

DECLARATION

PhD THESIS DECLARATION

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Thesis title:

**Speculative Pricing of Crude Oil in International Markets: Implication
for Dual Pricing Practices on Refined Crude Oil Products in line with
the WTO law & ECT laws**

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Student's Advisor | Prof. Claudio Dordi |

Calendar year of thesis
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ABSTRACT

Crude oil and refined products are influenced by a number of factors. From an economic point of view, the study finds that, on one hand, speculations play a significant factor in driving oil prices in comparison to other factors. On the other hand, refined products prices are influenced by the state's intervention policies such as dual pricing. In regulating these segments of the oil industry at the global level and regional level, the study has employed a dual approach; the regulation of crude oil under international law; and the regulation of oil industry at the multilateral level. Under monist theory, national and international legal system forms a unity, and that international law is automatically a part of national legal system while, under dualistic principle, international law form a part of national legal orders, and is incorporated and directly applied in the domestic context, most of the time prevailing over inconsistent laws. Under these theories, the study finds that there is an interaction between national and international law; arguably, agreements form a part of public international law that has a legally binding aspect between states. In relation to this, States could be held responsible for their acts or acts committed by state organs, as long as such State is a part to an international agreement. There a number of multilateral and bilateral agreements that regulate the energy sector, however, the most powerful ones that deals with trade or energy as a specific industry and states have acceded and ratified are the WTO, NAFTA, and ECT. These treaties are not closed or self-contained regimes, there were created in the wider context of general international law; as well as other treaties. They all form a part of international public law. Accordingly, multilateral treaties such as the WTO continue to incorporate international law and widely regulate trade in goods and services.

EXECUTIVE SUMMARY

Trade in energy, encompasses various aspects and issues of transnational trade, including trade in goods, trade in services, investment matters, intellectual property, subsidies, just to name a few. In addition, it involves different sorts of energy products, including oil, gas, coal, hydroelectricity, nuclear, and renewable energy, inter alia. However, the most predominant ‘line’ of trade in energy, both historically and currently, is trade in fossil fuels, oil and gas, essentially, the market structure and driving forces for these commodity prices in international markets.

In the past few decades, there has been a significant shift in the prices of crude oil and its refined products both at the national and international markets. Alone, crude oil prices rose for about 500% between 2002- 2008 thereafter dropped for about 80%, before shooting up again to 150% in 2009¹. These fluctuations are owing to innumerable determinants ranging from past market shocks, present market fundamentals, and projected future events. And, although the latter show no manifest connection with the fluctuations, yet, they ultimately contribute to conditions that lead to them. The endless debates on whether the surge in crude oil prices in the modern era of oil trading has been consequential to speculative behavior or the shift of market fundamentals have remained unsettled, perhaps, there is no consensus in the academic literature on how to model the global market for crude oil. On the one hand, shifts in prices for crude oil have been suggested to be a result of changes in market fundamentals as such demand and supply patterns, lack of investment in the oil industry, political movements in rich oil-producing countries, high costs in oil production, just to name few. On the other hand, crude oil prices have been suggested to be a result of market behaviors such as speculative motives, and changes in crude

¹ MediumTerm Oil Market Report, 2006, available at

<https://www.iea.org/publications/freepublications/publication/mtomr2006.pdf>

Tesi di dottorato "Speculative Pricing of Crude Oil in International Markets: Implication for Dual Pricing Practices on Refined Crude Oil Products in line with the WTO law & ECT laws"

di MALLE ELISIANA STANLEY

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2019

La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche).

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oil inventories. The study aims at analysing both views. In this regard, the focus will be on the affiliation of speculations and the change in the real price of crude oil in financial markets. In examining the latter, the study will use the theory of precautionary demand in elaborating the relationship between market fundamentals and speculative motives in influencing crude oil price shifts.

Historically, merchants and artisans were conducting oil trade as individuals, today professional firms, state and private companies are all actively involved in the oil trade, and, they had either adopted 'Financialization' or 'Corporatisation' form due to the significant growth in the commodity derivatives markets. Financial institutions have heavily marketed commodity indexes as the way to diversify portfolios from rising crude oil prices. Such 'Financialization' and 'Corporatisation' of trading life have attracted the attention of academics, economists, and the financial services community due to the increment of instances of misuse and abuse of crude oil prices within the national and international market. From an economics perspective, the research will address the latter by using an equitable theory of price speculation. Further, the study aims at examining whether refined crude oil products respond asymmetrically to crude oil price changes or it is the results of de-regulations policies within domestic markets. Whether government regulations and other supra-national laws as such the WTO law are warranted in circumstances of unfair trade and which principles should be applied, these are key questions that the study aims to address. In answering the latter, the study will analyze the concept of state responsibility simultaneously with the doctrine of veil piercing, a theory that has been applicable widely at municipal level but very rare at the international level.

The study is divided into two parts. Part I focuses on the speculative pricing of crude and its implication in the international financial market. This section will provide a

detailed holistic overview of the oil industry followed by a critical analysis of the Crude Oil market structure and how the behavior of the oil market in the short and long-term could influence crude oil prices. The study will use dynamic factor theory in explaining crude oil market structure and the role of market fundamentals in shifting oil prices at the international market. Further, this part will address the modality that crude oil business is conducted in financial markets and whether such modalities of carrying out oil business plays a significant factor in driving oil prices. Other factors such as pricing mechanisms for crude oil and the applicable principles for oil pricing at the national and international level would be among the prominent issues that the study will examine.

Part II of the research focuses on dual pricing as an intervention policy used by governments in controlling prices on refined petroleum products. This part develops an analysis on the multilateral legal framework that regulates oil trade at regional level. Although a part of this analysis is not novel per se, however, it is deemed important since the analysis of other literatures appeared incomplete in important respects dual pricing on refined petroleum products. The major point of departure from earlier studies is in the disaggregation of analysis of petroleum industry from the municipal level to the international trade. The primary conclusion reached is that, once dual pricing practices tend to distort oil market prices at domestic markets. Although these practices are prohibited under WTO rules on subsidies and countervailing measures (SCM agreements), however there is a general exception to the general rules. Arguably, dual pricing as a form of subsidies are neither actionable nor prohibited if they do not cause adverse impact on the market of another contracting member. In circumstances that a contracting member brings a dual pricing claim forward to the WTO dispute settlement mechanism, the complaining member

bears the burden of proof. Part 11 of the thesis is more theoretical in nature and it considers regulatory theories within an international trade context, as no regulated sector can be regulated without consideration of international economic law imperatives.

Further to that, the section discusses the interrelationship between subsidies and dual pricing and rules that states are subjected to under multilateral agreements. The section brings together significant regulation of energy sector under multilateral agreements and other significant regional treaties agreements. On this section, particular attention will be devoted on the analysis of dual pricing as a form of consumer subsidies.

Additionally, as a point of reference, special consideration will be given to international investment disputes where states have been attributed to the actions of state enterprises. In illustrating the latter, the theory of state attribution as well the doctrine of veil piercing will be adopted in showing the responsibility of states towards unfair trade practices.

OBJECTIVES AND METHODOLOGY OF THE STUDY

As the world witnessing market instabilities within oil industry, one common characteristic of crude oil market and refined petroleum products have gone surprisingly unexplained; the price fluctuation of these products is disproportionately concentrated on speculations, rather than market fundamentals. Crude oil market is significantly picture both at producing and consuming countries has altered drastically with easing of the international supply and demand situations, as the world embarks on a transition towards a low-carbon economy one common characteristic of alternative sources to crude oil has been falling of prices in international markets. The attending lowering of the benchmark price of Crude Oil has significantly been determined by the OPEC, and changes in energy demand structures from heavily industrialised countries. At the same time, due to climate change agreements and actions of promoting clean energy, many countries, including Japan, and other European countries have actively pursued programs for reducing dependence on oil. On the legal side, the law governing oil industry has been argued to be intricate, as it comprises a combination of national, regional and international norms and principles. They're a number of international agreements that have been concluded between states-states or states-private companies/investors to facilitate cross-boarder activities. In similar vein, there a number if multilateral and bilateral instruments that have been concluded to deal with trade and investment aspects. Most of these agreements are relatively binding and are operating in a non-discriminatory trading system that spells out rights and obligations of contracting member states. Further to that, contracting parties receives guarantees that its exports will be treated fairly and consistently in

other countries market. The same is applicable for imports into its own market². In contrary when it comes to the oil industry, majority of agreements are bilateral agreements between countries of which majority of these agreements are declarations of intent, rather than functional legal framework for cross-boarder activities. As a result, a conspicuous gap has developed between oil market analysts and scholars as to whether crude oil market is regulated by international agreements or domestic laws, if so, to what extent? So far, the basic concepts of competition law are competitors must compete, not collude and must not abuse their dominant positions. Taking the time back, in 1957, the treaty of Rome laid foundations to a competition regulatory framework. From then onwards, a number of protocols and revisions have been formed. For instance, in the European Union (“EU”) competition law pursues the promotion of a “harmonious, balanced and sustainable development of economic activities”, and the achievement of a “system assuring that competition in the internal market is not distorted”³. These principles go against agreements, decisions and concerted practices that restrict competition, as well against abuses of a dominant position in the market. Under this circumstance, all trade associations, treaties, regional agreements, and supranational laws assist countries to work together on legitimate issues of common interests and fair markets. As it is evident from the thesis

² At this initial stage and from an international trade perspective, it is worth clarifying the different statuses of countries in the energy sector, chiefly in terms of importing and exporting countries. In this respect, it has to be emphasized that not every energy-endowed country is an energy-exporting country, nor is every energy-producing country an energy-exporting country. Currently, there are two types of energy endowed countries that produce energy: the first are energy-endowed countries that are both energy-producing and -exporting countries, such as Saudi Arabia, Russia, and Norway. In this case, the country’s volume of energy production exceeds domestic demand, hence the country exports its energy surplus to the international market

³ Article 2 and 3 of European Community Treaty (Treaty Establishing the European Community)

title, the study is devoted to specific areas-analysis of international economic law, both from a theoretical point of view as well as practical one. Further to that, the study analyses refined petroleum market structure at domestic level, and create a relationship on how these markets from different platforms could still share a common denominator of being regulated at an international level under similar agreements. The purpose of the analysis contained in this study is to examine the influence of multilateral agreements in regulation oil industry both at national and international level. The primary vehicle for empirical analysis is first, to find to what extend the international economic law relates to domestic law, and secondly, at what point these two legal frameworks intersects. Based on this, the study has first analysed oil market at international level, followed by the market for petroleum-refined products at domestic level. Common factors that these market platforms share is market distortion, hence price fluctuations. In that sense, the study analyses the major contributory factors and grey areas that are not addressed under the international legal framework, essentially on the oil industry. This direction of emphasis is largely focused on major multilateral trade agreements such as the World Trade Organisation (WTO) and the Energy Charter Treaty (ECT). The study is portioned into two parts, and the description is summarised below.

The first part offers an analysis of oil market structure including the pricing mechanism. This is analysed in a chronological order-from the evolution of crude oil market from mercantilism to the present. The second of the thesis refers to an important field of international economic law: bringing together the aspects of economic law and international law, as will as analyses international agreements which deals with international legal regimes of cross-boarder trade. Specific legal principles governing energy sector, rules and enforcement mechanisms contained in

multilateral agreements, essentially, the World Trade organization (the WTO), and the Energy Charter Treaty (ECT) will be discussed. Both parts are very important, especially from the point of view that the structure for oil market lays significant foundations on how oil market is regulated both at domestic and international level. The study then models the relationship between treaties and domestic laws, arguing that international treaties form part of national/domestic legal order and are incorporated and directly applied in the domestic context, most of the time prevailing over inconsistent laws.

As already mentioned, the outset of the study is, firstly to identify key determinants for crude oil prices in international markets, secondly, to identify norms and practices of international law in regulating oil market, thirdly, the study clarifies the relationship between international law and domestic legal order. The study analyses the extent to which these norms and practices have been addressed, adopted or interpreted in international agreements. On this basis four hypotheses are formulated:

- 1) Crude oil prices are highly influenced by market fundamentals;
- 2) Crude oil markets are highly informed by speculative behaviours;
- 3) Government intervention policies, essentially, public policies as such dual pricing practices, highly distorts oil markets;
- 4) International treaties form a part of national/domestic legal order
- 5) The WTO & ECT laws on energy trade regulations falls in a grey area

In order to answer these questions, it is necessary for the study to provide a thorough analysis of crude oil industry market structure and the applicable pricing mechanism. The analysis aides in understanding how crude oil prices are formed as well as the significant contributory factors for oil price fluctuations in international markets. A theory of efficient market hypothesis has being used for ensuring the study arrives on a

concise analysis. The theory assumes that, the availability of information determines the rationality of the market. This is described into details on Part 1 of the thesis. Further to that, in answering hypothesis 3 & 4 the study analyses international agreements and its relationship to domestic law. The study tastes the hypothesis by using the principle of “pacta sunt servanda” application of international law within domestic rules.

The overall goal of the study is to explore and discuss the relationship between international treaties and domestic law in regulating oil industry. By evaluating both technical and scholastic arguments from literature and the law, particularly that of multilateral agreements, the study aims at contributing on the role of international economic law in regulating oil trade both at national and international level. A number of studies have either analysed the regulation of energy sector at multilateral or global level or both, but there is a missing link or academics have not paid enough attention to analyse the regulation of oil industry both at national and international level as a single subject. The study aims at contributing to the misconception about the regulation of oil industry in multilateral trading system, and the lack of trade disputes over refined petroleum products subsidies. Further to that, the study will attempt to answer the question that has attracted a lot of attention in the modern academic era: the extent to which international law regulates oil market both at national and international level.

Methodology

The study has employed both qualitative and quantitative methodologies. The first part of the study that analyses crude oil structure and market fundamentals has significantly devoted its attention on quantitative method. On this part the study carried out data observations and analyses secondary data in order to determine what

contribute to crude oil price fluctuations and the influencing factors. The study utilises empirical and theoretical methods to observe and analyses oil market behaviour from the evolution of oil industry to date, as well as analysing statistical data and current trends on oil markets and the driving factors. The second part of the thesis that analyses the role of international law in regulating oil market has based more into a conception methodology in analysing the role of international economic law on oil industry, as well conducting a comparative analysis of different authors, critics and concepts.)

LITERATURE REVIEW

International Oil markets and the associated regulations that are in place has never been a clear subject among academics. The factors driving crude oil price fluctuations is essential for assessing their effect on international trade, however, understand how the industry is regulated at an international level by multilateral trading is another thing. A number of authors have attempted to analyse these issues from an international economic law perspective as international trade automatically falls within such category.

Starting with the structure for crude oil and the driving factor for prices, Lingyu Yna (2012),⁴ M Badr, AhmeD.F (2008)⁵, Q. Y. Guan (2008)⁶, W. Du, (2006)⁷, have argued that, in accordance with the economic basic theory, price level of oil refers to

⁴ Lingyu Yung “Analysis of International Oil Price Fluctuations and Its Influencing Factors” 2012

⁵ Osama M Badr, AhmeD.F Elkhadrawi “The Determinants of Crude oil Prices” 2008

⁶ Q. Y. Guan, “The Period Model and Policies of the Fluctuation of International Oil Price,” *International Petroleum Economics*, Vol. 1, 2008, p. 26.

⁷ W. Du, “The Determinant and the Future Trend of International Oil Price,” *Economic Theory and Business Management*, Vol. 9, 2006,

the continuous adjustment result between the effective supply quantity and the effective demand quantity of this commodity in the market. Provided supply and demand playing a significant factor in driving crude oil prices, on their analyses the authors also considered other invisible factors being a contributory factor including instability of oil production in oil producing countries such as OPEC, an increase of oil demand from emerging economies, fluctuation of dollar fluctuation rates and political instabilities. On the other hand, Stéphane Dée (2008)⁸ have provided a different analysis that has not described by many authors, in his views, results indicate that the refining sector plays an important role in the recent price increase. Arguably, Refinery utilization rates affect crude oil prices based on the ability of refineries to convert crude oil to final products. This effect is associated with shifts in the production of heavy and light grades of crude oil and price spreads between them. Contrary to the above analyses, Lutz Killian (2008)⁹ provided that oil price increases may have very different effects on the real price of oil, depending on the underlying cause of the price increase. His views reflects that, fluctuations in the real price of oil show have been driven mainly by a combination of global aggregate demand shocks and precautionary demand shocks, rather than oil supply shocks, as is commonly believed.

Moreover, a useful approach to classifying the key determinants of the real price of oil, are included in the analysis of Barsky and Kilian (2002¹⁰, 2004)¹¹. Their arguments distinguishes three demand and supply shocks: (1) shocks to the current

⁸ Stephen D, Audrey, Robert K, and Michael Man “Assessing the Factors Behind Oil Price Changes” Working Paper, 2008

⁹ Lutz Killian “ Not All Oil Prices Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market” 2008,

¹⁰ Barsky R.B and L. Killian “Do we Really Know that Oil Caused Great Stagflation” 2002

¹¹ Barsky R.B and L. Killian “Oil and Macroeconomy Since 1970s”, 2004

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physical availability of crude oil (“oil supply shocks”), (2) shocks to the current demand for crude oil driven by fluctuations in the global business cycle (“aggregate demand shocks”); and (3) shocks driven by shifts in the precautionary demand for oil (“precautionary demand shocks”). Precautionary demand arises from the uncertainty about shortfalls of expected supply relative to expected demand.

Although the conclusions of these studies agree in several areas, that crude oil prices are more likely influenced by market fundamental factors such as demand and supply, nevertheless, there remain one significant and important point of conflict. Neither of the studies have analysed demand factor as a lead to speculative behaviour in oil market prices. In large measure, these disagreements are due to complexity in determining the real determinants for oil prices in international markets, and ambiguity over the exact way in which they are determined. The study of Georges Praz (2006)¹², Kenneth Rogoff (2013)¹³ provides an analyses the paradox, they provides that, the formation of oil price expectations in an economically rational expectation framework, a forecaster chooses the optimal quantity of information such that is available at the market. This quantity of information corresponds to a dynamics function of oil price, and allows the agent to specify an expectational process, in that sense, the price of crude oil in the market is most likely to be formed on a basis of speculation of what might happen in the future rather than the actual behaviour of consumers at present. Nevertheless, the latter studies were rather limited in scope and depth. Thus, they are not surveyed in detail. The thesis aim at analysing the missing links and examine into details how speculation works and its implications on oil markets.

¹² Georges Prat, Remz Uctum “Economically Rational Expectations theory: evidence from WTO oil price survey data”, 2006

¹³ Eyal Devir, Kenneth Rogoff “Demand Effects and Speculation in Oil Markets” : theory and evidence, 2013

On the other hand, part two of the study analyses factors affecting refined petroleum prices. In its analysis the study focuses in examining government intervention policies such as dual pricing as a form of subsidies in influencing refined petroleum prices. Patros C Mavroids (2010)¹⁴ and William Kovacic (2010)¹⁵ begin their analysis by looking at the full spectrum of government (and even private) actions, on subsidy programs. On their arguments they noted that, the existence of a subsidy depends partly on the regulatory framework. In developing their analysis the study will go beyond and analyse variety of subsidies available under the WTO law in agreements on Subsidies and Countervailing Measures (SCM). Further to that, the study has considered the work of Andrew green (2010)¹⁶, Mitsuo Matsushita (2016)¹⁷ and Thomas Cottier (2011)¹⁸ in addressing the rule of multilateral agreements such as the WTO in regulating energy subsidies. In relation to the latter, the studies have mainly covered the regulation of energy subsidies including oil and gas under the WTO law. All studies have consented that regulation of energy subsidies under international law is largely fragmented and highly incoherent. Based on their argument, the study has covered the pertinent issues that should be addressed by future framework agreements on energy issues, not only with the WTO but also with other multilateral agreements such as the ECT. Among the issues that the study has raised include, a distinction to be made between renewable and non-renewable subsidies.

¹⁴ Patros C Mavroids “Law and Economics of Contingent Protection in International Trade

¹⁵ William E. Kovacic “Price Differentiation in Antitrust and Trade Instruments” 2010

¹⁶ Andrew Green, Kyle Bagwell “The Enduring Problem of World Trade Organisation Export Subsidies Rules” Cambridge University Press, 2010

¹⁷ Mitsuo Matsushita, Thomas J Shoenbaum “Emerging Issues in Sustainable Development: International Trade Law” 2016

¹⁸ Thomas Cottier, Panagiotis Delmatsis “The Prospects of International Trade Regulation” 2011

Moreover, it is commonly understood, under the WTO dispute settlement system, a state can lodge a formal complain when his rights has been breached by another member. Relating this to dual pricing prices, state could be responsible if proven to breach their rights and affects another state's trade interests. In affiliating states to the claim hence being responsible, the study has analysed Debra P (2010)¹⁹ and J. Pauwely (2001)²⁰ in examining the relationship between multilateral trading system and the international law in interpreting and accommodating supranational rules. As mentioned earlier that, WTO law is a part of public international law, and the later deals with relationship between states, the study has considered relevant the analysis of David Thor (2011)²¹ and Dina Shelton (2017)²² ...in finding out how international law could be transported and being applicable in domestic law. Other important literature on international economic law has been analysed as well.

THESIS OUTLINE

¹⁹ Debra P. Steger “The WTO in Public International Law: Jurisdiction, interpretation and Accomodation”2010

²⁰ Joost Pauwelyn “ The Role of Public International law Law in the WTO; How Far Can We Go” The American Journal of International Law, 2001

²¹ David Thor “Intersection of International Law and Domestic Law : A theoretical and Practical Analysis” 2011

²² Dinah Shelton “International Law and Domestic Legal System : Incorporation, Transformation and Persuasion” 2017

As outlined above, the study has been structured into two parts. Part I of the study is categorized into 3 Chapters of which Chapter 1 introduces the topical issues with a detailed overview of the crude oil industry. It explains trends in the oil industry since the 1960s to date, how and why past events have influenced the current oil market. The chapter also formulates a hypothesis on the research and provides a review of the literature. Chapter 2 focuses on the structure of the oil industry. It analyses the segments of the oil industry that includes organizational/institutional framework as well as its market structure. The chapter also investigates the market behavior and oil price determinants. Therefore, an assessment of trends in supply and demand of crude oil and how they can influence future prices of oil will be analyzed.

Chapter 3 analyses the pricing mechanism for crude oil at the national and international level and its influence in driving oil prices in financial markets.

Chapter 4 of the research focuses on the implication of dual pricing of refined oil products in line with WTO laws. Further to that, the chapter will examine the implications of the WTO laws in regulating the energy sector against unfair trade practices, in particular, energy subsidies. The latter will be analysed in a context of International law and other multilateral agreements. Chapter 5 will cover state responsibility in acts committed by state organs.

Chapter 6 examines the theory of state attribution in hand with the doctrine of veil piercing as principles that could apply in attributing states to their acts. On this chapter, a more stringent threshold will be adapted to lift the veil of state enterprises. Chapter 7 completes the analyses of part 1 & 2 of the study by bringing together the interrelationship between international economic law, multilateral agreements and domestic law with a reference to energy sector regulation.

PART

CHAPTER I

AN OVERVIEW OF OIL INDUSTRY

The absence of romance in my history will, I fear, detract somewhat from its interest. But if it is useful to those who want an accurate account of the past to help understand the future... that is enough -Thucydides

The petroleum industry or more specifically the crude production segment of the industry has been subject to government regulation for the more than 50 decades. In 1935, the major producing states signed the Interstate Oil Compact to Conserve Oil and Gas. The major producing states developed a system of market demand "prorationing" under which producers were permitted to produce only a specified percentage of "basic maximum allowables" which vaguely related to the maximum efficient rate (MER) of production. Under the market demand prorationing programs, state agencies set the rate of allowables at a level designed to meet expected demand at a desired price. The level of permissible production was normally set much below 100 percent. The fixing of maximum output for all producers had the effect of stabilizing prices as well as the effect of eliminating competition among producers of crude oil.

In the modern world of the 21 Century, the influence of crude oil²³ and its refined products on the world economy have become among the relevant issues that have dominated world news endlessly. If we are to look at today's global commerce,

²³ Crude oil compose oil, coal, natural gas and other hydrocarbon products. It is formed as a result of living things residuals of million years ago. It contains complicated mixture of **compounds which are mostly hydrocarbons.**

records show that as of 21thc, crude oil has been among primary sources of energy for human beings as well among the most traded commodity in the financial market. According to Financial Times²⁴, among the list of the top ten biggest trading companies in the world, six are oil and gas companies. In this respect, it is vivid that, Oil industry has a significant recognition in the world economy, both on the economies of oil producers and oil importing countries, although in recent years the industry has experienced a beset of myths, some of its making, some imposed upon it²⁵.

This chapter is organized as follows; Section I introduces the origin of the crude oil industry from the ancient time to the modern world. This part presents an in-depth analysis on how oil business has evolved and dispersed around the world. Section II discusses the series of significant events that the oil industry has gone through since 1960 up to 2016. The rest of the chapter provides insight into additional factors that play a role in shifting crude oil prices in financial markets.

ORIGIN OF CRUDE OIL INDUSTRY

The Ancient Time

If history is a guide, the usefulness of crude oil to human beings is believed to be significant since 300 BC when Romans warriors were using blazing weapons that contained crude oil to fight their enemies. Not only the Romans but also Egyptians, Sumerians, and Mesopotamians utilized crude oil which was seeped through cracks and faults lines on to the earth's surface for several purposes such as sealant for waterproofing various surfaces, medicine, lighting, gluing, lining water canals just to

²⁴ *Financial Times*, February 14, 2016 available at <http://www.ft.com/intl/cms/s/0/cbbf5a16-d17d-11e5-92a1-c5e23ef99c77.html#axzz4I6J2XjPz>

²⁵ Geoffrey Chandler "Some Factors in Oil Company Decision Making" Lecture No 15, UN inter-regional seminar on Petroleum administration, Apr 1968.

name few. However, it was not until 4th AD when the first oil well was drilled by the Chinese using bits connected to bamboo poles ²⁶. By 1500 AD, the Chinese crude oil industry had a remarkable development as the country managed to drill oil wells approximated to be more than 2000 feet depth as well invented pipeline transportation system for crude oil and natural gas. Moreover, on the other part of the world, the Persians were also not behind on the discovery of crude oil, as of mid 13th C, the Persians (now Iran) invented methods of collecting oil seeps on the surface, followed by digging of shallow pits at Baku (in-present day Azerbaijan) ²⁷. Not only the Persians but also by 16th C, Romania even started the drilling of crude oil and became the first site of European commercial oil reservoir. In the 18th C, merchants constructed dams in western Pennsylvania called Oil Creek that allowed oil to float. A technique of spreading blankets in the water to soak up the oil was employed, and the oil was retrieved by wringing out the sheets and sold at 2 dollars per gallon at the then time. By the Mid of 18thc, many refiners where constructed in Pennsylvania, as a result of which production increased from 450,000 barrels to 3,000,000 between 1860 to 1862²⁸. The increase in supply pushed the prices of crude to fall from 10 dollars a barrel to 10 cents per barrel. However, not only crude oil was a dominant product in the then oil market but also Kerosene. During this time, Kerosene gained recognition in the oil market as the illuminant of choice. Thus Kerosene market becomes even more famous than the demand for crude oil. The growing predominance of kerosene led to the establishment of the first U.S oil company in 1850, the Pennsylvania Rock

²⁶ Ni, C, China Energy Primer, China Energy Grioup, Lawrence Berkeley National Laboratory, US Department of Energy 2009

²⁷ Business Education Research Association (BERA),”History of Oil and Gas Industry”,2006 available at <http://www.loc.gov/rr/business/BERA/issues5/history.html> , visited 18th Nov 2015.

²⁸ Arthur Beeby-Thompson, Herbert Hoover “Black Gold, the story of an oil Pioneer” 1961, Sidgwick & Jackson publishers, London

Oil Company.

The Early Modern Time 1850s-1910s

U.S oil industry

The new era for oil industry began when Edwin Drake successfully drilled and produced a commercial usable quantity of crude oil, in Pennsylvania in 1859. In 1870, an American company; Standard Oil Company that founded by D. Rockefeller was launched. A few years later, the company took almost 90% of the U.S oil industry thus took the dominant position both in downstream to the upstream segments of the oil industry. While the Standard Oil Company was expanding more and more in the U.S oil market, at the same time the company started exporting oil to Europe and other countries, thereby, that increased the American oil market recognition to the rest of the world. By the 1910s, the U.S recorded to contribute at least 50% of the world's oil production. However, the growing U.S's oil industry, under the dominant position of Standard Oil Company, was not meant to last forever. There were other discoveries and emergence of new companies as which emerged to be a threat to Standard Oil Company. By 1911, the changes to the legal and regulatory frameworks in the US proved to be the most crucial threat to Standard Oil. The United States federal court ordered the dismantling of Standard Oil Company into 34 distinct companies, following the enactment of the antitrust law that could not tolerate the monopolistic and manipulation of the Oil market that was practiced by Standard Oil Company.

Provided of the dismantling of Standard Oil Company as ordered by the federal court, yet, the global dominance of the oil industry that was created by Rockefeller through the machinery of standard oil did not end up there. The new historic chapter for the oil industry was yet to unfold in the U.S as well in other parts of the world.

Other companies such as Texaco, Roxana Petroleum Company, Shell Company of Californian, etc commenced engagement into the oil industry significantly thus led the oil market to become more competitive in financial markets.

Internationalization of Oil industry

a) The rise of European Crude Oil industry

As old as history itself, Romania has always been considered among first countries in Europe to have commercial quantities of oil resources and remained as a significant source of hydrocarbons energy supply to the majority of European countries for over 200 years since the discoveries in around 1600 years. In the early modern time, the exploration and production of crude oil by Europeans, started in other parts of the world, essential in the countries that Europeans colonized or became European colonies in years ahead.

b) The Rise of Russia

While the U.S was already the world's major producer and exporter of crude oil and kerosene by 1880s, on the other hand, the international oil industry was about to take another turn, that was none but the rise of the Soviet Union (now Russia) competitive oil market. At the beginning of the 1870s, Russia had already produced 204, 685 barrels of oil²⁹, energetic activities that were widely covered in the Russian press and financial markets. The rapid expansion of oil production in Russia came along with advanced technology in methods of oil production, transportation, refining, and marketing. By 1887 already Russian was competing with U.S oil industry, mainly, kerosene. Russian Kerosene began to dominate foreign markets both in Europe and Asia. Whereas exports in the late 1880s from Russia were recorded to be more than

²⁹ Perschke, Stanislav and Ludwig. *The Russian Oil Industry: Its Development and Current Status in Statistical Data, Tiflis 1913.*

552.404 barrels, and within ten years more than 3 million barrels of Russian kerosene was being exported. Already big companies such as Nobel brothers³⁰, Caspian Partnership, G.N Lianozov & Sons Oil production Partnership just to name a few, were among the companies that played a crucial role in the expansion and production of the Russian oil. Oil producers such as U.S could not help but react to Russia's appearance on the international oil market. However, the competition was too stiff, other foreign oil producers from Europe were also making their ways to the global oil market, those were none but the Royal Dutch, a company of Netherlands origin and B.P, a company of British origin.

