackner from the House of Lords held that for parties to "negotiate in good faith is as unworkable in practice as it is inherently inconsistent with the position of a negotiating party".[557] Lord Ackner further reasoned that a commitment to negotiate infringes the freedom of parties to make negotiating compromises, to give up negotiations, or to negotiate with a third party during the process of negotiations.[558] He thus ruled that there should be no contractual duty to negotiate in good faith under English law.[559] Such judicial attitude seemed to be unchanged even in those more recent cases.

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[553] McKendrick, *Contract Law* (9th edn, Palgrave Macmillan 2011).

[554] Peel, E. and Burrows, A., 'The Status of Agreements to Negotiate in Good Faith', *Contract Formation and Parties* (Oxford University Press 2010).

[555] *Walford v Miles* [1992] 2 A.C. 128. Trakman LE and Sharma K, 'The Binding Force of Agreements to Negotiate in Good Faith' [2014] The Cambridge Law Journal 598, 602.

[556] *Walford v Miles*

[557] *Walford v Miles*. See also Elisabeth Peden, 'Incorporating Terms of Good Faith in Contract Law in Australia' (2001) 23 Sydney Law Review 222.

[558] *Walford v Miles.* See Jeff Cumberbatch, 'In Freedom's Cause: The Contract to Negotiate' (1992) 12 Oxford Journal of Legal Studies 596; I Brown, 'The Contract to Negotiate: A Thing Writ in Water?' [1992] Journal of Business 353; E. Peel, '"Locking-Out' and 'Locking-In': The Enforceability of Agreements to Negotiate" [1992]. C.L.J. 211.; P Neil, 'A Key to Lock-Out Agreements' (1992) 108 LQR 405

[559] On the approval of *Walford v Miles* by the New Zealand Court of Appeal, see *Wellington City Council v Body Corporate 51702* (Wellington) [2002] 3 N.Z.L.R. 486. See also *Elizabeth Bay Developments Pty*

Gold Group Properties Ltd v BDW Trading Ltd

In July 2010, in *Gold Group Properties Ltd v BDW Trading Ltd*[560], the parties signed a land development agreement with a revenue sharing provision. The contract also contained several clauses which requested the partied to act in good faith.[561] Later, the price of the property slumped by at least 20% and the parties disputed whether there was a duty of good faith in renegotiating the revenue sharing provision. The Deputy High Court Judge Mr Stephen Furst Q.C., citing the judgment from *Automasters Australia Ptv Ltd v Bruness Ptv Ltd*[562] and *Overlook v Foxtel*[563], restated that the party subject to the obligation of good faith is "not required to subordinate the party's own interests, so long as pursuit of those interests does not entail unreasonable interference with the enjoyment of a benefit conferred by the express contractual terms so that the enjoyment becomes (or could become) ... 'nugatory, worthless or, perhaps, seriously undermined' ... the implied obligation of good faith underwrites the spirit of the contract and supports the integrity of its character."[564] Mr Stephen Furst Q.C. further held that "good faith, whilst requiring the parties to act in a way that will allow both parties to enjoy the anticipated benefits of the contract, does not require either party to give up a

Ltd. v Boral Building Services Pty. Ltd. (1995) 36 N.S.W.L.R. 709. On reluctance of courts in Australia to impose a duty to negotiate in good faith, see e.g. *Royal Botanic Gardens and Domain Trust v South Sydney City Council* (2002) 240 C.L.R. 45. See also Peden (n 552)

560 *Gold Group Properties Ltd v BDW Trading Ltd* [2010] EWHC 1632 (TCC)

561 For examples, clause 8.1 "Barratt and the Freeholder will observe and perform their respective obligations and the conditions set out in the Second Schedule and will at all times act in good faith"; clause 11.1 "during the continuance of this Agreement all transactions entered into between the parties shall be conducted in good faith and on the basis set out in this Agreement or if not provided for herein on an arm's length basis; clause 11.2 "each of them shall at all times act in good faith towards the other and use all reasonable endeavours to ensure the observance by themselves of the terms of this Agreement and the agreements referred to in, or contemplated by this Agreement"; clause 18 "[i]f any of the provisions of this Agreement is found by the Expert or court or other competent authority to be void or unenforceable, it should be deemed to be deleted from this Agreement and the remaining provisions shall continue to apply. The parties shall negotiate in good faith in order to agree the terms of a mutually satisfactory provision to be substituted for the provision found to be void or unenforceable". See *Gold Group Properties Ltd v BDW Trading Ltd*

11.2 each of them shall at all times act in good faith towards the other and use all reasonable endeavours to ensure the observance by themselves of the terms of this Agreement and the agreements referred to in, or contemplated by this Agreement;"

562 *Automasters Australia Ptv Ltd v Bruness Ptv Ltd* [2002] WASC 286

563 *Overlook v Foxtel* [2002] NSWSC 16

564 *Gold Group Properties Ltd v BDW Trading Ltd*, para 90.

freely negotiated financial advantage clearly embedded in the contract".[565] Thus, the claimant was not in breach of the obligation of good faith in refusing to renegotiate the revenue sharing provision.[566]

Barbudev v Eurocom Cable Management Bulgaria EOOD

In April 2012, the Court of Appeal ruled in *Barbudev v Eurocom Cable Management Bulgaria EOOD*[567] that the disputed side letter[568] was unenforceable. Lord Justice Aikens held that although the parties agreed to negotiate in good faith for the appellant's rights to purchase a stake of the respondent's firm was intended, however, such an obligation of negotiation in good faith had not created binding legal relations between the parties, and thus was still unenforceable as it was an "agreement to agree". Lord Justice Aikens held that the side letter was, no doubt, nothing more than an "agreement to agree" and "*[i]t is an agreement to offer Mr Barbudev 'the opportunity to invest in the Purchaser on the terms to be agreed between us'. That is not the language of a binding commitment and no amount of taking account of the commercial context and Mr Barbudev's concerns and aims can make it so. Moreover, the next phrase makes it*

[565] *Gold Group Properties Ltd v BDW Trading Ltd* [2010] EWHC 1632, para 91.

[566] *Gold Group Properties Ltd v BDW Trading Ltd*, para 111

[567] *Barbudev v Eurocom Cable Management Bulgaria EOOD* [2012] EWCA Civ 548.

[568] The main provision of the side letter stipulated that "*[i]n consideration for you agreeing to enter into the Proposed Transaction and to sign the Transaction Documents, the Purchaser hereby agrees that, as soon as reasonably practicable after the signing of the Agreement by all Parties, we shall offer you the opportunity to invest in the Purchaser on the terms to be agreed between us which shall be set out in the Investment Agreement and we agree to negotiate the Investment Agreement in good faith with you. Such terms shall include, without limitation, the following:*

1. you shall invest an aggregate amount of not less than €1,650,000 in consideration for a combination of shareholder debt and registered shares which shall represent ten (10) percent of the registered share capital of the Purchaser on the date of the Investment Agreement;

2. we shall use reasonable commercial endeavours to obtain debt financing, where reasonably practicable, for the purpose of making further acquisitions and, in turn, to enable the shareholders of the Purchaser from time to time to make financial savings; and

3. tag along and drag along provisions which are customary for a transaction of this nature shall be included in the Investment Agreement."

clear that the terms of the Investment Agreement are not agreed; they are to be negotiated '…in good faith with you". [569]

Shaker v Vistajet Group Holding SA

In June 2012, the High Court in *Shaker v Vistajet Group Holding SA*[570] declined to enforce a letter of intent.[571] In his judgement, Justice Teare held that an agreement to negotiate in good faith or to use reasonable endeavours to agree was unenforceable because "there are no *objective criteria by which the court can decide whether a party has acted unreasonably".* [572] If there is "no objective criteria by which such agreements or written confirmation could be produced for the parties by the court in the absence of agreement… the court is unable to enforce the parties' agreement to agree*"*.[573]

TSG Building Services Plc v South East Anglia Housing Ltd

In May 2013, the parties in *TSG Building Services Plc v South East Anglia Housing Ltd* entered into a building service contract, under which it was expressly agreed that either party had the right to terminate the contract on three months' notice for any or even no reason.[574] The contract also contained a clause which may require the parties to "*[t]he Partnering Team members shall work together and individually in the spirit of trust, fairness and mutual cooperation for the benefit of the Term Programme, within the scope of their agreed roles, expertise and responsibilities as stated in the Partnering*

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[569] *Barbudev v Eurocom Cable Management Bulgaria EOOD*, para 44

[570] *Shaker v Vistajet Group Holding SA* [2012] EWHC 1329 (Comm)

[571] In the event that the Guarantor, Seller and Buyer, despite the exercise of their good faith and reasonable endeavours, fail to reach agreement, execute and deliver the Transaction Documents on or before the Cut-Off Date (subject to any extension of such date by written agreement of the parties):

(a) this Letter of Intent shall automatically terminate following the Cut-Off Date without penalty or claim by either party and shall be void and of no legal effect; and

(b) the Guarantor shall within five (5) business days following the Cut-Off Date refund the Deposit to the Buyer's nominated account.

Shaker v Vistajet Group Holding SA, para3

[572] *Shaker v Vistajet Group Holding SA*, para7

[573] *Shaker v Vistajet Group Holding SA*, para17

[574] *TSG Building Services Plc v South East Anglia Housing Ltd* [2013] EWHC 1151, para 42

Documents, and all their respective obligations under the Partnering Contract shall be construed within the scope of such roles, expertise and responsibilities, and in all matters governed by the Partnering Contract they shall act reasonably and without delay".[575] Mr Justice Akenhead construed the clause narrowly and held that the clause did not require a party to act reasonably as such in terminating the contract.[576] As for whether there was an implied duty of good faith, the judge held that even if "*there was some implied term of good faith, it would not and could not circumscribe or restrict what the parties had expressly agreed*"[577] relating to the termination right.

4.5.2. Positive Change Recently

It is true that good faith has still not been recognized as a general principle under English contract law. English courts nevertheless have adopted a case-by-case approach, in which rulings have been rendered in response to specific issues in individual cases rather than simply rejecting the application of good faith in all circumstances. Some recent cases have shown the willingness of English courts to recognize the principle of good faith when interpreting parties' contractual duties.

4.5.2.1. Express Duty of Good Faith

Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor

In 2004, in *Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor*,[578] the parties entered into a supervision agreement regarding an offshore production platform in the South Marlim field. Article 12.4 of the supervision agreement stated that Brasoil agreed to negotiate in good faith with Petromec the extra costs and the extra time above and upon such determination parties agreed to sign addendums specifying the amounts to

[575] *TSG Building Services Plc v South East Anglia Housing Ltd*, para 4

[576] *TSG Building Services Plc v South East Anglia Housing Ltd*, para 42

[577] *TSG Building Services Plc v South East Anglia Housing Ltd*, para 51

[578] *Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor* [2004] EWHC 127 (Comm), *Petromec Inc & Ors v Petroleo Brasileiro SA Petrobras & Ors* [2005] EWCA Civ 891

be paid.[579] The defendant counsel relied on the decision in *Walford v Miles*[580] and argued that an agreement to negotiate was always "*devoid of legal content*" and unenforceable due to uncertainty.[581] The high court judge Mr Justice Moore-Bick held that the negotiations in Walford v Miles was "*rather different from negotiations of the kind envisaged by clause 12.4 of the Supervision Agreement, since in the former case the parties are free to achieve the best outcome for themselves by any means short of misrepresentation, whereas in the latter they are restricted by the terms of the contract to ascertaining the actual amount of additional costs reasonably incurred in upgrading the vessel in accordance with the amended specification*".[582]

In the appeal, Lord Justice Mance upheld the decision made by Mr Justice Moore-Bick that clause 12.4 was enforceable. He made very subtle analysis on this issue beginning by illustrating the traditional reasons held by English courts to deny enforceability of negotitaon in good faith. Such reasons of objection are "*(1) that the obligation is an agreement to agree and thus too uncertain to enforce, (2) that it is difficult, if not impossible, to say whether, if negotiations are brought to an end, the termination is brought about in good or in bad faith, and (3) that, since it can never be known whether good faith negotiations would have produced an agreement at all or what the terms of any agreement would have been if it would have been reached, it is impossible to assess any loss caused by breach of the obligation*".[583] Nevertheless, Lord Justice Mance held that none of these reasons would be good reasons for denying the enforceability of clause 12.4.

Firstly, Lord Justice Mance distinguished the difference from "an agreement to agree" with an obligation to negotiate the extra cost and pointed out that cost is comparatively

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[579] Clause 12. 4 "*Brasoil agrees to negotiate in good faith with Petromec the extra costs referred to in Clauses 12.1 and 12.2 above and the extra time referred to in Clause 12.2 above and upon the determination of the same Brasoil and Petromec agree to enter into one or more addendums to this Agreement specifying the amounts to be paid by Brasoil to Petromec pursuant to this Clause 12 in good time for Petromec to meet its obligations to its contractors and specifying the date by which Petromec must complete the Upgrade of the Vessel in accordance with the Amended Specification.*" *Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor*, para 44.

[580] *Walford v Miles* [1992] 2 A.C. 128

[581] *Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor*, para 86

[582] *Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor*, para 89

[583] *Petromec Inc & Ors v Petroleo Brasileiro SA Petrobras & Ors*, para 116

easy to ascertain. The same reason applies to the third objection, i.e. the difficulty of ascertaining loss. [584]

As for the second objection, Lord Justice Mance confirmed that it was elusive to determine whether negotiation was conducted in good faith or bad faith. Nevertheless, he pointed out that "*the difficulty of a problem should not be an excuse for the court to withhold relevant assistance from the parties by declaring a blanket unenforceability of the obligation.*" In the case, the defendant contended that the claimant had made fraudulent representations. Lord Justice Mance thus held that "*[i]f fraudulent representations as to the intention to continue negotiations were made, the obligation to negotiate in good faith is likely to fall away as a separate obligation; if there was no fraudulent representation, it is perhaps less likely that there will have been bad faith in terminating negotiations but it will not be particularly difficult to tell whether there was or not*".[585]

Berkeley Community Villages Ltd v Pullen

In 2007, in *Berkeley Community Villages Ltd v Pullen*, a property developer entered an agreement with the landowners, whereby the developer would use its development expertise to maximise the potential of the landowners' land and the landowners should pay the commission fee to the developer. There was a good faith clause under the Third Schedule of the agreement, stating that "*[i]n all matters relating to this agreement the parties will act with the utmost good faith towards one another and will act reasonably and prudently at all times*".[586] During the performance of the contract, the landowner sold the land to a third party, depriving the developer's right of the commission. Thus, the parties disputed whether the landowners were prohibited from selling or disposing of the land during the contract term.

In his judgment, Mr Justice Morgan held that the sale of the land by the landowners' breached the duty of utmost good faith as stipulated under Schedule Three of the agreement. The judge held that by selling the land, the landowners did not observe

[584] *Petromec Inc & Ors v Petroleo Brasileiro SA Petrobras & Ors*, para 117-118

[585] *Petromec Inc & Ors v Petroleo Brasileiro SA Petrobras & Ors*, para 117-118

[586] *Berkeley Community Villages Ltd v Pullen* [2007] EWHC 1330, para 33.

reasonable commercial standards of fair dealing, did not observe faithfulness to the agreed common purpose, and were not consistent with the justified expectations of the developer.[587]

Horn & ors v Commercial Acceptances Ltd

Later, in 2011, in *Horn & ors v Commercial Acceptances Ltd*[588], a commercial lender and pension scheme trustee entered into a loan agreement, accompanied by the related trust deed. Clause 18 of the loan agreement stipulated that "*each party shall act in absolute faith towards the other*". When examining whether the lender breached its obligation of acting in good faith as per clause 18 by failing to disclose the material facts, Peter Smith J held that it was actually unnecessary to determine whether there was a fiduciary duty as clause 18 had created an express duty of good faith, requiring the lender to disclose material facts.[589] In his judgment, Peter Smith J also clarified that dishonesty is not an essential pre-requisite for a finding of bad faith or a breach of the duty of good faith.[590] The judge thus rejected that dishonesty has to be established for a person to be in breach of good faith.[591]

Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.