Royal Dutch Petroleum was launched in 1890 after the first successful of oil drilling at Marshy coast of Sumatra in 1885 by the Dutch. However, the company was renamed to Royal Dutch Shell Group³¹ in 1907 after merging with shell transport and trading company³², a British registered company. The group (Royal Dutch Shell) rapidly expanded across the world and became among the most stringent competitors of Rockefeller oil companies. By 1911, the group began its explorations and productions in Venezuela, Mexico and United States. Marketing companies where formed throughout Europe and in Asia³³. Other Europeans countries that played a significant role in the evolution of oil industry in the world include Romania and Poland.

On the other hand, while the Royal Dutch shell was working out the “good oil

³⁰ Vagit Alekperov, “Oil of Russia; Past, Present & Future” 2011.

³¹ Shell Trasport and Trading company had 40% of shares and the Royal Dutch Petroleum had the remaining of 60%.

³² Was a company of British origin, founded by Samuel Brother's who started the oil business in the 1890s in Borneo, East Asia. The brothers initially called their company The Tank Syndicate but in 1897 renamed it the Shell Transport and Trading Company.

³³ Gerretson, F.C. “History of the Roral Dutch, 4 vol,1953-1957, Leiden, E.J Brill.

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business” in East Indies, Europe and elsewhere, William Knox D’Arcy went in search of oil fields in Persia (now Iran) in early 19th C and succeeded to secure concession to explore crude oil within the country with an exception of five provinces that Russia was interested into. Following few years of oil explorations, finally in 1908, significant crude oil deposits were discovered in Persia, followed by the establishment of Anglo-Persian Oil Company (APOC- later became Anglo-Iranian Oil company)³⁴. By the end of 1914, the British government acquired the 50% shares of the APOC that was originally owned by D’Arcy. By 1920s the Anglo-Persian Oil companies was among the world’s largest oil companies matching the status of Standard Oil Company of New Jersey. In 1934 (the year Persia became Iran) the Anglo-Persian Oil Company was renamed and become Anglo-Iranian Oil Company, followed by the signing of the new concession agreement that included a 50-50 profit sharing between the governments³⁵. By 1951 the Anglo-Iranian Oil

Company was nationalized; again the company was renamed to British Petroleum Company. However, the Iranian government held the majority shares and left the British Petroleum with 40% interests.³⁶. On the other hand, BP was expanding its crude oil exploration activities in other parts of the world such as Iraq, Kuwait, Arabian Gulf, Africa and other countries in Europe just to name few, and, as of today, BP operates in more than 100 countries world-widely

Moreover, for Africa, Middle East, and Latin America, the significant development of oil industry within the latter regions began after the Second World War.

i) Oil industry in the modern time 1940s- 21st C

³⁴Dickson, H, R “ Kuwait and Her Neighbors” 1956, George Allen & Unwin, London.

³⁵ Jones, Geoffrey “The State and the Emergence of the British Oil Industry” 1981, Macmillan.

³⁶ <http://www.bp.com/> visited, 22nd Nov 2015.

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Although the oil industry started as early as the 1880s, yet petroleum was not as valuable in the world economy as it was to become in 1950s. Early eminent revolution in the oil industry prevailed after the discovery of commercial deposits of oil and gas in the North Sea Basin³⁷. The first discovery in the Northern Sea was made by the Netherlands in the 1950s followed by discoveries in East Anglia in 1965 by the British Petroleum Company (BP)³⁸. By mid-1980s, the oil industry in Europe grew significantly, and the U.K was among the significant exporters of crude oil in the region. Significant deposits in Aberdeen, Shetland, Northern Isle of Orkney, Yarmouth just to name few, increased the predominance of the British oil industry. By 1990s, already more than 200 oil fields were in the region and companies from America, Asia and elsewhere were interested in investing in the British oil industry. On the other hand, the speed of the oil industry growth in the Netherlands was more or less the same. As of the 1970s, the natural gas exploration in Groningen field became too successfully of which more than 1500 billion cubic meters (BCM) of natural gas were discovered in offshores and onshore gas fields³⁹ and production from the field started in the following year. Companies such as Saga Petroleum and Norsk Hydro⁴⁰ were among the first companies that were involved in oil and gas production in Norway, Norsk Hydro was as well acquired in 2007 and formed a part of Statoil. Today, Statoil is a fully integrated petroleum company with operations in more than

³⁷ Marginal sea of Atlantic Ocean located between Great Britain, Scandinavia, German, the Netherlands, Belgium and France. Prior 1960s, the exploration of oil in the North Sea was on a small scale basis, and it all started in Austria and German in the early 1930s. The Netherlands and United Kingdom also discovered small oilfields by 1936 within the basin.

³⁸ F.G, Lamarmine, R. B Clark, J.K Rudd, & M.L Tasker "The History and Future of North Sea Oil and Gas: An Environmental Perspective (and discussion), Vol. 316, No. 1181, 1987, pp. 487-493.

³⁹ Focus on the Dutch Oil and Gas, 2014, Available at; http://www.nlog.nl/resources/Posters/prospectfair2014/ebn_focus_on_dutch_oil_gas_2014.pdf, Visited on 20th Nov 2015.

⁴⁰ Saga Petroleum ASA, a Norwegian petroleum company established in 1972 and acquired by Norsk Hydro in 1997 that was as well merged in 2007 and formed a part of Statoil.

30 countries.

Outside the U.S, Europe and Russia (former the Soviet Union), Oil industry was also growing significantly in the Middle East. The history of the discovery, exploitation, and importance of Middle Eastern oil has gone through various phases. The journey began with the exploration of oil in Persia thus establishing what is now called BP, to the production of oil in Bahrain by Gulf Oil, a company of an American origin. Towards the end of the First World War, all of the then Middle-East main oil producers countries such as Kuwait, Qatar, Saudi Arabia, the Trucial States (Abu Dhabi and Dubai) as well as Oman were divided to French, British spheres of influence, as well as to the United States.

Iraq was developed by Iraq Petroleum Co (BP, Shell, Exxon and at.al), while Kuwait was under Gulf and BP, Saudi-Arabia by Chevron that was later joined by Texaco, Exxon and Mobil through Aramco. United Arab Emirates were developed mostly by Shell. Although crude oil production foundation was laid in the early 1990s but the Middle East enormous contribution to global oil supply started from mid 1930s. By 1960, the oil production from the Middle East in the international market accounted for over 30% and increased to about 60% by 1975. By early 1980s, Middle East was already responsible for almost half of the oil entering world trade, thus, led Middle East national companies to take over the rights of foreign countries. Provided of the nationalization in the Middle East from 1950s⁴¹, as of today, few countries in the region such as Saudi Arabia still accords few privileges to the foreign companies that previously owned Aramco (now Saudi ARAMCO).

Moreover, Africa was not left behind in the exploration and production of Oil.

⁴¹ C.J Campbell, “ The Golden Century of Oil 1950-2050 : the depletion of a resource ” 1991, Springer Science+ Media Dordrecht.

Africa's oil industry started being recognized in the international market as late as 1950s. The first major discoveries in Africa were made in North Africa⁴², Angola and other west and Sub-Saharan countries. By 1959 already Libya, Nigeria, Algeria and Angola were significant oil producers, although the exploration activities were mainly performed by the western companies such as the BP, Chevron, Texaco, Agip and etc. whose had concession contracts in exploring oil fields in Nigeria. Nevertheless, at the beginning of 1970s, majority of African oil producers commenced to operate under a partnership basis of which majority shares were acquired by state owned oil companies⁴³. Today majority of oil companies operating in Algeria, Libya, Nigeria, Angola, South Africa just to name few are mostly joint ventures companies and the oil production within these countries are inform of product sharing contracts/Agreements (PSA)⁴⁴. Other eminent discoveries and oil productions in Africa in around 1960 to date include oil fields Gabon, Republic of Congo, Ghana, Uganda, Ivory Coast, Equatorial Guinea, and Niger. Mozambique and Tanzania are the new emerging countries with potentials of crude oil deposits, but their industries are still at the infant stages⁴⁵ to ascertain the magnitude of the oil deposits. As of 2015, Africa has proven oil reserves of 132.1 billion barrels of world oil reserves, and, its production has forecasted to grow for more than 20% in the near future⁴⁶. Fore instance,

⁴² Algeria, Libya, Tunisia, Egypt.

⁴³ Depending on the nature of the contract. As of today majority of African countries are using product sharing contracts and service contracts.

⁴⁴ Is a contractual agreement between and contractor (an investor) and the host government or its (NOC) whereby the contractor bears all costs and risks that are associated with the development and products costs in return the investor acquires an entitlement to a stipulated share of the oil produced as a reward for the risk taken and services rendered. The state however remains the solely owner of the oil produced subject only to the investor's entitlement to its share of production.

⁴⁵ Both Tanzania and Mozambique are the leading countries in sub-sahara with enormous deposits of natural gas.

⁴⁶ Stevens P, Middle East Economic Survey, Vol. XLVII No. 37, 2004

according to BP statistical review of energy⁴⁷ Africa's proven oil reserves has grown by almost 150% since 1980-increasing from 53.4 billion barrels at that stage to 130.3 billion barrels at the end of 2012. This is an average annual growth rate of 2.8%, which is the second highest continental growth rate in the world after South America over that period. Oil reserves have grown particularly quickly since the mid-1990s as improved political environments have made it more attractive for foreign oil companies to explore. Even so, there is massive scope for further exploration. According to some estimates, there are at least 100 billion barrels of oil offshore Africa, only waiting to be discovered.

Other than the Europeans, other externalities such as the U.S and China, and other emerging powers like India, Brazil and Turkey have as well played a significant role in the African oil industry development. It is no secret that the major, longstanding and fierce players are USA and China, which are conducting a geopolitical struggle for control and influence of Africa's natural resource reserves. Starting from the Clinton administration through to the present Obama administration, US's interest in African oil resources has been constant and unchanged. In 1997 Secretary of State Madeleine Albright in her visit to Angola's oil fields operated by Chevron declared "The United States has important national interests in helping Africans make progress on all those fronts. For example Angolan oil already accounts for 7 percent of U.S imports, three times as much as our imports from Kuwait in early 1990. We expected that number to grow dramatically in the years ahead."⁴⁸.

⁴⁷ Available at ; <http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/country-and-regional-insights/africa-insights.html> visited 24th Nov 2015.

⁴⁸ Madeline Albright's declaration held on the 12 Dec 1997 in Cabinda Angola.
<http://www.state.gov/www/statements/971212.html>

Further, Bush Administration appointed the National Energy Policy Development Group that assessed the issue of energy supply of the US and released a report in May 2001. The 2001 report identified a significant gap between the demand and supply of U.S's energy needs, thus recognized the paramount importance of finding new frontiers for petroleum supply. In addition to that, the Obama administration through its National Security Strategy declared: "As long as we are dependent on fossil fuels, we need to ensure the security and free flow of global energy resources"⁴⁹. On the other hand, the U.S has not been the only country with special interest of expanding and securing the flow of oil to its economy, China, albeit has been in the same case, and has recently become a major competitor to the US and other western countries in expanding and security energy investments, essentially oil in African countries. China has been using different strategies include undercutting western companies through economically unviable bids, tied to political promises of associated economic aid and investment. China's volume of trade and investment has exponentially increased from US\$ 1 billion at the beginning of the millennium to around US\$ 110 billion in 2011⁵⁰. Much of China's advent into African Petroleum industry has been aggressively pursued by SINOPEC (China Petroleum and Chemical Corporation) Beijing's NOC, which has carried out successful agreements with countries like Gabon, which is expected to supply 20,000 bpd, Angola which will provide 10,000 bpd, and with Nigeria where the company has been buying major stakes in offshore

⁴⁹ White House National Security Strategy, 2010, available at https://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf

⁵⁰ Egon Cossou, "China Africa trade set to keep on booming in 2011", BBC News online, 2 Jan 2011, Available at <http://www.bbc.co.uk/news/business-12098204>

and onshore fields, agreements to build refineries and pipelines⁵¹.

Lastly, as much as the history of oil industries for other continents has been written so does that of Latin America. Historically, the Latin American oil industry existed since 1860s, and even more than a century for some other countries. Provided of a number of oil discoveries, yet the continent did not make its golden oil era until in the 1930s. Countries such as Mexico, Venezuela, Peru, Bolivia, Brazil, Colombia, Argentina just to name few started to make significant production of crude oil thus attracted hundreds of foreign companies from UK, China and US to explore the Latin American's subsoil as well investing. Nevertheless, it was not until early 1940s when majority of Latin American countries started the nationalisation of all private companies including the oil sector. Mexico was among the first countries to nationalise the private sectors followed by Brazil, Mexico and others. At the turn of the 20th C, Latin America was still among the significant producers of oil in the world market regardless of uncertain investment policies investment countries like Venezuela. Many companies such as Chevron, China National Petroleum Corporation, Russia energy companies, are investing billions of money in Venezuela Oil industry. Unfortunately, the case for Mexico in attracting foreign investment in the oil industry is still a nightmare since the country is facing a serious shortage of crude oil reserves. Due to its inability to meet the rising demand for crude oil, Mexico has been forced to increase its import of natural gas from the United States⁵²

Figure 1: World Crude Oil Production by Region

⁵¹ Alexander Hammer, Lauren Gamache & Lin Jones “ China Trade and Investment Relationship with Africa” 2016

⁵² Clare Rebando, M. Angelese Villareal, Michael Partner & Phillip Brown, Mexico's Oil and Gas Sector: Background, Reform Efforts, and Implications for the United States, 2015.

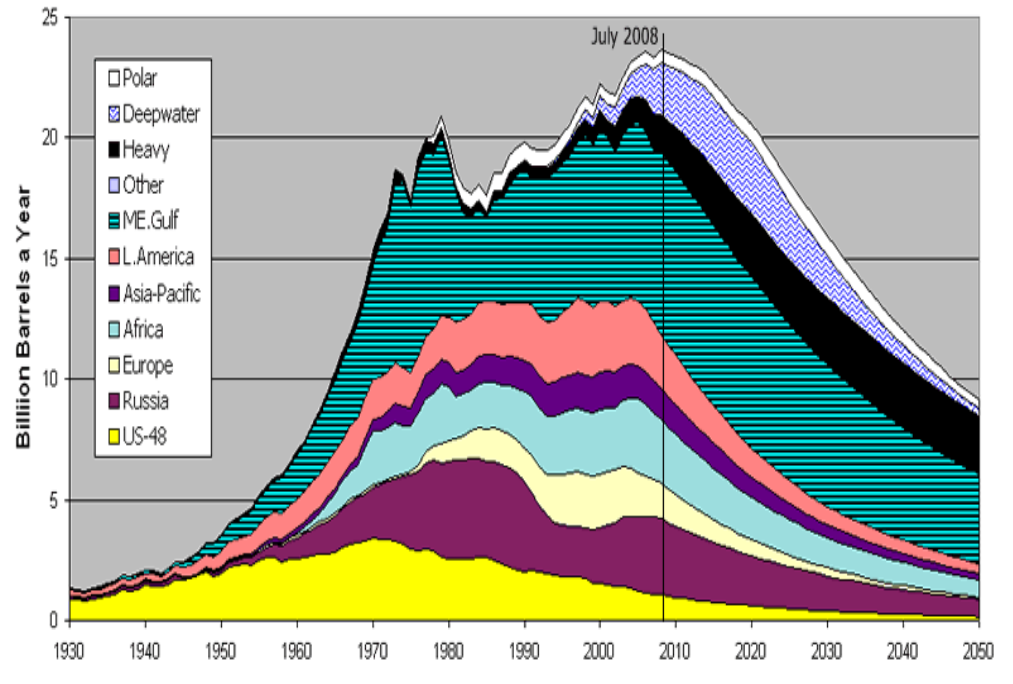
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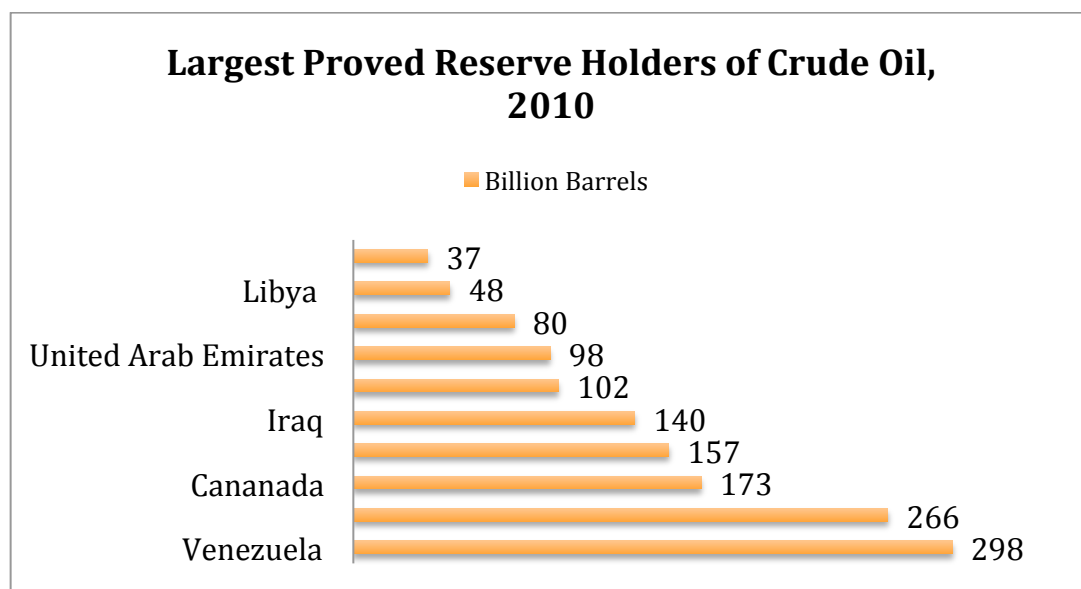
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OIL PRODUCTION



Source: Energy Information Administration (EIA)

Figure 2: Proven Oil deposits as of 2014



Source: International Energy Agency, Energy Report 2014

As of 2014, there were more than 1700 thousand million barrels of oil proved reserves

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worldwide, of which more than 1214.2 billion barrels were located in OPEC countries, while Canada recorded to have a reserve of 173 billion barrels. Estimates of proved oil reserves as of 2014 and production by country for 2014, as compiled and published by International Energy Agency, are shown in Figure 1.1. In addition to that the estimation of natural gas reserves in the world by 2013, was recorded to be around 6557.8 trillion cubic feet while the production was recorded to be 3369.9 billion cubic meters and consumption 3347.6 billion cubic meters.

TRENDS IN THE OIL INDUSTRY FROM 1950-2015

Having elucidated the significant evolution of oil industry since the ancient time to the modern era, moreover, it is also essential to cover the important events that the industry have undergone since the 1950s up to date and its influence in shifting oil prices. Starting from the 1950s, after the Second World War, the oil industry had already acquired a significant recognition in the world's financial market, thus being marked as the most international and inter-connected industry amongst all. Provided by the industry's good performance and being glorified all most all of the time, yet, crude oil industry remains as the most complicated industry in the world market, mostly due to its structure, market behavior, climate change rhetoric⁵³, institutional framework just to name few. It is an industry of extremes, profoundly influenced by many factors, from geographical location, geological considerations, global economic shifts to international geopolitical changes and etc.

This chapter covers the holistic events in the oil market. The main purpose of this part is to identify whether oil shocks play a significant role in shifting oil prices in the international financial market. The part replicates arguments introduced by different

⁵³ **Mostly addressed as energy trilema**

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kinds of literature to disentangle the relationship between political movements and changes in real prices crude oil. The study uses the statistical data provided by International Energy Agency (IEA) in analyzing significant changes in the price of oil.

The beginning of 1950s marked a significant transformation in the oil industry. After the WWII, the demand for crude oil and its refined products increased significantly thus led the increase in demand for petroleum products to surpass by 80% as of 1952 compared to the 12% increase in 1947⁵⁴. At that time the industry was mainly dominated by giant oil companies from the U.S, Europe, Middle East and Asia, thus the industry found itself grabbing screaming headlines in boardrooms and became the subject of articles in business journals and broadsheets with increasing predominance.

Despite the growing importance of the crude oil industry since 1950, nevertheless, the industry has been facing some issues include the clarity on the framework of the crude oil industry, the market structure behaviors essentially, the determinants of oil prices in international financial markets. Not only has the crude oil market become a crucial debate in international financial markets but also the underlying economic implications of dual pricing for refined petroleum products. The creation of efficient oil market has therefore being the reason why financial analysts, economics and legal scholars are calling for structural and behavior change, or somewhat trying to regulate oil price fluctuations. In this regard, the study has analysed approaches of different scholars wherein some arguments present that the driving forces for oil prices are influenced by an increase in economic growth patterns such as technological innovation while others studies argue oil prices are the result of political dynamics and cartels of giant oil-producing countries. The difference between the two thoughts is crucial. Thus, the thesis intends to examine the validity of both claims and provides

⁵⁴ **New York Times, June 25; Wall Street Journal May 2, 1952, p 2**

and logical analysis of what ought to drive oil prices in international market

a) Events in Oil Industry From 1950 to Date

Oil is used by all of the 220 nations in the world although only 42 countries are the significant Oil producers while 38 accounts as substantial exporters of the resource⁵⁵. From the discovery of oil in the 19th Century, the world has used approximately 1 trillion barrels of crude oil while more than 2 trillion barrels of Crude oil is yet to be produced⁵⁶. To this end, it is believed that the world consumes 83 million barrels of oil every day while produces more than 89 million barrels of Oil per day. In addition to that, Oil industry is said to grow at an average of 3% annually. A significant change in the industry was more noticeable after the Second World War when the economy's dependence on oil grew significantly. Demand for petroleum products increased predominately-at least by 12% between 1945-1947. The price of crude oil increased by 80% over these two years, thus causing a high demand for oil supply globally, particularly in the U.S. In an effort for meeting the growing demand for oil, the U.S extended significant oil production in the Middle East mostly in Saudi Arabia.⁵⁷ Already by 1952, big oil companies (the seven sisters) were operating jointly in the Middle East oil production and somehow controlling oil prices within the region. The expansion of petroleum in the Middle East stabilized the prices of oil in the international market. The price for Oil was quoted similar to the ones in Gulf Mexico whereas the US through its national oil supplier company the 'Texas Railroad Commission' was considered a key player the world oil market⁵⁸ by the then time.

⁵⁵ International Energy agency, 2010

⁵⁶ The CRB Commodity Year Book, 2007, p.p 197-1998

⁵⁷ Rober G Reed III and Fereidun Fesharik, "Oil Market in the 1990S; Challenges for the New Era", Westview Press, 1989.

⁵⁸ Adelman, M. A, The World Petroleum Market. Baltimore: Johns Hopkins University Press, 1972.

Not only was the production of oil industry took a significant turn after the Second World War but also this period was characterized by two significant events such as the introduction of new oil structure for sharing oil revenues between companies and governments in the Middle-East as well as the introduction of an administered prices governing the per barrel tax receipts of the host governments. Both systems became very important in bringing changes in the existed structure of oil industry. Provided the newly structured oil industry, the steady growth of oil industry was not guaranteed. Already by the end of the 1950s, an imbalance in the oil industry was visible as the demand for oil increased as a result of nationalization policy that seemed to gain popularity in the majority of oil-producing countries. The latter started in Iran in 1951-1953 followed by to Venezuela in the mid 1950s, and Mexico concurrently. Moreover, the political nationalization in the 1950s did not only happen in the Middle East and some Latin American countries but also in North Africa. In 1956, the then Egyptian present- Abdel Nasser nationalized and regained the control of Suez Canal from the Britons and the French. During the crisis, a number oil ships were sunk, the Suez Canal was blocked, as well other oil pipelines that were transporting oil to the Middle East such as Iraq, Syrian and the Mediterranean region were sabotaged⁵⁹. Consequently, the Suez Canal crisis left the total world's oil production with the deficit of about 1.7 mb/d by the end of 1956⁶⁰. ven though the Suez Canal crisis had a more significant impact on the world oil production, nevertheless it was short lived. By 1959, the Middle East, Russia (former the Soviet Union) and U.S oil production were able to fill in the gap, and oil prices stabilized again. The 1960s, the oil market was characterized by price fluctuations which some resulted from strikes and declining in production for the US oil in Texas fields. For

⁵⁹ Oil and Gas Journal , Nov 12, 1956, 122-125.

⁶⁰ James D Hamilton, " Historical Oil Shocks" 2011.

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instance, in 1969 the U.S faced national workers strike that somewhat affected the American oil industry, followed by Texaco announcement in the increase of oil prices. The oil price swings in the 1960s came up with an immediate resolution that was none but the formation of Organizations for Petroleum Exporting Countries (OPEC⁶¹). The main theme for the formation of OPEC was to control the oil prices and the state control over the industry as a whole thus increase the revenues in the oil industry. The contribution of OPEC to the international oil industry will be discussed in details later in this study.

Moreover, the period of 1970s-1980S was comprised of significant events in the world oil market, starting from the highest prices of imported oil, the removal of several income tax incentives for oil and gas companies, the imposition of windfall profit tax on oil production⁶², and, most notably was the imposition of price controls on the domestic produced oil that resulted from OPEC oil embargo. As history presents, the 1973/74 OPEC oil embargo was a retaliation measure against western countries that supported Israel-Arab war ⁶³. The oil embargo affected oil production, thus supply by 7.5% of global output, consequently, that rose crude oil and refined petroleum prices in financial markets. Not only did the OPEC embargo triggered the oil prices to its heights, and, posed an economic recession throughout the world, but

⁶¹ The original OPEC members were Iraq, Iran, Kuwait, Saudi Arabia and Venezuel. Later joined by Algeria, Angola, Ecuador, Indonesia, United Emirates Arabs, Qatar, Nigeria and Libya.

⁶² Horace Brock, Overview of the Petroleum Industry, 1983

⁶³ The nature of the Arab (Egypt, Syria and Jordan)- Israel conflict, started since World War II era after Israel, declared a 56% of the land that was formerly known as Palestine territory to serve as a homeland for Jews. The local Arabs were enraged by the fact that the Palestinian land had been taken to create this state. They refused to acknowledge Israel as an independent state. The Arabs began to launch efforts to recapture the land that they felt was rightfully theirs. This created the Suez-Sinai War. The British and the French sided with the Israelis in order to punish Nasser for nationalizing the Suez Canal. The strong Israeli military forces quickly defeated the Arabs. The Arabs responded to this defeat by uniting. In 1967 Israel launched the Six-Day War, claiming much land. In 1973 other Arab forces retaliated.

also the crisis came with significant structural change within the oil industry.⁶⁴ The nature of access to crude oil for most of the major oil companies changed and most all oil companies were acquired through equity ownership, including the ones who were in a long-term concession⁶⁵.

Like OPEC oil embargo, the Iranian revolution was a predecessor of the 1973 to 1974 oil shock. The uprising began in early 1978 and ended a year later when the reign of Shah Mohamed Reza collapsed with its authoritarian regime⁶⁶. The political consequences of the revolution led to the decline of Iranian oil production by 4.8 million barrels per day-equal to 7% of the world production at that time⁶⁷. The sudden loss of oil supply in Iran and the widespread panic of the decreased oil output pushed up the price of Oil far higher to 40USD per barrel for more than a year during 1978/1979. The longer-term demand responses of consuming countries to the price hikes of the 1970s proved to be substantial. Consequently, the world petroleum consumption declined significantly. With the beginning of world recession in the 1980s, the oil industry was stagnant, and the best years for oil industry seemed to be over as fewer ships for oil were needed, big companies were shut down in Europe⁶⁸, Saudi Arabia voluntarily shut down almost a quarter of its production in 1981-85, the

⁶⁴ One price for “Lower-tier oil “ specifically for oil production before the 1973 crisis, and the higher prices for “upper-tier oil” for oil production began after the 1972

⁶⁵ Guy F. Caruso, *Structural Adjustment in the Oil Industry : Evolutionary Change and Information Revelation*, 1989

⁶⁶ At that time, Iran was ruled by Shah Mohamed Reza, who perceived to disrupt the tradition of Iranian cultures and social structures with modernization which never brought flexibility to traditional rigid Iranian Politics as a result it was perceived as a major threat to Iranian culture.

⁶⁷ Matteo Manera & Alessandro Cologni, *Oil Prices, Inflation and Interest Rates in Structural Cointegrated VAR Model for the G-7 countries and “The Asymmetric Effects of Oil on Output Growth for the G-7 Countries”* 2006

⁶⁸ For instance, more than 40%⁶⁸ of the British Oil supplies was from Iran of which, a part of the British oil supply from Iran was contractually sold to Japan but after the revolution and the war outbreak, British had to terminate its contractual agreement with Japan due to **insufficient oil supply from Iran.**

Middle East particular the Persian Gulf was knocked down by a series of conflicts⁶⁹ thus, affected their the oil production in the region significantly. Provided the decrease in oil production from the Middle-East by 6% of the world production at the then time, nevertheless the 1980/81 oil crisis was almost unnoticeable, big oil consumers like Japan already have changed their market structure to cope with the oil shocks. The US removed price and allocation controls on its oil industry. For the first time since the early 1970s, market forces replaced regulatory programs, and domestic crude oil prices were allowed to rise to a market-clearing level. Decontrol also set the stage for the relaxation of export restrictions on petroleum products⁷⁰.

Following the oil price spikes of the 1970s to 1980s, oil industry seemed to stabilize, but the worse was yet to happen. The period of 1990-1991 came with an outbreak of Iraq-Kuwait war (Persian Gulf War). Again the struggle between the two left the international oil market with a shortage of 9% of oil production at the time, thus soured up the prices for crude oil noticeably. The average monthly price of oil ranged from 18 USD a barrel in 1990 and 36 USD a barrel in the following year⁷¹.

The period of 1990s-2014 was classified as a new industrial era for the oil industry. The industry became globally competitive than ever; producers widely adopted advanced production methods as well sound market structure. This evolving development of the oil industry also increased the production and consumption of oil products. For instance, the global oil demand reached 94.6% as of mid-2015 compared to the 62% in 1995 and less than 40% in 1970s⁷². Provided of the significant

⁶⁹ 1980-1981, Iraq launched a war against Iran.