In 2013, parties under *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*[592] entered into a series of agreements, under which there was an express good faith clause, stipulating that parties shall cooperate in good faith.[593] The

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[587] *Berkeley Community Villages Ltd v Pullen*, para 110

[588] *Horn & ors v Commercial Acceptances Ltd* [2011] EWHC 1757, the judgement was upheld by Lord Justice Rimer in *Horn & Ors v Commercial Acceptances Ltd* [2012] EWCA Civ 958

[589] *Horn & ors v Commercial Acceptances Ltd*, para 66

[590] *Horn & ors v Commercial Acceptances Ltd*, para 76

[591] *Horn & ors v Commercial Acceptances Ltd*, para 77

[592] *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*, [2013] EWCA Civ 200

[593] Clause 3.5:

"*The Trust and the Contractor:*

(1) will co-operate with each other in good faith; and

(2) will take all reasonable action as necessary:

(a) for the efficient transmission of information and instructions; and

parties had a dispute regarding whether the duty to cooperate in good faith was a general term which governed the whole contractual relationship generally, or whether the duty only applied to that particular clause. The Court of Appeal judge, Lord Justice Jackson, held that there was "*no general doctrine of 'good faith' in English contract law*".[594] The judge, cited Yam Seng Pte Ltd v International Trade Corporation Ltd, pointing out that although a duty of good faith was implied by law in certain categories of contract, if the parties wished to impose such a duty "*they must do so expressly*".[595] Thus, Lord Justice Jackson held that the good faith clause under the agreements was not a general one, rather it specifically focused on the two particular purposes stated in the second half of that clause.[596]

4.5.2.2. Implied Duty of Good Faith

As for the implied duty of good faith, there are two milestone cases recently. Coincidentally, both judgments discuss the issue of types/species of contracts, under which an implied duty of good faith is more likely to be found. Besides, both of the two cases also examine the concept of "relational contracts".

Yam Seng PTE Ltd v International Trade Corporation Ltd

The parties to the action entered into a distribution agreement, under which the defendant, International Trade Corporation Ltd, granted the claimant, Yam Seng PTE Ltd, the exclusive rights to distribute fragrances under the name of "Manchester United" in specified territories in the Middle East, Asia, Africa and Australasia.[597] The business relationship between the parties soured later and the claimant brought the suit against the defendant based on repudiatory breach. In his judgment, Mr. Justice Leggatt went on to consider whether the distribution agreement had an implied duty of good faith.

The judge confirmed that there had been historical hostility in English law towards the

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(b) to enable the Trust or, as the case may be, any Beneficiary to derive the full benefit of the Contract." *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*, para 59

[594] *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*, para 105

[595] *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*, para 105

[596] *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*, para 106

[597] *Yam Seng PTE Ltd v International Trade Corporation Ltd* [2013] EWHC 111 (QBD), para 1

doctrine of good faith. Nevertheless, Mr. Justice Leggatt, by citing authorities from both civil law jurisdictions[598] and common law jurisdictions[599], concluded that it would be a mistake to "*suppose that willingness to recognise a doctrine of good faith in the performance of contracts reflects a divide between civil law and common law systems or between continental paternalism and Anglo-Saxon individualism*"[600] and further he pointed out that if it indeed refuses to recognise any such general obligation of good faith, English law "*would appear to be swimming against the tide*".[601]

Mr Justice Leggatt pointed out that English law had traditionally drawn a "*sharp distinction between certain relationships – such as partnership, trusteeship and other fiduciary relationships*"[602] and an implied duty of good faith by law might be seen under certain types of contract, such as employment contracts, contracts between partners, or other fiduciary ones.[603]

While still being conservative on whether English law "*is ready to recognise a requirement of good faith as a duty implied by law, even as a default rule, into all commercial contracts*"[604], Mr. Justice Leggatt expressly presented his view that it seemed to him "*to be no difficulty, following the established methodology of English law for the implication of terms in fact, in implying such a duty in any ordinary commercial contract based on the presumed intention of the parties*". [605]

When examining whether good faith could be an implied term in the disputed distribution agreement, Mr. Justice Leggatt followed the test established by Lord Hoffmann in Attorney General for *Belize v Belize Telecom Ltd*[606], i.e. the question "*is that what the instrument, read as a whole against the relevant background, would*

[598] For example, Germany, France and Italy. *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 124

[599] For example, the United States, Canada, Australia, New Zealand and Scotland, [2013] EWHC 111 (QBD), para 125-130

[600] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 125

[601] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 124

[602] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 142

[603] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 131

[604] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 131

[605] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 131

[606] *Belize v Belize Telecom Ltd* [2009] UKPC 10

reasonably be understood to mean"?[607]

As for what should be the "relevant background", Mr. Justice Leggatt found that "*the relevant background against which contracts are made includes not only matters of fact known to the parties but also shared values and norms of behaviour. Some of these are norms that command general social acceptance; others may be specific to a particular trade or commercial activity; others may be more specific still, arising from features of the particular contractual relationship*".[608] The judge further pointed out that when making contracts, many such norms "*are naturally taken for granted by the parties without being spelt out in the document recording their agreement*".[609]

When construing what is expected as an implied term of good faith, Mr. Justice Leggatt mentioned two aspects.[610] The first is that parties expect, from each other, honesty as well as the observance of "*other standards of commercial dealing which are so generally accepted that the contracting parties would reasonably be understood to take them as read without explicitly stating them in their contractual document*", such as "improper", "commercially unacceptable" or "unconscionable".[611]

The second implied term of good faith "*which overlaps with the first is what may be described as fidelity to the parties' bargain*".[612] To support this point, Mr. Justice Leggatt followed the incomplete contract theory approach and confirmed that contracts can never be complete as it is impossible to "*expressly provide for every event that may happen*".[613] When unstated circumstances happen, contracts must be construed reasonably to promote "*the values and purposes expressed or implicit in the*

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[607] *Belize v Belize Telecom Ltd*, para 21

[608] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 134

[609] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 134

[610] In his judgement, Mr. Justice Leggatt pointed out that these two aspects of good faith are in line with those express contractual terms of good faith have been interpreted. To this point, the judge cited cases *Berkeley Community Villages Ltd v Pullen*, paras 95 to 97 and *CPC Group Ltd v Qatari Diar Real Estate Investment Co* [2010] EWHC 1535 (Ch), para 246. See *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 140

[611] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 138

[612] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 139

[613] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 139

contract".[614]

In his judgment, Mr. Justice Leggatt also mentioned a concept of "relational contract". The judge further stated that relational contracts "*may require a high degree of communication, cooperation and predictable performance based on mutual trust and confidence and involve expectations of loyalty which are not legislated for in the express terms of the contract but are implicit in the parties' understanding and necessary to give business efficacy to the arrangements*".[615]

Nevertheless, Mr. Justice Leggatt distinguished the level of acceptance between the civil law jurisdictions and common law jurisdictions when adopting the implied duty of good faith. The judge pointed out that such a duty is based on the parties' presumed intention and thus it is open to the parties to modify the scope of such duty. Theoretically, parties can still exclude it entirely by any express term.[616]

Bates v Post Office Ltd (No. 3)

It is a group litigation between sub-postmasters and the Post Office. The parties entered into contracts which stipulated that sub-postmasters shall be responsible for losses caused by negligence which attributed to them or their personnel. Disputes arose as the claimants contended that the computer system offered by the Post Office contained, or must have contained, bugs, and that the claimants should not be liable under the contracts for those shortfalls and discrepancies caused by such bugs.

In his judgment, Mr Justice Fraser found that the contracts formed between the Post Office and sub-postmasters were "*relational contracts, which means that there is an*

[614] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 139. Mr. Justice Leggatt also mentioned that such principle has been well established in the modern English case law: see e.g. *Rainy Sky SA v Kookmin Bank* [2011] 1 WLR 2900; *Lloyds TSB Foundation for Scotland v Lloyds Banking Group Plc* [2013] UKSC 3, paras 23, 45, 54.

[615] Examples of such relational contracts given by Mr. Justice Leggatt are joint venture agreements, franchise agreements and long-term distributorship agreements. See *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 142

[616] *Yam Seng PTE Ltd v International Trade Corporation Ltd*, para 149. Nevertheless, Mr. Justice Leggatt also pointed out that "*in practice it is hardly conceivable that contracting parties would attempt expressly to exclude the core requirement to act honestly*".

implied duty of good faith in the agreement".[617] As for this point, Mr Justice Fraser held that "relational contracts" are a type of separate type of contract[618] and is "*an established one under English law*".[619] He further gave out a non-exhaustive list of characteristics[620] that may be used to evaluate whether it is a relational contract or not:

1. no specific express terms under the contract to exclude a duty of good faith as an implied term; 2. There is mutual intention of the parties that the contract is a long-term one, with a long-term relationship; 3. The parties must intend that individual roles of them be performed with integrity, and with fidelity to their bargain; 4. The parties are committed to mutual collaboration when performing the contract; 5. It may not be able to exhaustively express the spirits and objectives of the parties' venture in writing; 6. Parties repose to each other with trust and confidence, yet of a different kind to that under a fiduciary relationship; 7. Based on mutual trust and confidence between the parties, the contract involves expectations of loyalty as well as a high level of communication, co-operation and predictable performance; 8. One party (or both) may have significant investment in the venture. In some circumstances, it may be more precisely described as substantial financial commitment; 9. The relationship may involve exclusivity. Mr. Justice Fraser clarified that, except the first one, no single circumstance under the list is determinative.[621]

The judgment largely followed and supported the approach used by Mr Justice Leggatt in *Yam Seng Pte Ltd v International Trade Corporation Ltd*, but also moved one step further as Mr Justice Fraser clearly stated that "relational contracts" are different from those under a fiduciary relationship. This may support the idea that more ordinary

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617 *Bates v Post Office Ltd (No. 3)* [2019] EWHC 606 (QB), para 1113

618 *Bates v Post Office Ltd (No. 3)*, para 716

619 *Bates v Post Office Ltd (No. 3)*, para 705. To support his finding, Mr Justice Fraser sited a bunch of cases, including *Amey Birmingham Highways Ltd v Birmingham City Council* [2018] EWCA Civ 264, *Globe Motors v TRW Lucas Varity Electric Steering* [2016] EWCA Civ 396, *MSC Mediterranean Shipping Co v Cottonex Anstalt* [2016] EWCA Civ 789, *D&G Cars Ltd v Essex Police Authority* [2015] EWHC 226 (QB), *Sheikh Al Nehayan v Kent* [2018] EWHC 333 (Comm), *Bristol Groundschool Ltd v Intelligent Data Capture Ltd* [2014] EWHC 2145 (Ch).

620 *Bates v Post Office Ltd (No. 3)*, para 725

621 *Bates v Post Office Ltd (No. 3)*, para 726

commercial contracts, if they meet those criteria, may also be classified as relational contracts.

The uniqueness of a long-term relational contract is not that parties ask for fairness, but that they want to maintain the deal and the future relationship. This offers a more solid base for re-negotiation — parties are even prepared to accept some unfairness, to embrace some extra bother, and to compromise while in a justifiable position.

4.5.3. Possible Grounds to Insert Legally Binding Renegotiation Obligation

Based on the above analysis regarding the development of English law reflected by those cases, it can be concluded that although English law has not yet been ready to accept good faith as a general principle, it still adopts a case-by-case approach when examining the enforceability of such contractual clauses which involve a duty of renegotiation in good faith. These cases also show that English courts are willing to recognize such clauses if some criteria have been met.

Before answering the question as to whether it is possible to insert legally binding re-negotiation clauses, it's critical to find out why such clauses have been rejected by English courts and what are the reasons behind that, i.e. why English courts are reluctant to uphold renegotiation in good faith and why in some individual cases, such clauses were affirmed by English courts.

4.5.3.1. Reasons behind the English law's Hostility against Renegotiation in Good Faith

Based on the cases in the previous section, it can be seen that English courts have been reluctant to enforce an agreement under which the parties agree to negotiate in good faith as such an agreement constitutes an "agreement to agree" and is thus unenforceable under the common law. The main reasons behind such judicial attitude are, firstly, it is assumed that parties lack a serious legal intention to contract when engaged in good faith negotiations. Secondly, these kinds of agreements are virtually uncertain in nature. It is a concern that such agreements create vague and subjective obligations, thus undermining contractual certainty, on which English law has always

put a lot of emphasis. [622] As there is no objective criteria or legal standard regarding whether a party had negotiated in good faith, such agreements foster imprecision. Thirdly, it is difficult to verify loss if parties fail to conclude contracts based on such negotiations.[623] Fourthly, English law also respects 'individualism' and adopts a view that as long as parties do not breach their duties under a contract, they are free to pursue their own self-interest, both in negotiation and performance of contracts. [624] Fifthly, there is also a public policy concern of the English courts when reviewing such agreements. The English courts are hostile to such agreements as they, if recognized by courts as binding and enforceable agreements, may open the floodgate for parties, especially the unsatisfied negotiators, to claim for remedies, no matter whether such claims are realistic or not.[625]

4.5.3.2. Reasons behind the English Courts' Acceptance of Duty of Good Faith in Individual Cases

Based on the above analysis, it can be seen that English courts are willing to recognize a duty of renegotiation in good faith, either an express one which is agreed by the contracting parties or an implied one. Though it may be too rash and bold to make a conclusion as to which kind of clauses will be recognized by the English courts, some hints can be drawn.

Express good faith may be used to prevent behaviour which frustrates the purpose of the contract[626], and will be more likely upheld by UK courts if the wording of the scope of renegotiation is narrow enough whereas objective criteria is set forth under the contract.[627] On the other hand, case law showed that express duty of good faith may be

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[622] *Yam Seng Pte Limited v. International Trade Corporation Limited*, , para 123, Hugh Beale (n 484)

[623] Trakman LE and Sharma K (n 556) 598–599.

[624] *Yam Seng Pte Limited v. International Trade Corporation Limited*, para 123

[625] See generally R. Brownsword, N.J. Hird and G. Howells, *Good Faith in Contract: Concept and Context* (Ashgate 2006). especially ch. 1; J. Davies, 'Why a Common Law Duty of Contractual Good Faith Is Not Required' [2002] Cant.L.R. 529.

[626] *Berkeley Community Villages Ltd v Pullen*.

[627] *Petromec Inc v Petroleo Brasileiro SA Petrobras & Anor, Petromec Inc & Ors v Petroleo Brasileiro SA Petrobras & Ors.*

unlikely to interrupt express contractual rights[628] or request a party to give up its commercial interests.[629] Besides, when interpreting the scope of an express duty of good faith, without a clear intention stated by the parties, English courts tend to apply a narrow approach and are reluctant to give it a wide application.[630]

As for implied duty of good faith, the pre-condition is that such a duty has not been excluded[631] or replaced[632] by the expressed term. Subject to such a pre-condition, the English courts may be willing to uphold that a duty of good faith is implied in certain types of contract, such as employment contracts, contracts between partners, other fiduciary ones[633], or commercial contracts which reflect a character of relational contracts.[634] Nevertheless, similar to the judicial view on examining the express duty of good faith, the English courts may still hold a view that an implied duty of good faith would not force a party to subordinate its own commercial interests to those of the other contracting party.[635]

Back to contract chains relating to upstream oil and gas projects, as for the approach to insert an enforceable express term of renegotiation in good faith, parties may be able to take the reference from above mentioned cases and draft the clauses accordingly to include such characteristics which will persuade the English courts or arbitral tribunal to uphold the enforceability of the clauses.

As for the implied duty of renegotiation in good faith, it is quite encouraging to see that those criteria mentioned by the English courts when upholding an implied duty of renegotiation in good faith can be found in contracts relating to upstream offshore oil and gas projects. For example, long-term character has been seen in contracts relating to upstream exploration and production activities as well as contracts relating to

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628 *TSG Building Services Plc v South East Anglia Housing Ltd*

629 *Gold Group Properties Ltd v BDW Trading Ltd*

630 *Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd.*

631 *Bates v Post Office Ltd (No. 3)*

632 *Astor Management AG & Anor v Atalaya Mining Plc & Ors* [2017] EWHC 425 (Comm)

633 *Yam Seng Pte Limited v. International Trade Corporation Limited*

634 *Bates v Post Office Ltd (No. 3)*

635 *Hamsard 3147 Ltd v Boots UK Ltd* [2013] EWHC 3251; *Carewatch Care Services Ltd v Focus Caring Services Ltd* [2014] EWHC 2313

downstream sales. Moreover, in those contractual relationships, it is possible for the contracting parties to show, either by express terms under the contracts or actual conducts during the contract performance, that parties are committed to mutual collaboration, to repose to each other with trust and confidence, and to maintain high level of communication and co-operation between them. Such features may persuade courts or arbitral tribunals to uphold that the disputed contracts are relational ones under which the contracting parties owe a duty of renegotiation in good faith to each other.

4.6. Chapter Conclusion

After all, though parties cannot change the external social or legal framework where their projects are located, nor can they foresee or prevent any impediments in the long-term lifespan of an upstream offshore oil and gas project, they can still utilize contractual terms as a private protection mechanism to reasonably and effectively allocate rights, obligations, and risks as well as to minimize transaction and enforcement costs. Whereas an external legal framework is out of the control of the individual parties, the parties still have autonomy in business negotiation and contract design.

Contract design is imperative in the upstream offshore oil and gas industry, as many projects are located in emerging markets where the local legal framework is not well developed and sometimes is even more vulnerable because of the unstable social and political environment. Therefore, to ensure business success, good contract design is not only needed to minimize transaction and enforcement costs but also is needed to incorporate necessary protective mechanisms as a remedy to the legal deficiencies.

The smooth running of contract chains relating to an upstream offshore oil and gas project is very important to eventually contribute to the repayment ability of an oil and gas company in a financing arrangement. As quite a few contracts reflect a long-term nature, the stability of the contractual relationship, especially in a fluctuated market is even more imperative. Fortunately, there are indeed some contractual mechanisms which can be used by the contracting parties to deal with unexpected exceptional circumstances. Such mechanisms include but are not limited to force majeure clauses, hardship clauses etc.

Compared to force majeure clauses, which suspend performance or exempt a party from performance when certain force majeure events happen, hardship clauses may be better to maintain the contractual relationship by re-balancing the equilibrium between the contracting parties. However, in order to ensure that the positive function of a hardship clause actually works in reality, parties should pay attention the issue how to impose a duty of renegotiation in good faith. This may eventually help the parties to adapt their contract through renegotiation.

Positive tendencies have been seen in the development of English law regarding recognition of a duty of renegotiation in good faith. If certain criteria have been met, English courts are willing to uphold that parties do have a duty of renegotiation. Some of these criteria, which may help a party win favour from English courts when requesting that its opponent party conduct renegotiation and finally adapt the contract, have been seen in contracts relating to upstream oil and gas projects. Thus, parties under such contracts may have a better basis on which to rely on under a hardship clause to promote renegotiation and contract adaption.

Nevertheless, it should not ignore that controversy and different judicial attitudes still exist in relation to these clauses. However, comparing more general clauses (i.e. force majeure and hardship clauses), the contracting parties may still insert some more specific contractual clauses, either to collaborate with a hardship clause or to serve as an alternative back-up, which may give them further protection. For such more detailed clauses, detailed analysis will be made in the next chapter.

Chapter 5 Utilizing Particular Contractual Mechanisms to Stabilize Downstream Sales

5.1. Introduction

In the previous chapters, it has been clearly established that upstream offshore projects do need substantial financial investment, under which a series of contracts work together to ensure the smoothness of one project, especially in vulnerable market periods. Highlights have been made to show that while financing is one of the key elements to safeguard the running of a project, merely focusing on financing documents alone is far from enough to help an oil and gas company maintain stability in its fulfilment under such financing documents.

More often, an oil and gas company has less bargaining power and, as a result, those terms and conditions are much stricter for it than that for a financier. It seems that financiers are in a much stronger bargaining position and leave oil and gas companies a little room to insert favourable clauses into the financing documents. As a result, one may think that oil and gas companies are exposed to much greater risks. Nevertheless, there is still a possible solution for an oil and gas company to protect itself from possible breaches.

In order to do so, a more holistic approach should be used. After examining the issue more comprehensively and thoroughly, it is easy for one to notice that the relationship between an oil and gas company and its business partners, other than financiers, also substantively influences its performance to fulfil the repayment obligation in financing arrangements.

The sales revenue from its downstream transactions is a strong support, not only in debt financing but also in equity financing. In debt financing, the sales revenue is directly linked with the cash flow which will be used for the repayment. In equity financing, a strong performance in downstream sales and stable sales revenue is an attractive signal which will build up the confidence from any investor.

In previous chapters, the analysis showed that, under contractual mechanisms, there are some general clauses which may indeed help to strengthen the relationship between an

oil and gas company and its business partners, such as renegotiation clauses, hardship clauses in general, force majeure clauses, etc. However, such clauses do have limited applications and, if not drafted very carefully, are more likely to be rendered as invalid by courts/tribunals. Despite this, through dedicated drafting, such clauses are recognized by courts/tribunals, since the they only provide a mechanism for renegotiation or termination, very often, they cannot sufficiently assist parties to work together to go through a tough period.

Therefore, this thesis goes further to explore what kind of contractual mechanism can give parties a more detailed and feasible framework to conduct a renegotiation yet reach a genuine conclusion for a revised arrangement.

To this extent, more emphasis will be placed on the downstream side as this is the area in which private commercial parties have more equal position and comparable bargaining power. In the downstream sector, the key issue for an oil and gas company is the sales revenue. This is also how an oil and gas company can pay its debt/dividends in the financing arrangement. The pricing issue is no doubt directly related to the sales revenue. Therefore, this chapter will focus on the pricing mechanism and explore how to make a feasible and flexible arrangement between an oil and gas company and its downstream buyers.

In this chapter, more analysis will be provided on gas sales contracts. Although there is a tendency to treat oil and gas interchangeably, the two do have substantial differences and to some extent, gas sales contracts can be more complicated and controversial. Unlike oil, which is liquid, gas is physically processed from its natural gaseous state, compressed, and liquefied for transport. This means, an offshore platform for processing gas needs more sophisticated equipment and machinery than that of oil processing and more capital investment can be expected. Besides, gas is not always used in the region where it is produced and therefore a network of pipelines is required as the means of transport. There are no local refineries as there are with crude oil. It is transported from the well by transmission through a natural gas pipeline. The capital investment to move gas along the pipeline is substantial compared to transporting oil to local and regional refineries. The price received for natural gas at the well is determined by the gas sales contract. The market for gas is determined by the season and the need

for natural gas and liquefied natural gas.[636] Since more permanent investment (i.e. pipeline, etc.) is made, an oil and gas company is looking for long-term gas sales contracts to secure its investment and stabilize the downstream sales to support the upstream exploration and production as well as maintain the ability to fulfil the repayment obligation in the financing arrangement. With such a background, one may expect more complex and disputable issues linked with gas sales contracts. Therefore, this thesis will be more focus on the analysis of gas sales contracts.

Under gas sales contracts, one key element is the pricing clause. Therefore, further analysis will be provided to illustrate the interrelationship between the pricing clauses and the dispute resolution clauses (arbitration clauses). In contrast to other commercial disputes, the interrelationship between the pricing clause and the arbitration clause can be imperative which substantially influences the outcome of the arbitration (arbitral award). This also highlights one critical yet easily ignorable point — one should, again, take a holistic view when drafting contracts. The relationship between different contracts and between individual contractual clauses within one contract should be taken into consideration from the very beginning at the initial drafting stage.

5.2. Key Features in Downstream GSPAs

Compared to normal private commercial contracts, the gas sale and purchase agreements (GSPAs) surely have some unique features that make them different from others.

5.2.1. Long-term Features in Downstream GSPAs

While sharing common features with other sale of goods contracts, the GSPAs in the upstream oil and gas sector have one important character — a majority of them are long-term contracts[637], which can be performed by parties over decades.

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[636]'How Gas Leases Differ from Oil Leases' (2006) <http://www.oil-gas-leases.com/gas-lease-differs-oil-lease.html> accessed 26 February 2020.

[637] Long-term gas supply agreements normally offer the sale and purchase of a large amount of gas or LNG over a period of 20 years or more. See Mark Levy and Rishab Gupta, 'Gas Price Review Arbitrations: Certain Distinctive Characteristics' (*Global Arbitration Review*, 9 June 2016)

In spite of emerging of short-term sale and purchase contracts in certain spot markets because of hub trading in the natural gas industry[638], long-term GSPAs are still the dominant form when parties trade gas, especially when demand exceeds supply in many countries and regions.[639] Even in today's context, after existing and developing fundamentally over the decades, GSPAs still remain and show a long-term feature. Although the number of extremely very long-term GSPAs, with a duration of 30 to 40 years, are decreasing and no longer common in today's markets, a majority of GSPAs still have a 10 to 25 years' duration.[640] Indeed, quite a few market players, either from the production side or the consumption side, still consider the long-term GSPAs as a key element in their business relationships. [641]

Exploration, production, and development of gas takes longer than that of oil due to the longer payback period as the investment and operation costs are usually much higher.[642] Long-term duration of GSPAs is critical to the development of the upstream gas sector due to the inherent characteristic of gas exploration and production, which is not only extremely capital-intensive but also highly market-oriented. An oil and gas company will never invest significant advanced capital contribution to explore and produce gas if there is no sufficient revenue back-up by sales in the downstream market. [643] The long-term duration of the GSPAs ensures revenue generated through these contracts

<https://globalarbitrationreview.com/chapter/1036074/gas-price-review-arbitrations-certain-distinctive-characteristics> accessed 26 February 2020.

638 Rafael Garaffa and others, 'Price Adjustments and Transaction Costs in the European Natural Gas Market' (2019) 40 The Energy Journal 171.

639 John A Trenor, 'GAS PRICE DISPUTES UNDER LONG-TERM GAS SALES AND PURCHASE AGREEMENTS', *Energy Regulation and Markets Review* (7th edn, Law Business Research Ltd, 2018)..

640 Anne Neumann, Sophia Rüester and Christian von Hirschhausen, 'Long-Term Contracts in the Natural Gas Industry – Literature Survey and Data on 426 Contracts (1965–2014)' (Deutsches Institut für Wirtschaftsforschung 2015) DIW Data Documentation, No. 77 <http://hdl.handle.net/10419/108977> accessed 26 February 2020.; Ben Holland and Phillip Spencer Ashley, 'Natural Gas Price Reviews:Past, Present and Future' (2012) 30 Journal of Energy & Natural Resources Law 29.

641 'The Future of Natural Gas Coming Soon to a Terminal near You' [2011] The Economist <https://www.economist.com/briefing/2011/08/06/coming-soon-to-a-terminal-near-you> accessed 26 February 2020.

642 All Answers ltd, 'Long term gas sale agreement' (Lawteacher.net, February 2019) <https://www.lawteacher.net/free-law-essays/contract-law/long-term-gas-sale-agreement-contract-law-essay.php?vref=1> accessed 4 February 2019

643 ibid

would be more stable and guaranteed, thus help oil and gas companies to facilitate and apportion the extensive costs of exploration, production, and development in their upstream sectors.[644] Such guaranteed cash flow to an oil and gas company is also fundamental in financing arrangement, as it can be used as collateral security to lenders in a debt financing arrangement or as an indication of further dividends in an equity financing context.

5.2.2. The Relational Feature of Long-term GSPAs

To some extent, a relational contract is a "sociological rather than a legal category".[645] The contracting parties are not able to reduce key obligations to well-defined terms under contracts. While parties under a conventional contract are capable of determining specific terms, parties under a relational contract are very likely not be able to define specific and precise performance standards from the very beginning. Such definitive terms may be impractical due to incapability of the contracting parties to estimate future contingencies or structure complex adaptations sufficiently even when uncertain future conditions can be identified in advance.[646]

A relational contract tends to ascertain the relationship of the contracting parties, nevertheless without making precise description relating to some key terms under the contract, for example duration, quantity, price, etc. By doing so, a relational contract makes parties commit to each other based on broad terms, thus leaves parties some room to adjust their contractual relationship as time passes.[647]

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[644] These costs may be extensive, including but not limited to the costs of construction of pipelines as well as costs for other infrastructure consternation, for example, equipment of liquefaction, regasification, etc. Steven P Finizio, 'Destination Restrictions and Diversion Provisions in LNG Sale and Purchase Agreements', *the guide to energy arbitrations* (3rd edn, Law Business Research 2015) <https://globalarbitrationreview.com/chapter/1178848/destination-restrictions-and-diversion-provisions-in-lng-sale-and-purchase-agreements> accessed 27 February 2020; Holland and Ashley (n 641).

[645] Griffin (n 305)217.

[646] Goetz and Scott (n 473)

[647] Griffin (n 305) 216.

Relational contracts are known for their long-term duration[648] and the common purpose or mutual interest shared between the parties.[649] Although long-term duration may be a common feature in those contracts, such duration is not a defining feature and it emphasizes more on the nature and impact of the long-term relationship between the parties.[650] Unlike ordinary contracts, under which parties are more likely to take tacit or even opportunistic actions to maximize their own interest, parties under relational contracts demonstrate a high willingness of communication, cooperation, adjustment, mutual trust, confidence in the counter party, as well as expectations of faithfulness in order to preserve the relationship.[651]

The contracting parties in long-term GSPAs may be more willing to conclude a relational contract. While facilities in the downstream sectors long for stable security of supply, producers in the upstream sector also crave an enduring long-term demand in the users' market for their product.[652] Long-term GSPAs are not discrete or precise contracts but rather contain quite a few terms with much broader language and parties intend that some matters may be dealt with more precisely at a later stage during the performance.[653]

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[648] 'If a series of individual contracts is to be drawn within the category of 'long-term contracts', then it suggests that the duration of the contract is not the definitive characteristic of a 'long-term contract'. Rather, it is the nature and duration of the relationship between the parties which is the definitive feature. If this is correct then the focus of our inquiry should be on what has been termed 'relational contracts' and not simply contracts which last for a long period of time. While contracts of long duration are more likely to be relational than contracts of short duration, 'temporal extension per se is not the defining characteristic' of a relational contract.' (McKendrick (n 301)).

[649] 'Parties to a relational contract, then, are likely to view the exchange as an ongoing integration of behaviour which will grow and vary with events in a largely unforeseeable future. Thus, in the planning process the parties may intentionally leave important terms open, or explicitly 'agree to agree' in the future, or they may reserve to one or both parties discretion to be exercised during performance Richard E Speidel, 'The Characteristics and Challenges of Relational Contracts' (1999) 94 Northwestern University Law Review 823).

[650] Bell Cf J, 'The Effect of Changes in Circumstances on Long-Term Contracts', Contract Law Today: Anglo-French Comparisons (Clarendon Press 1995)..

[651] Speidel (n 644); McKendrick (n 301).

[652] David Mildon, 'Gas Pricing Disputes' (*Essex Court Chambers*, 19 July 2012) <https://essexcourt.com/publication/gas-pricing-disputes/> accessed 27 February 2020.

[653] Griffin (n 305) 217

Nevertheless, such a concept of relational contract may not fit into a traditional English law context. The broad terms under relational contracts may be linked with peculiar issues, for example: the role of contractual mechanisms in response to changed circumstances; role of good faith in the renegotiation process, etc.[654]

5.2.3. Importance of Pricing Provisions under GSPAs

As for a GSPA, the longer duration it has, it becomes more vulnerable to external events and suffers more from geopolitical, commercial, legal risks, etc. Such events and risks may render performance of the contract partially or even entirely impracticable or, considering commercial and financial concerns, may be no longer feasible for one party, at least.[655]

Long-term contracts are more vulnerable to interruption caused by unforeseeable events or events which the parties are aware of but fail to deal with and mutually consent in the contract negotiation because of limited time and high cost of pre-contract negotiation.[656] It would be too theoretical or irrational to presume that the circumstances applicable at the time when negotiation is undertaken and the original

[654] ROBERTSON (n 312).

[655] Abba KOLO and Thomas W. WÄLDE, 'Renegotiation and Contract Adaptation in International Investment Projects' (2000) 1 The Journal of World Investment & Trade5. See also McKendrick (n 301); WL Craig, WW Park and J Paulsson, *International Chamber of Commerce Arbitration*, vol 3 (Oceana Publications 1990)., who affirm that "*[m]odifying the contract may be particularly vital to the success of long-term projects, with respect to which the evolution of the product market, rates of currency exchange, technological developments, politics, relative competitive advantages, and the like, may make, it highly desirable to provide for an arbitral adjustment of the contract. Otherwise, the sole alternative to a negotiated solution would be the termination of the contract with a possible award of interest, and both parties may agree at the time of negotiating the contract that such an end to their association would be in the interest of neither*".

[656] KOLO and WÄLDE (n 656). See also McKendrick (n 301); Craig, Park and Paulsson (n 656), who affirm that '[m]odifying the contract may be particularly vital to the success of long-term projects, with respect to which the evolution of the product market, rates of currency exchange, technological developments, politics, relative competitive advantages, and the like, may make, it highly desirable to provide for an arbitral adjustment of the contract. Otherwise, the sole alternative to a negotiated solution would be the termination of the contract with a possible award of interest, and both parties may agree at the time of negotiating the contract that such an end to their association would be in the interest of neither'.

contracts are concluded remain stable and unchanged during the whole period of performance of a long-term contract. [657]

Although the parties under a long-term contract will still try their best to conclude terms in an exhaustive, precise, and complete way to stipulate their rights and obligations and maintain the economic equilibrium in any future event which may happen during the long-term performance of the contract, it is almost impossible for the parties to predict all such events at the time when the contract is concluded. Thus, it is necessary and important to leave a certain flexibility in long-term contracts so that the relevant terms may be reviewed and adapted into the unforeseeable changes in the future.[658]

When considering flexibility, the price term is one of the major concerns for both parties. Anticipating and calculating costs is a substantial element in the success of any transaction.[659] A long-term contract with a fixed price for future supply may allocate the risk between the parties, i.e. the buyer will bear the risk of a price decrease while the seller undertakes the risk of a price increase. [660] However, such pre-contract negotiation may be lengthy and too costly. In the gas industry, it is very common that parties will not fix the price in a long-term GSPA but rather leave some flexibility in the original contract.