⁷⁰ The History of Gasoline Retailing. Available at http://www.nacsonline.com/YourBusiness/FuelsReports/GasPrices_2011/Pages/100PlusYearsGasolineRetailing.aspx, accessed on 7th Nov 2017

⁷¹ Christopher C Joyner, James T Kirkhope "The Persian Gulf War Oil Spill: Realising the Law of Environmental Protection and Law of Armed Conflict" 1992

⁷² Joel Darmstadter, "Recalling the Oil Shock of 40 Years Ago, 2013, Issue Brief 13-06, pp. 4
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growth of oil industry in the new industrial age, as well significant consumption of oil products by emerging economies such as China, India, and Brazil just to name few yet the industry has never been certain in the international market. Provided of the gradual development and almost unnoticeable shocks from 1992/97 in the industry, the period of 1997/98 took a different turn, that was none but the drastic fall for crude oil. The cause for the latter was attributed to the East Asia financial crisis that had highly created economic panic in the Asian financial system, thus developed doubts among investors over the future of Asian market stability. The financial strains on some other Asian countries ⁷³, followed by the drastic fall of the dollar was enough to slow down growth in global oil demand since oil demand is usually, or perhaps directly related to economic activity. As at the end of 1998 oil prices were recorded to be as low as 12\$ a barrels ⁷⁴.

Provided of the crisis outbreak in East Asia, by 2000 oil prices stabilized and recorded to grow at an average of 40% at the end of 2000. In 2003, the oil industry was again destructed mildly by the second Gulf war followed by the US invasion of Iraq in the same year. The 2005 – 2008 period signalised rapid growth of oil demand with a stagnant supply of oil ⁷⁵ as the demand of oil from emerging economies such China, Japan and other developing countries was growing significantly. By 2015, already the world economy was recorded to grow at an average of 7.3% annually while the oil consumption was recorded to grow at an average of 5.5 per year in and 10% in 2006. For instance, the Chinese oil consumption alone in 2007 was 870,000 barrels a day. On the other hand, the production of oil was said to reach its peak, and

⁷³ Steven Radelet & Jeffrey Sachs “The Onset of the East Asian Financial Crisis” 2000, University of Chicago Press

⁷⁴ James D Hamilton, Historical Oil Shocks, 2011, Working Paper 16790

⁷⁵ Journal of Political Economy, 79: 593-617, Causes and Consequences of Oil Shock of 2007-2009b.

the supply could not cater the growing demand for oil worldwide. The flat production of global oil production led the surge of oil prices significantly. As of 2007 a barrel of oil was sold for 92\$ while in mid-2008 a barrel was sold for 145\$. Provided the remarkable growth and market expansions in the emerging economies with stagnant production of oil, moreover, it is worth acknowledging the soar prices of all in 2007-2008 was also partly contributed to the US recession⁷⁶ as well the US military interventions in the Middle East. This created budget deficits and current accounts deficits through macroeconomic variables such as exchange rates and capital inflows, thus profoundly affected the foreign trade balances. Other factors that contributed to price change in 2007/2008 were hurricanes in the Gulf of Mexico and the series of political instability in some oil-producing countries like Bahrain, Iraq, and Nigeria. For instance, production from the North Sea was recorded to drop by 2007, Mexico oil production dropped by 1 mb/d between 2005-2008⁷⁷.

b) Oil Industry Today

The repeated oil crisis episodes since the 1950s as such the cutback of supplies and soaring prices not affected oil producers and consumers but also had a significant effect on the institutional a structural change in the oil industry. These changes include declining growth of global oil demand substantially in the beginning 2014 as forecasters anticipated seismic shifts in technology and policies in oil-producing countries had slowed the demand growth of oil. For instance, OPEC countries increased oil production as retaliation for U.S shale oil production. On the other hand, shifts in technology such as advances in vehicle efficiency and tighter emissions standards and shifts to other fuel sources led the demand for in oil to decrease. As of

⁷⁶ 2007-2008 financial crisis and subprime mortgage

⁷⁷ *The Journal of Energy and Development*, 2006.

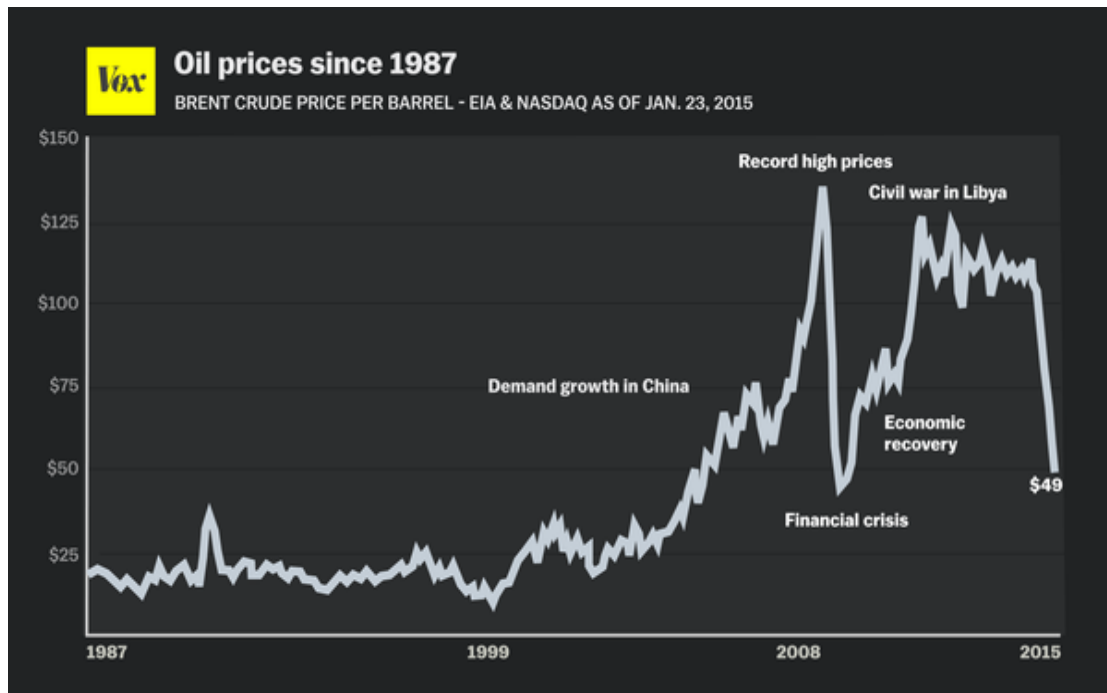
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January 2016, a closer look at the recent times indicated that the market of crude oil was projected not to return to its heights of 110\$ a barrel where it was before the 2014 oil crisis, neither to reach even the 95\$ a barrel until 2040⁷⁸. In 2013, the production of crude oil looked reasonably good with a slight growth, but at the beginning of 2014, the prices of oil fell from above 80\$ to 40\$ a barrel then recovered to 65\$ a barrel in the first half of 2015.⁷⁹ The fluctuations brought concerns about the future stability of crude oil market. Some analysts believed that industry had reached its end while some thought oil companies have cut down its spending due to the costs of production while some found the US shale oil production has played a significant part in replacing crude oil market share and the list goes on. The next chapter will analyse these factors as possible reasons for crude price shifts in the 21st century.

⁷⁸ OPEC, World Oil Outlook Report, 2015, Available at http://www.opec.org/opec_web/static_files_project/media/downloads/publications/WOO%202015.pdf

⁷⁹ Energy Information Administration (EIA), Short-Term Energy Outlook, 2004, Available at: <https://www.eia.gov/forecasts/steo/special/pdf/high-oil-price.pdf>

Fig 3. Oil Prices from 1980S-2015



Source: Energy Information Agency

Figure 4: Oil prices in 2015/2016



Source: Thomson Reuters Datastream

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INFLUENCE OF EXOGENOUS POLITICAL SHOCKS ON OIL PRICES

Like prices of other commodities, crude oil has been experiencing a range of price swings from time to time, but until today, there is no consensus between academics, works of literature and financial analysts on what ought to be the real causes for the shifts in crude oil prices. If we carefully analyse the periods for political instabilities in the oil-producing countries, statistics show that there has been a systematic increase in the volatility of oil prices. However, other literature presents that political unrest in the past has played little influence rather precautionary demand and market fundamentals have played a leading role in shifting oil prices in financial markets.⁸⁰ Arguably, the absence of taut demand conditions in the oil market, political flare-ups are unlikely to cause shifts in the price of oil. Further to that, decomposition of fluctuations in the real prices of oil price shocks have been driven mainly by economic growth as such an excess demand in the crude oil market that has been fueled by monetary expansions⁸¹ and the entrance of new oil suppliers in the crude oil market⁸². An argument that the study finds too general, perhaps, it is a simplistic view that is far from the current situation if we are to consider the continuous input that the Middle East and other OPEC members are contributing in the world petroleum market. Having mentioned that, the study suggests that, the price shifts in crude oil

⁸⁰ Lutz Kilian, “*Oil shocks: Causes and Consequences*”, 2014, University of Michigan and CEPR; Lee K, “*On Dynamic Effects of Oil Price Shocks: A Study Using Industry- Level Data*, 2002, Journal of Monetary Economics; Lutz Kilian, “*Not All Oil Price Shocks are the Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market*”, 2009, American Economic Review; Robert B. Barsky & Lutz Kilian, “*Oil and Macroeconomy Since 1970s*” 2004, Journal of Economic Perspective-Volume 18, p.127.

⁸¹ Barsky, Robert B, and Lutz Kilian, “*Do We Really know that Oil Caused the Great Stagflation? A Monetary Alternative*” in Bernanke and K Rogoff (eds.) NBER Macroeconomics Annual 2011. Cambridge, MA : MIT Press.

⁸² Mabro, Robert, “*OPEC Behavior 1960-1998*”: A review of the Literature”, Journal of Energy Literature, 1998, PP. 3-27.

have been profoundly influenced by political movements although macroeconomic aggregates have played its role as well. The study uses a twofold analysis a) political movements have had a remarkable effect on oil supply patterns, and to a considerable extent on precautionary demand supply, and a minimal impact on demand shock. As presented in figure 5 & 6 below, statistics show that crude oil prices from 1950s-, 2015, to be more precise, prices in 1973-1974, 1979-1980, 1981-1986, and the prices in 1990/91, 2003/04, 2007/08 as well in 2014-2016 are falling within two dimensions of shocks. Firstly being both price increase and decrease. That could be measured in absolute terms or percentage changes and can be distinguished by nominal and real price changes. The second aspect is one of timing; the pace and the duration of price changes. Three cases may be identified from these shocks; (i) a rapid (e.g. re-occurring from time to time) either with a sustained price increase or temporary price hike (ii) a slower but sustained rise (a “trend”) and, (ii) a rapid but with a sustained price decrease or temporary price crush. All of these are different types of shocks that have hit the crude oil market, typically, throughout political movements⁸³ include in situations when there is an anticipation of wars. Once one accepts that political movements ought to play a significant role in shifting crude oil prices, the natural question that arises is how are political movements affiliated with oil price shocks. The study argues that political movements such as wars, or anticipated political unrests and the like, could either trigger supply cuts thus cause an increase in precautionary demand and rarely cause demand shocks). As for the demand shock, practically, it is unlikely for demand to proliferate and create price shocks unless it is motivated by a sudden supply cut of oil. An argument that has been rejected by Kilian 2009, 2002,

⁸³ The study defines political movements as situations when a certain group (s) operates either locally, regionally or international to reach a certain goal or expectation. The definition does not exclude act of wars or anticipations of political unrests.

instead he suggests that price shocks in crude oil markets are usually responding to conditions in the oil market, for instance, favorable macroeconomic conditions as such economic expansion and low-interest rates. Therefore, Kilian provided that the crude oil price spikes, mostly the ones in 1950-1970s, were highly linked to economic factors that happened to accidentally occur at the exact period of political movements in oil-producing countries. On the other hand, oil price shocks in 1981-1986 were profoundly contributed by but weak demand for crude oil in the international market that resulted from prolonged oil price spikes in the 1960/70s. The entrance of other oil producer countries such as Venezuela, Nigeria, Angola, Russia, Mexico just to name few entering international crude oil market, has also been cited as the reasons for crush of oil price in the 1980s⁸⁴. On the other hand, recent oil price shocks in the 21st century have been associated with an increase of financialization in the oil market as an excess inflation in exchange rates have increased position in trading crude oil for future contracts. Put it differently, in the 21st century, some of the oil price shocks have been attributed to speculative motives apart from the 2014-2016 oil shocks that were associated with oversupply. The 2015/2016 shocks was a rare prolonged fall in prices in the oil industry that resulted from OPEC policy to produce more crude oil to regain the crude oil market share that was threatened by shale oil production. By the beginning of 2016, crude oil price had already fallen by about 70% since mid-2014. In Feb 2016, some of the OPEC members and non-OPEC members such as Saudi Arabia, Venezuela, Russia, and Qatar met and agreed to increase oil output in the international oil market; “We don't want significant gyrations in prices, we want to

⁸⁴ Dermot Gately, “Lessons from the 1986 Oil Price Collapse”, 1985, see also US Department of Energy, Energy Information Administration, Annual Review of Energy, 1985, Available at: http://www.brookings.edu/~media/Projects/BPEA/1986-2/1986b_bpea_gately_adelman_griffin.PDF

meet demand. We want a stable oil price”⁸⁵. In this context, it is worth pointing out that oil industry is oligopolistic in nature, secondly, political and country policies play a significant roles in oil market⁸⁶.

In the context of political movement as a cause of oil price shocks, other work of literatures such as Hamilton 2011⁸⁷, Rizvanoughlu 2012⁸⁸, Avihai 2013⁸⁹, Herrera 2004⁹⁰ just to name few have agreed that exogenous political movements could influence crude oil price shifts in international market, however their arguments offers mixed arguments. As a conclusion, it was argued that political movements had caused oil supply disruptions, thus increased oil prices. In their arguments, the political movement seemed to be a catalyst in expanding precautionary demand as well as demand shocks, therefore cause crude oil shifts. None of the literature has considered that the historical political movements have either increased or decreased prices for crude oil in the international market.

Based on the above, if we are to exclude the 2010 and 2014/2016 crude oil price shocks⁹¹, the study suggests that, political movements have had combined results in shifting crude oil prices. Using an intuitive language at this point, the study arguments

⁸⁵ Ali al-Naimi, the Saudi Arabian oil minister. Available at Financial Times 17th Feb 2016, visit <http://www.ft.com/intl/cms/s/0/da44fb1c-d485-11e5-8887-98e7feb46f27.html#axzz4ocmogpuV>

⁸⁶ Oil price shocks in 1997/98 had similar impact on oil prices but the cause was devaluation of currency that resulted from East Asia crisis

⁸⁷ James D. Hamilton, Historical Oil Shocks, 2011, Working Paper 16790, NBER Working Paper Series, National Bureau of Economic Research

⁸⁸ Islam Rizvanoghlu”Oil Price Shocks and Macroeconomy: The Role of Precautionary Demand and Storage

⁸⁹ Avihai (Avi) Papaport, Supply and Demand Shocks in the Oil Market and Their Predictive Power, 2013

⁹⁰ Anna Maria Herrera, Elena Pesavento “ Oil Price Shocks, Systematic Monetary Policy and the Great Moderation” 2007, Michigan State University

⁹¹ The study excludes these two shocks since are both originated from different causes, the 2010 crisis as previously explained has originated from excessive economic growth, a factor that will be covered in the coming chapter.

is profoundly supported by the below data.

a) Overview of Data

The study examines crude oil price change during the 1973/74, 1979/80, 1990s oil prices hikes that were associated with OPEC oil embargo Iranian revolution and with the Iraq – Kuwait war, respectively. As Figure 4 & 5 presents, In 1990s Iraq and Kuwait had been producing 5.3 million barrels of oil a day. After Iraq invaded Kuwait, production from these countries stopped altogether, representing a drop of 8.8% in world crude oil production. Further to that, the 1980s war between Iraq and Iran led the decline of 7.2% equivalent to 59.599mbd of world crude oil production, 1978 during Iranian revolution led to the drop of 8.9 % equal to 60.158 mbd world crude oil production, the 1973 oil embargo led the fell of crude production by 7.8% equivalent to 55.679mbd⁹² just to name few. As mentioned above, all of the supply shocks and price swings for crude oil corresponds to the political movements in the Middle East at the then time. On the contrary, Killian's⁹³ argued that the 1970s, 1980s and 1990s oil price shocks had nothing to do with political movements in the Middle East. Suggestively, the shocks were a response of macroeconomic forces, ultimately driven by monetary conditions, to be precise, he suggested that it was just a time collision for the oil price shocks to occur at the similar time when there was political unrest in the Middle-East. If the study is to agree with Kilian's argument, at least hypothetically, the study will fail to address the contributory factors for the soaring prices for crude oil in 1970, 1980 and 1980. In this regard, the study is in favour of the statistical evidence, thus affirms that price fluctuations during the years

⁹² Historical Monthly Energy Review (1973-1992) , U.S Energy Information Administration,U.S Government Printing office,1994

⁹³ Barsky, Robert B, and Lutz Kilian, “ Do We Really know that Oil Caused the Great Stagflation? A Monetart Alternative” in Bernanke and K Rogoff (eds.)NBER

Macroeconomics Annual 2011. Cambridge, MA : MIT Press

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mentioned above, were profoundly influenced by political movements in the Middle East.

Moreover, in other circumstances (as shown in figure 4), supply shocks have been associated with an increase for oil demand. That is when the market cannot cater the consumption needs, or the supply shocks could be a result of over production. That is when production of oil surpasses market need, for instance, the oil crisis in 2014. These types of shocks depend on the underlying cause of the shock.

Conclusively, the study argues that crude oil price shocks could be a result of many factors, call it political movements or economic reasons or market fundamentals, they all play a significant role either in raising the prices or suppressing them. An increase in crude oil price volatility essentially the price spikes in 1960s-1980s was driven more by supply disruption while in 2000-2007 what seems to be an attribution of political movements on crude oil prices appears to be different. Arguably, a series of political movements from 2000-2007 remarkably increased precautionary demand for crude oil supply. For instance, the financial crisis in 2008, September 11/ 2001 terrorist attacks, and the subsequent invasions of Afghanistan and Iraq prompted a surge in crude oil prices. Not only that but the steady price spikes between 2004-2008 were partly supported by turmoil and terror threats in some oil-producing countries such as Bahrain, Kuwait, Libya, Nigeria, etc., all of the latter were not associated to actual supply cut in crude oil but the anticipation for uncertainty in crude oil supply.

Precautionary demand occurs when there is uncertainty in the supply of crude oil. In this regard, firms which carry crude oil inventory such as refiners and shippers increase their demand for oil-storage in the current period, in anticipation of the future shortfall of oil supply, thus create scarcity in the spot market for crude oil that

will induce spikes in oil prices immediately⁹⁴. Further to that, some literature have compared precautionary demand shocks to increase in demand for inventories in expectation of high future demand/prices (speculative demand shocks), an argument that was originally introduced by Alquist and Killian, 2010⁹⁵

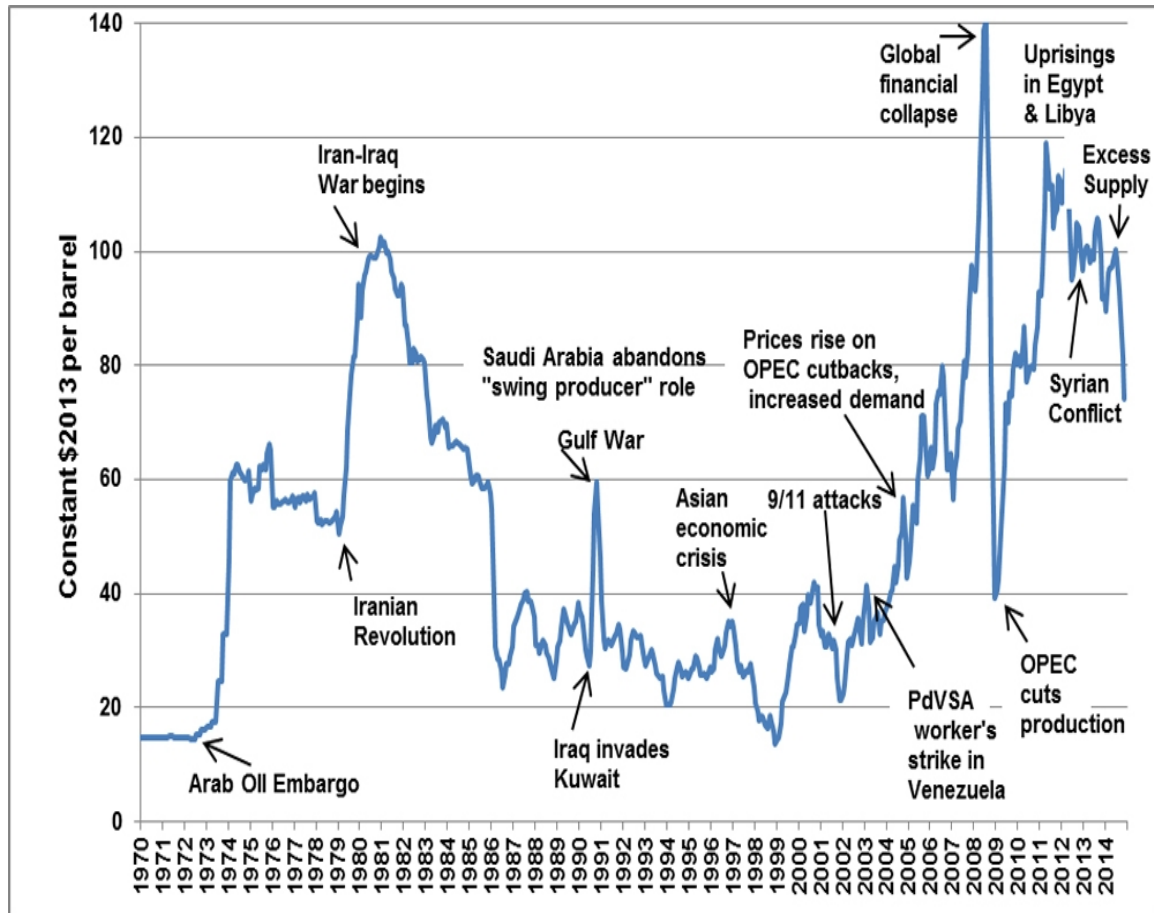
Last but not least, the study argues that exogenous political movements could as well affect the real prices of crude oil through demand shocks although the latter does not play a remarkable influence on crude price shocks. In most cases demand shocks catch effects that are related to supply shocks, whereas, through the role of demand, shocks occur when supply in oil disruptions is expected to occur as a new shock, thus followed by a steady oil price increase ⁹⁶. Thus, it has proven difficult in quantifying demand shocks. There are no indices capturing political instability as the primary source of oil price change. Indices are mostly available when the demand shocks are driven by real economic activities such as the growth of demand in crude oil consumption due to change of technology, weather shocks, favorable fiscal policy and the like.

⁹⁴ Ron Aquist and Lutz Killian “What Do We Learn From the Price of Crude Oil Futures?” 2010, *Journal of Applied Econometrics*, pp. 539-573

⁹⁵ Islam Rizvanoghlu, *Oil Price Shocks and Macroeconomy: The role of Precautionary Demand and Storage*, 2012

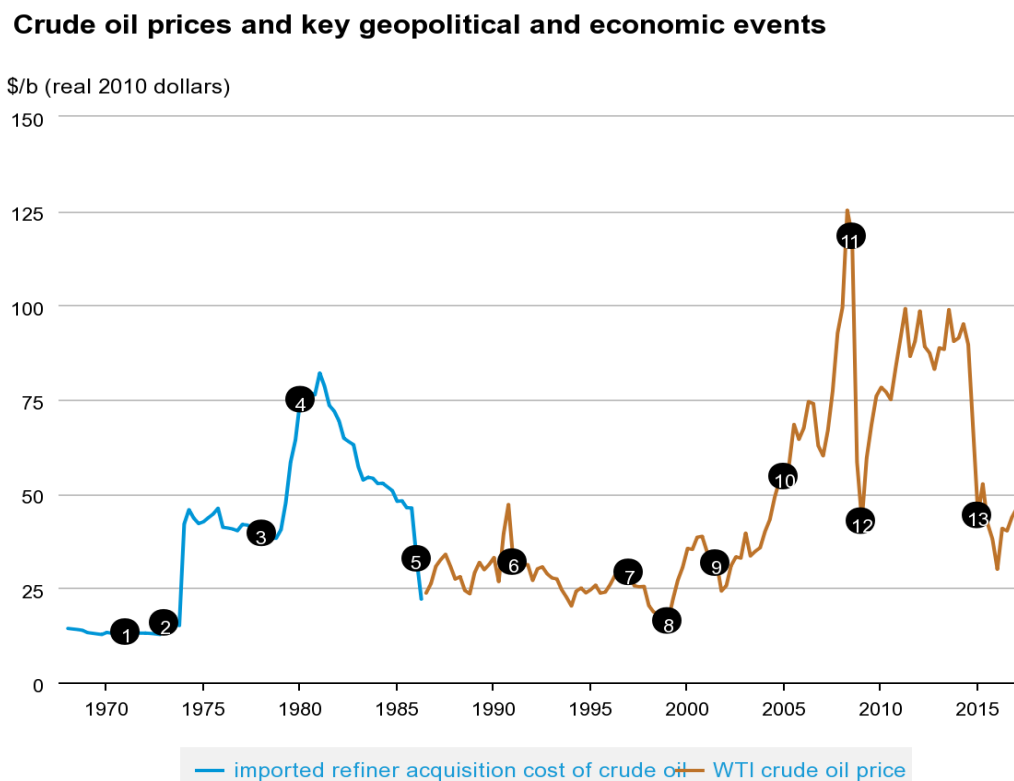
⁹⁶ Islam Rizvanoghlu, *Oil Price Shocks and Macroeconomy: The role of Precautionary Demand and Storage*, 2012

Figure 5: Historical Global Crude Oil Shocks



Source: Office of Energy Efficiency & Renewable Energy, available at;
<http://energy.gov/eere/vehicles/fact-859-february-9-2015-excess-supply-most-recent-event-affect-crude-oil-prices>

Figure 6



 Source: U.S. Energy Information Administration, Thomson Reuters

While there remains a high degree of uncertainties about the future of world oil prices, much of the world's crude oil is located in regions that have been prone historically to political upheaval, or have had their oil production disrupted due to political events. Several major oil price shocks have occurred at the same time as supply disruptions triggered by political events. The study' analysis suggested that historical, political movements have played a crucial part in shifting crude oil prices in the international market as these types of events may lead to actual disruptions or create uncertainty in future supply or demand, which can lead to higher volatility prices.

Further, according to the figures, by far the biggest influences were through supply shocks, and to a large extent through an increase in precautionary demand, while

demand shocks have been on a relatively minor scale. Beside political movements, the study agrees that other factors such as speculative motives, and macroeconomic aggregates play a significant role in shifting crude oil prices. However, this part does not attempt to address the cause of economic factors and speculative motives instead the two elements will be covered in the coming chapters.

Additionally, the study digresses and briefly covers other factors that pose a threat in influencing crude prices in financial markets. That will allow readers to have an understanding of oil industry and the associated risks.

1.1 Legal Risks

The operation of the oil industry is subject to a wide array of regulations such as contract management, securities regulation, labor laws, taxation, distribution, and transportation just to name few. Legal risks that arise in oil industry could be associated with several factors as such the corporations, regulations in the host states or other key players in the oil market such as consumers.

Just like other commodities that require sound and binding contracts in the international trade, oil trading occurs through several contractual arrangements as well. In oil industry contracts are necessary since, in most of the oil producer countries, states are the owners of the underground resources thereby, the state's permission is required to undertake exploration activities. These agreements provide rules that are governing the allocation of risks and rewards relating to exploration⁹⁷. In principle, oil agreements have one important future, living in constellation or 'web' of other laws (oil regime) and regulations above it. They are merely one part of the

⁹⁷ Subhes C. Bhattacharyya "*Energy Economics; Concepts, Issues and Governance*" Springer-Verlag London Limited, 2011, pp. 197-198

overall petroleum regime that governs petroleum resources. In other words, it could be said that it is the part that covers the peculiarities and the rights that are essential to the parties who are interested in the industry of a host government. Nevertheless, these agreements could either be through concessionary system (lease, concessions, and permits)⁹⁸, where a host state receives royalties or taxes in return as agreed by the parties. The other type of agreements could be through contractual arrangements such as Product Sharing Contracts (PSAs)⁹⁹, Joint Venture/Association¹⁰⁰ and Service Contracts¹⁰¹.

As earlier mentioned, oil agreements are usually well structured. They include a structural framework and cultural aspects such as fiscal modalities, the legal system, taxation, trading framework and investment security. All these represent oil regulations in the host country. Nonetheless, the International Partnership Agreements (IPAs) vary from country to country, most of the agreements do not assure an absolute protection for investors in activities who are involved in exploration and development of oil industry in the host state. Thus, contractual risks could rise due to the possibility

⁹⁸ This type of agreement grants an investor exclusive rights to explore, develop and market oil products extracted from a specific area for a fixed period of time.. This type of agreement is commonly used in Sudan, Ecuador and Kuwait

⁹⁹ PSAs are commonly used in India, China, Kazakhstan, Libya, Nigeria, Algeria, Angola, Indonesia, Mauritania, Russia, Egypt and Trinidad and Tobago

¹⁰⁰ Is a type of contract where two or more parties agree to undertake a common task to explore and exploit an area for crude oil. The parties to the agreement can be broadly classified as operators and non-operators. The operators would be the ones responsible for the day-to-day management and operations of the field. It is usually a single party with the highest interest in the agreement. But it is not uncommon to have a designated operator who is a minority to the agreement. The operators are usually entitled to full control over the operations, and they neither receive any remuneration or liable for any loss of production or revenues as a result of its decisions except in cases of gross negligence and/or willful misconduct

¹⁰¹ Service contracts are closely related to product sharing contract. However in contrast to product sharing contracts, in service contracts the investor (IOCs) agree to a pre-determined return in-lieu for the sharing of oil profit. These contracts are commonly used in Iran, Venezuela, Mexico, Kuwait, Brazil and Bolivia

of changing the terms of the contract after discovery has been made following the 'obsolescence bargain model' that could in one way or another affect the profitability of an investment. For instance, when a regime change, the new government, may alter some of its regulations include imposing special taxes, add restrictions on oil export, ban the use of expatriates in operation, terminate foreign contracts or expropriate property without just compensations. In turn, the IOCs could face the risks of incurring the investment costs with no entitlement to damages or profit as indicated in the contract.