As a result, when circumstances change, parties may have to review the price term. Such process may easily create a dispute. Each party will rely on the wording which is in favour of itself while the counter party will interpret the same wording with an opposite effect. [661] Such tensions may even exist in long-term GSPAs, which reflect a relational business relationship between the parties. When massive commercial interest

[657] Pietro Ferrario, 'Chapter 3: The Adaptation of Long-Term Gas Sale Agreements by Arbitrators Contracts Without an Adaptation Clause', *The Adaptation of Long-Term Gas Sale Agreements by Arbitrators*, vol 41 (Kluwer Law International 2017)

[658] Ferrario (n 658)

[659] 'Why Your Company Needs A Long-Term Supply Agreement' (*Pennsylvania Business Law Blog*, 8 April 2013) <http://www.berkowitzkleinllp.com/2013/why-your-company-needs-a-long-term-supply-agreement/> accessed 27 February 2020.

[660] Robert E Scott and Alan Schwartz, 'Contract Theory and the Limits of Contract Law' (2003) 113 The Yale Law Journal 543.

[661] Griffin (n 305) 217

is involved, even in a relational context, commercial self-interest will exceed the relational basis on which the contract is originally negotiated. Opportunistic amnesia will undermine trust, cooperation, confidence and faithfulness which pertained at the time when the original contract was concluded.[662] Therefore, the pricing provisions under the GSPAs may have incomparable importance. Such provisions may reduce disputes if well drafted and will form the basis for the parties to further resolve any price dispute between themselves.

Price adjustment clauses and price review clauses are sometimes used interchangeably.[663] But when defining them in a stricter way, price adjustment clauses are more often used to deal with foreseeable changes, either economic or others, over the contract life. Usually, these clauses are in a detailed and exhaustive form, stipulating all foreseeable circumstances. In contrast to price adjustment provisions, price review clauses are not designed to deal with foreseeable economic change but are more often used by parties to deal with extraordinary, unforeseen, or unexpected events. Typically, while a price adjustment clause may automatically apply in agreed situations, as a price review clause only deal with extraordinary events, it will only apply upon request of one of the parties. Price review clauses are more often seen in those opaquer and less transparent markets, and subject to confidentiality agreements. Unlike price adjustment clauses, which are detailed and exhaustive, price review clauses tend to be general and less precise in expression. A price adjustment clause will apply regularly, e.g. quarterly or annually. However, a price review clause will only be triggered where disruption goes beyond the scope of the price adjustment mechanism. Therefore, a price review clause may apply much less frequently or regularly. [664]

A typical price adjustment clause normally consists of a base price, which is agreed by the contractual parties from the start; an adjustment formula quoting accepted indicators,

[662] ibid

[663] Trenor (n 640). In order to make more precise illustration and analysis, this thesis tends to adopt such more strict definition and will distinguish price adjustment clauses from price review clauses. However, this may not mean that such definition or distinction is the prevailing one.

[664] Griffin (n 542).

reflecting expectation of the parties regarding foreseeable changes during the contract duration; and frequency of the adjustment, often quarterly or annually.[665]

A typical price review clause normally comprises a 'trigger' event; the methodology to determine the review; the re-negotiation mechanism and process; and the applicable scope of the review.[666]

5.3. Price Adjustment Clause and Price Review Clause

As having already shown in the Chapter 4, in some legal jurisdictions, especially English law[667], courts tend to be reluctant to modify a contract even in a situation of changed circumstances. In these jurisdictions, parties in a long-term contract may try to adopt a contractual mechanism reflecting some specific contractual terms which are intended to re-balance the contractual relationship of the parties and keep the financial equilibrium especially in those changing circumstances throughout the duration of the contract.

As shown above, as GSPAs are more likely to be long-term contracts, comparing to those downstream sales contracts in offshore oil and gas industry, GSPAs are particularly inclined to be influenced by changed circumstances. Therefore, some contractual clauses have been used by parties as protective mechanisms under GSPAs.

Since price is one of the most important terms under almost any contract, parties under a GSPA indeed focus on the drafting of pricing clauses. In long-term GSPAs, fixed prices may not be flexible enough to fit into the fluctuating market price throughout year, parties are willing to establish a pricing mechanism under the contract to effectively address concerns of the seller from a supply-based perspective to maintain a suitable price which may assure the seller that it will not only cover its costs but also obtain a return on its investment. Such kind of assurance is very important when looking back to the upstream financing arrangement, as a steady income generated from the

[665] ibid.

[666] Ted Greeno and Caroline Kehoe, 'Contract Pricing Disputes', *Dispute Resolution in the Energy Sector : A Practitioner's Handbook* (global law and business 2012).

[667] Griffin (n 305)222. English law is quite popular chosen by parties as the governing law under the gas sales and purchase agreement.

downstream sales will help the seller to fulfil its repayment obligation under a debt financing situation or satisfy its equity investors by distributing more dividends.[668] From a buyer's perspective, such a pricing mechanism is also imperative as it will deal with its demand-based concerns. In order to keep financial equilibrium, the most popular approach used by parties is to insert a contractual mechanism which obliges parties to rebalance the price under the contract in changing circumstances. Such mechanisms are mostly seen in two main categories, namely price adjustment clauses and price review clauses.[669]

5.3.1. Price Adjustment Clause

Under a long-term GSPA, as the market price will fluctuate from time to time throughout the whole contractual duration, parties will prefer a pricing mechanism which is flexible and not too rigid. Nevertheless, flexibility may also bring potential disputes into the case. Therefore, it would be better for the contracting parties to rely on a mechanism which is agreed by the parties in advance, which can be later applied automatically in the new situation. A price adjustment clause serves this purpose. Although price adjustment clauses may vary substantially in detail from contract to contract, they share common main components and structure.

A typical price adjustment clause will consist of a base price, which is accepted by both parties from the very beginning; an adjustment formula referring to agreed indicators[670], which also reflects the parties' expectation of foreseeable changes over the lifetime of the contract; and frequency of price adjustment, normally on a quarterly or annual basis. Such a structure will ensure that, comparatively, the application of a price adjustment clause works automatically. In addition, further contractual terms may be agreed by the parties which provide for revision of the price adjustment clause in case of unavailability or change of the agreed indicators or when situation turns out that the purpose of the adjustment ceases to exist.

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668 Holland and Ashley (641)29.

669 Griffin (n 542).

670 Common indicators are competing fuels, for example price of crude oil, or even price of electricity or coal prices, etc. European Commission, 'DG Competition Report on Energy Sector Inquiry' (European Commission 2007).

A price adjustment clause works as an adjustment tool for parties to adapt a new price in certain yet agreed changed circumstances. In this way, the parties are creating an agreed basis of internal regulation of contract pricing within the terms of their agreement. Their expectation is that they will have foreseen and provided for all events (whether internal to their agreement or external) which may be relevant from time to time to the circumstances surrounding their contract and its economic balance over time. They will have acknowledged that no matter what circumstances may lie ahead over the contract's life, their agreement will be read and construed in accordance with the terms they have negotiated and written in their contract, and that (save for the very limited circumstances we will discuss shortly), there will be no prospect of any variation or modification of their bargain, save as may be set out in the specific terms of their agreement or as may be agreed by them in the circumstances prevailing from time to time.

5.3.2. Price Review Clause

It has been recognized that the main rationale of pricing clauses is to provide the contractual parties with a mechanism to restore the equilibrium of the contract in the future as it was agreed by the parties in the past. If such equilibrium becomes distorted, pricing clauses serve to revise the price provisions and thus reset the equilibrium.[671] It is accepted by parties that medium-term events may have a catastrophic impact on the long-term contractual relationship between the parties.[672] Although price adjustment clauses may have already offered parties a solution, such a solution may still be not ideal. In the real world, adopting a pre-agreed price formula which remains unaltered for the whole contractual term, which may last for 10-25 years, irrespective of potential future changes, may be risky and that is undesirable for both parties under the

[671] Final Award in Case 13504, January 2007, "Extracts from ICC Arbitral Awards: Price Setting and Price Revision in the Energy Sector", in: ICC International Court of Arbitration Bulletin, Vol 20/2, 2009, p94. See(*ICC DIGITAL LIBRARY*) <https://library.iccwbo.org/dr-noaccount.htm?reqhref=%5Ccontent%5Cdr%5CAWARDS%5CAW_0944.htm%253Fl1%3DBulletins%26l2%3DICC%2BInternational%2BCourt%2Bof%2BArbitration%2BBulletin%2BVol.20%252fNo.2%2B-%2BEng> accessed 3 February 2020. See Leijten Marnix and Martje de Vries Lentsch, 'The Trigger Phase', *Gas Price Arbitrations: A Practical Handbook* (Globe Law and Business 2014).

[672]Holland and Ashley (641)30.. Also, it should be noted that such negative impact may not only destroy the contractual relationship between the buyer and the seller but may further have negative consequence in the financing arrangement.

contract.[673] Similarly, it is hardly possible for a base price to remain fixed without any dispute between the parties for 10-25 years.[674] To respond to such a situation, parties may agree that a price review clause will be inserted into the contract as a supplement to a price adjustment clause.

Similar to price adjustment clauses, there is no standard form of price review clauses. Nevertheless, generally speaking, there are two main categories of price review clauses: hardship clauses and price reopeners. These two categories have many common characteristics yet have sufficient differences to justify their separate classification, namely hardship clauses and reopeners.[675]

5.3.2.1. Hardship Clause

A hardship price review clause[676] is similar to a general hardship clause and will be triggered in the circumstance that unforeseen events cause one of the contractual parties to suffer serious disadvantage when compared with the economic balance set forth by the original contract. Compared to the more general hardship clause, a hardship price review clause will provide parties with a more detailed price review mechanism and very often involves an expert determination process.

The trigger for the application of a hardship price review clause is normally expressed as a qualitative or quantitative measurement, for example, a certain rate of return or a more general test such as "substantial economic hardship". Nevertheless, the application of a hardship price review clause is case by case and it is quite common that such clause has never applied even in a long-term GSPAs.[677]

[673] Holland and Ashley (n 641)31

[674] ibid..

[675] Griffin (n 542).

[676] *Superior Overseas Development Corporation and Phillips Petroleum (UK) Co Ltd v British Gas Corporation* [1982] Court of Appeal [1982] 1 Lloyd's Rep. 262.

[677] Griffin (n 542).

5.3.2.2. Price Reopener

A price reopener offers parties a chance to periodically review the contract price within a defined period of time.[678] Many GSPAs have price reopeners which offer contractual parties a right to call for a price review at specified intervals, for example every two or three years. In addition, such provision may also give parties a limited right to request unscheduled price review requests, i.e. a 'wildcard' or 'joker' request, during the contract terms if the impact of the changes is so severe and thus does not permit the requesting party to wait until the next scheduled review. [679] Upon a review request raised by a party, both parties are obliged to determine whether such a request is justified according to the contractual terms. If so, both parties are further obliged to agree on a proper revision based on the changed circumstances. If the parties fail to do so, under most GSPAs, they may submit their dispute to arbitration.[680]

5.3.3. Key Concern of Pricing Clauses — the Trigger

Although pricing clauses are generally recognized and applied in the industry, there is still no standard version.[681] The wording of the pricing clauses largely depends on the contractual parties' agreement. Such wording is critical as even minor differences may have a significant impact on the interpretation of a clause.[682] Therefore, effective drafting is critical to ensure that such provisions can offer parties effective solutions yet avoid any potential risks of unenforceability.

As for the above-mentioned critical components of the pricing clauses, the adjustment formula or review methodology is commercial and mathematic related; frequency of adjustment is rather simple and straightforward; re-negotiation mechanism and process is very similar as those have been already mentioned in the relevant sections under Chapter 4. Therefore, for this section, focus will be mainly put on the trigger.

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[678] Finizio (n 645)

[679] Marnix and de Vries Lentsch (n 672).

[680] Finizio (n 679) ; Holland and Ashley (641)32

[681] Holland and Ashley (641)29.

[682]Mark Clarke and Tom Cummins, 'The Price Isn't Right - Gas Pricing Disputes', *International Energy Law Review 2015* (Sweet & Maxwell Ltd 2015).

5.3.3.1. The importance of Fine Drafting of the Trigger

Unlike the regular application mechanism under a price adjustment clause, a price review clause can be applied more flexibly. In general, in order to review the price, as a threshold, a requesting party should show that a required condition has been satisfied before a review can take place. Such a condition is referred to as a trigger.[683] Normally, before requesting a review of the original contractual price, the requesting party is required to show that certain changes have arisen in the relevant market.[684]

Since a trigger event is a condition precedent to the entire price review process, it is not surprising that, in most disputes relating to price review, quite a few uncertainties or even disagreements arise at this threshold stage. Parties would have disputes as to the legitimacy of a trigger event.[685] Some typical disputes with high-frequency include but are not limited to what constitutes a sufficient change or whether the requesting party has any control over the change; whether it is an objective or subjective test, i.e. is the change beyond the control of the parties; how to define the benchmark when determining the change, i.e. what is the referenced market or price; the extent to which the change should reach, i.e. the severity of the change, etc.[686] Almost all of these disputes may be caused by the wording in the contract.

If the requesting party fails to establish that there is a qualified trigger event, its notice to review the price may be invalid. Such a situation happened in *Esso Exploration &*

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[683] CMS, Oil & Gas: Price review clause not unenforceable 'agreement to agree' (Associated British Ports v Tata Steel UK Ltd [2017] EWHC 694 (Ch))

[684] See for example, the price reopener clause in the Atlantic LNG SPA. *Gas Natural Aprovisionamientos SDG SA v Atlantic LNG Company of Trinidad and Tobago* [2008] United States, US District Court, Southern District of New York 08 Civ. 1109 (DLC). Mark Levy, 'Drafting an Effective Price Review Clause', *Gas Price Arbitrations: A Practical Handbook* (1st edn, Globe Law and Business 2014).Changes in the European Gas Market and Price Review Arbitrations, p329

[685] Michael Young, 'Procedural Issues Arising in Price Review Arbitrations', *Gas Price Arbitrations* (1st edn, Global Law and Business, 2014)..

[686] Greeno and Kehoe (n 667), also see MCNAIR CHAMBERS, 'LNG Price Review Disputes' (*mcnairchambers*, 2013) <https://www.mcnairchambers.com/client/publications/2013/LNG_PRICE_REVIEW_DISPUTES_.pdf> accessed 27 February 2020..

Production UK Ltd v Electricity Supply Board.[687] The parties entered into a natural gas sale and purchase agreement for a period of 15 years from 1st October 1999. Under the agreement, price review would be made from time to time. The price review mechanism was stipulated under Clause 12.2 of the agreement, providing that "*the Energy Charge is to be reviewed and adjusted every 6 months by reference to four markers: (i) the price of gasoil (30%), (ii) the price of low sulphur fuel oil (30%), (iii) the price of natural gas (30%) and (iv) the rate of inflation in Ireland as reflected in the industrial wholesale price index (10%). In each case the relevant marker is the average over the 12 month period ending 3 months prior to the review date. The prices to be taken for the three commodities are in effect the spot prices for delivery North West Europe*".[688]

A price review notice was required by the agreement, however, Clause 12.6(6) set forth certain limitation on the price review notice and stipulated that a price review notice could not be given by the seller unless " *... it is reasonably satisfied in good faith that the Energy Charge . . . . . is at the time of giving such Price Review Notice eighty five per cent (85%) or less than the Comparator*". The comparator was defined as the market price for natural gas being supplied between parties of similar standing under a long-term contract on similar terms and for similar purposes. Clause 12.6(8) further stated a party giving a price review notice shall specify the value of the requested Energy Charge and to provide the other party with a reasonably detailed explanation of how the calculation had been done. After a valid price review notice was given, the parties were then to negotiate in order to agree on an adjustment to the price and if no agreement was made within 90 days, the parties could refer the matter to arbitration.[689]

During the performance, disputes arose and the claimant sought to refer the dispute to arbitration but the defendant challenged the jurisdiction of the arbitral tribunal on the grounds that the precondition for arbitration, i.e. a valid price review notice, had not been met.[690] At this time, since there was no active market for comparable long term contract, the claimant based its notice on the price of short-term contract. The notice was then contested by the defendant as an invalid one. The high court judge, Mr. Justice

[687] *Esso Exploration & Production UK Ltd v Electricity Supply Board* [2004] EWHC 723 (Comm)

[688] *Esso Exploration & Production UK Ltd v Electricity Supply Board*

[689] *Esso Exploration & Production UK Ltd v Electricity Supply Board*

[690] *Esso Exploration & Production UK Ltd v Electricity Supply Board*

Moore-Bick, agreed with the defendant and held that since the price review notice was invalid, the claimant was not entitled to refer the dispute to arbitration.[691]

This case is a salutary lesson as for how the request of a price review may fail due to its incompliance with the trigger provisions under the underlying contract. It is critical for parties to draft such provisions very carefully.[692]

Most trigger events comprise the occurrence of one or more subjective events, such as a change of law, change of market condition, change of tax regime, change of transportation cost, the emergence of economic disadvantage for a contractual party, etc.[693] Parties should draft the list with caution and make sure that all the necessary events are included in the price review clause. A list of trigger events may be different from contract to contract.[694] However, a typical trigger contains generic elements, including (i) certain circumstances have occurred with a specified nature or seriousness in a specified period in the buyer's/seller's market, (ii) which are beyond the parties' control or not foreseeable or reasonably expected, or both; (iii) that have induced significant changes in the buyer's/seller's market, and (iv) in turn have affected the value of gas in the buyer's end-user market.[695]

Nevertheless, a list of events is insufficient in itself for a good price review clause and more elements should be considered to ensure that the trigger mechanism can work smoothly. In order to do so, the following elements should be taken into account.