Other legal risks include inconsistency between laws of the host government, lack of judicial or administrative guidance in interpreting laws, the unpredictability of enforcement of foreign judgments, breach of confidentiality rules and improper enforcement of foreign arbitral awards.

ii) Commercial Risks

"Investors have no incentive to move their capital elsewhere, it may now take more than a run of catastrophic losses to provoke any significant capacity withdrawal from the oil industry; reinsurance market capability is therefore likely to continue to be available even if the energy sector falls into unprofitability", said the most experienced broker in the oil and gas industry¹⁰². In deed, investors are much aware of the unprecedented shocks in oil industry, yet their plans are always anticipated to meet higher returns. Thus, the industry has always been the embodiment of undertaking higher risks in investment costs even in circumstances that the returns are uncertain. Moreover, commercial risks in oil industry, on one hand, are related to less

¹⁰²Energy and Market Review in Oil and Gas, Economic Report 2014

http://www.willis.com/documents/publications/industries/energy/20140404_Willis_Energy_Market_Review_2014.pdf visited, February 2015

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favorable commercial prospects in terms of reaching the anticipated production goals. That could be associated with poor geological conditions, lower availability of the reserves than expected at the time of appraisal, costs as well as political instabilities. For instance, for some countries such as Tunisia that mostly uses PSAs, the government is under no obligation to indemnify the IOC (international Oil Corporation) costs incurred irrespective of discovery if there is no return on production. In other circumstances, PSAs are as well perceived to be more vulnerable to political instabilities. An excellent example on this is well illustrated by the 2007 Venezuelan expropriation whereby big companies as such Exxon Mobil lost almost 1.6bn for the expropriated assets. In this context, service contracts are said to be more or less the same as PSAs. Under these contracts, host governments are not entitled to reimbursement of its exploration costs unless a viable find is made out of the exploration¹⁰³. On these circumstances, IOC is the bearer of financial risks of the operation¹⁰⁴.

Further, provided of high investment costs with uncertain results, the industry has been facing as well operational risks such as environmental pollutions in the course of its operations. In some jurisdiction, an IOC could be liable for any environmental damages that may arise in the course of activities provided of the IOC compliance with the host government's regulations in preserving the environment, for instance conducting proper environmental assessment and the like. Hence, it is the study understanding that uncertainties and risks that could be associated with oil are unavoidable and they could happen at any stage of the industry; from exploration,

¹⁰³ Frank C Alexander, 'Product Sharing Contracts and Other Host Government Contract' OGE Vol. 3, 2005

¹⁰⁴ Mehul Shah, Cindy Jutras, 'Project Management Practices for Asset Maintenance: A Guide for Power, Energy & Process Industries, 2010

production to marketing. Thereby the latter could hinder the entire performance of the oil industry activities thus affects the oil market as a whole.

CHAPTER 2

STRUCTURE OF OIL INDUSTRY

Effective competition exists in the search of oil but it is not necessarily for the price of crude oil to reflect effective competition and an optimum allocation of resources in the long run-

James (1960)¹⁰⁵

There is no single methodology that one could use to describe the structure of oil market. The choice of a particular approach depends on the objective of the research and what the study intends to address. The theme of this chapter is to critically discuss how the structure of oil market influences oil price movements. Hence, a comprehensive analysis of the industry shall not only cover the market behavior for crude oil in international markets, but also institutional and market structure of the industry. The study traces the changes in the market structure over time and highlights the nature of market behaviors. The basis for this chapter is to capture the main features for crude oil pricing system and to describe the essence of the changes for industry's market. The chapter is organized as follows: section 1, covers an organizational structure of oil industry ii) examines the market structure for oil industry, including the evolution of the pricing mechanism for oil, methods used in trading crude oil in financial market. The core theme of this section is to examine the modalities that are used in trading oil and their influence on oil price formation.

2.1 Organizational Structure

The evolution of drilling to the refinement of crude oil products have generated to some extent, an intricate structure for the industry in the production line. Traditionally, the oil industry is divided into three segments as such upstream, mid-

¹⁰⁵ James W. McKie, "**Market Structure and Uncertainty in Oil and Gas Exploration**", The quarterly of Journal of Economics, Vol. 74, No. 4, 1960, pp. 543-581

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stream and downstream. Upstream includes everything in production from exploration, drillings, signing a lease to lifting the oil and gas to the surface and getting ready for delivery (bare in mind, gas processing plants are normally considered to be a part of production process, rather than part of refining process). The midstream operations include processing and transportation of produced liquids and gas from the exploration sites to downstream facilities. Transportation segment may either transport the crude oil or unprocessed gas from the exploration site to the refiners or refined products to distribution points. The downstream is responsible for converting the crude oil into the usable products that consumers can use (the downstream segment will perform this only if the midstream segment did not refine the products). Further to that, the downstream also performs the marketing and distribution oil to the consumers.

Broadly, crude oil condensates could be categorized into ‘upstream’ while refined oil products such as Petroleum, kerosene, petrochemicals and etc. are downstream. Although the oil industry’s segments seem to perform operations independently, nevertheless that does not mean that the industry is not inter-connected. Most oil companies concentrate their activities in the upstream supply chain, whereas refiners and petrochemical companies focus on the downstream segment. Integrated oil companies, however, are involved in both the upstream and downstream sector. Both ends of the supply chain consist of multiple activities involving a wide range of companies¹⁰⁶ and stakeholders¹⁰⁷

¹⁰⁶ In the oil industry, the companies in the upstream and downstream segments are mainly international oil companies (IOCs), national oil companies (NOCs), independent or non-integrated, and service companies. Service companies are mostly focused on the exploration and production segments of the oil industry but not involved in marketing or refining. These are mainly small companies that are involved in the development of domestic oil industry. On the other hand, NOCs are owned or controlled by states. In

On the one hand, the historical nature of oil industry presents classic traits of monopolistic, oligopolistic and/or cartels. On the other hand, as the previous chapter shows, the production level and the price for oil has changed enormously; nevertheless, the latter has been influenced by several factors, essentially the market structure of oil industry.

The geopolitics influences the modern oil industry, and the ex-ante oil market trends that ought to include many factors such as political movements, cartel formations, and economic growth just to name few. If the study is to analyze the institutional structure for the oil industry, we first have to acknowledge that oil industry is highly characterized by the presence of vertically integrated companies, with activities embracing the entire chain of production. For instance, if we look at the transportation of oil and the refined products, the primary way of transporting oil products is through pipelines. To this end, there are more than a thousand miles of pipelines that carry oil and its refined products, but it has been argued that majority of pipelines are co-owned by either two or more oil producing companies of which the owner could either be a fully integrated or a partially integrated company¹⁰⁸. The case could be the same with refining facilities or storage facilities¹⁰⁹. There have been

recent years their role has changed remarkably; NOCs controls up 80% of world oil reserves and 73% of oil production. That make NOCs the largest players in the world oil industry. On the other hand, IOCs, are privately owned companies and vertically integrated oil companies whose role involves upstream and downstream segments.

¹⁰⁷ Hussein, R.T Assavapokee, and B, Khumawala, "Supply Chain Management in the Petroleum Industry: Challenges and Opportunities" International Journal of Global Logistics & Supply Chain Management, pp., 90-77, 2006

¹⁰⁸ Petronas, StatOil, Total, MOL Energy, Petrixo Group, Petróleos Mexicanos (PEMEX), PetroSA just to name few, are the best examples for full-integrated oil companies in the world.

¹⁰⁹ A company/firm can be perceived as vertically integrated if the entire output of output of the upstream processi s employed as a part or all of the quantity of one intermediate input into the downstream process or when the entire quantity of one intermediate input into the downstream processi s obtained from part or all of the output of upstream process. See, Perry, MK, "**Vertical Integration; determinatns and effects**" in R. Schmalensee and R. Willig (eds) Handbook of Industrial Organization, 1989, Amsterdam

many reasons for vertical integration within oil industry, and among the most prominent reasons include¹¹⁰, characteristic of technology, exercise of market power and price discrimination,¹¹¹ efficiency gain, security of supply and security of markets. At the industry level, it appears that vertical integration is valuable when asset specificity combined with market concentration (in downward or upward production states) raise expected transaction costs and provide strong incentive to internalizing contractual relations.¹¹² In this context, integration in oil industry seems to be a significant recipe for the success of the industry since the majority of vertically integrated oil companies are companies that are dominating the oil industry regarding size and performance. However, before a company decides to vertically integrate it usually considers the transaction costs, the stage of maturity of the company and other relevant factors ¹¹³. Companies usually consider the organization of production within the industry in order to save certain costs by anticipating that, factors of production can be obtained at a lower cost when the companies are integrated¹¹⁴, the same is for vertically integrated oil companies. Vertically integrated oil companies are likely to obtain higher profits since the companies could enhance efficient use of resources, minimizing out-sourcing costs and gaining the market power because the companies would be in control of supplies or sales chains. In other words, integrated companies

¹¹⁰ See, Carlon, D W., "**Vertical Integration in Competitive Markets Under Un-certainty**", 1979,27 Journal of Industrial Economic, 189-209; Williamson O.E, "**The vertical Integration of Production, Market Failure consideration**" 1971, 61 American Economic Review, 112- 23;

¹¹¹ According to this approach a a fully vertical integrated firm in order to eliminate distortion in pricing of the input due to the presence of market power. In this vain, the overall gains from the integrated firms are, all things equal, a function of the external power in the input market. In other words, the larger the degree of market power the larger the difference between the value of the marginal product of input and its marginal cost of production, thereby there would be larger gains that will eliminate eliminate price distortions. See, Pablo T. Spiller " **On Vertical Mergers**" 1985, Journal of Law & Economics Organizations. Vol 1. No 2, pp 285-312

¹¹² Carlo Pozzi, Philippe Vassilopoulos.,**the Impact of vertical Integration and Horizontal Diversification on the Value Energy Firms**", 2004

¹¹³ For a detailed analysis on attribution for vertical integration and performance of companies/firms, see, John R. Isaksen, Bent Drayer &Kell, "**Vertical Integration and Perfomance:the impact of Measurement and Industry**", 2007

¹¹⁴ B. H. Coase, "**The firm, The Market and the Law**", 1988, the University of Chicago Press

require less input to produce a given output in the downstream process if the company is also engaged in the upstream process¹¹⁵. In oil industry, the reasons for integration are usually closely related to the exercise of market power or to any other market imperfection¹¹⁶. For instance, when an oil upstream monopolist firm is competing with other firms in downstream sector, the monopolist oil firm will integrate forward in order to convert the efficiency loss into its own profit and therefore expand input use to the optimal use. Nevertheless, the latter could only be applicable if the input is used in variable proportions¹¹⁷.

Having said that thus the study suggests that, if majority of giant oil companies are vertically integrated then the structure for oil industry is purely an oligopolistic as the market expands.

2.2 **Market Structure**

Three centuries back, merchants and artisans were carrying out oil business as individuals, but over the last decade, oil business has acquired the characteristics of financial assets. Oil futures have become important just as stocks and bonds¹¹⁸. This process is sometimes referred to as financialization of oil market. Nevertheless, the term financialization remains broad; yet it captures the increasing acceptance of oil derivatives as a financial asset by a wide range of market participants such as hedge funds, retail investors, pension funds, etc. Financialization has provided the oil market with secure, reliable and inexpensive access to financial instruments as such future,

¹¹⁵ Fernando Barrera- Rey "*The Effects of Vertical Integration on Oil Company Performance*", Oxford Press, 1995,

¹¹⁶ Ibid

¹¹⁷ See Perry, M.K "*Vertical Integration: Determinants and Effects*" in R Schmalensee and R Willing (eds) Handbook of Industrial Organization, 1989, Amsterdam, Netherlands for a detailed analysis

¹¹⁸ Bassan Fattoh, "*The Financialization of Oil Markets Potentials Impacts & Evidences*", Oxford Institute for Energy Studies, 2012

options, index funds, and exchanges. Most importantly, an increased use of financial instruments in the oil market has been informed by diversification for risks as well profit maximization.

Convention wisdom holds that producers, refiners, markets, and consumers are the ones that establish policies and are a driving force for oil markets, not to mention, the traders are the ones setting oil prices ¹¹⁹. For instance, operations of economic agents influence prices in oil the market to some extent.

Oil is priced following its quality and other characteristics that have a bearing on the refining process- rather than absolute quantity. That is more than what it has been considered by economists and financial analysts in the process of oil price formation. For this reason, an analysis of the current oil market structure cannot be understood in isolation from the analysis of previous oil market structure. The current oil market structure has emerged in response to the significant shifts in the global political movements and economic growth structure, as well as changes in demand and supply chains from oil producers to oil consumers.

Historically, oil prices were first administered by international petrol cartel¹²⁰. During that time, the pricing of oil was established on the ‘basing point system’; a system that oil prices were subject to Gulf Mexico crude oil price quotes plus transportation costs¹²¹. The main aim of the basing point pricing system was to eliminate or at least to restrain price competition between international oil companies. In addition to that,

¹¹⁹ Edward, D. W, ***Energy Trading Investing: Trading Risk Management and Structuring Deals in the Energy Market***, New York: McGraw Hill, 2010

¹²⁰ C. Van der Linde, ***Dynamic International Oil Markets: Oil Market Developments and Structure 1860-1990***, Kluwer Academic Publishers, 1991

¹²¹The prices were quoted in Gulf Mexico since the US and Mexico were the main oil exporters of crude at that time. See, Baker, Steven and Brayan Routledge ***The Price of Oil Risk***, 2012,

Working Paper, Carnegie Mellon University

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the basin system was introduced so buyers in Arabia Gulf would still pay the posted price of Gulf Mexico in addition to a freight rate from the nearest supply source¹²². During this time, oil prices were controlled only multinational companies. Neither, governments nor market fundamentals played a role in formulating crude oil prices in the international market. Host oil producer governments were only receiving royalties and income taxes, while the pricing system was associated with the concession system that was calculated from the stream of revenues accruing to the host governments¹²³. By 1961, significant oil producers such as Libya, Russia, and Saudi Arabia had already made their way into international oil market. The difference in prices of crude from Middle East and these other newly entrants gradually widened. Production costs for their crudes were relatively lower compared to the US and Gulf Mexico, thus that enabled the new producers to fiercely compete with the US oil market which consequently waned the control of the Seven Sisters, although oil was still traded at posted price. Further, the fact that oil market gradually became more and more competitive meant that oil market was not so far from cartelization. By 1960s, OPEC¹²⁴ was formed which turned the international oil market into cartelization. The OPEC market regulation in principal was different from other multinational companies, initially the organization had the intensions of coordinating and unifying petroleum policies among the contracting parties in-order to secure petroleum prices and the market share, nevertheless, the OPEC members lacked vertical extensive downstream activities, thus, income maximization could only be achieved by a

¹²² During this time, there were other pricing systems that were introduced such as Ras Tanura, but the system was operating more or less the same as US Gulf basin point (Basin Point)

¹²³ Marbo, R., *"On Oil Price Concepts"* WPM3, Oxford, Oxford Institute for Energy Studies, 1984

¹²⁴ OPEC was formally formed by five member countries such as; Islamic republic of Iran, Iraq, Kuwait, Saud Arabia and Venezuela. Other countries as such Indonesia, Qatar, Niger, Algeria, Angola, United Arab Emirates, Libya and Ecuador joined latter. The organization is the world's largest oil producer, with the capacity of producing more than one third of the total global oil production, and it is proved to have more than 80% of the total world's oil reserves.

collective price and production policy in order to meet imbalance in price and income targets of the individual member states. The take over by OPEC pricing and production regulation resulted into changes in supply conditions, while demand was influenced by the increase in oil cost of production but also other fundamental changes in the market played crucial role in changing the oil market structure, the topic that will receive full coverage in the next chapter.

From 1970s, as examined in the previous chapter, oil industry witness a major transformation when major OPEC members stopped granting new concession contracts, while some of the major oil producers opted for fully nationalization for their oil companies, as a result of that, some of the countries such as Kuwait and Qatar acquired fully control of their companies and remained equity members. The equity participation gave the OPEC governments a share of the oil produced which they had to sell to third party buyers¹²⁵. Further, other European, OECD economics and African oil producer countries expanded significantly into the global crude market that induced their governments to intervene and take control over the domestic oil market. That was the time when majority of oil producer countries started to nationalize the oil companies with the intentions of protecting their oil industries from unfair competition in the international oil markets. The latter led to the establishment of the new pricing mechanism by the governments (owners of crude oil) that will accommodate the third part buyers as well. The newly introduced pricing mechanism was none but the ‘official selling price (OSP) ‘ or ‘government selling price’ (GSP)¹²⁶. Further, due to nationalization and the equity participation in the

¹²⁵ Siamack Shojai” *The New Global Oil Market; understanding energy issues in the world economy*, Praeger Publishers, 1995

¹²⁶ As of today, some oil exporting countries are still using the OSP / GSP pricing system. See, Robert Marbo, “On Oil Price Concepts”, WPM3, Oxford Institute for Energy Studies,

1970s, the oil market had other pricing mechanisms such as the post price and official selling price. That led oil to be in different prices due to presence of different pricing mechanisms. That encouraged the development of an oil market outside the inter-multinational oil companies' trade. The new entrance of other key players into the international oil market from non-OPEC members expanded the external market where buyers and sellers interacted in arm's-length transactions¹²⁷hence, led the oil market to become more competitive. The increase in supply on the other hand fuelled the number of diversity of oil producers who had to settle their prices according with the market conditions. This posed a major challenge to the OPEC administered pricing system since the new suppliers ended up having more crude oil than required in the market, that ended to undercut OPEC prices in the spot market. Therefore, the buyers were more attracted to the new competitive prices¹²⁸. As OPEC oil market declined sharply, and the oil market become more competitive, finally, OPEC administered pricing system collapsed, pricing power was now left on the market where supply and demand forces determined of crude oil and changes therein. To date, market pricing system remains as the main method for pricing crude oil at international financial market.

Pricing of Crude Oil in International Market

Commodities by definition are very similar no matter who produces them, thus all commodities of the same grade are priced equally, perhaps, most widely traded commodities have well-established market. Investors buy and sell commodities through future contracts on exchanges, and the exchangers standardize the quantity in minimum quality of the commodity. In the context of crude oil market, not all oil

¹²⁷ Ibid

¹²⁸ Honsel Paul, "Oil Pricing System" Oxford Energy Comment: Oxford Institute for Energy Studies, 2000.

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barrels are alike. Crudes can be vicious like tar or so light, and their sulfur content ranges from negligible “sweet” to highly acidic “sour.” That already makes crude oil a heterogeneous product that has to be priced according to its quality and characteristics¹²⁹. Nevertheless, differences in crude oil grades are not the only determinants for crude oil prices besides price differentials also reflect movement in the gross product worth obtained from refining process and the prices at which these products are sold¹³⁰.

In practice, crude oil is usually set at a premium price or reference price-benchmark, depending on the grade. The differential to a reference price is independently set by each of the oil producing countries, but, in setting the differential, an oil exporting country has to consider both the differential in its crude and the reference price plus the competitors set price in relation to the reference crude¹³¹. The latter system is mainly used by crude exporting countries through their state oil companies, while crude oil buyers have different price in the international market) depending on other various reason that the study will cover in the coming chapters.

On the other hand, crude oil benchmarks form the basis for pricing of most contracts that are used in trading oil in the physical markets¹³². Provided by the fact that, pricing for crude oils is essentially determined both in physical and financial markets

¹²⁹There is light/sweet and heavy/sour crude oil. Light crude oil usually have lower sulphur content and it yield the a higher proportion of the more valuable final petroleum products and as well it require a simple refining process, while heavy crude oil have a low share of light hydrocarbons and require a complex refining process. Therefore, the light/sweet crude grades are sold in premium prices unlike the heavy/sour crude grades.

¹³⁰ Bassam Fattouh, *“An Atomy of Crude Oil Pricing System”*, Oxford Institute of Energy Studies, 2011

¹³¹ReehaG, K., *“Disappearing Benchmarks:The Demise of Market Index Pricing ?”*, IEA, Energy Pricing and Taxes, 1999

¹³² Tauchen, G, E & Pitts, M *“The New Option Markets “* in A. E Peck (Ed.) Future Markets: Their economic role (pp. 205-282), Washington, DC: American Enterprise Institute for Public Policy Research, 1985

nevertheless, the reported prices of physical benchmarks have to be assessed. Pricing reporting agencies (PRAs) such as Platts, Media, Asia Petroleum Price Index (APPI), ICIS London Oil Report and Aurgus and etc usually carries out the assessments. So far the two most significant PRAs have been Platts and Aurgus¹³³.

Although PRAs play a significant role in identifying a price for the benchmark crudes, the assessments usually are carried in an opaque markets reasons being, market participants cannot observe the concluded physical transactions between parties. PRAs may only publish general information on their methodologies. For instance in Brent markets, the agencies are under no legal obligation to report or publish a number of concluded deals or the composition of participants in the market, as well participants are under no legal requirements to report their deals. The latter has been argued to increase opacity in crude oil pricing mechanism since the number of contracts essentially, swaps¹³⁴ that are normally traded over the counter, could be conducted unreported, consequently, the volume of market activities/deals that were to be reported by the oil agencies are likely to misrepresented due to uncertainty of accurate data. That could easily attract potential price manipulation in crude oil financial market; besides, PRAs assess crude benchmark prices based on information of the concluded deals either through observation, bids, offers, public and private information gathered by reporters and other information from the financial market. In fact, the pricing arrangement or methodology in identifying the price that reflects the market value of crude oil accurately makes it challenging to demonstrate that, crude oil prices determined by benchmarks fully reflects physical supply and demand conditions and not otherwise. However, it is beyond the scope of this paper to

¹³³ Montepeque, J "Oil Price Benchmarks in International Trade" Oxford Energy Forum 87, 2012

¹³⁴ Mark W. French " **Why and When do Spot Prices of Crude Oil Revert to Futures Prices Levels**" 2005

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accurately identify the actual factors involved in pricing crude oil or the proper methodology to be used in pricing crude oil on financial markets. In fact, it is not clear either how the process of sale occurs since crude oil suppliers withhold information about sale policy and prices.

3.1 Pricing Methodology

Crude oil, essential physical crude is traded over the counter (OTC), non-public, deals between oil producers, refiners and traders, hence oil prices are not directly visible but rather assessed and reported by PRAs. Price agreements for crude oil is normally calculated on the method of formula approach (formula pricing) which links the price of cargo in a long-term contract to a market spot price¹³⁵. The formula applies both to spot, forward and long-term contracts. Thus, the price of a particular crude could be set either at a discount or a premium to a market or at reference price (benchmarks), depending on a variety/grade of crude oil¹³⁶. Consequently, this pricing formula permits sellers to target specific areas and customers by tailoring the contracts that suits the market demand for crude oil. These adjustments have resulted in highly individualized contracts and price formulas. Today, crude oil is priced as a differential to few benchmarks, however, not only the quality differentials and product value for crude oil are the determinants for crude oil prices, but also market based factors such as demand and supply, refinery utilization rates, disparity in financial needs between oil exporting countries, competition in crude oil market and etc. does influence price differentials for crude oil in financial markets.

Moreover, the official differentials for crudes are usually set independently by

¹³⁵ Thornes, S., “ **A User Guide to Platts Assessment Processes**” Presentation at the Platts Crude Oil Methodology Forum 2010, London

¹³⁶ See, Christophe Barrer, “**Brent Prices: Impact of PRA methodology on price formation**” 2012, pp 5-16

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exporting countries (oil producing countries) or assessed by Price Reporting Agencies (PRAs)¹³⁷ For instance, the PRAs Platts and Argus uses different methodologies in their assessment for crude oil prices; Platts follow partial trading mechanism¹³⁸ while Argus method for assessing Dubai crude is based in deriving information from various OTC markets¹³⁹ after consulting various market participants. When no deal is formulated for a particular grade, PRA has to estimate the differentials of other physical graded with less information. In that context, PRAs will communicate with brokers and traders at the end of the trading day and construct an estimate grade prices based on the supplied information.

Trading Instruments in Crude Oil Market

3.2.1 Oil market selling contracts

A widespread view that crude prices could easily be determined by a certain benchmark as a proxy for the crude oil prices in financial market, tend to be a misleading concept. Crude oil is traded in world markets with a variety of instruments, including spot, over-the-counter (OTC), forward and future contracts¹⁴⁰. Recently,

¹³⁷ For instance, the official formula used in pricing crude oil in long-term contracts can be written as; $P_a = P_b \pm D$ (where P_a is the price for crude x ; P_b is the benchmark crude price and D is the value of differential Price). *For further detail, See; Bassam Fattouh, "An Atomy of the Crude Oil Pricing System", 2011, See also, Christophe Barret, "Brent Prices: Impact of PRA Methodology on Price Formation" 2012*

¹³⁸ The aforementioned methodology is mostly used in assessing Dubai-Oman crude oil, whereas, the assessment is based on concluded of partials in Platts window, nevertheless, oil exporting countries do not participate in anyway in the assessment process rather the power is to set the price is actively done by traders who participates in the Platts window. Oil exporting countries usually take the Platts assessment price for Dubai-Oman and use it in their Pricing formula. See, <http://www.platts.com/price-assessments/oil/dubai-crude> and Bassam Fattouh, "*An Anatomy of Crude Oil Pricing System*", Oxford Institute of Energy Studies, 2011 for further details on the evolution and applicability of partial mechanism methodology.

¹³⁹ See, <http://www.argusmedia.com/methodology-and-reference/> for further detail

¹⁴⁰ Futures contracts are generally traded on exchanges; cleared through designated

other instruments as such options, swaps and warrants have been widely used in trading crude oil.

Few years back, the prices for crude oil were created by oil exporting countries and multinational companies. From 1980s, most of the OECD oil producers placed price control on their own production while the OPEC pricing system was set by the market fundamentals. The USSR set its own prices through central marketing organization. Although it is believed the physical prices for crude oil occur routinely and mostly executed under long-term supply contracts, in recent years there has been a massive development of derivative financial products in oil markets, the industry has become increasingly dependent in spot terms, swaps and future markets¹⁴¹. It all started with refined petroleum product swaps that were traded only for short-term maturities¹⁴², then immediately after, new interests in long-term swaps and option contracts in crude oil emerged and replaced the official selling price for crude. Furthermore, the increase for different crude grades, which were initially bought and

clearinghouses; and often may be settled in cash rather than requiring physical delivery. A party whose contract remains open at its expiration date is obligated to make or take delivery as promised. In fact, only a small volume of oil futures contracts traded result in physical delivery. Rather, most traders who open positions will typically close them prior to expiring with the goal of profiting in the transaction. Spot/ OTC are types of agreements where oil sold for cash or over-the-counter and has to be delivered within a short period of time.

¹⁴¹ Futures contracts have, in different forms, been around since the Middle Ages. Early futures contracts were predominantly unstandardized agreements between farmers and merchants. Usually, future markets involves different types of agents such as hedgers, speculators and arbitrageurs. See, Hull, John C, *Fundamentals of Futures and Options Markets*, 4 th ed. New Jersey; Pearson Education Inc, 2001, Hirt, Geoffrey A.; Block, Stanley B. *Fundamentals of Investment Management*, 8th ed. New York; McGraw-Hill Inc, 2006

¹⁴² Jacques Gabillon, *The Term Structures of Oil Futures Prices*, Oxford Institute for Energy, 1991

sold in spot/physical market, became unmanageable and difficult to determine an absolute price of each single crude, thereby, the set of crude benchmarks was unavoidable. Among the most important crude benchmarks that were established include Brent ¹⁴³, West Texas Intermediate (WTI) ¹⁴⁴, Tapis ¹⁴⁵ and the Dubai/Oman¹⁴⁶. These benchmark grades oil according to the quality, sustainable production, stable market, ownership diversification, and the degree of concentration in the physical delivery of an infrastructure. The rest of the grades that doesn't qualify the aforementioned categories are usually priced at differential (premium or discount). In addition, the crude prices that are fixed by the aforementioned benchmarks, mostly operate under the recognized future exchanges and directly over-the-counter (OTC). Needless to say, however, there is no right answer to the question of whether oil has to be traded on the exchanges or over-the-counter. Both sellers and buyers have various reasons for the choices that they make, which usually evolve historically in response to particular forces or needs, and reflect in which markets adopt to specific circumstances. When it comes to financial markets for oil, the relevant question at issue is subject to facts and the relationship of the chosen specific circumstances, rather than theories.

For perspective, increase of inflation in international oil market and sudden decreases

¹⁴³ Mostly used in Europe, Africa and Asia

¹⁴⁴ Mostly used in USA

¹⁴⁵ Mostly used in Asia-Pacific

¹⁴⁶ This benchmark is used mostly to price crude in the Gulf Region and Asia. Nevertheless, the benchmark is as well used in other countries such as Russia. Further, Dubai-Oman is not the only benchmark used for pricing cargoes in or destined to Asia-Pacific while Malaysia and Indonesia set their own official selling price as well such as Asia Petroleum Price Index (APPI) and Indonesian Crude Price (ICP). In addition to that, Dubai Mercantile Exchange (DME) has been launched recently to serve as a pricing benchmark of Gulf exports to Asia. All of the aforementioned benchmarks are mostly using future and swaps contracts such as Brent/Dubai Exchange for Swaps (EFS) and the Dubai inter-month swaps markets while the DME has changed the pricing mechanism of Oman crude to forward pricing system.

of revenues create serious budgetary problems for oil exporting countries. Because of these facts, the financial industry have designed wide variety of derivative instruments to facilitate risk management that will help to stabilize the flow of income/margins in crude oil markets. The mostly widely used financial derivatives include future contracts wherein those trading oil in future contracts they have an option of either using future exchanges that are currently traded on the New York Mercantile Exchange (NYMEX)¹⁴⁷ and Intercontinental Exchange (ICE)¹⁴⁸. NYMEX contracts are famously used by West Texas Intermediate (WTI)¹⁴⁹ to trade Light Sweet Crude Oil Futures while the ICE trade mostly trades light and sweet crude; Brent¹⁵⁰.

¹⁴⁷ NYMEX future contracts are traditionally for the delivery of light and Sweet Crude oil . The latter is the most traded derivative today by the West Texas Intermediate (WTI).

¹⁴⁸ Formally known as Intercontinental Petroleum Futures (IPE), the benchmark is widely used in trading Brent futures contracts wherein its terms and conditions are highly standardized. The ICE Brent future contracts are cash settled with an option of delivery through exchange for physicals and, unlike other future contracts whose price converges to spot price at expiry, the Brent future contracts converges to the price of forward Brent. In other words, the pricing information offered by Brent is based more on the physical trading of oil. However it should be noted that, Brent Future contracts relies on the forward market for cash settlement although all transactions are entered bilaterally in an absence of an exchange or clearing house at a price agreed between parties and no margins are put up, thus, the effectiveness of the futures market in the role of price discovery relies on the liquidity of the forward market. Having said that, it is worth acknowledging that, it is the future market that sets price level while the oil report agencies are only responsible for setting the differentials on the assessed prices.

See, Barrera-Rey, F and A. Saymour "***The Brent Contracts for Differences; study of an Oil Trading Instruments, its Market and its Market and its Influence on Behaviours of Oil Prices***" SP5, Oxford: Oxford Institute for Energy Studies, 1996

¹⁴⁹ (WTI) presents the most widely used benchmark in the global oil and financial market. As a main pricing mechanism for physical delivery of crude oil imports in the US such as light and sweet crudes, WTI is firmly rooted in future contracts, but it does trade in options and OTC as well. Traditionally, WTI is mostly used for pricing oil imports in the US although there are other dozens of crude benchmarks that exists alongside the WTI as domestic benchmark for pricing crudes

¹⁵⁰ Brent is a mixture of oil produced from different fields of Forties, Oseberg (Norway) and Ekofish, and, collected through a main pipeline system to the terminal at Sullom Voe in the Shetland Islands UK. This benchmark is formally referred as Dated BFOE or commonly referred as Brent or North Sea, and it is the benchmark for light and sweet crude, widely used for pricing crude oil in Europe, Africa and Asia. The benchmark contains number of layers including highly liquid futures and swap markets (where only cash is exchanged). Traditionally, the bulk of Dated BFOE output was traded on the spot market or transferred within integrated oil companies wherein only a very limited number of BFOE cargoes were sold on a short- term basis but over recent, the number of other layers and instruments as such Brent Forward, Contract for

Moreover, the ICE-Brent futures contracts are highly standardized contracts and cash is settled with an option of delivery through Exchange for Physicals (EEP)¹⁵¹. Other important exchanges in crude financial market include Dubai Mercantile Exchange, Multi Commodity Exchange of India Tokyo Commodity Exchange (TOCOM)¹⁵² just to name a few.

On the other hand, oil is also traded over-the-counter (OTC). The OTC contracts are customized and they can be negotiated bilaterally between parties either through brokers or face to face. The most common OTC contracts that are traded in crude benchmarks include swaps and options¹⁵³. OTC instruments are normally purely financial transactions and no physical delivery takes place. They are traded between two parties and all arrangements can be freely negotiated¹⁵⁴.

With so many different grades of crude oil, the trading volumes for crude contracts are the only indicators of the usefulness of benchmarks in the global oil financial market as shown below on figures 1,2 &3.

differences (CFDs), Exchange for Physicals (EFPs), Brent Futures and Options and swaps have been actively traded in the Brent market as well.

¹⁵¹Bassam Fattouh, "An Anatomy of Crude Oil Pricing System", Oxford Institute of Energy Studies, 2011

¹⁵² For detailed information on the global crude benchmark markets and their applicability, See, ICE "**Oil Price Benchmarks; Implication and Opportunities**" 2014, Available at http://www.feem.it/userfiles/attach/20148261516544.Davis_Oil%20Price%20Benchmarks.pdf

¹⁵³ Options are traded both on the exchange and in the OTC market. There are two basic types of options; call and put. A call option gives the holder the right to buy the underlying asset by a certain date for a certain price. A put option gives the holder the right to sell the underlying asset by a certain date for a certain price. In other words, option contracts give the crude oil sellers/buyers the right to buy or sell but not the obligation to purchase or sell, although in both cases the buying or selling price for crude is specified at the time the option contract could be finalized. For instance American options can be exercised at any time up to the expiration date, while European options can be exercised only on the expiration date. Swap contracts allow the oil sellers to receive a fixed price at an agreed future point in time and in return they pay the floating spot price. For more details See; Platts, "The Structure of Global Oil Markets, 2010,

¹⁵⁴ Sally Clukey, "**Trading Oil in Future Markets**", 1998

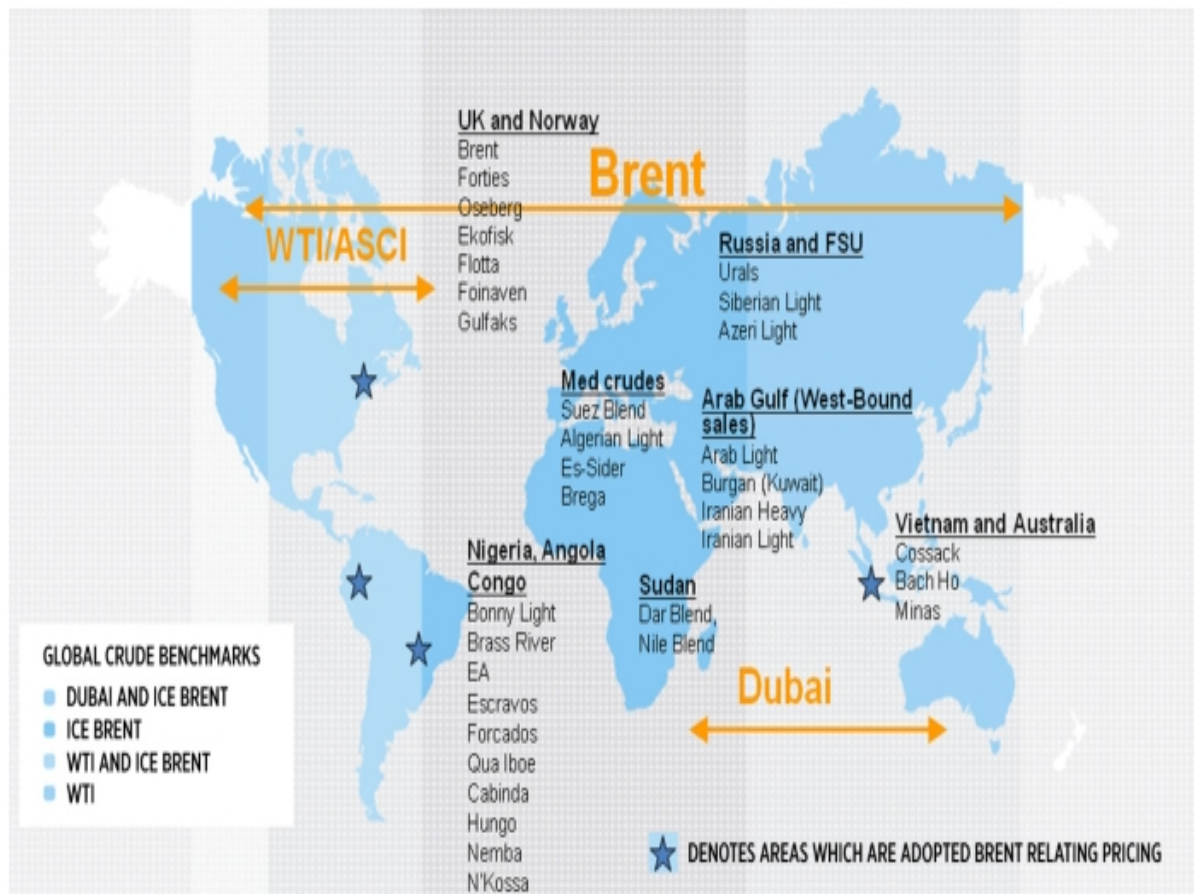
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Figure 1. Global Benchmarks for Crude Oil



Source: Intercontinental Commodity Exchange (ICE)

Figure 2. Daily Trading Volume for WTI and Brent Futures

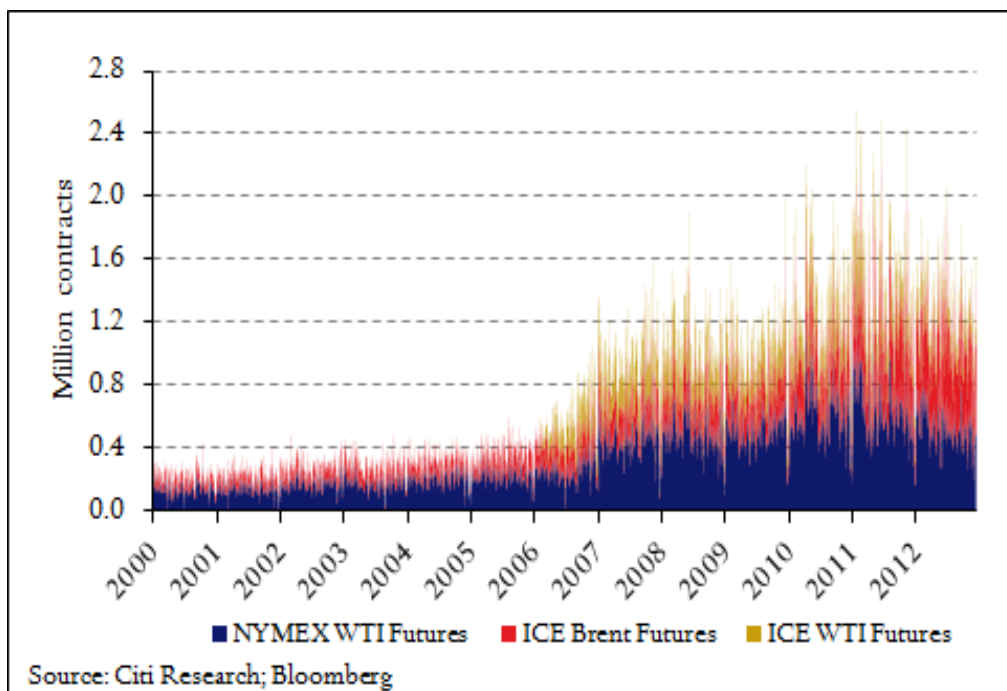
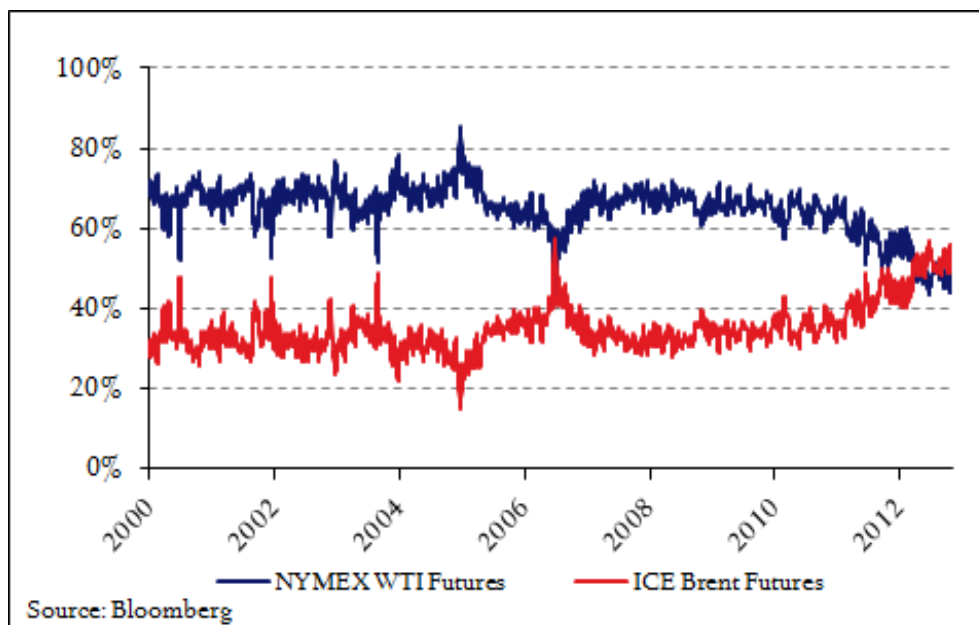


Fig. 4 Percentage of the Daily Trading Volume between ICE Brent and NYMEX

WTI



3.2.2 The Use of Financial Instruments in Trading Crude Oil

In the new millennium, investors' interests in commodities especially for crude oil, has risen drastically. On one hand, commodities are seen by large as an additional asset class that widens the opportunity set for portfolio maximizations, while on the other hand, commodities are seen as a new assets class for minimizing volatile portfolios in the financial market. In markets with high liquidity like crude oil, mostly, investments and trading have been done via derivatives financial instruments. Different oil qualities and prices exist relatively to each producers and markets. The standardized grades of crude benchmarks such WTI, Brent, Dubai and Oman, Tapis just to name few, have been developed to create homogeneity that allows the trading of oil to use derivatives in financial markets. This observation is important for the study's analysis because one would expect to know the reasons for the increasing predominance in the applicability of financial derivatives in oil financial markets when oil could simply be traded over-the-counter. With regard to the latter, some studies have affiliated the use of derivatives with the use of financial derivatives with risks management while some have argued that financial derivative have played a significant factor in manipulating the crude oil price formation.

Traditionally, derivatives are used in managing risks for assets or in financial markets. They could trade a wide range of financial assets including equities, fixed-income instruments, foreign currencies¹⁵⁵, and most significant, commodities such as oil.

¹⁵⁵ Conventional wisdom has it that, oil prices tend to be invoiced and transactions to be settled in US dollars since a dollar has an international currency status as well network effects. Theoretically studies on trade invoicing suggests that the utmost use of the US dollar in trading oil is the fact that the choice of currency in international trade usually reflects three functions of money as such; medium of exchange, unit of account and store of value. Do the latter factors applicable to the US dollar? In-deed they are. The US dollar has a low liquidity costs associated with holding the currency as well the macro-economic stability of the US financial market explain

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Normally, these derivatives are traded in contracts that could either be forward contracts or future contracts wherein the value of derivative contracts can be derived from the corresponding equity prices, interest rates, exchange rates or commodity prices¹⁵⁶ and et.al, depending on the type of underlying. One would ask, how could hedging manage risks in financial market if the commodities or assets shall be traded in future markets? In answering that, the study will explain how hedging risks works generally in financial markets.

Basically, hedging risk involves engaging in a financial transaction that offsets a long position by taking an additional short position, or offsets a short position by taking an additional long position. In other words, if a financial institution has bought a security and has therefore taken a long position, it conducts a hedge by contracting to sell that security (take a short position) at some future date. Alternatively, if it has taken a short position by selling a security that it needs to deliver at a future date, then it conducts a hedge by contracting to buy that security (take a long position) at a future date¹⁵⁷. Not only are hedgers participates in financial derivatives but also speculators¹⁵⁸.

Despite of a wide use of financial instruments, in oil financial markets, derivatives are traded over-the-counter through exchanges wherein these exchange contracts are

the role of US dollar as a store of value. However, some studies suggests otherwise, arguably, the fluctuation of the US dollar exchange rate is believed to underlie the volatility of crude oil price and especially its forecasting accuracy. For further details see, Barry Eichengreen, Livia Chitu & Arnaud Mehl "**Network Effects, Homogeneous Goods and International Currency Choice: New Evidence on Oil Markets from an Older Era**", 2013; Elitza Mileva, Nikolaus Siegfried " Oil Market Structure, Network Effects and the Choice of Currency for Oil invoicing, 2010

¹⁵⁶ Michael Chui, "**Derivative Markets and Pertiapiants: an overview**" 2002

¹⁵⁷ Mishkin, The Economics of Money, Banking and Financial Markets, 2004

¹⁵⁸ Hedgers enter a derivative contract to protect against adverse changes in the values of their assets or liabilities. Specifically, hedgers enter a derivative transaction such that a fall in the value of their assets will be compensated by an increase in the value of the derivative contract while speculators attempts to profit from anticipating changes in market prices or rates or credit events by entering a derivative contract. However, activities of speculators are inherently more risky and should warrant close monitoring by financial regulators. See, Jarrow R & S. Tunbull " Derivatives Security"1999, South Western College Publish, for a broad discussion on how hedging and speculation works on financial market.

performed through a clearinghouses¹⁵⁹ for the purpose of honouring contract performance. For instance, when a party agrees to buy oil, a clearinghouse agrees to sell, when a party agrees to sell, clearinghouse agrees to buy. Thereby, the exchange guarantees the performance of the contracts, and the exchanges are further enhanced with the concept of making margins that are derived from the underlying instrument¹⁶⁰. Nonetheless, in crude oil financial market, the conventional wisdom has it that, the most traded exchanges in crude oil financial markets are future and forward contracts which are traded by the New York Mercantile Exchange (NYEMX), Dubai Mercantile Exchange (DME) Intercontinental Exchange where West Texas Intermediate and North Sea Brent are traded respectively.)

As mentioned above, derivatives could be traded in future and forward markets. These contracts alike in their basic terms, but they differ in some major aspects. Future contracts are standardized contracts while forward contracts are not necessarily so as they can be flexible as the parties involved want them to be but they usually suffer from default risk¹⁶¹. Provided of their difference, yet derivatives are highly used in oil financial market.

¹⁵⁹Clearinghouse is an association of the exchange collective clearing members (firms) who takes responsibility for honouring contract performance between traders (buyers & sellers). Basically the work as middle man, if one party agrees to buy then the clearing house agrees to sell, conversely, when another party agrees to sell the clearing house agrees to buy

¹⁶⁰ Robert A. Biolsi, *Spot, Options and Future Oil Markets*, 1995

¹⁶¹ Other distinguishing characteristics include; future contracts are based on a centralized exchanges and trade under the rules of that exchange as well using a clearinghouse. That makes future contracts to be traded between agents on the exchange floor. This type of market usually represents two contracts whereas the buyer would have a contract with a clearinghouse, and the seller will have another contract. Once the original deal is made, there would not be linkage between agents that made the contracts. However, if at any point that the clearinghouse will collapse, then, the future market will suffer the default risk. On the other hand trade in forward market does not imply any sort of standardization; the specific details of any individual trade can vary beyond delivery months and price. There is no membership procedures, thus the trade is open to anyone who could trade with anybody at the market. Further, the size of this type of trading market is determined by intersection of the set of firms that wish to participate with another firm.

Theoretically, financial derivatives, essential future contracts have become more relevant in trading oil due to their reinforcements in mitigating risks on unanticipated oil market crisis. Arguably, future contracts reflect direct information of traders' expectation about the future price of oil. This to some extent have increased the opportunity for market participants to hedge their exposure to variations in the value of crude oil, thus oil to become an attractive financial asset for investors to diversify portfolios and increase returns.

Whereas using derivatives to trading crude oil in financial market is not a new practice yet, that have created hot debates between policy makers, financial analysts and economists just to name few on the intricate nature derivatives that are used in trading oil market and its implication in oil financial market. Some studies have argued that the financial derivatives have completely destabilized oil prices due to its improper trading practices¹⁶² while some argued that, the increasing predominance role of derivatives in oil have deeply affect the behaviour of investors, as a result investors appear to be constantly adopting new practices that in some circumstances have caused market failures. Indeed, the uses of financial derivatives in trading commodities and assets have been associated with a number of high-profile corporate events that has roiled the global financial market for the past decades.

Just like in other financial market, derivatives were established in crude oil market for the purpose of hedging risks, thus oil producers should have fixed income for production. For instance, if we look at the historical law of correlation between commodities and returns in financial assets' markets, returns such as stocks or bonds has increased the attractiveness of holding commodities for portfolio diversification

¹⁶² William Arratta, Alejandro Bernales and Virginie Coudert "The Effects of Derivatives on Underlying Financial Markets: Equity Options, Commodity Futures and Credit Default Swaps" 2015

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purposes for some investors, since, commodity returns are positively correlated with inflations, consequently, some investors have entered into the commodities market to hedge against the inflation risk¹⁶³. The latter works exactly the same with oil market. Oil futures prices include risk premiums that reflect the possibility that, spot prices at the time of delivery may be higher or lower than the contracted price. Thus hedgers are motivated to trade in future contracts in order to stabilize the flow of income from their merchandizing operations in which the volume of hedging usually depends on the expectation of the future price movements¹⁶⁴. On the other hand, inventory hedgers holders will hedge a larger share of their stocks as the prospect of a price decline becomes more eminent, so as for the buyers of future contracts¹⁶⁵. If we are to relate the latter with oil financial market, it has been argued that, in the aggregate, hedgers net supply of future contracts rises with expectation of the price spot decline, while the net futures supply falls with an expected increase in the spot market¹⁶⁶. Therefore, hedgers in oil market tend to exert pressure on future price in the same direction as the expected movement in spot price. That already shows that, future markets play a significant factor in predicting oil price in spot market, thus no longer could oil producers rely on long-term price arrangements to help to remove the uncertainty involved from oil market. Just by hedging, oil producers and traders could help shield themselves from volatile nature of oil prices. However, as previously stated, among the key future for hedgers is that they are motivated in enhancing

¹⁶³ Edwards, D.W , *“Energy Trading Investing: Trading Risk management and Structuring Deals in the Energy Market”*, New York: McGraw Hill, 2010

¹⁶⁴ NYMEX, “ A Guide to Energy Hedging” 2014; Thorben Lubnau *“Spread Trading Strategies in the Crude Oil Future Markets”* 2014

¹⁶⁵ P. Hornell, A Brindle & W. Greaves *“The Hedging Efficiency of Crude Oil Markets”* 1995

¹⁶⁶ Winer, Robert, “ Default Risk and the Difference Between Forward and Future Markets: An Emperical Case Study” Working Paper Np 212, Colombia Centre for the Study of Future Markets, 1991

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margins¹⁶⁷. That alone has led the oil market in a wrong direction. Physical delivery prices are no longer indicator in the market¹⁶⁸. Arguably many players in the future markets are the dominant factor in the price discovery process, thus it is easy for them to manipulate the market. Again lets go back and recite the discovery and the assessment for crude oil pricing¹⁶⁹, we could as well see most of the significant crude benchmarks are using future exchange contracts in trading oil, thus, the dominant position that future market has in oil financial market is the fact that can not be ignored. Nevertheless, the latter does not imply that future markets reflect the physical realities of the oil market at the time of pricing. It has been suggested that, crude prices are not determined on the basis of trading on real barrel, rather by trading financial contracts for future delivery¹⁷⁰. The question remains, who know who sells or buys oil futures or derivatives that set oil spot prices if the whole process for price assessment is so opaque?, neither are PRAs obliged to publish the information nor does the traders. In 2008, the US senate report ¹⁷¹ stated that:

Until recently, US energy futures were traded exclusively on regulated exchanges within the United States, like the NYMEX, which are subject to extensive oversight by the CFTC, including on-going monitoring to detect and prevent price manipulation or fraud.

In recent years, however, there has been a tremendous growth in the trading of contracts that look and are structured just like futures contracts, but which are traded on

¹⁶⁷ Most recent sustained run-up in energy prices, large financial institutions, hedge funds, pension funds, and other investors have been pouring billions of dollars into the energy commodities markets to try to take advantage of price changes or hedge against them. Most of this additional investment has not come from producers or consumers of these commodities.

¹⁶⁸ De Jong, F, “ **Measures of Contributions to Price Discovery: A comparison.** *Journal of Financial Markets*”, 2002, pp 323-327

¹⁶⁹ J. Cale Case “**Oil Pricing**” in SIAMACK Shojai” *The New Global Oil Markets; understanding energy issues in the world economy*”, Praeger Publishers, 1995

¹⁷⁰ Robert A. Biolsi “ **Spot, Options and Future Oil Markets**”, 1995

¹⁷¹ US Senate report 2008; F. William Engdahl “**Rigging the Oil Market : Perhaps 60% of Today's Oil Price is Pure Speculation**” 2008

unregulated OTC electronic markets. Because of their similarity to futures contracts they are often called “futures look-alikes.”

The only practical difference between futures look-alike contracts and futures contracts is that the look-alikes are traded in unregulated markets whereas futures are traded on regulated exchanges. The trading of energy commodities by large firms on OTC electronic exchanges was exempted from CFTC oversight by a provision inserted at the behest of Enron and other large energy traders into the Commodity Futures Modernization Act of 2000 in the waning hours of the 106th Congress.

The impact on market oversight has been substantial. NYMEX traders, for example, are required to keep records of all trades and report large trades to the CFTC. These Large Trader Reports, together with daily trading data providing price and volume information, are the CFTC’s primary tools to gauge the extent of speculation in the markets and to detect, prevent, and prosecute price manipulation. CFTC Chairman Reuben Jeffrey recently stated:

“The Commission’s Large Trader information system is one of the cornerstones of our surveillance program and enables detection of concentrated and coordinated positions that might be used by one or more traders to attempt manipulation.”

In contrast to trades conducted on the NYMEX, traders on unregulated OTC electronic exchanges are not required to keep records or file Large Trader Reports with the CFTC, and these trades are exempt from routine CFTC oversight. In contrast to trades conducted on regulated futures exchanges, there is no limit on the number of contracts a speculator may hold on an unregulated OTC electronic exchange, no monitoring of trading by the exchange itself, and no reporting of the amount of outstanding contracts (“open interest”) at the end of each day.

With the development of unregulated international derivatives trading in oil futures

for several decades, that has open doors for all sorts of “market manipulators”. As previously mentioned that hedgers tend to exert pressure on the future prices, nevertheless, in oil financial derivatives market for oil, hedgers are not the only significant participants but speculators as well. The activities of these two are interconnected. Once the prices for spot prices are expected to rise, speculators will purchase future contracts and will sell future contracts when the future prices are expected to fall. Merging the activities of speculators and hedgers, it is obvious that the expectations of a fall in oil spot prices tend to increase the supply of future contracts, thus depressing the current future prices. The foregoing on the role of speculators in oil market will receive a full coverage in the coming section.

3.3 Relationship between spot and future oil prices

The fluctuations in the price of crude oil have renewed interest in understanding the determinants for spot prices in oil market so as for the relationship between physical and financial oil prices. It is common for policy-makers and market analysts to interpret the prices of crude oil that is traded in different contracts as a measure of market expectation of the future spot price of oil. In light of this widespread, the question of what determines the spot prices for crude oil has created several concerns on what ought to be the key predictor for future and forward prices. Several studies have dealt with the relationship between spot and future oil prices¹⁷² nevertheless the

¹⁷² Alquist and Killian & Vigfusson suggest that, oil future prices are generally not better at predicting spot prices than a random walk. According to the aforementioned authors, all changes in the oil spot price are unpredictable, thus, the current spot price is the best possible forecast for the oil future spot price and not otherwise, Reichfield & Roache, agree, but observe that, the oil future prices predicts out performs a random walk on a short term horizon but not better at longer horizons. On the other hand, Chernenko and Wright suggested that, the oil future prices predicts spot prices correctly on average, on contrary Wu and McCallum suggested that the forecasting power for future markets errors are large. See, Alquist., R., Kilian L., & Vigfusson, R.J “ Forecasting the Price of Oil, 2011; Chernenko, S, V Schwarzdz, K.B and Wright, J G “*The information content of forward and future prices: market expectation and the price of risk*, Federal Reserves Board International

results are diverse. Some theories supports the leading role of future markets in creating future spot prices (physical market) for crude oil¹⁷³, contrarily, other theories suggests otherwise¹⁷⁴. Under the financial market efficiency hypothesis, future markets are optimal forecaster for spot prices, arguably, to predict future spot price and hence minimize the risk, policy makers, producers and arbitrageurs refer to future markets. The usual rationalization of this concept is that, future prices respond quickly to the new information, essential in a likely event of an increase in oil prices, thereby traders are most likely to buy crude futures contracts with the expectation that the prices will rise in future. JP Morgan report¹⁷⁵ came to similar analysis that, prices and positions move together largely because both react at the same time to fundamental information on the supply and demand of commodities, when signals emerge that demand for commodities is growing faster than supply and the inventories are thus set to tighten, prices rise while funds and banks become more interested in buying future contracts. Having said that, it has been suggested that, in most cases crude prices are discovered in future markets and then the information is shared to the spot market participants due to lower transactional costs and flexibility of short selling¹⁷⁶.

Finance Discussion Paper No.808, 2004 ; Reichfeld, D., A Roache, S K “ *Do commodity futures help forecast spot prices?*” and Wu T., & McCullum A., “*Do Oil Future Prices Help Predict Future Oil Prices?*”, Federal Reserves Bank of San Fransisco Economic Letter No. 2005-38, 2005

¹⁷³ See, Davies P. 2007. What’s the value of an energy economist? Presentation at the 30th Annual Conference of the International Association for Energy Economics, Wellington, New Zealand, 18 February., Bernanke BS. 2004. Oil and the economy. Speech presented at Darton College, Albany, GA, <http://www.federalreserve.gov/boarddocs/speeches/2004/20041021/default.htm> [13 December 2009].

Greenspan A., Oil. Speech presented at the National Italian American Foundation, Washington, DC, 2004b, Davies P.”*What’s the value of an energy economist?*” Presentation at the 30th Annual Conference of the International Association for Energy Economics, Wellington, New Zealand, 18 February, 2007

¹⁷⁴ See, Christophe Barrer, “Brent Prices: Impact of PRA methodology on price formation” 2012

¹⁷⁵ JP Morgan Global Commodities Research, “*Commodity Prices and Futures Positions*” 2014

¹⁷⁶ Ozgur Arslan-Ayaydin & Inna Khagleeva “*The Dynamics of Crude Oil Spor and Future Markets*” in Adre Dorsman, John L.Simpson & Wim Westerman, “ *Energy Economics and Financial Markets*” Springer Heidelberg 2013

Moreover, provided of the fact that future contracts are the determinants for crude prices, yet future contracts that are sold in physical market account for not more than 5% of physical oil sales¹⁷⁷.

On contrary to the above, it has been established that, under the assumption of risk-averse market participants, future prices are systematically biased¹⁷⁸. The later argument was based in three suggestions; a) based several months observations¹⁷⁹ by using daily and futures prices, the price of crude oil futures was determined not to be the most accurate predictor of the spot price of crude oil in practice, b) oil futures spread is directly linked to shifts in oil market fundamentals c) under plausible conditions, the oil futures spread will decline, as the precautionary demand component of the real spot price of crude oil increases. Thus the negative of the spread may be viewed as an indicator of fluctuations in the real price of crude oil driven by precautionary demand for oil, essentially when there is shifting in market expectation about future supply shortfalls that will affect the spot prices for crude oil¹⁸⁰. Provided of the aforementioned reasons, nevertheless, the authors have failed to quantify the expectation shifts in crude oil supply. Not only that but also, if (as suggested by some scholars), future shortfall for crude supply is what determines the spot prices, isn't that the same saying; the expected future prices could either be

¹⁷⁷ Energy Intelligence Report 2014

¹⁷⁸ See, Pindyck, R.S. " *The Present Value Model of Rational Commodity Pricing*" Economic Journal of Finance, 55, 1297-1338, 1993

¹⁷⁹ Between January 1991-Feb 2007

¹⁸⁰ Alquist R & Kilian., L, " *What do learn from the price of crude Oil Futures?*" 2010, Journal of Applied Econometrics, 25, 539-579., Absosedraa., s., & baghestani., H : "On Predictive accuracy of Crude oil Futures Prices, Energy Policy, 32, 1389-1393, 2004., Bakiros., S.D & Dicks., C.G.H" *The Relationship Between Crude Oil Spot and Future Prices: conintegration nature, linear and nonliniar casuality*"/CENDEF Working Papers, 07-11, 2002, Amsterdam University and, Silvapulle, P., & Moosa I.A., *The Relationship between and Future Prices: Evidence from the Crude Oil Market*" The Journal of Future Markets, 19, 175-193, 1999

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driven by market fundamentals or geopolitical events wherein the later could have a bidirectional effect on spot prices? In-deed, theoretically, future prices are equal to spot prices in the future, however, for future prices to be able to predict spot prices accurately, they should be supplemented with other information to improve the accuracy, thus, the study urges that, yet future markets plays a key role in determined spot prices for crude in future markets.