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691 *Esso Exploration & Production UK Ltd v Electricity Supply Board*

692 Rachel Lidgate and James Baily, 'LNG Price Reviews: A Sign of the Times' (2014) 7 The Journal of World Energy Law & Business 145.

693 More at Levy (n 685). Ana Stanič and Graham Weale, 'Changes in the European Gas Market and Price Review Arbitrations' (2007) 25 Journal of Energy & Natural Resources Law 336

694 Trenor (n 640)

695 ibid.; Stanič and Weale (n 694)324. An example can be seen in the *Gas Natural Aprovisionamientos SDG SA v Atlantic LNG Company of Trinidad and Tobago* [2008] United States, US District Court, Southern District of New York 08 Civ. 1109 (DLC). The wording of the trigger in the price reopener clause in that case contains most of the above-mentioned elements. As per the clause, a price review will be triggered if '*either Party considers that economic circumstances in Spain beyond the control of the Parties, … have substantially changed as compared to what it reasonably expected . . . at the time of the latest Contract Price revision . . . and the Contract Price . . . does not reflect the value of Natural Gas in the Buyer's end user market*'.

5.3.3.2. Time Element — a Scheduled Review vs. a Wildcard or Joker Request

In order to trigger a price review, the requesting party should legitimate its request by comparing the price. Typically, price comparison is made between different price pinned to different dates. There are three important dates: (i) the date on which the requesting party serves the price review notice, i.e. "requesting date"; (ii) the date on which the current price had been reviewed and revised most recently, i.e. "most recent review date"; (iii) the proposed price review date as stipulated in the contract, i.e. "contractual date". The price should be calculated and compared between the requesting date and the most recent review date along with the contractual date. [696]

If the contractual date has not yet been reached, but the price on the requesting date has already changed significantly as compared to the price on the most recent review date, the requesting party may invoke a wildcard or joker request to review the price if the degree of the change has met the requirement set forth in the price review clause. instead of a regular price review.[697] To enlarge the flexibility, parties may want to structure the trigger with a wildcard or joker request rather than limit the request to a scheduled one.

Some wording, for example "from time to time", in the clause can ensure that a party has a right not only to request a scheduled review but also to make a wildcard or joker request: "*The parties agree that if events beyond the control of the parties occur from time to time during the term of the Contract which give rise to significant changes in the energy market of the buyer as compared to such energy market as at the Most Recent Review Date which affect the value of gas obtained in the end-user market of the buyer by a prudent and efficient gas company, then either party may request a regular price review or a special price review as set out below ....*"

5.3.3.3. Weight Element — Severity of the Change

While trigger events are applied by contracting parties to review the contract price in order to keep the original balance agreed by the parties and to adapt the original contract

[696] Stanič and Weale (n 694)340

[697] Marnix and de Vries Lentsch (n 672)39.

price to new market changes,[698] parties should not be allowed to trigger a price review too frequently. Otherwise, serious concerns may be raised regarding the issue of contractual uncertainty.[699] Therefore, in addition to limiting their application to certain types of events, the severity of the change stipulated under a trigger requires a "material", "significant", "substantial" change in 'economic circumstances', 'market circumstances' or the 'energy market of the buyer (or seller)'.[700] When deciding such a case, courts or tribunals will take into account the wording of the clause.

An example can be seen in *Superior Overseas Development Corporation v British Gas Corporation*. In 1968, a sales agreement of nature gas discovered in the Hewett Field in the North See was signed between British Gas Corporation by the Philips Group, as the buyer, and by a member of the Arpet Group, as the seller. The contractual term was 25 years.[701] Under the sales agreement, Article X dealt with the pricing issues. Article X (1) and (2) stipulated the contract terms and the calculation of price in each contract year. Article X (3) set out the make up quantities. Article X (4) to (6) set forth the price recalculation mechanism to adjust price in order to offset the effects of inflation on the capital and operating costs. [702]

Article X (7) of the sales agreement stipulated a price review by experts in case of changed economic circumstances creating substantial hardship. As per Article X (7), a trigger occurred '*[i]f … during the contract period there has been any substantial change in the economic circumstances relating to this Agreement and … either party feels that such change is causing it to suffer substantial economic hardship …*'.[703]

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[698] Agnieszka Ason, 'Price Reviews and Arbitrations in Asian LNG Markets' (2019) 144 Oxford Institute for Energy Studies.

[699] Clarke and Cummins (n 683)

[700] Young (n 686). Greeno and Kehoe (n 661); CMS, Oil & Gas: Price review clause not unenforceable 'agreement to agree' (*Associated British Ports v Tata Steel UK Ltd* [2017] EWHC 694 (Ch)).

[701] ibid.

[702] *Superior Overseas Development Corporation and Phillips Petroleum (UK) Co Ltd v British Gas Corporation*, para 264

[703] *Superior Overseas Development Corporation and Phillips Petroleum (UK) Co Ltd v British Gas Corporation*, paras 262-263 The whole article read as follows:

"*a. If at any time or from time to time during the contract period there has been any substantial change in the economic circumstances relating to this Agreement and (notwithstanding the effect of the other*

The UK Court of Appeal decided that Article X (7) is an "unusual one".[704] While the earlier clauses of Article X set forth formulae by which price adjustments can be made, as the contract term was really long, i.e. 25 years, clause (7) was designed to "adjust price to avoid substantial economic hardship to any party which might arise as a result of substantial economic change which might arise over a period of 25 years and which could not be foreseen at the time of making the agreement". [705] While the earlier clauses of Article X were "*concerned with the more usual vagaries of the economic situation and this clause was to deal with those that were unforeseen or unusual and probably not covered by the earlier clause*". [706]

When considering the enforceability of Article X (7), the English and Welsh Court of Appeal confirmed that it was enforceable but pointed out that since the contractual wording emphasized "substantial hardship", the trigger for the clause could not be a "slight hardship" but required "substantial hardship before any application is made". [707]

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relieving or adjusting provisions of this Agreement) either party feels that such change is causing it to suffer substantial economic hardship then the parties shall (at the request of either of them) meet together to consider what (if any) adjustment in the prices then in force under this Agreement or in the price revision mechanism contained in Clauses 4, 5 and 6 of this Article are justified in the circumstances in fairness to the parties to offset or alleviate the said hardship caused by such change.

b. If the parties shall not within ninety (90) days after any such request have reached agreement on the adjustments (if any) in the said prices or price revision mechanism which are to be made then the matter may forthwith be referred by either party for determination by experts to be appointed in the manner set out in Article xviii hereof save that the appointment of the third expert referred to in Clause 1(c) of that Article shall in any event be made by the Minister of Power in consultation with the Lord Chancellor.

The experts shall determine what (if any) adjustments in the said prices or in the said price revision mechanism shall be made for the purposes aforesaid and any revised prices or any change in the price revision mechanism so determined by such experts shall take effect six (6) months after the date on which the request for the review was first made."

[704] *Superior Overseas Development Corporation and Phillips Petroleum (UK) Co Ltd v British Gas Corporation*, para 265

[705] *Superior Overseas Development Corporation and Phillips Petroleum (UK) Co Ltd v British Gas Corporation*, para 265

[706] *Superior Overseas Development Corporation and Phillips Petroleum (UK) Co Ltd v British Gas Corporation*, para 265

[707] *Superior Overseas Development Corporation v British Gas Corporation*

As for when a change can be treated as significant, very often, the trigger clause may not contain any reference. This would give the contracting parties or tribunals little reference in determining whether the trigger event has occurred.[708] Therefore, parties may consider inserting certain quantification into the trigger as a criterion.

5.3.3.4. Weight Element — Changes beyond the Control of the Parties

A price review clause requires that parties should not be in a position to influence the changes. Therefore, a trigger should emphasize that the changes, on which a review request is relied, should be out of the parties' control. However, it also should be noted that there may be a difference between a more liberal market and an opaquer market. In a more liberal market, with extensive competition legislation, no single player is capable of controlling changes. However, in an opaquer market, with less advanced legislation and transparency, giant local players, especially those state-owned companies, monopolists, etc. may be able to control changes.[709] Hence, to balance the equilibrium and protect the interests of the opponent parties, it is suggested that the more general wording, i.e. beyond the control of the parties, is revised to "beyond the control of the requesting party".

5.3.3.5. Geographical Element — Define the Referenced Market

Very often, the trigger in a price review clause provides that the change shall occur in a certain market. How to define the referenced market is also critical, as the circumstances in different markets may vary substantially. The different choice regarding markets may at least be classified into two groups: (i) the market where the buyer is located vs. the market where the seller is located; (ii) the end-user market vs. the wholesale market.

When considering the choice between the market where the buyer is located and the market where the seller is located, no doubt, each party will prefer to use its own market

[708] Marnix and de Vries Lentsch (n 672)39.

[709] ibid.

as this will give the requesting party more protection — its operational cost and revenue may be closely related to the circumstances in such markets.

If it is hard for the parties to agree on the referenced market if both have similar bargaining power and each of them wants to choose its own market, then the parties may choose to apply a more generic term as a compromise to include no specific geographical application. For example, in *Superior Overseas Development Corporation v British Gas Corporation*, Article X (7)(a) of the GSPA read as " *[i]f at any time or from time to time during the contract period there has been any substantial change in the economic circumstances relating to this Agreement*…".[710]Sellers may prefer a broader geographic application if they are concerned that buyers may try to sell their products in the most lucrative market available. Meanwhile, buyers may be in favour of a stricter geographic application if they do not plan to sell their product elsewhere.[711]

It is also noteworthy that in some GSPAs, if the supply comes directly from the seller from its own operational site, which located in an offshore oil and gas platform, such site may be more vulnerable to some physical operational risks. Therefore, it would be more important for the seller to fight for a favourable term in the trigger and emphasize that not only economic change, but also physical change of the site may legitimate a review request. An example can be seen in Associated British Ports v Tata Steel UK Ltd.[712]

"*Clause 22 It is hereby agreed between the parties that in the event of any major physical or financial change in circumstances affecting the operation of [Tata's] Works at Llanwern or Port Talbot or ABP's operation of the Tidal Harbour on or at any time after the 15th day of September 2007 either party may serve notice on the other requiring the terms of this Licence to be re-negotiated with effect from the date on which such notice shall be served. The parties shall immediately seek to agree amended terms reflecting such change in circumstances and if agreement is not reached within a period*

[710] *Superior Overseas Development Corporation v British Gas Corporation*, para 262-263

[711] Tristram Kennedy Harper, 'The Client's Perspective', *Gas Price Arbitrations : A Practical Handbook* (Globe Law and Business 2014)..

[712] *Associated British Ports v Tata Steel UK Ltd*, para 12.

of six months from the date of the notice the matter shall be referred to an Arbitrator (whose decision shall be binding on both parties and who shall so far as possible be an expert in the area of dispute between the parties) to be agreed by the parties or (if the parties shall fail to agree) to be appointed on the joint application of the parties or (if either shall neglect forthwith to join in such application then on the sole application of the other of them) by the President for the time being of the Law Society."

Such a clause not only highlights the financing elements, but also allows parties to request a review when there is a major "physical" change. In reality, such wording may give an oil and gas company more which is operating an upstream offshore oil and gas field more protection when facing harsh natural conditions.

When considering the choice between the end-user market and the wholesale market, such choice may also have direct impact on the trigger. As gas is used by end-users as a daily essential, consumers may be more sensitive to the price and in some markets, the local government may also impose a government guide price.[713] As a result, comparing to other commercial products which are not essential to basic human well-being, the price of gas in the end-user's market may be more stable than its price in the wholesale market.

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[713] For example, in mainland China, Article 18 of *the Pricing Law of the People's Republic of China (中华人民共和国价格法)* stipulates that :

"When necessary, the government may apply government guided prices or government set prices in respect of the following commodities and services:

(1) the prices of a small number of commodities which have a significant impact on national economic development and the people's livelihood;

(2) the prices of a small number of commodities which are in very short supply;

(3) the prices of commodities which are subject to a natural monopoly;

(4) prices in respect of major public utilities;

(5) prices in respect of major public welfare services.

第十八条下列商品和服务价格，政府在必要时可以实行政府指导价或者政府定价：

（一）与国民经济发展和人民生活关系重大的极少数商品价格；

（二）资源稀缺的少数商品价格；

（三）自然垄断经营的商品价格；

（四）重要的公用事业价格；

（五）重要的公益性服务价格。"

Even in a more liberal market, as the end-users are more sensitive to the price, distribution companies will try their best to retain their competitive positions in the market and with the increasing of liquid spot markets, more and more distribution companies are able to secure their price offering to the end users' market by buying gas from the spot markets.[714] It is clear that the price of gas can vary relying on the level of the market that is referred to. From a buyers' perspective, they may try to argue that the relevant market should be the wholesale market as they mainly sell gas at this market level. However, on the other side, sellers would claim that the end-user's market is the real market when comparing the price.[715] The final choice of the geographic element in the trigger largely depends on the bargaining power of the parties and it is worthwhile to note that such choice reflected in the wording in the contract may substantially influence the potential price review in the performance of the contracts.

5.4. The Interrelationship between the Pricing Clauses and the Arbitration Clause

Because of the capital-intensive features and large interest involved, the oil and gas industry has seen quite a few disputes happen every year. Some studies also show that, for example, the LNG market has become even more litigious without a sign of decreasing.[716] Those disputes cover a wide range of issues, including but not limited to pricing, supply, late delivery, tariffs, etc.[717] Among them, the pricing issue in long-term contracts is most predominant.[718]

Nevertheless, it should be noted that arbitration agreements can be very problematic and defective arbitration agreements or pathological arbitration clauses[719] may be

[714] Marnix and de Vries Lentsch (n 666) 41

[715] ibid 42.

[716] Baily and Lidgate (n 693)

[717] ibid..

[718] L Bohmer, 'Arbitrating International LNG Disputes: Lessons Learned over Two Decades' [2015] Journal of World Energy Law and Business 486.

[719] The term "pathological clauses", created by Frédéric Eisemann, refers to arbitration clauses with obvious defects, for example, ambiguous terms or erroneous provisions. See Duarte G Henriques, 'Pathological Arbitration Clauses, Good Faith and the Protection of Legitimate Expectations' [2015] Arbitration International 353.; See Jae Hee Suh, 'Interpretation of Pathological Clauses: A Cautionary

invalid. Especially for those arbitration clauses under the main contracts (i.e. rather than separate arbitration agreements), they are known as the "midnight clauses" or "champagne clauses"[720] as they are inserted into the contract in a rush at the very end of negotiation process.

Pathological arbitration clauses are quite common in low-value transactions, as parties may simply copy-and-paste or use some inaccurate template forms. However, even in high-value transactions, arbitration agreements may also contain various types of defects, including but not limited to ambiguities and vagueness, contradictions among contract chains, or reference to a wrongly named arbitration institution. [721] Nevertheless, this thesis is not intended to address the issue of pathological arbitration clauses for the reasons that (i) it is a large topic and is not possible to address the issue in a small sub-section; (ii) such issues may happen in all kind of contracts and is not solely related to oil and gas contracts. Therefore, in the following sections, all the analysis will be based on a pre-condition that the arbitration agreements are valid ones.