Further, unlike other financial assets, oil is a physical storable and exhaustible commodity. This makes the relationship between spot and future prices even more correlated. Most obviously, holding oil for future trade/usage automatically involves storage costs. Besides, physical ownership provides the holder an extra benefit (in economics it is usually referred to as convenience yield) that allows traders to respond to unexpected shocks to demand for their goods. Reflecting this to crude oil market; oil can be bought in the spot market, put in inventory, and then delivered or sold to meet a future sale liability. Thus, movements in the differentials between future and spot prices could influence storage costs for crude oil, in other words it could be said, in today's oil market, investors are active even beyond the future market by holding physical inventories as well. If future prices for crude increases, then the incentive to store oil increases, and, eventually inventories would increase as well. Transferring some of the oil supply for immediate delivery to a later date, which will tighten the current spot market fundamentals. The spot price should then rise to re- establish equilibrium conditions. On the other hand, if futures prices fall below the equilibrium relationship with spot prices, there is an incentive to run down inventories, resulting in

a greater supply of oil available for immediate delivery, and spot prices should fall¹⁸¹. Therefore, in one-way or another the change in inventories means that the possible change in future prices could be used to make inferences in the direction of anticipated path for spot prices. Not only does future trading change inventories but also can facilitate allocation of production and consumption for oil, essentially by providing a market scheme in inventory holding¹⁸². In this essence, if future prices for late deliveries turn to be higher compare to the former ones, automatically the less consumption and storage for oil become more attractive¹⁸³. For instance, suppose we refer the latter to the ‘*contango*¹⁸⁴’ a theory that says that;

“when the future price is below the current price, people are willing to pay more for a commodity at some point in the future than buying on spot market”¹⁸⁵.

Based on this motivation, it is intuitive to think that, the traders decision may be due to desire to pay a premium to have the commodity in the future than paying the costs of storage or carrying costs of buying the commodity at present. The same could be applicable to crude oil market. The firms using oil as an input will buy future or forward contracts to guarantee a future spot price and quantity. For instance, between 2005-2007, the near-term future prices for WTI and Brent began to move above the spot price in a *contango* relationship. This is among the episodes when spot prices were influenced by future prices.

¹⁸¹ Working, H., *“The Theory of Price of Storage; commodity prices and futures positions”* Morgan Global Commodities Research, American Economic Review, 39.1948, J.P. ,2009

¹⁸² Garbade, K.D and Silber, W.L., *“Price Movement and Price Discovery in Future and Cash Markets”*, Review of Economics and Statistics, 65, 289-297

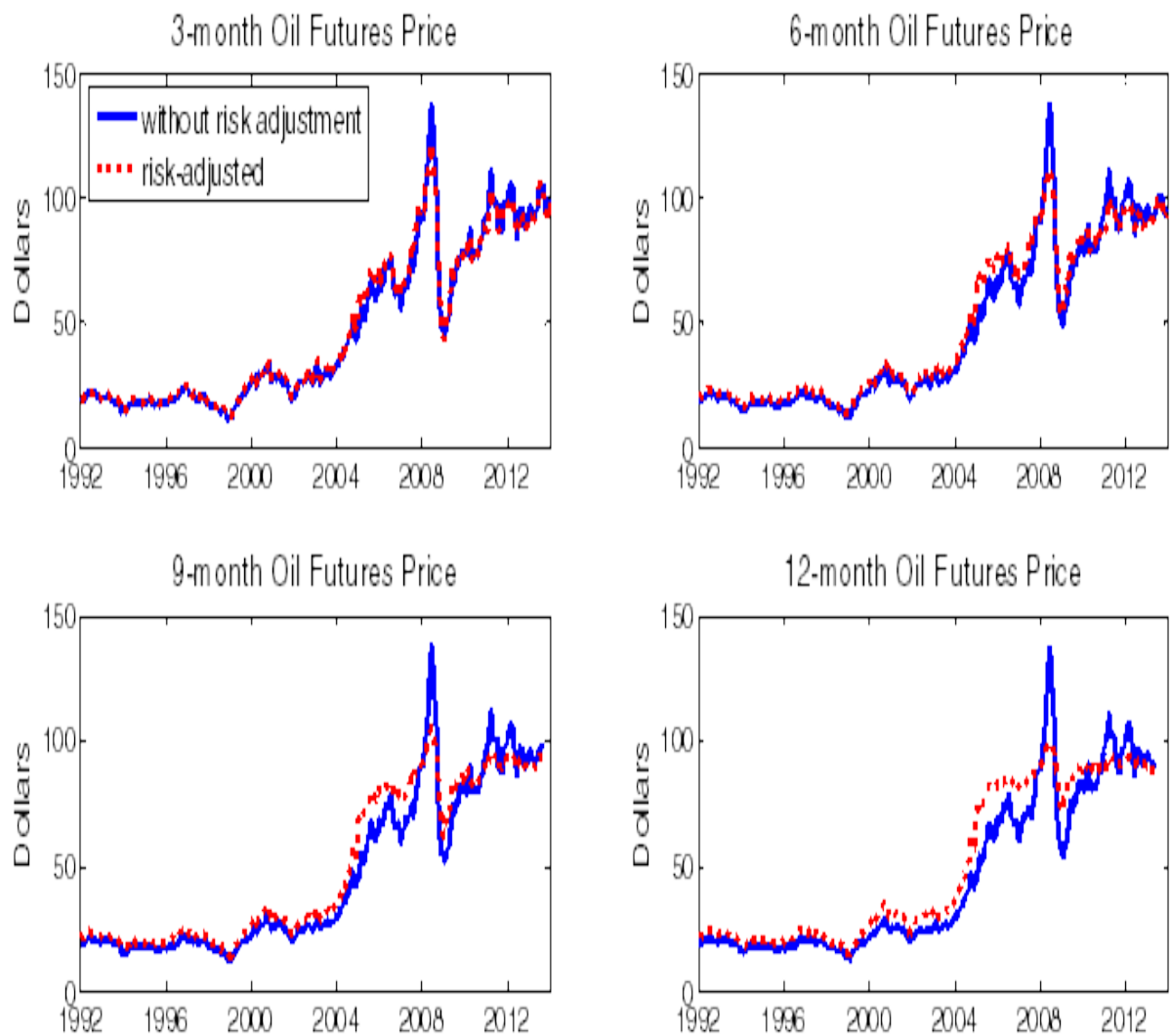
¹⁸³ Houthakker, H.S *“ Future Trading In: Stelios D. Bekiros , Cees G.H., Diks “ The Relationship between Crude Oil Spot Market and Future Prices: Cointegration Linear and Nonlinear Casuality*, 2009

¹⁸⁴ When the price is moving up it is said the market is in ‘contango’ whereas when prices are falling it is said that the market is in ‘backwardation

¹⁸⁵ However, if the the degree of contango exceeds the carrying or storage facility costs of crude oil then profit can be made by trading at spot market, selling it forward and putting the physical oil into storage. This precipitate the concept that, the degree of contango is limited by the value of **transactions and storage costs**

Following the above discussion, the in-order to ensure complete understanding of this phenomenon, the study will provide market data analysis to evaluate the forecasting ability of future prices.

Fig 2; Assessing Predictive Power of Crude Oil Future Markets



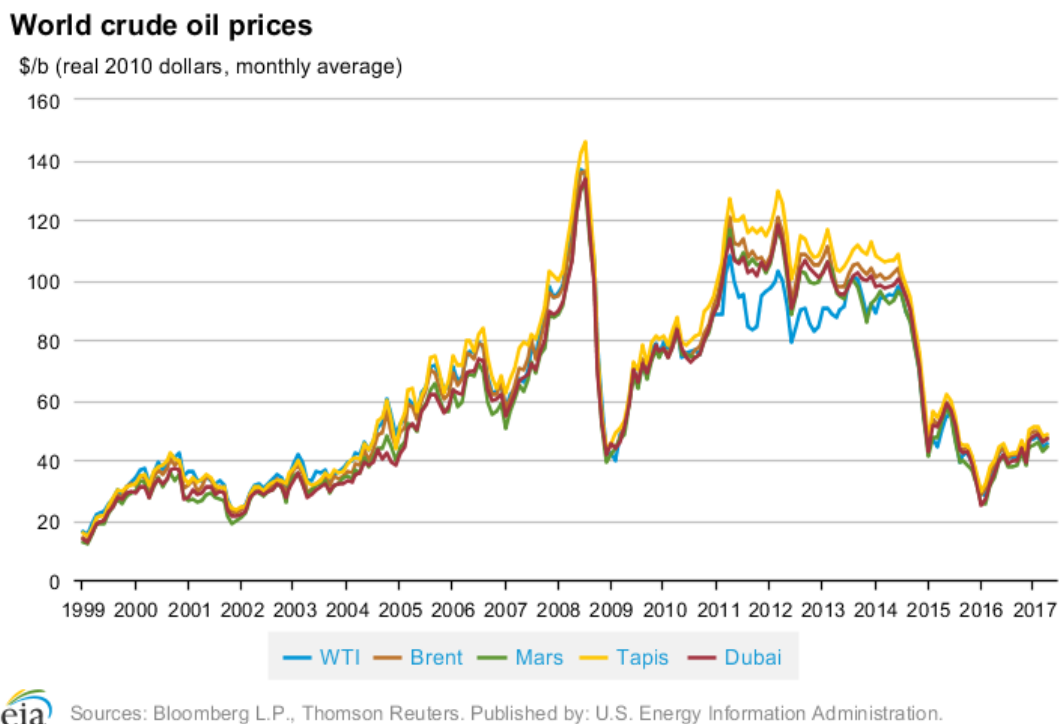
Source: Energy Bloomberg,

Fig 3 : ICE, Spot and Future returns correlations

Delivery	Spot	2005	2006	2007	2008	2009	2010	2011	2012
Spot	I	0.600	0.808	0.212	0.014	0.018	0.019	0.019	0.018
2005		I	0.980	0.964	0.809	0.798	0.798	0.844	0.768
2006			I	0.980	0.522	0.513	0.507	0.500	0.0492
2007				I	0.090	0.088	0.086	0.085	0.083
2008					I	0.989	0.967	0.948	0.932
2009						I	0.989	0.971	0.956
2010							I	0.969	0.955
2011								I	0.988
2012									I

Source: Intercontinental Exchanges Database (ICE)

Figure 3



Based on the above figures, Figure 2 illustrates that the correlation between future and spot prices are very close, for instance, if we examine the 3-months and the 9-months ahead market expectation, the predictive power of future prices for spot prices seem to be very accurate, while the 12-months future markets predictive power seem to be about 70%. Again, figure 3 shows the predictive power of future market on spot prices. The latter data presents the correlations between spot and future daily returns from 2005-2012. If we are to observe the period between 2009-2012, the data exhibits very strong returns relationship in terms of returns, between spot and future markets. In general, both figures show the power of future markets in predicting spot prices and not vice versa.

CRUDE OIL MARKET BEHAVIOUR

Oil market industry it is not only defined by its market structure, but also with its market behavior. What are the key players in influencing the change for crude oil

market structure? If yes, then, does the latter have an influence on oil prices? Does commercialization, consolidation of companies/firms have an influence on the structural change for oil industry at all? If so then, do they affect the habit of market participants in the oil financial market and to what extent? These are the prominent questions the study intends to analyse.

Since the discovery of oil, world power brokers have fought for prices, production and control of natural resources. From the 1970s to date, the world oil industry has witnessed a sequence of events and astonishing changes within the industry. Enormous oil organizations and companies have disappears while others have been formed. All these have played a remarkable role in the history of the world oil industry. Nonetheless, commercialization, mergers and acquisition as well as globalization have been conceded for representing a notable role in influencing oil market behavior.

3.4.1 Factors Influencing Oil Market Behaviours & Structural Change

i) Government Polices

Due to its geographic, political and economic importance, the oil industry has become one of the most prominent industries in the world. Most countries are heavily dependent on oil as importers or exporters. With more than 92-95% of the world's oil reserves, 80% of the reserves are controlled by state-owned companies/enterprises¹⁸⁶. The conventional wisdom has it that, the increasing control of oil resources by states has resulted from the 1970s revolution where majority of oil producing countries started to nationalize oil companies. The main reason for the nationalization movements at the then time was influence by the

¹⁸⁶ Christopher Warshaw, "*The political economy of expropriation and privatization on the Oil sector*", pp 35-61, Cambridge University Press, 2011

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belief that stat-owned enterprises/companies provides substantial benefits and greater attention to social objectives¹⁸⁷ compare to private companies. In contrary to the latter, some studies shows that privatized NOC companies performs poor compared to the private ones yet other studies suggests otherwise.

Staring the 1990s, the oil industry was recorded to enter a new area due to the change of national and international agenda towards market liberalization. Governments were highly attracted in controlling oil prices and natural resources as a whole. The changes started from the US and Canada where energy regulations where amended and being replaced with the new laws, for instance the US removed gas price regulations and took a step towards deregulating the natural gas market by instituting a scheme for gradual removal of price ceiling at the wellhead. In the UK, Middle East, Latin America and some of the African Oil producers the trend was the same. To date, privatization and market liberalization have played a crucial role in increasing market competition in the energy industry although the performance by the NOCs have proven poor performance in-terms of revenues generation. The question remains, why nationalization is so popular in rich oil country producers provided of the fact that, many state owned oil companies are poorly managed? A very recent example could be Brazil with the Petrobras. The answers to the aforementioned question is diverse, some studies suggests that, oil importing governments thought having NOC would easy relations with oil exporting NOCs and perhaps influence other countries who didn't have NOCs to establish some¹⁸⁸ while on the other hand, some studies argues that, countries nationalizes private-owned oil companies when benefits for nationalization would be larger than the costs. Arguably, with the nationalized oil market the demand for

¹⁸⁷ Michael C Lynch, *"Oil Market Structure and Oil Market Behaviour"*, VP Global Oil, 2000

¹⁸⁸ *Ibid*
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oil and gas has increased sharply particularly in markets with well-established oil and gas network infrastructures. Therefore, in one-way or another, nationalization is more politically motivated.

Nonetheless, the shift from private companies' ownership to state-owned companies particularly in rich oil country producers is asserted to increase or have already lead distortion of oil prices in the market, essentially when a group of states monopolizes the oil market. The good example could be visualized on OPEC as an oil cartel.

ii. Globalization.

Globalization is a multi-faceted phenomenon for the oil industry. Just by definition, globalization refers to a tendency of corporations to adopt common goals and strategies as the result of global economy becoming more open and forcing companies into stiff competition and force them to adopt the most effective strategies to survive in the market. For many industries, it refers to a likelihood of supplies, products and consumers to have to have access to one another from anywhere in the world. While this is for the oil industry as well, nevertheless, there is another aspect for globalization within the oil industry that is somewhat unique. Since oil reserves are discovered from different locations in the world, the exploration of local resources somehow has to be exploited along with the local laws mandating the use indigenous resources. Thus, the sharing of local information and integrating those with the "foreign" ones it does establish some-sort of connections across the globe.

Nonetheless, in oil and gas industry, globalization has played a recognizable factor on challenging and shaping the market structure of the industry. Many

governments have been forced to either amend or improve their regulations to enhance the market openness and fairness at the same time preserving the industry. For instance, in 2008, the National People's Congress of the People's of Republic of China were forced to shift its approach on energy sector in response to world energy market competition by passing the Anti-Monopoly Law¹⁸⁹ that provides a holistic framework for the regulation of competition such as preventing and restraining monopolistic conduct and promoting fair completion within the Chinese market¹⁹⁰, the case was same in the OPEC countries in the 1990s where forced to shift the strategies on controlling the energy market.

On the other hand, the growing openness of national and international markets has increased significantly thus force the shifting of oil market structure, for instance, the growing demand of oil consumption has created a very tight balance and sent oil prices into heights, hence the growing demand reflects rapid integration of market's key players within the global economy market.

However, globalization does not only influence the growth of energy industry but also it challenges the market growth of the industry in-terms of resurgent nationalism or renewed statism¹⁹¹ which causes disruptions in the oil market in one way or another. Given the challenges caused by openness of the oil market industry, yet companies have increasingly focused on their profitability and ignore other relevant goals such as market share, size and strategic investment. Many oil companies have had huge cash flow in the past but failed to come out with strategic investment plans in the globalized market as a result some of them started to face poor performance which forced them to either selling off and closing down the

¹⁸⁹ The Anti-monopoly Law of the People's Republic of China, No 68, 2008

¹⁹⁰ Alain Sepulchre, "**Energy and Globalization :Oil and Gas China**", 2012

¹⁹¹ Danie Vergin, "**Energy Growth and Globalization**", Cambridge Press, 2010

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company or diversity into nuclear fuel market or merge with other companies. For example, Japanese companies were forced to close thousands of their service stations followed by the US and Europe who were affected by 50% by the end of 1990s.

iii. Mergers and Acquisitions

Whilst global oil and gas transactions have suffered a modest decline in both deal count and total value from mid 2012- mid 2016, yet we have seen increasing mergers of approximately more than \$ 500 billion in the recent years and investors looking to utilize excess cash to fund oil and gas projects of which a number of the cases involves acquisitions of financial distressed oil and gas companies' assets.

Major and acquisition have become major strategic jerk for oil and gas companies to strengthening their financial resource base and reduce cost structures. From the 1990s the world has witnessed big players in the Oil and gas disappeared while others got merged and acquired. The good example was when Exxon merged with Mobil in 1999, when Repsol's acquired YFP (Yacimientos Petroliferos Fiscales), so as BP acquired Amoco, Royal Dutch Petroleum and Shell Transport and trading merged and become Royal Dutch Shell "Shell" just to name few. The major has moved up the above listed companies be among the largest oil and gas companies by revenue. For instance up date, the top 3 biggest oil and gas companies by revenue in the world are ExxonMobi which accounts for 496,255\$ sales, Royal Dutch Shell accounts for 484, 489 sales while BP account for 386,463\$ sales.

CHAPTER 3

CRUDE OIL PRICES

The subject of crude oil prices has been of intense scrutiny for decades. The commodity price formation has been linked to a number of factors such as lack of investment impending peak in global oil production, an increase in costs of production, presence of alternative energy products, the role of national companies in balancing the global oil market and what governs their production decisions, an increase in global activities essential in emerging markets, fluctuation of the US dollar. All of these accounts as possible drivers for crude oil prices, either directly or as a results of expectations in the future market. On the other hand, the main question remains what out to be the evolution of real prices for crude oil. The latter has attracted the attention of many market analysts. On the long-run, components of oil prices are thought to be formed at the junction of the financial sphere and the physical sphere at one hand, while global real economic activities are asserted to play a crucial role in the formation of crude oil prices. Based on this, several studies have tried to capture and provide a deeper understanding on the price formation for crude oil prices in financial markets¹⁹². However the actually process and the mechanism or price formation is very complex and it varies in accordance to a number of factors that could be a combination of market fundamentals as such supply and demand, and trading instruments/methodologies including forward, futures, swaps or option contracts. In fact, the trading instruments have become a

¹⁹² See, Barerra-Rey, F & A Seymour “ *The Brent Contract for Differences (CFD); A study of an Oil Trading Instrument, its market and its Influence on the Behaviour of Oil Prices, 1996* ” , Bassam Fattouh “ *An Anatomy of the Crude Oil Pricing System*”, 2010, Horsnell, P “ *Oil Pricing Systems*” Oxford Energy Comments, 2000, Marbo R, “ *The International Oil Price Regime, Origins, Rationale and Assesments* , 2005, the journal of energy literature

huge part of business directing price of crude oil depending on financial circumstances of the market, as discussed in the previous chapter.

In principle, there is a standard methodology¹⁹³ in pricing crude oil, however, the question remains how precisely the price of crude is formed, and whether or not financial community involved in trading contracts for oil could be driving price movements that are not necessarily reflected in fundamentals of oil physical market.

Besides, it should be noted that, the large part of world oil supplies are controlled by governments of oil producing countries whose economies and public finances are dependent on oil export revenues, hence, it has become difficult to discern a steady trend of the industry since the record is rather of episodes. The latter correspond to changes in expectations about future oil reserves and markets, and changes in the role of governments, either affecting ownership of the resources or intervening in the structure of the market. This raises the issue that, changes in oil's ownership and market share to some extent could reflect changes in oil prices and market behaviors.

Based on this, the chapter aims at analysing the extent to which speculation could affect oil physical market. The core theme of the study is to find out how producers and consumers behaviors influences oil prices in financial market, as well how could competition work in the aforementioned circumstances. On the other hand, the study will offer an explanation for the formation of crude oil prices through the growth of economic activities. This chapter proposes a way of thinking about oil prices in the modern oil financial market.

4.2

¹⁹³ See Chapter 3
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SPECULATION AND CRUDE OIL PRICE FORMATION

If history is a reference, the sharp increases and extreme volatility of oil prices from early 2008 to 2016 have led everyone to call into question the role of trades in the crude oil market. Some studies suggested¹⁹⁴ that, the recent run-up oil prices have not only been influenced by market fundamentals but speculative¹⁹⁵ behaviours have intensified the sharp volatility in crude oil prices. One obvious characteristic of the oil market over the past decade is that large financial institutions, hedge funds, and other investment funds have invested billions in the future market with the purpose of taking an advantage on crude oil price changes. Besides, crude oil has become a recognized asset within the investment portfolios of financial institutions as a way to diversify market risks such as inflations¹⁹⁶. Studies show, assets that have been allocated to commodity index trading and have increasingly become integrated into investment portfolios. Billions have been invested globally in commodity indices and has continued to rise in recent years¹⁹⁷. Various emerging trends highlight the reasons for these rises. Example, the share of open interests for non-commercial traders¹⁹⁸ in the oil future markets rose significantly between 1995

¹⁹⁴ See Kilian (2010), Killian & Murphy 2011a, Peersman and Van Robays, (2009, 2010)

¹⁹⁵ Speculation in crude oil market has been defined as an act of buying oil for future use rather than current consumption. A speculator purchases oil with expectations that the prices will rise in the future market. Additionally, speculative buying ought to involve buying crude oil for physical storage leading to an accumulation of oil inventories, it might involve buying oil future contracts. Both positions allow one to take a position on the expected change in the price of oil. See, Alquist, Ron and Lutz Killian, “*What do we learn from the Price of Crude Oil Futures?*” CEPR Working Paper No 6548.

¹⁹⁶ German, (2005); Gortin & Rouwenhorst, (2006)

¹⁹⁷ Celso Brunette & David Reiffen “Commodity index trading and hedging costs, 2016

¹⁹⁸ commercial traders are traders who seek profit on paper positions from short-term changes in price, and, they usually use the future market for speculative purposes, while commercial traders, are those traders that use the future market primarily to offset risks of their business activities (hedging)

to early 2001, and in 2006-2008¹⁹⁹. This shift in market composition was highly correlated with the run up on oil prices, which is what proved the concerning about speculation motives in influencing the oil prices. Nevertheless, the starting point for the latter analysis as it underlined by some economists²⁰⁰ that correlation does not necessarily indicate causation. A normative concept treats speculation as a shorthand for excessive speculation which might be defined as speculation that is beneficial from a social planner's point of view, nonetheless, in the absence of criteria distinguishing excessive from other speculation, this concept is not operational useful²⁰¹. On the second hand, commercial traders may take an unhedged position on the price of commodity or alternatively may not hedge in future markets notwithstanding having an exposure to the commodity. Both positions could be considered speculative and besides, the concept is based both in theoretical frameworks and econometric exercise. For instance, if one is to consider a market of storable commodity, any speculative pressure on price should be countered by inventory adjustment, thus, if price is unpredictably driven up, then the demand will fall will fall and vice versa. Therefore, it was argued, inventory adjustment is self-correcting mechanism that should render speculation to be irrelevant in price formation, and besides, if the markets ought to respond in this manner, the source of speculative pressure should be irrelevant²⁰².

Despite of the above argument, speculation has been believed to play a significant role in providing markets with liquidity and facilitating price discovery. As it has been

¹⁹⁹ See US EIA, CFTC Comment of Traders Reports, <http://www.cftc.gov/Marketreports/CommitmentsofTraders/index.htm>, Medlocj III, Kenneth B., and Amy Myres Jaffe, "Who is in the Oil Futures Market and How has it Changed? 2009

²⁰⁰ Sanders, I & Irwin, S., "Measuring Index Investment in Commodity Future Markets" Energy Journal, Vol. 34 No 4, 2013

²⁰¹ Bassam, Killian and Mahadeva, 2012

²⁰² Smith, James "World Oil: Market or Mayhem" Journal of Economic Perspective, 2009

noted that future markets are tied to physical markets through inventories and arbitrage, and financial markets tends to converge to physical markets²⁰³. And, if we are to refer to excessive speculation, the latter has been matched with market manipulation. For instance, in crude oil financial markets, research shows that traders are hedging the market into positions from which they can profit, as the traders tend to either store crude oil or buy future contracts in anticipation of rising crude oil prices. Alone, oil future contracts are financial instruments that allow traders to lock in today price at which a to buy or sell a fixed quantity of the commodity on a predetermined date in future. Statistics shows that, the soaring future and spot prices for crude oil starting from 2003 resulted from an influx of hedging funds²⁰⁴ into oil future markets.²⁰⁵

In order to put into perspective the applicability of speculation in oil market and its implication on financial markets, the paper employs a slightly different path. We first discuss in brief and in general terms, one approach that is commonly used in financial markets to predict stock prices; the theory of rational expectation. The overall goal of the study is to understand the potential influence of speculation both in the spot and future market for crude oil, and, and, if crude oil market could be classified as an efficient market in a long or short term. The study finds that crude oil markets are not efficient both in short or long-term.

i) **The concept of rational expectation and its application in oil financial markets**

Financial markets are a subject of endless fascination to economist and others.

²⁰³ Mateo Manera “ *Financial Speculation in Energy and Agriculture Future Markets : A Multivariate GARCH Approach,*” *Energy Journal*, Vol. 34 No 4, 2013

²⁰⁴ Most of which were traders outside the oil industry

²⁰⁵ See, Fattoh Bassam “*Oil Market Dynamics through Lens of 2002-2009, Price Cycle*” 2010a, Tang, Ke, and Wei Xiong, “ *Index Investment and Financialization of Commodities*” 2011, Working Paper, Princeton University

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Majority of economists believes that, market prices provide signals that facilitate the allocation of resources to their best use. As a systematic approach in any market, consumers and producers ought to look on preferences or production technology and the like, in order to make spending decisions when they face competitive prices. In contrast, the market that is subjected to random shocks, agents tends to form forecasts that are excessively influenced by current market changes²⁰⁶, in addition to that, the evaluation of the forecasted stock prices purely rely on expectations, of which expectations in the market are argued to largely depending on information, specifically, the structural change of the entire economy. Recent theoretical work on financial markets, based on the rational expectation hypothesis, provides that, traders usually have information, which affect the evaluation of the value of commodities, demand, and thus prices. What kind of information is used and how it is placed together to frame an estimate of future market condition is among the key themes that the study aims at analysing. However, the study makes no attempt to survey the literature on rational expectations rather uses the concept of the theory in understanding oil market dynamics and the role that expectations plays in influencing oil price movements. Besides, it is necessary to make sensible hypothesis about the way expectations ought to affects oil market behaviour. At this strand the study is interested in supply and demand factors, government policies (economic policies) as well as storage.

In theory, rational expectation refers to a collection of assumption regarding the manner in which economic agents exploit available information based on the optimal forecast to form expectations. Further, the theory suggests that the current expectations in the economy are equivalent to what people predict the future of the

²⁰⁶ Andreas Fuster, David Laibson & Brock Mendel “ *Natural Expectation and Macroeconomic Fluctuations*” 2010

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economy will become.

Rational expectations has been categorised into three basic forms; a) strong-form rational expectations which suggests that “whatever information people have, they make optimal use of this information in forming their expectations; b) semi-strong form which assume that “stock prices can reflect all publicly available information and instantly respond to new information”; c) strong form which assumes that “stocks can reflects all available information, including the hidden or insider information”. Nevertheless, it has been argued that, even though a rational expectation equals to the optimal forecast using all available information, yet a prediction based on it may not always be perfectly accurate. For instance in strong-form rational expectations, if there is a change in the way variables moves in the market, then immediately the expectations of the way variables are formed will change as well. Forecasts are not always exact correct, but forecast errors are not predictable in advance and they average out to zero. In this regard it has been argued that, the reasons why expectations can fail to be rational in the strong-form is because either investors ought to fail in using all available relevant information in pricing commodities or investors fails to make optimal use of all available relevant information, thus that is already a recipe for a biased market. This concept has become the same in financial markets; in fact the microeconomic and financial market version of rational expectations is the so called financial market efficiency hypothesis²⁰⁷, and the theory and it has been applied in to the pricing of stocks and other financial instruments.

In relation to efficient markets theory²⁰⁸, prices of securities are freely flexible and may

²⁰⁷ See, Eugene Fama, 1970, 1976

²⁰⁸ Economics provides concept of efficiency into ; allocative and operational efficiency. Allocational efficient market is where prices are determined where market demand equals market supply. An operationally efficient market is one where transactions costs of moving resources around are zero.

reflect all available information. That is to say, prices for securities (financial instruments) are related to conditional expectations²⁰⁹, thus, price changes must follow random patterns, and current prices for securities in financial markets are equal to the conditional expectations of tomorrow's price. The orthogonality property of conditional expectations ensures that the forecast error i.e., the price change is uncorrelated with any available information²¹⁰. Further, in efficient market strong-form, expected returns are optimal returns forecasts using all relevant available information. In fact, a market may be informationally efficient but not allocatively or operationally efficient. A fundamental approach to the latter, essentially in stock markets provides that; stock pricing underplays demand factor and it assumes that stock prices are determined by supply factor. Thus, the assumption that financial markets process information efficiently falls in a grey area as, if one investor trivializes market opportunities while the other one evaluate stocks on the basis of its potential growth, then these two investors will already have arrived with different results of the stock's real value. In practice, a market is said to be efficient if it does not ignore available information wherein, all times prices shall reflect all available information²¹¹. According to some simple version of efficient market theories²¹² over long horizons, market efficiency is extremely difficulty to prove, perhaps, there are no proven law in finance but rather ideas that try to explain how markets works, reasons being, no one

²⁰⁹ In probability theory, the ***conditional expectation*** of a random variable is another random variable equal to the average of the former over each possible "condition". See <https://www.statlect.com/fundamentals-of-probability/conditional-expectation>

²¹⁰ Richard A Meese, “*Rational Expectations and the Volatility of Floating Exchanges Rates*, 1983

²¹¹ Kumar, Sunil, (2004), *Price Discovery and Market Efficiency: Evidence from Agricultural Commodities Futures Markets*, South Asian Journal of Management, Apr-Jun 2004.

²¹² Eugene Fama,, “ *Efficient Capital Markets: A review of theory and empirical work*, Journal of finance, Vol 25, Issue 2, 2000

knows exactly what is the correct model for pricing commodities in financial markets²¹³. Studies indicates that, a market is assumed to be sufficiently efficient if there is no transaction costs; all available information is free and available to all market participants at the same time; and all market participants agree on the implications of information on the current and future price of securities. If we are to affiliate the latter to oil market, we should first bare in mind that information on oil prices are assessed by the oil price reporting agencies (PRAs). In-fact PRAs does more than providing a mirror for oil markets. For instance, Platts can decide on the time for pricing oil, the width of the Platts window, delivery process and delivery time of the contacts. These decisions that are made by PRAs, are formed on a basis of regular consultations within oil industry, consequently, PRAs in one way or another can influence the trading strategies of the various participants and their reporting policies. Actually, new markets and contracts may emerge to hedge the risks arising from some of PRAs decisions. Despite of the fact that, oil price assessments are based on observed transactions and mathematical formula, there is still an important element of decision making involved as this requires the choice about the assumptions behind the methodology²¹⁴. Besides, studies shows that PRAs methodology is not infallible and its estimates are not accurate all of the time in reflecting the actual value for oil prices. In 2010 during the G20 summit it was pointed out that²¹⁵, “ the core concern with respect to price reporting agencies is the extent to which the reported data accurately reflect the cash market in question.” In deed, the accuracy of price assessments heavily depends on a number of factors including the quality of information acquired by

²¹³ For depth analysis on rational expectations & market efficiency See El-Khoury, Mario; Switzer, Lorne N, *Extreme Volatility, Speculative & Efficiency, and the Hedging Effectiveness of the Oil Futures Markets*, Journal of Futures Markets, Vol. 27, No. 1, 2007 &

²¹⁴ Fama E “ *Efficient Capital Markets*”: II. Journal od Finance 46 : 1575-1617

²¹⁵ G-20 Seoul Summit, The Seoul Summit Document, 2010

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PRAs, the internal procedures applied and the methodologies used in the price assessment²¹⁶. On the other hand, market participants are under no obligation to report their deals to PRAs or anywhere, thus, in illiquid markets, a small number of reported deals or bids can heavily influence price assessment process, particularly in days when reporters cannot observe active buyers, sellers or transactions to determine or simply when such deals do not exist²¹⁷. Until today, there are still big suspicions as to whether the oil price derived from paper markets such as the futures markets reflects the physical realities of the market. By employing this strategy in assessing oil prices, agents on the market have used this as loophole in speculating prices for crude oil²¹⁸ as financial players and their trading strategies could move the oil price away from the “really” underlying fundamentals. However, these suspicions implicitly assume that the process of identifying the price of benchmarks can be isolated from the fault of financial layers. This is far from reality. Oil markets are highly interconnected and form a complex web of links, all of which are needed for the price discovery process. In fact, one could argue that without these financial layers it would not be possible to „discover“ or „identify“ oil prices in the current oil pricing system²¹⁹. For instance, in 2010, Platts assessed the value of cash BFOE for June and July at minus \$0.68 a barrel instead of \$0.94 a barrel²²⁰. An underlying argument on this is the fact that, if the market is not efficient, then the predicting power of the prices in

²¹⁶ See, Garbade, Kenneth D; Silber, William L, *Price Movements and Price Discovery in Futures and Cash Markets, The Review of Economics and Statistics*, Vol. 65, No. 2, 1983, Platts, Review of the Partial Dubai and Oman Price Discovery Mechanism, 2004

²¹⁷ Gülen, Gürcan S, *Efficiency in the Crude Oil Futures Market, Journal of Energy Finance & Development*, Vol. 3, No. 1, 1998

²¹⁸ Hull, John C, *Fundamentals of Futures and Options Markets*, 4th ed. New Jersey; Pearson Education Inc, 2001

²¹⁹ Bassam Fattoh “*An Atomy of the Oil Pricing System*” Oxford Energy Comment, 2010

²²⁰ Paddy Gourlay, Dated Brent Assesment Sparks Calls For Methodology Change, *Dow Jones Newswires*, 30, April 2010

futures contracts is flawed as prices do not use all available information. In recent years, statistics²²¹ shows that there has been a sharp swings in oil prices and the marked increase in volatility in oil price circles. Relevant to mention, if the study is to assume that, oil has an efficient market, then the prices where to be stationary or at least stable for a certain period as the market participants would have all available information in the market in predicting the future prices. If we are to be practical, oil market is traded mostly by future contracts, of which hedgers and speculators populates the market at a high degree. Among the aspects of these market participants that are often highlighted, particularly in oil financial markets is the increasing role that expectations play in the pricing of the trading contracts. Further, if there is large uncertainty as to what the long-term oil market fundamentals are, the perception of these fundamentals tend to be exaggerated and inflated, hence oil prices can diverge away from true underlying fundamental value thus causing an oil price bubble²²².

Although, crude oil has a physical dimension that should reflect any sort of expectations in the oil market; as crude oil is consumed, stored and widely traded at prices agreed by transacting parties, then prices in the future market through process of arbitrage should converge with spot prices in physical markets²²³, and spot prices should reflect the existing supply and demand conditions. It is however different in oil market. The existing market fundamentals in oil market are highly unpredictable, thus, that has led the flow of data on oil market fundamentals unreliable. The latter

²²¹ Cunado J., Gil-Alana L.A., De Gracia F.P, Persistence in some energy future markets. *The Journal of Future Markets* 30: 490-509

²²² Charles A., Darne, “*The efficiency of crude oil markets: Evidence from Variance ration tests*”. *Energy Policy* 37: 4267-4272, 2007

²²³ See, Malkiel, Burton G, Is the Stock Market Efficient?, *Science*, Vol. 243, No. 4896, 1989, Malkiel, Burton G, The Efficient Market Hypothesis and Its Critics, *The Journal of Economic Perspectives*, Vol. 17, No. 1, 2003 and Schiller, Robert J, From Efficient Markets Theory to Behavioural Finance, *The Journal of Economic Perspectives*, Vol. 17, No. 1, 2003

argument disconfirms the efficient market hypothesis in oil market neither in weak form nor in a long form²²⁴ as future prices cannot be predicted based on the analysis of their past performance. As a matter of fact, no investor can earn excess returns by developing trading rules based on historical price/returns data. So **technical analysis** or **chartists** rules cannot beat the market. This is consistent with the random walk model²²⁵, which assume that the price changes are homogenously distributed random variables²²⁶, thus crude oil future prices are determined by the expectations of producers, consumers and speculators for future date²²⁷. To refer the validity of the later arguments, the study chose daily future prices data of West Texas Intermediate Crude Oil futures traded in Intercontinental Exchange (ICE) for surveying the affiliation of expectation and future oil prices in financial markets. The sample data covers the period of from February 2006- 2 April 2016. Table 1 presents market specifications while Table 2 shows a number of observations and volatility of returns in some future contracts from data sample as classified according to their

²²⁴ A number of studies suggests that, efficient market exists in three forms; weak form, semi-strong and strong forms, depending on the information that is available in the market as each form have different implications how market works. The weak form assumes that equity prices reflects all available information contained in historical prices, while semi-strong form assumes that stock prices can reflect all publicly available information and instantly respond to new information, and the third version that is strong form assumes that stocks can reflect all available information, including the hidden or insider information. See, Schiller, Robert J, *From Efficient Markets Theory to Behavioural Finance*, The Journal of Economic Perspectives, Vol. 17, No. 1, 2003, Malkiel, Burton G, *The Efficient Market Hypothesis and Its Critics*, *The Journal of Economic Perspectives*, Vol. 17, No. 1, 2003, & Fama, Eugene F, *Market Efficiency, Long-Term Results and Behavioral Finance*, Journal of Financial Economics, Vol. 49, No. 3, 1998

²²⁵ see Eugene F Fama, *Random Walks in Stock market Prices*, University of Chicago, Paper No 16,

²²⁶ See, Serletism A, *Unit root behaviour in energy future prices*. The Energy Journal, 13, 119-128, 1998, Sterlis, A., Roseberg, A.A , *The Hurst exponent in energy futures prices*, Physica A, 380, 325-332, 2007 & Fernandez, V, *Commodity futures and market efficiency : A fractional integrated approach*, Resources Policy, 35, 276-282, 2010

²²⁷ Josue M Palanco-Martinez & Luis M. Abadie, *Analyzing Crude Oil Spot Prices Dynamics versus Long Term Future Prices: A Wavelet Analysis Approach*, 2016

maturity. The data are obtained from the Energy Information Administration²²⁸.

Table 1. WTI Crude Futures Market Specifications

Contract Size	1000 barrels
Units of Trading	Any multiple of 1000 barrels
Clearing	ICE Clear Europe guarantees financial performance of all ICE Futures Europe contracts registered with it by its clearing Members. All ICE Futures Europe Member companies are either members of ICE Clear Europe, or have a clearing agreement with a Member who is a member of ICE Clear Europe.
Contract Listing	Up to 108 consecutive months
Last Day Trading	Trading shall cease at the end of the designated settlement period on the 4th US business day prior to the 25th calendar day of the month preceding the contract month. If the 25th calendar day of the month is not a US business day the Final Trade Day shall be the Trading Day which is the fourth US business day prior to the last US business day preceding the 25th calendar day of the month preceding the contract month
Settlement	The West Texas Intermediate Light Sweet Crude Oil futures contract is cash settled against the prevailing market price for US light sweet crude. It is a price in USD per barrel equal to the penultimate settlement price for WTI crude futures as made public by NYMEX for the month of production per 2005 ISDA Commodity Definitions.

Source: *Intercontinental Exchange*

²²⁸ <https://www.eia.gov/>

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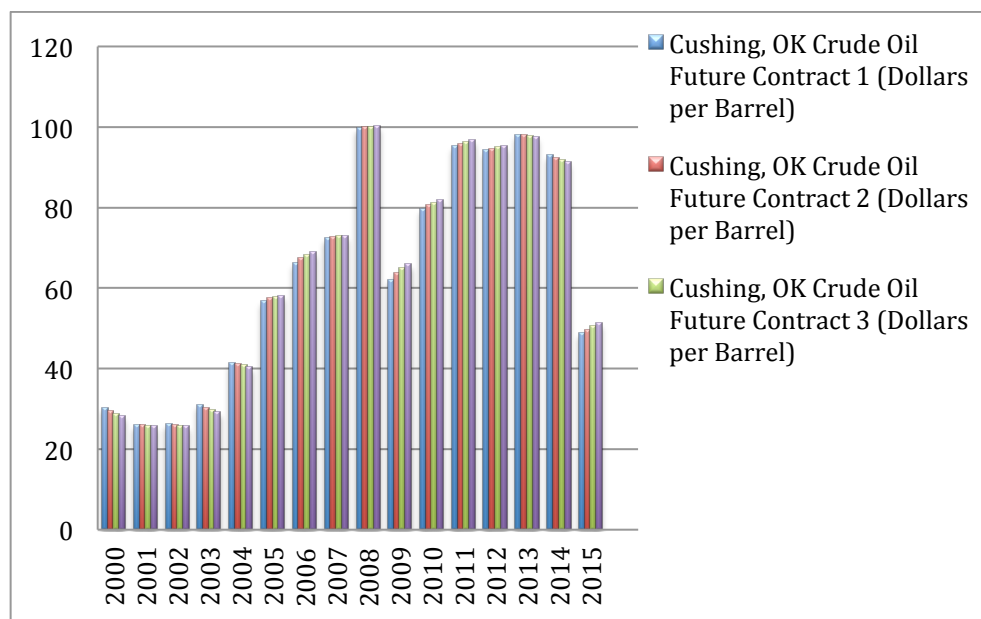
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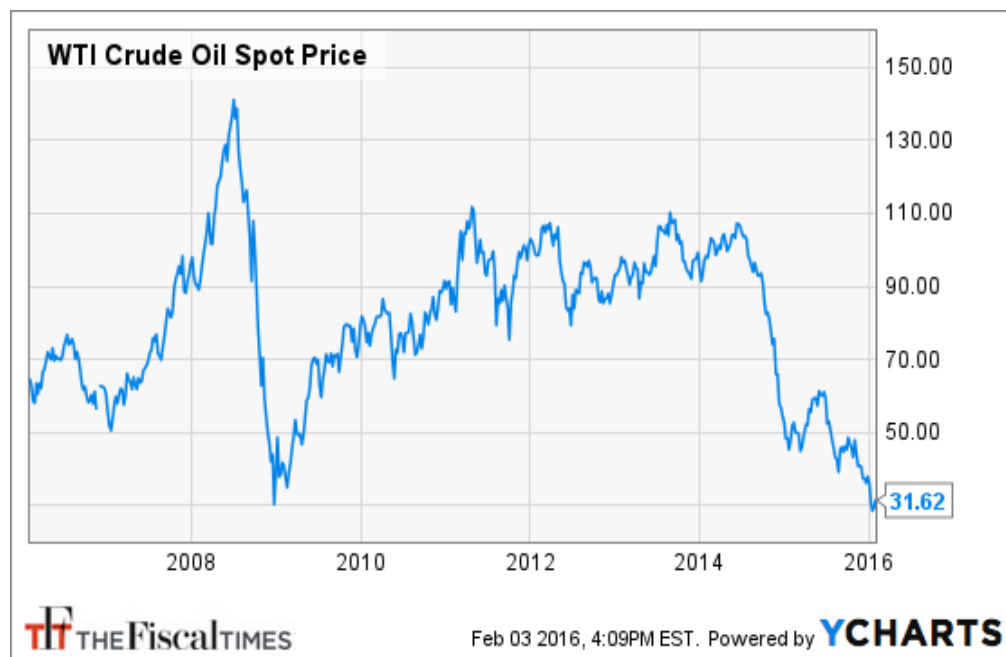
Table 2: Future Contract Volatility level according to their maturity

Maturity	Numbers of Observation	Volatility of Returns
01Months	2572	0.3175
06 Months	2571	0.2859
12 Months	2571	0.2602
18 Months	2571	0.2452
24 Months	2571	0.2324
30 Months	2547	0.2250
36 Months	2429	0.2201
42 Months	2246	0.2176
48 Months	2189	0.2155

Figure 1: NYMEX Crude Oil Future Prices

Source: Energy Information Administration (EIA)

Figure 2 WTI Crude Spot Prices



Notes:

As it shown on Table 2, the future contract volatility decreases as the maturity increases. Figure 1 shows lower volatility of future contracts with long maturity periods daily. Since 2006 these futures have been higher compared to spot prices (figure 2), vice versa, when future prices have fallen tremendously, spot prices have been very high. Further, Figure 2 shows a rise in oil prices in 2008 however the latter was highly influenced by changes in market fundamentals which was as well conveyed into spot market. On the contrary, in 2015 future prices were above spot price, indicating a situation of contango in the market. Last but not least, table 2 shows that, crude prices tend to have high volatility returns in a short-term than in a longer term. Therefore, correlations of crude oil futures prices can be found in short-term while in a long-term, demand and supply elasticity are much larger. Reason being, oil consumers and producers can sufficiently adjust their demand and supply according to the change of oil price or the change oil market structure. In other words it could

be said, both spot and future markets react respectively to new information, neither market leads the other in terms of price discovery. With regarding to that, it has been argued that, if oil price deviated from long-run equilibrium level then, adjustments of supply or demand can drive back to equilibrium the oil prices²²⁹.

ii) Reflecting the concept of current rational expectations on the formation of oil prices

In Keynesian-Schumpeterian approach²³⁰, expectations cannot be explained by economic models-as in the case of rational expectations, not least because economy is not a self-regulating stable system. This means that expectations are given from outside the economic system; it has been argued that there is no perfect foresight in the sense that economic agents directly can predict the future variables²³¹.

In rational expectation world, oil prices ought to reflect the forward looking nature of economic agents who manage inventories to smooth their oil consumption and production over time-paying attention to expected future path of the oil price. However, a complete understanding of the oil price movements requires a better understanding of how price expectations are formed. Unfortunately, the processes that govern how price expectations are formed fall in grey area. Literature deals with price expectations implicitly, that is, by focusing on oil future demand prospects or by supposing that oil supply are based on a rational expectation scheme. Similarly,

²²⁹ Alexander Michaelides, “*Estimating the Rational Expectations Model of Speculative Storage: A Monte Carlo Comparison of Three Simulation Estimators*”, 1999

²³⁰ See, Mariana Mazzucato., L. Randall Wray., “*Financing the Capital Development of the Economy: A Keynes-Schumpeter-Minsky Synthesis*”, Working Paper No 837, 2015 & Joao P Romero, “Mr Keynes the neo-Schumpeterians: Contributions to the analysis of the determinants of innovation from a post-Keynesian perspective, Volume 15, Issue 2, 2014

²³¹ Lucas, RE Jr, “*Expectations and Neutrality of Money*”, *Journal of Economic Theory*, Vol 4, 103-124; Sargent, T., Wallace N “*Rational Expectations, the Optimal Monetary Instrument and Optimal Money Supply Rule*” *Journal of Political Economy*, Vol 8, 241-254,

studies concerning rational expectation hypothesis are not conclusive. For instance, some studies shows that futures prices on the WTI appear to be inefficient predictors of spot prices, and that the time-varying risk-premium hypothesis tested using a GARCH-M framework²³² is not fully capable of explaining this result, leaving the question of whether or not expectations are rational unsolved²³³.

Based on general representation of the expected change in price, which form all the individual optimal processes, states that, “the expected change in price depends on the last forecaster error, on currently available information about the history of prices and on actually and lagged macroeconomic forecasts”²³⁴, however, as it is widely known, the WTI represents the international reference spot price of the US oil (US\$ per barrel), and its global benchmark role is reinforced by the rejection of the regionalisation hypothesis ²³⁵. Towards the end of each month, CF sends each of the bodies that have agreed to participate in the price survey, a questionnaire that asks for their opinion on the future numerical values of WTI oil price. The consensus is the arithmetic average of the individual expected values of oil price and is published in the monthly CF newsletter. On the other hand, respondents are commercial, investment banks or forecast companies, whose forecasts could influence decisions of many market participants. During the survey process, the survey experts are only asked to respond when they are sufficiently concerned by an economic variable, and, studies

²³² See, Frank J, Sergio, Robert F Engle “*ARCH/GARCH Models in Applied Financial Econometrics*”, Nov 2007

²³³ Hawdon D., “*Short and long-run crude oil price expectations in 1986: results of a survey*, in: P. Stevens, ed., *Energy demand: prospects and trend*’s, St. Martin’s Press, New York, 166-76,1987; Walls M.A., “*Petroleum supply modeling in a dynamic optimization framework: forecasting the effects of the 1986 oil price decline*”, Energy and Materials Discussion Paper, 8703, 1987 & Holden K., D.A. Peel and J.L. Thompson, “*Expectations: theory and evidence*”, St. Martin’s Press, New York, 1985

²³⁴ Hammoudeh S., 1996, *Oil price, mean-reversion and zone readjustments*, Southern Economic Journal, 62(4), 916-29,1996

²³⁵ Hammoudeh S. and V. Madan, *Expectations, target zones, and oil price dynamics*, *Journal of Policy Modeling*, 17(6), 597-613, 1995

shows that only two thirds of CF experts answer the questions concerning future values of oil price²³⁶. This confirms that experts who respond are those who are informed about the oil market and who are professionally concerned by the requested horizons. However, since the individual answers are confidential (i.e. only the consensus is disclosed to the public with a time lag) and since each individual is negligible within the consensus, it is difficult to say that, for reasons, which are inherent to speculative games, individuals might not reveal their honest opinion. The CF requires a very specific day for the answers, i.e. at the beginning of the following month. As a rule, this day is the same for all respondents. Finally, given that questions concern the expected levels of oil price, the expected change rate can only be determined with respect to the last spot price, that is assumed to be known by the individuals the day they answer (reference price). It is thus clear that any mistake in the choice of the reference price date implies a mistake in the measurement of the expected change. Moreover, it is worth acknowledging that, if all individuals are rational in their expectations then there should be a rational consensus, unfortunately the case is different, individual opinions are confidential and may not reveal what would have been necessary to forecast correctly oil future prices. In this regard, it has been argued that, a central implication of the framework is that expectations may be biased. In addition to that, the aggregation of individual expectation optimal process may lead to an aggregate mixed process, which may be interrupted as resulting from individual mixing effects. In this essence, the study argues that the mixing behaviours in the formation of oil price expectations are not adequate and are inappropriate in validating rational expectation in the process of oil price formation. In other word that

²³⁶ Gilbert C.L. and T.B. Palaskas, *Modelling expectations formation in primary commodity markets*, in: L.A. Winters and D. Sapsford D., eds., *Primary commodity prices: economic models and policy*, Cambridge University Press, 44-69, 1990

is to say, expectations forcibly act as a catalyst for speculators in oil market rather than a guide for investors as the behaviour for market participants depends not only on their own forecast but also on the expectations about behaviour of other market participants. When these expectations converge a focal point emerges together with a corresponding price, which can result in focal price that is inconsistent with immediate market fundamentals.²³⁷

FINANCIALIZATION & SPECULATION IN OIL MARKET

a) Crude oil and Commodity Future Market

The role of financial markets in oil price formation has become a very hotly debated topic in the recent years. This is typically discussed under the guise of “*financialization*” and addressed the potential influence of a large influx of capital into oil markets through traded future contracts and the OTC. In Practice, Commodity future markets have had a long history of assisting commodity producers hedge their risks. In recent decades the latter has have become a popular asset class for portfolio investors as the oil market kept growing, hence becoming the world’s biggest commodity market, turning from a primary physical product activity into a sophisticated financial market. For instance, the share of open interest for non-commercial traders²³⁸ in the oil future market rose significantly.

Originally, future markets were created to aid commercial (commodity producers and end users) in their hedging activities. More recently, financial investors are trading more into future markets as a result, several commodities particularly oil industry has experienced a number of boom and bust cycles in recent years. In parallel, there has

²³⁷ Denis Babusiaux, Axel Pierru & Federic Lasserre “*Examining the Role of Financial Investors and Speculation in Oil Markets*, 2011

²³⁸ Noncommercial traders are defined as those traders who seek profit on paper positions from short term changes in price, while commercial traders trade in futures to offset the risks of price moving unfavorably for on-going business activities.

been an expansion in the variety of instruments that permit speculation in oil such as futures, options, index funds, and exchanged traded funds (ETFs)²³⁹, which are mostly used by financial institutions such as insurance companies, hedge funds, retail investors and etc. This enormous expansion of the financial layer in of oil has been called *financialization*²⁴⁰ of oil markets. In this regard, it has been observed that:

*Through new asset management strategies, financial product innovation, and development of new institutional forms of investing (e.g. index and hedge funds), this paved the way for greater financialization of the oil industry. . . . [This has] resulted in greater . . . depth in the paper-oil market. These developments . . . have given rise to new investment assets that get their reward from price performance of oil futures and derivatives rather than the old-fashioned form of market reward through capital investment into oil exploration and extraction, and the resulting higher production*²⁴¹

While the definition of financialization remains vague, however it captures the increasing acceptance of oil derivatives as a financial asset by a wide range of market participants. An emerging literature on financialization of commodities attributes this behaviour to the emergence of commodities as an asset class, which has become widely held by institutional investors seeking diversification benefits²⁴². The most obvious entrant explanation for this shift toward the use of energy derivatives is a

²³⁹ Individuals who advise and invest client funds in future markets must register with the Commodity Future Trading Commission (CFTC) and the National Futures Associated (NFA) as a commodity trade advisor. On the other hand, in order to diversify beyond the skills of a single CTA, investors may also pool. In other words, commodity trading advisors and hedge funds are most often interested in securing short-terms profits.

²⁴⁰ Financialization are shifts to the underlying preferences or constraints on purely financial speculators; first a fall in the risk avers of financial speculators and second a rise in the financial resources they can master to buy shares or risk free assets. In commodity markets, financial innovations has lowered the costs of investments in derivatives of commodities and helped these financial players increase their exposure to oil through a wide variety of financial instruments. This concept has been referred to as financialization of oil market. See, Tang K, Xiong W., “Index investment and financialization of commodities”. *Financ. Anal. J.* 68(6):54–74, 2012.

²⁴¹ Ahmad R.Jalali-Naini “ *The Impact of Financial Markets on the Price of Oil and Volatility*”: Development Since 200, at 9 (2009)

²⁴² Buyukhasin B and M.A Robe, “ Speculators commodities and cross-market linkages”2012

secular change in the investor preferences, involving increased reliance on market based instruments for consumptions, smoothing, insurance and diversification possibly stimulated by either lower transaction costs or lower risks ²⁴³.

Starting from 2004, institutional investors predominately started to build their positions in commodity futures that accounted nearly \$15 in 2003 and over \$200 billion by 2008. Many of the institutional investors hold commodities through a commodity future index²⁴⁴, however after 2004 the behaviour of index commodities has become increasingly different from those non-index, with the former becoming more correlated with oil, an important index constituent and more correlated with the equity market. While factual literature on financialization of commodities, essential oil has been dominating and contributing to a number of policy debates as to whether financialization has distorted commodity prices and if more government regulation in these markets is warranted or needed, nevertheless theoretical literature on the subject remains scanty.

In practice, financial market offers a rich set of instruments, differing by payoff structure and by maturity²⁴⁵. Although financialization brings a huge amount of money into the market, the allocation of that investment is uniform. Investment in short-term commodities contracts has a caveat. Commodities contracts expire, and at expiration physical delivery of the commodity must take place. Not surprisingly, most traders are not eager to take the delivery. Thus, soon to expire contracts must be regularly replaced with the more distant ones. Parallel to that, the institutional investors usually care about their performance relative to a commodity index. They

²⁴³ Bassam, Kilian & Mahadeva “*The Role of Speculation in Oil Markets: What have we Learned so Far*” 2012

²⁴⁴ Tang K and W Xiong “Index Investing and Financialization of Commodities”, *Financial Analysts Journal*, 68(6) : 54-74, 2012

²⁴⁵ Veronika Selezneva, “*Real Effects of Financialization*” 2015

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do so as their investment mandate specifies a benchmark index for performance evaluation or because their mandate includes hedging against commodity price fluctuation²⁴⁶. Has the latter affected oil markets through the mechanisms that underpin the functioning of these markets? And does this matter? Viewed from this angle, studies suggest that financialization has significantly transformed future commodity markets through several forms; hedging, risk sharing and information discovery²⁴⁷, and in deed has affected prices for commodities in financial market, essentially crude oil prices.

As previously stated, oil futures together with standardized call and put options are principally traded on NYMEX, ICE, TOCOM, WTI and DME while on the other hand OTC have been using options, forward and other derivatives as such swaps in trading oil²⁴⁸. The aforementioned commodity investment consists either long-only future position where index investors only participate on the buy side of the future markets. These investors ('passive investors') are usually looking for the long-term price exposure that leads them to purchase long-term futures and regularly roll over the contracts prior to expiry²⁴⁹. However, the numbers of each future contract in the index change as the relative prices of the future contracts change, thus the study agrees that, prices of commodity futures go up with financialization²⁵⁰. Provided the

²⁴⁶ studies shows that the marginal utility of financial investors increases with the index, particularly, the institutional investors detest to perform poorly when their benchmark index does well and so have an additional incentive to do well when their benchmark does well. Nevertheless, prices in these markets fluctuate in response to either commodity supply or demand shock and, or fluctuations in assets under management of institutional investors. See, Brennan, MJ " *Agency and Asset Pricing* " *Working Paper*", Carnegie Mellon University, 2012

²⁴⁷ Ing-Haw Cheng and Wei Xiong " *Financialization of Commodity Markets* " 2014

²⁴⁸ Alquist & Killian (2010), Killian & Murphy (2013) and Baumeister and Killian 2012 (a)

²⁴⁹ Ibid, Medlocj and Jaffe (2009)

²⁵⁰ However, the price rise is higher for futures belonging to the index for nonindex ones. This tend to happen because institutions care more about index as they value

complexity of commodity-index investing, index investors turn over a predetermined allocation of funds to either swap dealers or money managers who assesses losses from commodity future prices²⁵¹. Investors are thereby able to gain price exposure to physical commodity price movements in proportions represented by global oil production and liquidity²⁵², without dealing with the prices involved in monthly rollovers. Put it differently, funds replicate commodity index for investors, and, investors purchase commodity futures to hedge their own risks created by replicating indices for their clients, therefore, investors potentially earn three returns from investing in commodity indices²⁵³.

Motivated by the above correspondence, it has been argued that commodity futures markets have had a long history of assisting commodity producers to hedge their commodity price risks. The longstanding hedging pressure theory posits, “hedgers are typically on the short side of futures markets and need to offer positive risk premia to attract speculators to take the long side”²⁵⁴. By bringing several financial investors to the long side, financialization mitigates this hedging pressure and improves risk sharing. However, financial investors also have time-varying risk appetites owing to risk constraints and financial distress²⁵⁵. For example, financial investors may have to

assets that pay off more in states when index does well. The larger the institution, the more prices are distorted.

²⁵¹ See, Hans R Stoll and Robert Whaley “*Commodity Index Investing and Commodity Future Prices*” 2009

²⁵² The price of oil is stated in Dollar. Consumers tend to react to the price based expressed in the own currency. This inturn could generate an increase in oil demand. It is generally thought that the prices of commodities could easily reflect inflation expectations. Hence, oil prices and expected inflation could compliment each other

²⁵³ Ibid

²⁵⁴ See, Keynes JM., “*Some aspects of commodity markets*”. Eur. 13:784–86, 1923, Hicks JR., “*Value and Capital. Cambridge*”, UK: Oxford Univ. Press, 1939, Hirshleifer D., “*Residual risk, trading cost, and commodity futures risk premia*”. Rev. Financ, 1988

²⁵⁵ Acharya VV, Lochstoer LA, Ramadorai T, “*Limits to arbitrage and hedging: evidence from commodity markets*”. J. Financ. Econ. 109:441–65, 2013, Cheng I-H, Xiong W. “*Why do hedgers trade so much?*” J. Legal Stud. In press, 2013

unwind their long commodity positions if sudden price drops in other markets lead them to reduce risk²⁵⁶. Consequently, they transmit outside shocks to commodity markets. In this regard, financial investors, on the other hand, choose their assets on the basis of the return they expect these assets will yield in the future. Expressly, financial investors can reveal their long-term forecast through their investments in oil derivatives. Thus, the latter can affect commodity markets through the dual roles: *a)* financial investors as providers of liquidity to hedgers when trading to accommodate hedging needs and as consumers of liquidity from hedgers when trading for their own needs; *b)* financial investors may also have an impact on information discovery in oil financial markets, arguably, owing to informational fractions in global supply, demands inventories, centralized futures markets supplement commonly decentralized spot markets in information discovery, thus assorted expectations among financial investors affect the expected returns of commodity futures, as, the trading of financial investors in future markets can transmit the information back to the commodity demand of final-goods producers. This pose a risk to financial market as the risks is reflected in the future prices and it raises the volatilities of future returns, thus, financial investors will bid up prices and volatilities of index futures more than non-index since index futures, by construction pay off more when the index does well. Thus, the prices and volatilities of index futures become high enough to make them unattractive to the standard market participants so that they will become willing to sell them to the institutions²⁵⁷. Comparably, the institutional investors bid up the stock market value and volatility. In this regard it is argued that, financialization could potentially lead to an increase in the commodity futures that in one way or another would play a crucial factor in future prices. For instance, in the presence of demand

²⁵⁶ Tang & Xiong, 2012

²⁵⁷ Suleyman Basak and Anna Pavlova, "A Model of Financialization of Commodities" 2013

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shocks, the index becomes more volatile as so the institutional investors incentives to not fall behind the index intensifies more. Hence, it could be said, demand shocks are important in explaining commodity prices, but also financialization amplifies the effect of rising demand²⁵⁸ as statistics shows that the commodity affected by demand shocks accounted for 16.8%²⁵⁹, wherein its future price is attributable to financialization²⁶⁰. In this regard, it has also been argued that, financialization affects future prices through risk premia.²⁶¹

While correlation does not indicate causation, a significant number of studies have opposed the effects of financialization on future commodity prices. The arguments are based both in theoretical frameworks and econometric exercise. Arguably, in the presence of information frictions in the global supply, demand and inventory of commodities centralized futures markets supplement commonly decentralized spot markets in information discovery²⁶² as heterogeneous expectations among financial investors affect the expected returns of commodity futures²⁶³, thus the noise brought by trading of financial investors in futures markets can feed back to the commodity demand of final-goods producers. The key friction is that goods producers cannot differentiate whether futures prices move due to financial investor trading or due to changes in global economic fundamentals²⁶⁴.