5.4.1 Why Arbitration is Widely Used in Pricing Disputes

Pricing is one of those contractual terms with the highest commercial sensitivity.[722] Therefore, it is not surprising that the majority of pricing disputes arising or relating to price reviews are submitted to arbitration, which ensures that the dispute can be solved in a confidential and private way and no confidential information is leaked to the public domain.[723] In addition to confidentiality concerns, parties also prefer using arbitration

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Tale?' (2019) <http://arbitrationblog.practicallaw.com/interpretation-of-pathological-clauses-a-cautionary-tale/> accessed 3 February 2020.

[720]ibid.

[721]Ason (n 699)16.

[722]Matthew Saunders, Ronnie King and Emma Martin, 'LNG Pricing Disputes: The Lessons from Europe' (*Ashurst*, 3 April 2017) <https://www.ashurst.com/en/news-and-insights/insights/lng-pricing-disputes/> accessed 27 February 2020.

[723] JP Stern, 'LNG Pricing: Challenges in the Late 2010s', *LNG Markets in Transition: The Great Reconfiguration* (OUP/OIES 2016). However, nowadays, as per the rules of some arbitration institutions or organization, some arbitral awards may be published if approved by all the parties. Nevertheless, such arbitral awards were redacted to protection the confidential information. See for, examples, the redacted final arbitral awards of *National Joint Stock Company Naftogaz of Ukraine (Claimant) vs Public Joint Stock Company Gazprom (Respondent)* [2017] SCC V2014/078/080.

as the dispute resolution mechanism to solve pricing disputes due to that it can offer parties a more flexible process.[724]

In addition, as shown in the foregoing mentioned sections, pricing provisions are mostly seen in complicated long-term gas sales contracts which reflect a feature of relational contracts. The long-term element makes such contracts less precise and more vulnerable to a list of changing events, including but not limited to the political, economic, legal, technological, and environmental.[725] Nevertheless, such events are not purely law related but "a fact of life"[726] which may need expertise with a technological and commercial sense. Therefore, arbitrators, rather than judges, who may have more practical experience in the oil and gas industry may be more suitable and ready to deal with those disputes.

5.4.2 Arbitral Tribunals' Power to Adapt Contracts

As has been illustrated above, while parties are more in favour of arbitration as the principal dispute resolution mechanism, quite a few of the pricing disputes relating to GSPAs indeed end up in an arbitration process. Compared to other arbitration processes, gas pricing arbitration has some unique features. The main concerns include but are not limited to whether tribunals should only adjust the price based on the existing pricing provisions or they should have the power to change the element or even rewrite the entire price formula[727]; and whether tribunals could intervene on the contractual clauses agreed by the parties so as to fill in the gaps.[728] These concerns can be summed up as whether arbitral tribunals should have the power to adapt contracts.

When considering whether arbitral tribunals should have the power to adapt contracts, the main concern that arises is that arbitration should be limited to be used by parties to

[724] Ason (n 699)10

[725] Klaus Peter Berger, 'Power of Arbitrators to Fill Gaps and Revise Contracts to Make Sense' (2014) 17 Arbitration International 2.

[726] Giorgio Bernini, 'Report: Adaptation of Contracts', *New trends in the Development of International Commercial Arbitration and the Role of Arbitral and Other Institutions*, vol 1 (ICCA & Kluwer Law International 1983).

[727] Saunders, King and Martin (n 723)

[728] Ferrario (n 658)

solve legal dispute. For example, Article 7(1) of the *UNCITRAL Model Law on International Commercial Arbitration* stipulate that " '*[a]rbitration agreement' is an agreement by the parties to submit to arbitration all or certain disputes which have arisen or which may arise between them in respect of a defined legal relationship …*".[729] Such a definition, which may limit the scope of the dispute to a legal relationship, has also been seen in some domestic laws, especially those adopted the *UNCITRAL Model Law on International Commercial Arbitration*.[730] Such legislative provisions show a maxim that arbitration should be use to solve legal disputes only.[731]

As a tradition in English law, it once also did not recognize that arbitral tribunals should have the power to interfere with contracts.[732] However, along with the new Arbitration Act 1996, English law has shown a more arbitration-friendly approach. Nowadays, under English law, arbitrators are granted a much broader power. For example, as per Section .82(1) of the 1996 Act " *'dispute' includes any difference…*".[733] Such a definition is wide enough to include not only legal disputes but also general differences.[734]

5.4.2.1. Practice from Different Jurisdictions concerning Contract Adaptation

The main concern on contracts adaptation relates to the potential conflict with the principle of sanctity of contracts (*pacta sunt servanda*).[735] To that extent, no global

[729] UNCITRAL, 'UNCITRAL Model Law on International Commercial Arbitration 1985(With Amendments as Adopted in 2006)' (*uncitral.org*) <https://www.uncitral.org/pdf/english/texts/arbitration/ml-arb/07-86998_Ebook.pdf> accessed 3 February 2020.

[730] e.g. Sec. 1029(1) German Arbitration Law

[731] Berger (n 726)

[732] Schmitthoff (n 529)82

[733] 'Arbitration Act 1996' (*legislation.gov.uk*, 1996) <http://www.legislation.gov.uk/ukpga/1996/23/section/82> accessed 27 February 2020.

[734] Berger (n 485)1376.

[735] Concerns has been raised whether parties' rights and obligations should remain unchanged in the name of the sanctity of contracts (*pacta sunt servanda*) or whether contract adaptation should be offered to facilitate renegotiation in chaged circumstances, in the name of the *rebus sic stantibus*. SeePiero Bernardini, 'Stabilization and Adaptation in Oil and Gas Investments' [2008] The Journal of World Energy Law & Business 98.

standard[736] exists and different judicial views and practices have been seen in diversified legal jurisdictions across the world. In some jurisdictions, courts even have the power to conduct judicial adaptation.[737] Nevertheless, divergency has even been seen within the same legal system.

Indeed, substantial divergence has been seen between French law and German law. Rejection of *imprévision* and insistence upon the overriding principle of sanctity of contracts is grounded in Article 1134 of the French Civil Code (Code civil des Français). Article 1134 emphasizes that "*[c]ontracts legally entered into have the legal effect of law for those who made them. They can only be terminated by the mutual will, or for the causes authorised by law. They must be performed in good faith*". This kind of concise and sharp language shows a legislative intent that French law insists that the contracting parties have to strictly respect contracts and any unilateral modification without mutual consent is strictly forbidden. [738] Nevertheless, although French law does not support the idea to revise or terminate private contracts in changed circumstances, there is an emerging trend in French law that judges may direct the parties to renegotiate the original terms of the contracts.[739]

On the other hand, although being a civil law country as well, Germany does not have an equivalent provision of Article 1134 of the French Civil Code in it Civil Code, i.e. Burgerliches Gesetzbuch.[740] However, German law still implicitly respects the maxim "pacta sunt servanda" and the binding force of contract. Nevertheless, compared with French courts, German courts seem to be more ready to adapt contracts. The main

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[736] Article 6.2.1 of the *Principles of International Commercial Contracts* seems to support the principle of sanctity of contract as a general principle and states that "[w]here the performance of a contract becomes more onerous for one of the parties, that party is nevertheless bound to perform its obligations subject to the following provisions on hardship". The Principles of International Commercial Contracts 2010 had a set of rules designed for international contracts by a working group of the UNIDROIT. Although the principles have ratified by 64 member states, they are still soft law and do not have a worldwide application. See 'UNIDROIT PRINCIPLES OF INTERNATIONAL COMMERCIAL CONTRACTS 2016 - OVERVIEW' (*unidroit.org*, 16 March 2018) <https://www.unidroit.org/unidroit-principles-2016/unidroit-principles-2016-over> accessed 3 February 2020.

[737] See Pédamon and Chuah (n 533)

[738] See ibid.

[739] See ibid.; Hannes Rosler, 'Hardship in German Codified Private Law - in Comparative Perspective to English, French and International Contract Law' [2007] European review of private law 500.

[740] See Pédamon and Chuah (n 738)..

reason behind this kind of divergence can be originated back to the special social environment in Germany at the end of World War I. At that time, Germany went through amorphous disruptions, including but not limited to hyperinflation, economic crisis, increasing unemployment rate, etc. Contract performance had also been negatively influenced in those disruptions. Under such an exceptional situation, Germany courts began to establish a coherent system to revise contracts in response to changed circumstances. However, it quickly turned out that such revision brought too much vagueness and uncertainty and would eventually terminate the contract radically. In order to avoid such kind of radical termination, Germany judges were granted a right to intervene in private contractual agreements and have the authority to modify monetary obligations to rebalance the equilibrium between the contracting parties.[741]

Back to English law, English courts hold a similar position with the French court and uphold the strict application of the principle of sanctity of contracts in most cases.[742]

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[741] See ibid.; Rosler (n 740)485. Similar to German law, Chinese law also grants judge to adapt contract if there is exceptional changed circumstances. Article 5 of the *Contract Law of the People's Republic of China* stipulated that "*[p]arties shall abide by the principle of fairness when confirming their respective rights and obligations (当事人应当遵循公平原则确定各方的权利和义务)*". This general principle has been restated in the Article 6 of the *General Rules of the Civil Law of the People's Republic of China*. It stipulated that "*[c]ivil subjects engaging in civil activities shall follow the principles of fairness in determining reasonably the rights and obligations of all parties concerned (民事主体从事民事活动，应当遵循公平原则，合理确定各方的权利和义务)*". While these two statutory provisions give Chinese judges a general base to revise contracts in order to rebalance the equilibrium between the contracting parties, Article 26 of the Interpretation of the *Supreme People's Court on Several Issues Concerning Application of the Contract Law of the People's Republic of China (II) (《最高人民法院关于适用<中华人民共和国合同法>若干问题的解释（二）》)* confirms such power in even clearer language. Article 26 stipulated that "*Where any significant change in the objective environment has taken place after the formation of a contract which could not have been foreseen by the relevant parties at the time of entering into the contract, and does not belong to any commercial risk occasioned by any force majeure cause, rendering the continuous performance of the contract manifestly unfair to the relevant party or rendering it impossible to realise the purpose of the contract, the People's Court shall confirm whether the contract shall be varied or rescinded in accordance with the principle of justice taking into account the actual circumstance, where a relevant party petitions a People's Court to vary or rescind the contract.*

合同成立以后客观情况发生了当事人在订立合同时无法预见的、非不可抗力造成的不属于商业风险的重大变化，继续履行合同对于一方当事人明显不公平或者不能实现合同目的，当事人请求人民法院变更或者解除合同的，人民法院应当根据公平原则，并结合案件的实际情况确定是否变更或者解除".

[742] Richard Backhause, 'The Limits of the Duty to Perform in the Principles of European Contract Law' (2004) 8 Electronic Journal of Comparative Law 9

Given the priority of party autonomy, English judges have no power to revise contracts, even in exceptional changed circumstances, although, unlike French judges, English judges still have the power to terminate the contract based on the principle of frustration and English judges are not required to call for the parties to conduct renegotiation.[743]

It can be seen that controversy still exists as to whether courts should have the power to adapt contract. This problem may even be more controversial when comes to arbitration. Compared with judges, who's power may be granted by statutory laws, whether arbitral tribunals have such power to adapt contracts is an un-resolved issue which causes a heated debate with no definitive answer.[744]

However, it is also argued that there has been a modern development from an unalterable and static contract model[745] to a dynamic model which may necessitate interference, either by the contractual parties or by third parties which are entrusted by the contractual parties[746] Therefore, the principle of sanctity of contracts should be replaced with a more flexible approach which appreciates the difficulties in performing long-term contracts involving inherent instability[747] and thus helps the parties to maintain the fairness and economic equilibrium set out in the original contracts.[748]

5.4.2.2. A Pro-adaptation Perspective

From a more general point of view, it is argued that because of the importance of "oneness of arbitration"[749], arbitration agreements should be construed in a pro-arbitration approach. As parties would rely on identical techniques, aim at identical results, and long for applying identical rules, it would be artificial to rigidly distinguish

[743] See Pédamon and Chuah (n 533); Rosler (n 740) 485.

[744] Ferrario (n 658)

[745] CfM Sornarajah, 'Supremacy of the Renegotiation Clause in International Contracts' (1988) 5 Journal of International Arbitration..

[746] KOLO and WÄLDE (n 656)8

[747] Samuel B Asante, 'Stability of Contractual Relations in the Transnational Investment Process' (1979) 28 The International and Comparative Law Quarterly 407.

[748] Berger (n 485)1376

[749] David RENE, *Arbitration in International Trade* (1st edn, Springer 1985).; KOLO and WÄLDE (n 656)33., Model Exploration and Production Sharing Agreement, in BERNARDINI, ICSID REV.-FILJ 422 (1998).

two types of arbitration, i.e. those solving purely legal disputes and those regulating contractual relationships.[750] Parties would prefer all kind of disputes to be resolved in one forum.[751] Such a pro-arbitration approach emphasizes that a valid arbitration agreement should be construed as expansively as possible and extended to cover claims in dispute[752], and "*any jurisdiction or arbitration clause in an international commercial contract should be liberally construed*".[753]

When taking a more specific industrial perspective, the need of contract adaptation is even more important for GSPAs. On the one hand, due to the long-term features in a majority of GSPAs, the changing condition of the relevant markets or economies may have a significant impact on the value of gas in a way that is substantially at variance from the original price in the contract[754] and an existing price formula may even be incapable of reflecting the new conditions.[755] On the other hand, it is because of the massive investments that the related sale contracts are underpinned or implied.[756] Considering such features of many GSPAs, proponents aver that only by adapting contracts can tribunals appropriately consider changed circumstances in some extraordinary cases.[757]

5.4.2.3. An Anti-adaptation Perspective

From a more general point of view, critics aver that contract adaptation may amount to much more than adjusting price but actually amount to rewriting the contracts, and thus should be impermissible.[758] It is argued that arbitral tribunals should only have

[750] ibid.; KOLO and WÄLDE (n 656)33., Model Exploration and Production Sharing Agreement, in BERNARDINI, ICSID REV.-FILJ 422 (1998).

[751] Gary B Born, *International Commercial Arbitration* (2nd edn, Kluwer Law International 2014).

[752] ibid.

[753] Fiona Trust v Privalov [2007] EWCA Civ 20, at 18; Mustill and Boyd, Commercial Arbitration, 2nd ed page 120

[754] See George von Mehren, 'Role of an Arbitrator in Price Review Arbitrations', *Gas Price Arbitrations: A Practical Handbook* (1st edn, Globe Law and Business 2014).

[755] See ibid.

[756] Ferrario (n 658)

[757] Saunders, King and Martin (n 723)

[758] ibid.

jurisdiction to adapt contracts if such claims are covered by the arbitration agreements and if arbitration agreements are not drafted broadly enough, they should not be presumed to include all kinds of disputes.[759] Even though that pricing provisions may justify modification of the original contracts to meet the changed circumstances, they should not be used to justify arbitral tribunals restructuring or rewriting the entire contract except where is a clear expression in the arbitration agreement.[760] There is also serious concern that if arbitral tribunals use exceptional powers, which are not expressly authorized by the parties, to adapt contracts, it would cause the arbitral awards to be annulled.[761]

When taking a more specific industrial perspective, a main concern is that arbitrators may not be the right persons to decide pricing issues. Parties may assume that everyone involved in the industry, as a sophisticated negotiator or as a lawyer should understand the pricing issues. However, this assumption is dangerous as it may not be true.[762] Nowadays, most international commercial arbitrations are dealt with by experienced arbitrators. Based on the limited reported cases, it is inferred that arbitrators handling pricing disputes in GSPAs are often lawyers. Although they are trained and skilled in contract interpretation and are eminent in understanding of civil law and common law, they may still not master the pricing issues under GSPAs. This is not surprising as most commercial arbitrations aim to resolve contractual obligations and breach, losses and damages, remedy and compensation, etc. All such issues focus on interpretation of existing contractual terms based on past performance of the parties. However, pricing modification is not related to obligations and breach, losses and damages, or remedy

[759] Berger (n 726)8; Born (n 752).; Judith Gill, David St John Sutton and Matthew Gearing, 'Russell on Arbitration' (2009) 25 Arbitration International 463.

[760] Berger (n 485)1365

[761] Born (n 752). Howard M Holtzmann, Joseph E Neuhaus and United Nations Commission on International Trade Law, *A Guide to the UNCITRAL Model Law on International Commercial Arbitration: Legislative History and Commentary* (Kluwer Law and Taxation Publishers 1989).; Christian Borris and Rudolf Hennecke, 'Article V(1)(c) New York Convention', *New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards* (C H Beck Verlag 2012)

[762] Levy (n 685)

and compensation, but to adjusting and reviewing price based on changed circumstances and from a forward-looking perspective.[763]

A common criticism is that, after adaptation, arbitral tribunals render arbitral awards deviating from the commercial reality because they lack industrial expertise.[764] *Atlantic LNG Company of Trinidad & Tobago v. Gas Natural Aprovisionamientos SDG SA*[765] provides such an example.

The case concerned a GSPA entered into in 1995. The GSPA was to apply for a term of 20 years from 1999 and provided for the supply to Gas Natural of LNG produced by Atlantic at its Train 1 facility in Trinidad and Tobago. At the time that the GSPA was concluded, it was the expectation of the parties that the LNG would be delivered to Spain for consumption in the Spanish market. However, Gas Natural also had the right to take deliveries of LNG at its receiving facilities in New England in the United States as an alternative from time to time. The parties' expectation of delivery and consumption in Spain was reflected in the price adjustment provisions, which consisted of an agreed base price which was to be subject to the quarterly application of a multiplier index related to European prices for certain substitute petroleum products. In addition, the GSPA included a price reopener provision which was expressed to have effect subject to the application of particular circumstances as pre-conditions. The price reopener clause was set out in Article 8.5(a) of the GSPA.[766]

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[763] Griffin (n 305) 244

[764] Levy (n 685).

[765] *Gas Natural Aprovisionamientos SDG SA v Atlantic LNG Company of Trinidad and Tobago* [2008] United States, US District Court, Southern District of New York 08 Civ. 1109 (DLC).

[766] *Gas Natural Aprovisionamientos SDG SA v Atlantic LNG Company of Trinidad and Tobago*. The full article reads as "*If at any time either Party considers that economic circumstances in Spain beyond the control of the Parties, while exercising due diligence, have substantially changed as compared to what it reasonably expected when entering into this Contract or, after the first Contract Price revision under this Article 8.5, at the time of the latest Contract Price revision under this Article 8.5, and the Contract Price resulting from application of the formula set forth in Article 8.1 does not reflect the value of Natural Gas in the Buyer's end user market, then such Party may, by notifying the other Party in writing and giving with such notice information supporting its belief, request that the Parties should forthwith enter into negotiations to determine whether or not such changed circumstances exist and justify a revision of the Contract Price provisions and, if so, to seek agreement on a fair and equitable revision of the above-mentioned Contract Price provisions in accordance with the remaining provisions of this Article 8.5.*"

During the performance of the GSPA, the price of natural gas in one of the related markers decreased and parties failed to agree on how to review the price and the dispute was submitted to arbitration. The tribunal eventually decided that pricing provisions in the underlying GSPA should be replaced and created a new set of pricing provisions. Although the initial pricing formula was kept by the tribunal, the base price was modified, and a new component was inserted to the formulas by the tribunal to reflect the value of gas in the disputed market. Neither party was satisfied with the decision made by the tribunal.[767] After receiving the arbitral award, the claimant appealed to the competent court to vacate the arbitral award but the appeal was rejected by the court. Rumours said that such decision caused the claimant to lose around $1 billion.[768]

Therefore, it is argued that it would be dangerous for parties to entrust too wide jurisdiction to arbitral tribunals, otherwise they may end up with an arbitral award on the price which neither party has suggested [769]

5.4.3 Possible Solutions to Direct Tribunal Effectively to Adjust Price

Based on the above analysis, it could be seen that although there is a modern development to support the idea that an arbitral tribunal should have power to adapt contracts, there are still at least two concerns, i.e. (i) will the jurisdiction issue be raised at the enforcement stage to vacate the arbitral award; and (ii) even if the power to adapt a contract has been granted to an arbitral tribunal, is the tribunal really capable of doing this and rendering a convincing arbitral award?

In order to solve these two concerns, some measures could be taken by the parties, including but not limited to (i) inserting express wording in the dispute resolution clause to ensure that such power is granted to the arbitral tribunal; (ii) give sufficient guidance in the contract to direct the arbitral tribunal in the right way to solve the pricing dispute;

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[767] *Gas Natural Aprovisionamientos SDG SA v Atlantic LNG Company of Trinidad and Tobago*.

[768] LGN International, 'Gas Natural v Atlantic LNG: A Rare Glimpse into Price Reopener Clauses' (*Gas Strategies*, 2009) <https://www.gasstrategies.com/information-services/lng-business-review/gas-natural-v-atlantic-lng-rare-glimpse-price-reopener>

[769] Clarke and Cummins (n 683)

and (iii) take advantage of alternative proceedings, for example mediation and expert determination to solve the technical issues of the pricing dispute.

One of the basic principles rooted in international arbitration is party autonomy. In order to completely eliminate the potential risk of jurisdiction challenge, the best and simplest way is to expressly stipulate in the contract to grant the power of contract adaptation to the arbitral tribunal.[770] It is suggested that contracting parties could agree in the underlying contract or before the commencement of an arbitration whether they really want to grant such wide powers to the tribunal.[771]

After granting the power, it is also important to ensure that sufficient guidance has been stipulated in the contract to direct the arbitral tribunal. This can be done in various ways and may not only be limited to the wording in the arbitration clause but also relate to the wording in the pricing provisions. Parties can set forth basic requirements regarding the qualification or previous experience that an arbitrator should have in the arbitration clauses, thus avoiding an embarrassing situation that the person who is appointed as an arbitrator lacks the relevant expertise. Besides, it is also suggested to set forth some boundary by contractual terms, mostly under-pricing provisions, to limit the tribunal's adaption power to avoid unexpected outcomes.[772] Parties can clarify in the pricing provisions as to how far the arbitral tribunal may go back.[773] They also can limit tribunal's power to amend the existing price formula, for example, make it clear in the formula as to what kind of component is not adjustable and thus should never be changed.[774] Parties should be specific enough in those contractual terms so that they can direct the arbitral tribunal effectively.

If parties still think that an arbitral tribunal is not suitable enough to determine the pricing issues as it is too technical, they can still take advantage of alternative

[770] John Savage and Emmanuel Gaillard, *Fouchard Gaillard Goldman on International Commercial Arbitration* (1st edn, Kluwer Law International 1999)..

[771] Saunders, King and Martin (n 723).

[772] Arbitration and Changes in Energy Prices: A Review of ICC Awards with respect to force majeure, Indexation, Adaptation, Hardship and Take-or-Pay Clauses

[773] Saunders, King and Martin (n 723)

[774] Levy (n 685)

proceedings, for example mediation and expert determination to solve such disputes. Arbitration is not the only dispute resolution mechanism in a contract. It can also be preceded by some pre-arbitration proceedings.[775] Even though negotiation cannot be undertaken between the parties, parties can still rely on a third-party involvement, separate to intervention from arbitrators, to help them solve the problem.

For example, mediation may help parties to reach an agreement in a less hostile environment, and thus may be more suitable in a long-term relational GSPAs context.[776] Expert determination is a closer alternative to arbitration. Expert determination can be used in two ways. One way is for parties to agree that for all pricing disputes, they would only submit the dispute to expert determination. However, such an approach is a less compelling choice since parties may not feel comfortable enough to hand over the dispute to an industry expert who does not have any legal background at all since it is still a contractual dispute.[777] Nevertheless, there is still another way that experts play an important role in resolving dispute in gas price review arbitrations.[778] Experts could be appointed by parties or by the arbitral tribunals to submit expert reports. Such reports mainly offer opinions on market essentials, price formula, and pricing mechanisms which will help counsel to make legal submissions[779] and direct the tribunal to reach its final conclusions.

5.5. Chapter Conclusion

It can be concluded that in order to make sure that an oil and gas company can fulfil its repayment obligation towards its financiers, it should put emphasis on its downstream sales. In downstream sales, the core element which is closely related to revenue is the contract price.

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[775] P Griffin and F van Eupen, 'The Future for Price Reviews', *Gas Price Arbitrations: A Practical Handbook* (1st edn, Globe Business Publishing 2014).

[776]Griffin (n 305) 243

[777] Ason (n 699)11; JP Terceño, D Phua and E Wyse Jackson, 'The LNG View: Gas-Pricing Disputes Coming to Asia' (*OGEL*, 2018) <www.ogel.org/article.asp?key=3792> accessed 27 February 2020.

[778] C Gibson and B Moselle, 'The Role of the Expert in Price Review Arbitrations', *Gas Price Arbitrations: A Practical Handbook* (1st edn, Globe Business Publishing 2014)..

[779] Levy and Gupta (n 638)

It is worth noting that, in downstream long-term GSPAs, there are two tiers of contractual mechanism which may help an oil and gas company to maintain stability of sales revenue even in a fluctuating market. From a more general perspective, clauses relating to renegotiation in general may help. However, because of lacking precision, such clauses have a limited impact on parties. Therefore, after setting up the first tier of contractual defence, a more detailed and particular arrangement is needed to ensure that when fluctuation comes, parties are not only willing to renegotiate but also need to reach a genuine result on new price. Such second tier of contractual mechanism consists of well-drafted pricing provisions.

While price adjustment clauses are more suitable for foreseeable situation, price review clauses can be used in more uncertain situations. Therefore, if it is a long-term sales relationship and it is expected that the market performance in such contractual duration will encounter some fluctuation, parties should pay more attention in drafting and utilizing price review clauses.

In addition, it should be noted that although by including base price, price formula, certain detailed indexed, etc. pricing provisions are much detailed and directive than general re-negotiation clauses, such clauses may still raise disputes. Therefore, attention should also be paid to the drafting process as well as how to align such provisions with the dispute resolution clauses under GSPAs.

Currently, arbitration is the most popular choice of parties in resolving gas price disputes. As an alternative dispute resolution mechanism to litigation, arbitration indeed has its advantage in resolving gas price disputes. Nevertheless, as disputes under-pricing provisions are not purely contract interpretation but involve more expertise regarding industry and technical perception, it is imperative for the contracting parties to consider the ways in which they could direct arbitral tribunals more effectively, and ensure that disputes will be resolved without unpredicted or even unexpected result. In order to do so, while granting sufficient jurisdictional power to arbitral tribunals is necessary, certain limitations are also needed to restrict the power of the arbitral tribunals.

Chapter 6 Conclusion and Outlook

6.1. Conclusion on the Research Questions

This chapter summarizes the conclusions made on the research questions, and the relevant positions taken by the thesis. In addition, some limitations beyond this research, either because of the limited scope the research or the capacity of the author have been addressed. Lastly, certain suggestions have been given regarding the current development in real world which may lead to further research.

Under this research, the three main research questions are as follows:

- To classify key financing resources and models in the upstream offshore oil and gas industry, and examine the importance of revenue gained by oil and gas companies in all kinds of financing arrangements.

- To argue a supply chain approach when examining the interactive relationship between oil and gas companies and their upstream resource owners, financiers, service providers, and downstream buyers.

- To demonstrate the function of contract design, based on a supply chain approach, in providing security to financing of upstream exploration and production activities by maintaining stability in downstream sales.

6.1.1. To Classify Key Financing Resources and Models in the Upstream Offshore Oil and Gas Industry, and Examine the Importance of Revenue Gained by Oil and Gas Companies in All Kinds of Financing Arrangements

The thesis avers the concept that a hybrid of different financing sources and models during the whole life-span of an offshore oil and gas project may maximize financing volume.

As for the sources of financing, oil and gas companies may seek either internal or external financing. Although historically, IOCs were mostly self-funded while NGOs were able to get direct support internally from the government, such practice has changed a lot due to the more volatile oil price, increased capital demand for single

upstream offshore oil and gas projects, as well as the high risks involved in the relevant projects. It is quite clear that the current trend and reality is that even major IOCs or NGOs have to seek more funding from external financing resources, still more so smaller independent or junior oil and gas companies.

There are different sources of external financing which can be utilized to fund upstream offshore oil and gas projects. The two basic categories are debt and equity[780] while mezzanine finance may play as a gap-filling role.

While debt is a much cheaper option than its equity counterpart, it limits the funding capacity of oil and gas companies since creditors of debt financing will limit the funding based on the company's balance sheet. Therefore, for large projects as well as those smaller oil and gas companies which have light balance sheets, equity finance and mezzanine finance are alternative, and possibly essential, ways to gain more funding.

Debt and equity investors have a different relationship with the invested oil and gas company. Debt creditors are mainly focussed on the agreed amount of repayment. Equity investors have a strong incentive to be involved with the daily management and operation of the company to promote the overall income of the company so that they will be benefit from receiving more dividend.[781] Such opportunity to be involved in management will further make equity investors more willing to invest in certain high risk yet profitable upstream offshore oil and gas projects and tolerate a much longer maturity and repayment schedule under their investment.

When raising equity finance, compared to seeking debt finance, an oil and gas company should pay more attention to the local regulatory framework regarding securities laws, especially where funds are to be raised by a public offering of securities. Comparing to debt finance, under which parties can agree on rights and obligations by private contractual terms, equity financing is substantially regulated by the local corporate and securities law in the host country and foreign investors have to make sure due diligence has been conducted to ensure compliance. Nevertheless, local laws in the host countries may still substantially influence foreign investors. For example, a well-developed legal

[780] Martynova and Renneboog (n 143)295.; Elsas and others (n 120) 1342..

[781] Hsieh (n 149)

system can protect foreign investors while a weak one may not be able to prevent expropriation by the governments of host countries and other problems.[782] Therefore, investors should be more careful when running projects in emerging markets where legal systems may not adequately protect investor rights.

When considering specific financing models, corporate finance, project finance, reserve-based finance and Islamic finance are among the most popular mechanisms adopted by oil and gas companies.

Corporate finance is a conventional financing approach which is generally used by entities to raise funds for its general portfolio of businesses, with no separation of general funding and the particular projects in which the company is engaged.[783] Corporate finance uses up debt capacity of the company as financiers make financing decisions based on the overall corporate balance sheet.[784] As a traditional financing mechanism, corporate finance is also used in upstream offshore oil and gas projects. However, the thesis points out that corporate finance is not a very attractive approach to financing many oil and gas projects, especially for independent or junior oil and gas companies, as an individual project may require an amount of capital that is as large as or even larger than the existing company. Besides, the risk level of capital in this industry is much higher than that of others.[785]

Project finance is generally used to refer to a non-recourse or limited-recourse financing structure in which debt, equity, and credit enhancement are combined for the construction, operation, or the refinancing of a particular facility in a capital-intensive industry.[786] Different from corporate finance, project finance usually takes the form of off-balance-sheet financing of a project, arranged in such a way that financiers rely solely on the assets and cash flows of the financed project for interest and loan

[782] Hail and Leuz (n 201)486.; LAPORTA, LOPEZ-DE-SILANES and SCHLEIFER (n 201)

[783] Inkpen and Moffett (n 4)

[784] ibid...

[785] Inkpen and Moffett (n 4). Some projects in developing countries may have even higher risk and companies from these countries do not have good credit rating.

[786] Hoffman (n 209)..

repayment.[787]

Though the application of project finance in upstream offshore oil and gas projects is more limited compared to other infrastructure intensive sectors, such as power and utilities, due to the long term nature and less stable and predictable revenue of the invested projects.[788] Project finance is more commonly used in financing construction of a new greenfield oil or gas field[789] and helps smaller oil and companies with a light balance sheet to undertake a project with more risks. Nevertheless, project finance also contains certain disadvantages, like complexity of risk allocation, increased financier's risk, increased insurance coverage, potentially unacceptable risk taking, etc.[790]

The RBF is a generic term used to cover finance where the loan is collateralized by the value of a company's (or project's) reserves and where repayment of the debt comes from the revenue derived from sale of the field or fields' production.[791] As for upstream offshore oil and gas projects, the size of the RBF facility is determined by the reference to the value of an oil company's oil and gas reserves rather than the strength of its balance sheet.[792] Unlike project finance which usually support single project, RBF would rather fund more than one existing producing oil or gas field.[793]

The fundamental concept of Islamic finance is that money has no intrinsic value and should only be used as a measure of worth.[794] The basic elements of Islamic finance are prohibitions on interest (Riba), avoidance of Islamic vices[795], avoidance of

[787] Inkpen and Moffett (n 4).

[788] Brogan (n 27).

[789] Gonsoulin Jr. and Fox (n 173)

[790] Nevertheless, project finance can still be greatly assisted by the involvement of institutions such as the World Bank and its project financing arm, the International Finance Corporation, which can provide a financier of last recourse umbrella which may be attractive to external banks and other private financiers.

[791] Allen & Crawford (n 232)

[792] Ross-McCall and Thomas (n 233).

[793] Gonsoulin Jr. and Fox (n 173); Ross-McCall and Thomas (n 233).; Allen & Crawford (n 232);

'UK Excellence in Islamic Finance' (n 263) .

[795] Islamic vices include pornography, alcohol, gambling, and pork products.

unacceptable risk (Gharar), and participation in the performance of assets.[796] Essentially, Islamic finance is non-recourse to the borrower and beyond the particular assets that support the transaction.[797] However, a transaction can still be structured to provide the investment with a fixed or variable return through profit sharing, just like principal and interest payments. Islamic law not only permits but even actually encourages the allocation of risks and sharing in the resulting profits or losses.[798] This basic concept can be well fitted in to upstream offshore oil and gas industry as one of the special characters of upstream offshore oil and gas projects is the high level of risk.

After all, the thesis avers that no matter what kind of financing arrangements are adopted by oil and gas companies, one of these core concerns is the sales revenue. Sufficient streams of revenue not only mean a strong balance sheet which may attract debt creditors but also generous profits which give confidence to equity investors. This indicates that financing in upstream offshore oil and gas projects is substantially related to the downstream revenues. It will not only determine whether an oil and gas company can fulfil its repayment or dividend obligation, but also whether the oil and company can get more financing.

6.1.2. To Argue a Supply Chain Approach when Examining the Interactive Relationship between Oil and Gas Companies and Their Upstream Resource Owners, Financiers, Service Providers, and Downstream Buyers

Although funding is extremely important, the oil and gas company capacity at this stage to protect itself is very limited. Even if it could try its utmost to utilise different financing sources and models, an oil and gas company, especially those small and junior ones in the emerging markets, still has far less bargaining power than its financier. Though, theoretically, an oil and gas company can always utilise direct contractual arrangements to protect its interests, the precondition is that both parties have balanced bargaining power and are willing to cooperate with each other to maximum mutual benefit. However, since financiers have stronger bargaining power, they will

[796] Richardson (n 265).

[797] Christopher F. Richardson (n 265) 128.

[798] Berschadsky (n 272) 110.

concentrate more on their own interests. As a result, an oil and gas company has little room to argue for its own interest in its contractual relationship with its financiers.

This thesis argues that in order to successfully fulfil its obligation under financing arrangement for the relevant upstream offshore oil and gas industry, an oil and gas company should take a broader view rather than only focus on financial contracts. The upstream relationship with the natural resource owners, the downstream relationship with the oil and gas product buyers, as well as the relationship with the service providers are also critical and will substantially contribute to the success of the project in the whole.

In its relationship with the natural resource owners, an oil and gas company should consider the fiscal regime in the host country where the relevant upstream offshore oil and gas project is located. In most countries, oil and gas resources are owned by government and many agreements granting oil and gas companies rights of exploration and production under upstream offshore oil and gas projects (whether concessions, production sharing agreements or service contract, etc) are entered into by oil and gas companies with the host countries or state-owned entities.

In such a relationship, oil and gas companies may have less bargaining power, especially after the relevant contracts have been signed. The riskiest issue faced by the oil and gas company is whether the host country or the state-owned entity can fulfil its promise under the contract. The principle of a state's permanent sovereignty over its oil and gas resources is a universal one and has been recently been asserted and exercised by governments or state owned entities in several jurisdictions, regardless of the terms of the relevant contracts, and on occasion even in apparent breach of contractual commitments to the contrary. In addition, as quite a few projects are located in emerging markets, with less stable and more opaque local governments and legal environment, oil and gas companies almost always bear high legal and political risks.

In its upstream relationship with the service providers, the main focus of an oil and gas company will be smooth operation of all the technical equipment and how to reduce operational and capital expenditure. Although an oil and gas company can still utilize a contractual approach to reduce such kinds of cost, such reduction is limited and more from a risk management perspective. Substantial reductions may be expected from the

use of modern technology, such as automation, which will provide an oil and gas more efficiency in a cost-effective way.

In its relationship with downstream buyers, this is a rather important relationship for an oil and gas company to secure its obligation under financing arrangement. Under an upstream offshore project, while spending money on most of the stages, an oil and gas company finally may make profits by selling oil and gas products in the downstream sales sector. Downstream sales contracts play a key role in connection with the financing arrangement because they secure sales which would be used by an oil and gas company to fulfil its obligation under upstream financing arrangements. The downstream sales contract strengthens the economics of the entire project.[799]

This thesis avers that while an oil and gas company has very little power to dominate its relationship with its financiers and upstream resource owners, it should do its utmost to ensure that the sale of its oil and gas products goes smoothly and continuously so that the company has sufficient revenue to perform its repayment obligation towards its lender or return dividends to its equity investors.

6.1.3. To Demonstrate the Function of Contract Design, Based on a Supply Chain Approach, as for Providing Security to Financing of Upstream Exploration and Production Activities by Maintaining Stability in Downstream Sales

The conclusions in relation to the first and second research questions show that revenue is critical to help oil and gas companies to fulfil their obligation owed to financiers under financing arrangements of upstream offshore oil and gas projects and a supply chain approach even makes it more clear that downstream sales will substantially contribute to the smooth running of financing in upstream projects. Oil and gas companies can effectively transfer their risks in the upstream financing to the downstream sales sector through contract chains. In this process, contract design plays an important role. Contract design may also protect oil and gas companies from inefficient local legal systems in host countries where the relevant projects are located. Poor country-level investor protections could be substituted by well-designed security-

[799] ibid

level contracts with higher covenant intensity.[800]

When considering contractual terms in downstream sales. Oil and gas companies may have to balance their front-end and back-end costs reflecting as a choice between precise terms and vague terms in the relevant contracts. Precise terms increase the cost at the front-end as parties have to do more negotiation. However, such terms reduce the back-end cost by reducing verification costs and uncertainty during the contract monitoring and enforcement.[801]

Although private contracts can help the contractual parties to better structure their rights and obligations under transactions, in reality, concluding a complete contract is hardly feasible[802] Some contracts even more tend to be incomplete than others. As for the downstream sales in the offshore oil and gas industry, long-term GSPAs reflect such a character of incompleteness. This is not only because of the front-end negotiation costs are quite high but also due to great future uncertainty during the long-term performance of the downstream contracts.

In an incomplete contact situation, some contractual mechanism can be used to impose duties on parties to keep their active involvement in the contractual arrangement, rather than simply walking away under changed circumstances. There are various contract clauses which may be able to set up such obligations. Some are more general, such as renegotiation clauses, force majeure clauses, hardship clauses, etc. Some are more specific, such as pricing provisions, variation, relocation clauses, change of tax, etc.

As one of the main categories under more general terms, force majeure clauses usually suspend performance or exempt a party from performance when certain force majeure events happen. Parties are encouraged to provide an illustrative yet non-exhaustive list of force majeure events with clear and unambiguous language. In the offshore oil and gas industry, source of supply, weather, economic events, and government actions are among the principal events which tend to be of particular concern.

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[800] Miller and Reisel (n 464).

[801] Robert E Scott (n 482); Goetz and Scott (n 473)1190; Man Schwartz (n 482)

[802] Osmundsen, Sørenes and Toft (n 302)1

Compared to force majeure clauses which suspend performance or even directly exempt parties from performance, hardship clauses and renegotiation clauses may be better to maintain the existing contractual relationship by re-balancing the equilibrium between the contracting parties.

Although, historically, English courts were more hostile to enforce such renegotiation clauses or hardship clauses which impose a duty of renegotiation in good faith on the contractual parties due to their inherent vagueness and uncertainty, positive tendencies have more recently been seen in the development of English law regarding enforcement of such clauses if certain criteria have been met. Express good faith under a clause may be more likely enforced by English courts if the underlying contract reflects a relational feature between the contractual parties and the wording of renegotiation is rather more specific with detailed steps.[803] Nevertheless even in such "relational" contracts, it should be noted that express duty of good faith would not be upheld by English courts if it interrupts express contractual rights or requests a party to give up its commercial interests secured by the contract. In addition, when interpreting the scope of an express duty of good faith, unless otherwise stated by the parties with a clear intention, English courts are more likely to apply a narrow approach rather than adopt a wide application.[804].

Nevertheless, it should not be ignored that controversy and different judicial attitudes still exist in relation to these clauses. However, parties may still take advantage of some more specific contractual clauses, either requiring collaboration with renegotiation or hardship clauses or may just serve as an alternative back-up. Pricing provisions under long-term GSPAs are good examples. Price adjustment clauses and price review clauses are two main types of pricing provisions used by oil and gas companies to modify the original sales price under changed circumstances.

While price adjustment clauses are more applicable to foreseeable situations, price review clauses can be used in more unpredictable situations. Therefore, if the sales

[803] *Yam Seng Pte Ltd v International Trade Corp Ltd* [2013] High Court EWHC 111 (QB).and *Bates* v *Post Office* [2019] EWHC 606 (QB)

[804] Mid-Essex Hospital Services NHS Trust v. Compass Group UK and Ireland Ltd. [2013] EWCA Civ 200

relationship is a long terms one and it is expected that the market will encounter some fluctuation during te period of performance of the contract, the parties should give more attention to utilizing and drafting price review clauses.

In order to review the price, as a threshold, a requesting party should show that a required condition, i.e. a trigger, has been satisfied before a review can take place. This makes the wording of the description of trigger under price review clauses rather important. This thesis avers that when drafting trigger events, special attention should be paid to the time element (i.e. only allowing a scheduled review or also accepting a wildcard or joker request), weight element (i.e. a clear description of the necessary severity of the change is needed, otherwise a price view clause may be invoked too frequently and bring uncertainty to the underlying contract), control element (i.e. it would be important to clarify that changes invoked by the requesting party should beyond the control of the parties), and geographical element (i.e. better to define the referenced market so that a benchmark could be clearly offered when determining whether the agreed threshold has been met).

In addition, it should be noted that although pricing provisions are much more detailed and prescriptive than general renegotiation clauses, such clauses may still raise disputes. Therefore, attention should also be paid to as how to align such provisions with the dispute resolution clauses under GSPAs.

Very different from other commercial disputes, the interrelationship between the pricing provisions and the arbitration clause under GSPAs can substantially influence the outcome of an arbitration. One of the main issues is whether an arbitral tribunal has the power to adapt price provisions which may lead to an unexpected result that neither of the parties under the GSPA will be satisfied with. In this regard, the thesis argues that it is imperative for the contracting parties to consider in which way they would like to direct arbitral tribunals and ensure that disputes will be resolved without an unexpected result. In order to do so, it is suggested that while the contractual parties should grant sufficient jurisdictional power to arbitral tribunals, certain limitations are also necessary to restrict such power in terms of the parameters to be applied by the tribunal.

In conclusion, this thesis avers that when targeting the smooth running of financing arrangement of an offshore oil and gas project, a supply chain approach should be

valuable, and oil and gas companies should pay more attention to, the interactive relationship among different contracts and terms. Oil and gas companies should take a to take a panoptic view when drafting contract chains. The relationship among different contracts and among individual contractual clauses within one contract should be taken into consideration from the very beginning at the initial drafting stage.

6.2. Research Limitations

Although a wide range of relevant studies have been conducted in order to address the relevant issues under the research questions, the author acknowledges certain limitations in this research.

Firstly, as mentioned from the very beginning, this research focuses mainly on an English law perspective. This is almost unavoidable, not only because English law is still predominant in the industry, but also due to the finite manpower that the author is able to contribute within the limited timeframe. It has to be pointed out that security-level contracts still have limits as contracts may differ systematically across various legal regimes and private contracts may be affected by the local legal systems despite the applicable law clauses agreed by the contractual parties.[805]

Secondly, this research does not make a thorough and substantial exploration into theoretical backgrounds of contract law or financing principles. As for contract law, although certain legal principles or doctrines may be examined and discussed, since this research take a more bird's eye view to examine the potential interaction among different contract terms or even diversified contracts as a whole, the research uses the relevant principles and doctrines as background information rather than make a micro analysis of those issues. As for financing principles, although this research has conducted a certain amount of interdisciplinary research, it also uses such kind of information as the general background, as it would be far beyond the author's capacity

[805] This is even more true in court proceedings when concerns as to judicial sovereignty are involved. Although parties may be free to choice applicable law, such freedom is limited to a particular domestic law, with the result that a reference to foreign law would be superfluous and would only be binding to the extent that the foreign law is not in conflict with the mandatory provisions of the *lex contractus* or *lex loci solutionis* or only if the law of the forum does not state otherwise. See Bonell (n 99)25..

as a researcher in law to dig very deep in the area of finance.

Thirdly, when analysing pricing issues under GSPAs, this research solely focuses on the provisions under long-term GSPAs. Nevertheless, such kind of research has a limitation. Price provisions examined under this research first appeared before the era of gas-to-gas competition[806] whereas by the mid-2000s, thanks to the availability of more transportation infrastructure and fewer market restrictions in the European gas market, players are able to materialise additional value of existing long-term GSPAs and to transfer gas from oversupply areas to a market where there is demand. In addition, more and more spot markets and hub trading facilities have emerged. All these modern developments bring more opportunities for parties to run off the existing long-term contracts, while short term ones are also more frequently used by players.[807]

Fourthly, due to the finite manpower, the limited timeframe as well as the confidential concerns relating to many transactions, this research does not conduct profound empirical studies on those contract clauses used in the real world.

6.3. Areas for Further Research

Due to the delimitation of the research scope as well as the inherent research limitations, this research is not able to provide comprehensive conclusions on all the relevant issues. Nevertheless, the author hereby elaborates certain areas which would be interesting and valuable for further research.

Firstly, although this research promotes the idea of contract design via a supply chain approach and picks up some contract provisions as the research targets, it does not delve further in detailed wording and drafting skills relating to these clauses. One interesting direction for further research would be conducting substantial empirical, quantitative, and comparative research on the relevant contract clauses used by parties in the real world and give out more particular suggestions on drafting. Such kind of real-world clauses can be obtained by more case studies based on reported cases, by interviewing

[806] Levy (n 685)..

[807] Harper (n 712)

more practitioners, and by searching some available databases.[808]

Secondly, as mentioned above, the pricing dynamics in global gas markets have already changed, the current practice regarding price provisions may not keep pace in the modern world.[809] Therefore, it would be valuable to undertake further research on GSPAs with a shorter contract duration to see how oil and gas companies could take advantage of these short-term contracts to secure their sales revenue.

Thirdly, the modern development of digital technology may also bring revolutionary yet positive change into the industry. To that extent, smart contracts based on blockchain technology are no doubt pioneers. A "smart contract" is "a computerized transaction protocol that executes the terms of a contract".[810] Imaging that if the trading of oil and gas products is based on such protocols, various transaction conditions, including price formulae and review mechanisms, can be recorded in advance by computer language[811] which will then be executed later automatically free of intervention from parties.[812] This kind of digital execution will also significantly reduce traditional reliance on physical documents or the need for intermediaries to authenticate and settle transactions in financing arrangements, thus further reducing delays and potential exposure to fraud.[813] To that extent, smart contracts may help to

[808] For example, the official website of the U.S. Securities and Exchange Commission (https://www.sec.gov/) recorded a wide range of company filings under which abundant of contracts relating to the relevant transactions are accessible.

[809] Levy (n 685)..

[810] Don Tapscott and Alex Tapscott, *The Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money Business and the World* (Portfolio; Reprint 2016).

[811] H Lu and others, 'Blockchain Technology in the Oil and Gas Industry: A Review of Applications, Opportunities, Challenges, and Risks' (2019) 7 IEEE Access 41433.

[812] SJ Pee and others, 'Blockchain Based Smart Energy Trading Platform Using Smart Contract' (2019)

[813] Blockchains is a type of distributed ledger systems that, when designed and encoded sufficiently secured, make it impossible for parties to intervene transactions. 'Smart Contracts in Financial Services: Getting from Hype to Reality' (*capgemini*) <https://www.capgemini.com/consulting-de/wp-content/uploads/sites/32/2017/08/smart_contracts_paper_long_0.pdf)> accessed 3 February 2020. Nevertheless, it should be noted that, on the occurrence of a default event, blockchains could simply automatically trigger the acceleration clause etc. Or indeed, in the event of hardship as evidenced by a digital entry in the blockchain, the contract could be automatically re-made.

substantially improve execution efficiency in contract performance.[814] However, from a legal perspective, regulatory concerns may be raised while the current principles of security law may have to be developed to fit into the new era. Such kind of issues will be worthwhile for further research.

[814] Studies show that by utilising smart contract in syndicated loans, companies and financiers could benefit from much shorter settlement periods. Compared with the current timeframe, which will last 20 days or more, smart contracts could reduce the timeframe to 6 to 10 days. ibid.

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