Regarding the trade by institutional investors affect commodity future prices, it has

²⁵⁸ See, Kilian L., and D.P Murphy “ *The Role of Inventories and Speculative trading in the Global Market for Crude Oil*” Journal of Applied Econometrics, forthcoming, 2013

²⁵⁹ Ibid

²⁶⁰ The impact of demand shock and oil prices will be covered into details in the following chapter

²⁶¹ Hamilton & Wu

²⁶² Grossman S Stiglitz J “*The Impossibility of Informationally Efficient Markets*” Am, Rev, 70 :393-408

²⁶³ Singleton K “*Investor Flows and the 2008 Boom/Bust Oil Prices*” 2012

²⁶⁴ Sockin M, Xiong W “*Informational frictions and commodity markets*”. J. Finance. In press,2012

been established that the latter had affects stock prices²⁶⁵. Similarly, a variety of studies documented the so-called “asset calls” affects the excessive comovement of assets belonging to the same index or other visible category of stocks²⁶⁶. In addition to that, the closet theoretical work on the effect of financial investors on asset prices that mainly focused on index and asset class effects in stock market concluded that financialization has significant influence on asset prices, however in the recent special issue of the *Energy Journal*²⁶⁷ the latter has received significant criticisms, arguably, t the model does not future multiple commodities nor is it designed to address some of the main issues that covers financialization as such; to what extent the rise of commodity future prices can be affiliated to financial investors or demand shocks²⁶⁸. Provided the latter, another strand of literature suggests that, financialization neither destabilizes commodity future prices²⁶⁹ nor could interfere oil prices. From this, the conclusion was drawn that the presence of financial investors to some extent helps to stabilize commodity prices in financial markets²⁷⁰. Similarly, the G20 study group presented a thoughtful view that;

Greater participation by financial investors in commodity futures markets can bring important economic benefits by improving market functioning. More specifically, markets become deeper to the extent that financial investors take offsetting positions to other market participants or engage in market making. Enhanced market liquidity can also help to accommodate the hedging needs of producers and reduce their hedging costs. Moreover,

²⁶⁵Harris L and E Gurel, Price and Volume Effect Association With Changes in the S&P 500 list: New evidence for the existance of price pressure, *Journal of finance*, 41, 825-29, 1986

²⁶⁶ See, Barberis, N., Shleifer, and J Wurgler “*Comovement*” *Journal of Financial Economics*, 75, 283- 317

²⁶⁷ See Matteo Menera, (2013)

²⁶⁸ Basak S and A Pavlova “ *Asset Prices and Institutional Investors*” *America Economic Review*, fourthcoming

²⁶⁹ Krugman (2008), Stoll and Whaley (2010), Irwin and Sanders (2012a), and Fattouh, Kilian and Mahadeva (2012)

²⁷⁰ See, Veronika Selezneva, *Real Effects of Financialization*”2015,

growing financial activity can promote the development of markets for longer-term futures, facilitating risk management and planning of commodity producers and consumers over longer time horizons.

In searching for the analysis of the above, it is worth acknowledging that, correlation is not causation. There is still a lack of agreement on whether financialization (trades by institutional investors) significantly affects oil future prices, it is reasonably well established that such trade has an influence on oil price behaviour. Arguably, statistics about oil inventories are globally incomplete as statistics are available in OECD countries and there are publications about floating inventories, but sometimes significant differences between reporting agencies while on the other hand, information about inventories in emerging markets are not widely exhausted. As previously mentioned, a number of significant transactions in oil futures are attributed to pension funds, insurance companies, hedging funds just to name few, and their medium and long-term forecast are determining factors.

Despite of the seemingly mixed opinions on the influence of financialization on commodity future prices, essentially oil market of which most papers do not confirm the price impact a or only find mild connection. In spite of the criticism the study suggests that that financialization has its share on oil market behaviour in terms of risk sharing and information discover as financialization potentially affects the difference between traded near by contracts so as future contracts. Further, other factors as such over speculation and demand and supply forces are believed to be a contributory factor on oil price volatilities.

i) Speculation in oil market

The recent dramatic fall in oil prices has renewed interest in understanding the sources of shocks that lead to observed oil price volatility. In a number of occasions the latter has been associated with speculative behaviour in oil financial market—a factor that has been at a play for countless times. Besides, sharp increases in the popularity of commodity investing and oil prices cannot only be explained by changes in economy, but also by the increased financialization, which in turn allows speculation to become a major determinant for both spot and future market and commodity derivatives²⁷¹. Similarly, financialization has been help liable for a number of phenomena including increased comovement between oil future prices, financial assets and commodity prices²⁷². For instance, the estimated allocated assets to commodity index trading strategies had risen from \$13 billion at the end of 2003 to \$260 billion as of 2008 March. These funds hold a portfolio of near-term futures contracts of which about 70% represent energy prices²⁷³

Before highlighting the role of speculation in oil prices, it is worth defining the theory. Traditionally speculation has been referred to anyone buying crude oil not for current consumption, but for the future use²⁷⁴. In this respect, speculative buying may involve buying crude oil for physical storage²⁷⁵ or it may involve buying an oil futures contract, provided an oil future market exists. Both positions allow one to take a

²⁷¹ Bassam Fattouh, Iutz Kilian & Lavan Mahadeva “*The role of Speculation in Oil Markets: What Have We Learned so Far?*”, 2012

²⁷² Juvenal, Luciana and Ivan Petrela “*Speculation in the Oil Market*” Working Paper Federal Reserve, 2011

²⁷³ James D. Hamilton “*Understanding Crude Oil Prices*”, 2008

²⁷⁴ Killian & Murphy (“2011)

²⁷⁵ Lombardi, Marco J., and Ine Van Robays, “*Do Financial Investors Destabilize the Oil Prices?*” Working Paper, European Central Bank, 2011

position on the expected change in the price of oil²⁷⁶. However, speculators could be differentiated based upon the time horizons during which they operate. Scalpers, or market makers, operate at the shortest time horizon sometimes trading within a single second. These traders typically do not trade with a view as to where prices are going, but rather “make markets” by standing ready to buy or sell at a moment’s notice. Main motives of a market maker is to buy contracts at a slightly lower price than the current market price and sell them at a slightly higher price, perhaps at only a fraction of a cent profit on each contract²⁷⁷. Other types of speculators take long-term positions based on their view of where prices may be headed wherein, some of them establish positions based on their views where prices might be moving within minutes or hours, while other speculators take positions based on price expectations over a period of days, weeks or months²⁷⁸. The activities of these traders’ serves to bring information to the market and aid in price discover. However the use of speculation in financial markets is said to be detrimental to crude oil prices if the latter is “excessive”. Otherwise, in a smooth functioning future market, prices are determined by the healthy of tension between commercial consumers, who want prices to be as low as possible, and commercial producers, who want them to be as high as possible²⁷⁹. However as of today, no study has yet defined what ought to be a precise definition for excessive speculation²⁸⁰. Rather the latter has been referred as speculation that

²⁷⁶ Kilian, Lutz and Daniel P Murphy “*The Role of Inventories and Speculative Trading in the Global Market for Crude Oil*” Working Paper, University of Michigan, 2011

²⁷⁷ Irwin, S. H. and D. R. Sanders “*The impact of index and swap funds on commodity futures markets*” 2010 preliminary results, OECD Food, Agriculture and Fisheries Working Papers, No. 2

²⁷⁸ Kaufmann R.K. and B.Ullman “*Oil prices, speculation, and fundamentals: Interpreting causal relations among spot and futures prices*”, Energy Economics 31: 550-558, 2009

²⁷⁹ Michael Greenberger “*The Relationship of Unregulated Excessive Speculation to Oil Market Price Volatility*” 2008

²⁸⁰ Fattouh, Kilian & Mahadeva, 2012

overwhelms the dynamic of supplier/consumer hedging, completely dislodges the market from economic fundamentals²⁸¹.

The market that is highly populated by speculators, the projected future prices stands a significant chance in influencing the change of market behaviours that could lead to price volatility. In this essence, the resulting volatility makes it more difficult for commercial consumers and producers to successfully hedge the risks, since prices do not reflect market fundamentals, and so they abandon the future market and risk shifting—thereby further destabilizing the price discovery²⁸². Conversely, it could be said, speculation may exert “precautionary” motives on the market by exerting pressure on the demand for future delivery (or demand for inventories) thereby influencing price upward.

Even though a number of studies have focused on the role of speculation on spot and future prices and on oil price volatility extensively, albeit in some cases, some opinions have partially overlapped²⁸³. Much of initial analysis of speculation hypotheses have

²⁸¹ While hedging and speculating are often considered opposing activities and are generally identified with commercial and non-commercial traders, respectively, in practice both groups can contribute to price discovery in futures markets. On the other hand, the definition of excessive speculation has received criticisms for the reasons that, defining speculation exclusively in the basis of who is doing the trading, and not for what purpose, can be misguided as it is easily conceivable that commercial hedger also traded for non-commercial (speculative) purposes, see Ali Bin Ibrahim Al-Naimi, Minister of Petroleum & Mineral Res, Speech at the 2008 Jedah Energy Market.

²⁸² Congressman Bart Stupak, “*Testimony Before the Commodity Future Trading Commission on Energy Position Limits and Hedge Exemptions*”, 2009 & Buyuksahin & Haris “*Do Speculators Drive Prices for Crude Oil*”, 2011

²⁸³ Given the bad reputation that speculation has on international oil market, in some cases, other studies highlight that speculation may make perfect economic sense and indeed is an important aspect of a functioning oil market, See, Fattouh B “*Speculation and Oil Price Formation*” Review of Environment, Energy and Economics, 2012, Helbling, T,F, V Kaminski, L, Kilian and R.Levin “*Interview with Experts on Financial Speculation in Oil Market and Determinants of the Oil Price*”, 2012, Brunetti, Celso, Bahattin Buyuksahn & Jeffrey H Harris “*Speculators, Price and Market Volatility*”, Syracuse

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been focused on documenting changes and co-movement of oil prices and financial asset prices following financialization of oil future markets²⁸⁴. For instance, the conditional interaction between commodity future return and the stock exchange returns increases with periods of price volatility²⁸⁵. Similarly, it has been documented that commodity index funds obtain price exposure by entering long positions in future contracts in order to maintain the long exposure, they need to unwind the maturity contracts before they expire and initiate new long positions in contracts that have maturity dates²⁸⁶. Further, it has been argued that speculative trading might lead to higher prices if speculators increase their accumulation of inventories. The latter has been linked to forward looking behavior and inventory building²⁸⁷.

Notwithstanding the above arguments, speculation in crude oil financial markets has been affiliated more with precautionary demand shock. The effects of increased uncertainty about future oil supply shortfalls trigger these kinds of shocks. The intuition behind the precautionary demand is that since firms, using oil as an input in their production process, are concerned about the future oil prices, it is reasonable to think that in the case of uncertainty about future oil supply (such as a highly expected war in the Middle East), they will buy futures and/or forward contracts to guarantee a future price and quantity²⁸⁸. Moreover, higher demand in the

University working Paper, 2012 and Libo Yin & Yamin Zhou “ *What Drives Long-Term Oil Market Volatility? Fundamentals vs Speculation*”, 2016

²⁸⁴ Based on Bureau of Economic Analysis and the Energy Information Administration, speculative index in the crude oil future market between 2001-2008, rose steadily concurrently with the rise of financialization

²⁸⁵ See, Kilian Lutz, “*The Role of Speculation in Crude Oil Markets- What have we learned so far?*”, 2010, Tang and Xiong (2010), Silvennoinen and Thorp (2010) and Akram (2009)

²⁸⁶ Killian Lutz, 2011

²⁸⁷ See, Andrew, Andrew Ching and Matthew Osborne “ *Identification and Estimation of Forward-Looking Behavior: The case of consumer stockpiling*, 2015

²⁸⁸ See, Islam Rizvanoughlu, “*Oil Price Shocks and Macroeconomy: The Role of Precautionary Demand and Storage*” 2012, Pirrong S Graig, “*Commodity Price Dynamics: A Structural Approach*” Cambridge Press, 2011

futures market would encourage the storage operators to increase their inventories and, thus, create scarcity in the spot market for oil. That, in turn, will induce the spot price of oil to increase immediately²⁸⁹. In this regard, if the variance is sufficiently high, the reduced-form relationship between inventories and the real spot price becomes unstable²⁹⁰. In similar vein, it has been argued that agents increase storage optimally in response to an income shock, causing the real spot price of oil to increase in equilibrium because expectations of higher growth in the future amplify the demand for storage. In fact, storage operators, will buy the oil in the spot market and hedge it by selling the oil futures in the future market. In this case, the existence of storage increases the variability of macroeconomic variables and real price of oil by transmitting future worries into today's decision-making process. In other words, there is a shock to economic fundamentals that reflects increased uncertainty about future oil supply shortfalls. Hence, fast forward-looking agents will respond to an exogenous increase in this variance by increasing inventory holdings, which requires the spot price of oil to increase. If the variance is sufficiently high, the reduced-form relationship between inventories and the real spot price becomes unstable²⁹¹.

Using intuitive language at this stage, shocks that are specific to the oil market-predominantly due to changes in the expectations thereof are identified as inducing a negative contemporaneous correlation between oil price changes and stock market returns. For instance, herding can result in investors reacting to common signals or

²⁸⁹ Alquist, Ron, Lutz Kilian and Robert J Vigfusson “*Forecasting the Price of Oil*”, Forthcoming; G. Elliot and A Timmerman, eds, *Handbook of Economics Forecasting 2*. Amsterdam: North- Holland, 2012

²⁹⁰ *Supra*

²⁹¹ Alquist & Killian (2011)

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over reacting to recent news²⁹². In related studies, it has been argued that, change in world income may indirectly influence crude oil prices as agents increase storage optimally in response to an income shock, causing the real spot price of oil to increase in equilibrium because expectations of higher growth in the future amplify the demand for storage. This means that the volatility of the price of oil increases due to storage contrary to the notion that storage necessarily reduces oil price volatility²⁹³.

Moreover, an alternative view of speculation in crude oil financial market is that of OPEC²⁹⁴ in anticipation of even higher oil prices held back its production after 2001, using oil below ground effectively as inventories. For instance, in 2008 oil and share prices rose after members of OPEC struck a deal to limit crude output in an attempt to ease a global glut that has more than halved prices in the past years. Further, oil prices plunged more than 5% in May 2017 after OPEC and other major exporters extended their current deal to limit oil production for nine months²⁹⁵.

Notwithstanding the above arguments, it has been argued that, the theory of

²⁹² Given that crude oil is storable, it may also be viewed as an asset, the real price of which is determined by the demand for inventories. This means that, the price of oil has to go up in response of the news about future oil supply or demand, including news that are not ready incorporated in flow supply and flow demand shocks. Rather than being associated only with future oil supply conditions or only with future oil demand conditions, speculative demand shocks are associated with expected shortfalls of future oil supply relative to future oil demand. See, Lutz Kilian, & Daniel Murphy “*The Role of Inventories and Speculative Trading in the Global Market for Crude Oil*”, 2011

²⁹³ Dvir, Eyal, and Kenneth S. Rogoff. 2010. “*Three Epochs of Oil.*” Working paper. Harvard University

²⁹⁴ OPEC Is the Organization of Petroleum Exporting Countries, and currently has 11 members’ giant world oil producers. The aim of the organization is to regulate the amount of oil that member and to keep prices at a steady rate. The countries get together twice a year and agree how much oil each country should produce. See,

²⁹⁵ It was quoted in Financial Times May 25th 2017 that “OPEC and other oil producers, including Russia, will roll over their six-months deal to remove 1.8 million barrels a day from the market through March 2018. As a result, Brent crude oil plunged 4.7 % to \$51.44 a barrel. U.S West Texas Intermediate (WTI) crude futures ended session down \$2.46 or 4.8, at \$ 48.90. On the other hand. The S&P energy sector was trading down nearly 1.8 % the worst since May 4, 2017

speculation with no doubt could influence crude oil prices but in a short run, since short term price disruptions have been shown to be highly correlated with financial market dislocation²⁹⁶. In this case speculative activity can exacerbate price movements that are fundamentally hinged on underlying market parameters.

4.3.1 Market Fundamentals (demand & supply factors)

In a longer-term oil market volatility are positively informed by market fundamentals, since market participants (apart from investors) responds aggressively to market fundamentals. However it should be noted that, the role of market fundamentals are identified by different types of shocks namely, oil supply shocks, oil specific demand or global demand²⁹⁷. In understanding how these shocks play a significant part in determine the real price of oil it has been suggested that supply side shocks are associated with changes in the world oil production that could either imply over production or unfavourable oil supply.²⁹⁸ Hence, shocks on the supply side of the oil

²⁹⁶ Financial market dislocations are circumstances in which financial markets, operating under stressful conditions, cease to price assets correctly on an absolute and relative basis. See, Paolo Pasquariello, “Financial Market Dislocations”, 2014

²⁹⁷ Kilian, L. and D. Murphy “*The role of inventories and speculative trading in the global market for oil*” 2010, University of Michigan

²⁹⁸ The oil plummet in 2015/2016 when crude oil was mainly driven by supply factor wherein, supply shock was seen as an important contributor in the falling of crude oil prices, a view that has been echoed by market analysts. Arguably, the sluggish world economy that had consumed less oil than the market and OPEC producers has anticipated. Significantly, market analysts believed that, the oilmen of North Dakota and Texas set about extracting oil from shale formations previously considered unviable. Their manic drilling have completed perhaps 20,000 new wells since 2010, more than ten times Saudi Arabia’s tally has boosted America’s oil production by a third, to nearly 9m barrels a day (b/d). That is just 1m b/d short of Saudi Arabia’s output. The contest between the shalemens and the Arabs has tipped the world from a shortage of oil to a surplus²⁹⁸. Consequently, OPEC members decided not to sacrifice their own market share to restore the price by producing more oil than what the market demanded. With global inventory build expected to continue in 2016, however, upward pressure on crude oil prices was limited. During, 2016/17 the IEA expects crude production to continue to outpace demand. Similarly, statistics projects

market shift the oil supply curve and therefore move oil prices and oil production in opposite directions. Shocks on the demand side of the oil market shift the oil demand curve and therefore cause oil prices and oil production to move in the same direction. Respectively, an unfavourable oil supply shock is an exogenous shift of the oil supply curve to the left that lowers oil production and increases oil prices, whilst world industrial production does not increase²⁹⁹. Nevertheless, it should be noted that rise prices do not necessarily translate into a threatening production peak. Rising prices may represent that the demand is increasing faster than the supply response.

On the other hand, oil prices historically have as well been associated with demand shocks. These types of shocks are mainly driven by global economic activities and the accompanying rise in overall commodity demand ought to increase both oil production hence oil prices as this shocks is presented by an upward shift of oil demand curve³⁰⁰. For instance, the GDP growth in emerging economies headlined commentary about the growing demand for oil in the past few years. In fact with growth rates in the 2000s, issues related to growing consumer wealth and related growth in machinery and motor vehicle usage where the subject of much concern³⁰¹. More specifically, projections of economic growth are critical to forecasting energy demand and hence, forming expectations about future prices. Many forecasts for emerging markets economic growth through 2000s centred on a theme of continued generative economic expansion.

that oil supplies will rise about 4.1 million barrels per day between 2016-2021. See, <http://www.economist.com/blogs/economist-explains/2014/12/economist-explains-4>, December 2014, Economic report of the president; transmitted to the congress 2015. Visit; http://www.nber.org/links/cea_2015_erp.pdf

²⁹⁹. See, Baumister, C and Peersman “ Sources of the Volatility Puzzle in the Crude Oil Market, 2010 & Kenneth B Medlock 111, “Speculation, Fundamentals, and the Price of Crude oil, 2014

³⁰⁰ Avihai (Avi) Rapaport “ *Supply and Demand Socks in the Oil Market and their Predictive Power*”, 2010

³⁰¹ See, Medlock, Soligo and Coan (2011)

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In addition to the above, some studies have separately identified a different type of demand shock; namely oil specific demand shock. The latter is a demand shock for which is not driven by strong economic growth yet raises oil prices and oil production. In sum, Oil prices rose steadily in the early part of last decade, reaching heights never before seen. This, in turn, triggered a tremendous amount of public and academic discourse regarding factors that can drive oil price movements. The paper analyses major causes of crude oil price formation in financial market. In particular, the paper seeks in understanding to what extent various factors have contributed to crude oil price volatility in financial markets. The overall analysis so far identified speculation, supply driven by overproduction or supply uncertainties and demand shocks driven by economic activities and financialization being the significant factors. In addition to that, the study has argued that the value of US dollar ought to contribute to crude oil price changes. The latter has perhaps has not be given much attention although it could be counted a driving factor³⁰². Other factors that have played a role in the shift of crude oil prices include rising production costs and depletion of crude oil resources

³⁰² For statistical data see, USA EIA and US Federal Data Base (July 1987-2013) & Marco J. Lombardi & Ine Robays “*Do Financial investors Destabilize Crude Oil Price*” Working Paper Series, June 2011 & Christina Donahue “Oil Prices and Stronger Dollar: Causation or Correlation?”, 2016

CHAPTER 4

PART TWO

DUAL PRICING POLICES UNDER THE WTO and OTHER SUPRANATIONAL LAWS & TREATIES; the case for Refined Oil Products

Abstract

The formation of OPEC in the 1960s marked a new era for oil prices. OPEC countries now producing more than 40 % of world's crude oil and their export represents about 60% of oil traded internationally. By controlling supply, OPEC has a great influence on oil prices and the industry as a whole. On the other hand, crude oil refined products prices are believed to be influenced highly by rich oil-exporting countries, particularly through government's price interventions and policies in the energy sector. The letter has been addressed by a number of international institutions dealing with energy trade, international agreements as well as treaties. However, sovereign over state's natural resources by exporting countries have interfered if not impeded the abolishment of government policies as such dual pricing prices and exporting of subsidies on energy resources that distort international trade. In the context of the WTO, it has been argued that the organization does not contain rules or agreements that exclusively deal with the energy sector. Similarly, other bilateral and regional agreements that are currently in-force do not address the energy trade regulations efficiently.

A FRAGMENTED GLOBAL ENERGY REGULATION

Introduction

The current international governance on energy trade is fragmented and layered. Most of the endowed energy resource countries are mainly a part of multilateral trade agreements such as the World Trade Organization³⁰³ and the Energy Charter Treaty (ECT), International Renewable Energy Agency (IRENA) towards the promotion of regulatory convergence in order to lower technical barriers to trade in energy-related goods. Trade in energy, encompasses various aspects and issues of transnational trade, including trade in goods, trade in services, investment matters, intellectual property, subsidies, and so forth. This kind of trade involves different sorts of energy products, including oil, gas, coal, hydroelectricity, nuclear, and renewable energy, among other things. However, the most significant part of the trade in energy, both historically and currently, is trading in refined crude oil products as such oil and petrochemicals. Being an important strategic commodity, energy industry has always been treated in a political context as a special case, without being specifically addressed by international agreements³⁰⁴. However, this approach has changed over the last few years, both a general call for new WTO negotiations addressing the energy sector (mainly seeking to treat petroleum and gas in the same way as other traded goods), and a growing demand to subject energy services to freer trade under the General Agreement on

³⁰³ The WTO was created to satisfy the need for a better institutional that regulation trade in services and goods and dispute resolution mechanism within the General Agreement on Tariffs and Trade (GATT) system. The original proposal for a new "Multilateral Trade Organization" was included in the Draft Final Act of the Uruguay Round and transformed the GATT into the new international organization, which came into being on 1 January 1995, with a change in name to World Trade Organization. See Mitsuo Matsushita, Thomas J. Schoenbaum and Petros C. Mavroids, *"The World Trade Organization: law, practice and policy"*, 2nd ed. (Oxfors University Press 2006) 6-7.

³⁰⁴ UNCTAD report on Trade, 2000

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Trade in Services (GATS)³⁰⁵ have taken place. Further, there has been an increasing number on the accession of many energy-rich countries to the WTO, increasing energy needs and the growing attention given to trade in energy under multilateral trade regulation. Further, the fluctuation of refined oil products prices, as well as distortive trade practices in international trade, have contributed the demand for change in the energy sector regulations, in particular, demands for new policies that will regulate energy trade equally among member states.

Although the WTO regulates trade in goods and services, its applicability on trade and services does not directly address energy-related issues, thus the GATT agreements on goods and services do not offer an appropriate basis to address and regulate energy in an integrated manner both at domestic and international law. Moreover, due to the WTO nature, there has been different school of thoughts on the applicability of WTO rules on energy trade. Some have argued that energy trade is included both in GATTs and GATS rules, like any other trade in services and goods. Other schools hold that a combination of factors has led, de facto, to the exclusion of energy trade from the scope of GATT/WTO disciplines. This emerging debate around the dichotomy of goods and services, within trade in energy, not only questions the applicability and implementation of WTO rules to trade in energy, but also the clarity of GATT applications on energy trade regulation, particularly, dual pricing practices. The study aims at establishing the extent to which supra-national laws; essentially the WTO law and other multilateral trade agreements have protected oil industry against unfair trade practices. Further, the main question remains whether WTO Members should develop in the WTO or outside the WTO a new dedicated

³⁰⁵ The GATS, adopted during the Uruguay Round, is the first multilateral agreement covering trade in services sectors. Its main aim is to reduce barriers to trade in services, which have a traditionally regulatory nature, by introducing **general obligations and specific commitments**

framework for dealing with energy-related trade issues or members should rely on the existing WTO disciplines that are generally applicable to trade in goods and services.

Regulation of Energy Sector at the Multilateral Level

In principal, treaties are designed to promote, enhance world welfare and to preserve peace against rancorous economic quarrelling. At the outset, it is appropriate to ask, what we mean by “treaties” as this phrase can cover a very broad inventory of subjects: from embracing the law of human rights, government regulations of economic matters and relation including litigation, to international institutions relations and et cetera. Simply, incorporation of international law/treaties is the process by which international agreements become part of municipal law of a sovereign state³⁰⁶. There are some treaties³⁰⁷ that apply exclusively, or to a very large extent, at intra state level such as human treaties, environmental protection treaties, air carrier agreements, diplomatic and consular activities treaties and etc. However, by the principles that governs international law, the core precept of the law of treaties is the principle of *pacta sunt servanda* enshrined in Article 26 of the Vienna Convention on the Law of Treaties and which states that: ‘Every treaty in force is binding upon the parties to it and must be performed by them in good faith.’ But whilst treaties are to be performed in good faith, it remains the case that they are in principle no exception to the basic precept of international law that States are free to determine how they meet their international obligations. Further to that, international law does

³⁰⁶ In contrast dualist states require all treaties to be incorporated before they can have any domestic legal effects.

³⁰⁷ By definition “Treaty” means an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or two or more related instruments and whatever its particular designation. Treaties concluded between states may be bilateral or multilateral or universal.

not rule on how the conditions in which legal provisions included in treaties are to be integrated in the state's internal legal system³⁰⁸. This matter of concern has been left for states to decide upon ruling over its sovereignties, and according with state's views on the relation between international and internal law³⁰⁹.

Within the national legal order, even though the principle of *pacta sunt servanda* is a valid rule through incorporation of a treaty, yet its applicability is another issue. The problem of application is relevant for national courts if the constitution ranks international customary law higher than incorporated treaties. Under this circumstance, municipal jurisprudence commonly refuses the application of the *pacta sunt servanda* to dispute so as to prevent that any breach of international treaty incorporated into the domestic law is by itself unlawful under the incorporated rule of *pacta sunt servanda*, which in fact would limit the State's scope of external action³¹⁰.

Accordingly States, in principle, are said to be concerned with whether compliance with the treaty obligations takes place and not with how this does or does not come about. Related to this, is the fact that States have developed different approaches to seeking to ensure compliance with their treaty obligations which renders it all the less likely that treaties will expressly address themselves to how the obligations should be given effect internally³¹¹. In other words, international law leaves it to the domestic legal order to determine how it gives effect to its treaty obligations in the domestic legal sphere. In this respect a recent detailed assessment concluded that there is no

³⁰⁸ Article 27 of the Vienna Convention on the Law of Treaties, 1969

³⁰⁹ Brindusa Marian "The Dualist and Monist Theories .International Law's Comprehension of These Theories" 2005

³¹⁰ Oliver Dorr, Kristen S "Vienna Convention on the Law of Treaties : A Commentary" 2010

³¹¹ David Sloss, "The Role of Domestic Courts in Treaty Enforcement: a comparative study", Cambridge University Press, 2010; Alan O Skyes " Economic of International Trade Law" Cheltenham: Edward Elgar Pub.Lts, 2012; Sara McLaughlin Mitchell, Emilia Justyna Powell "Domestic law goes global: legal traditions and international courts", Cambridge University Press, 2010

general obligation under general international treaty law, customary international law, or general principles of international law requiring States to open their courts for invocation of treaty norms by individuals³¹².

Starting from 19th Century, under the influence of globalization and with introduction of trade liberalisation, most states started reforms in domestic laws in order to prepare for accession of multilateral and bilateral agreements. However, states are yet to depart from the dogma of sovereignty as the practice of internal application of international treaties and its obligations must first promote national interests. The conditions of international treaties implementation into national laws not only relate to treaty obligations but also states requires the participation of other domestic organs in the treaty making process³¹³ ensuring the states interests are protected. However, it should be noted that, unless a different intension appears from the treaty or is otherwise established, a treaty is binding upon each party in respect of its entire territory³¹⁴. Nevertheless, a State will only be liable for its acts or omissions if the municipal law do allow a proper permission for treaty performance. In other words, when municipal law of the State does not allow proper treaty performance, the State must either change its internal law before or after ratifying or acceding to the treaty or

³¹² See, Mario Mendez, “Legal Effects of EU Agreements”, Oxford Press, 2013

³¹³ There are three mechanisms for implementation of international treaties into local law; adoption, transformation and hybrid form, See, Farnham Ashgate “Public Interests Rules of International Law; towards effective and implementation” 2009; Kolb Robert “The Law of Treaties and Introduction “ Northampton, Mass. Edward Elger Pub, 2016; Albano & Gian Luigi “The Law of Economics of Framework Agreements: designing flexible solutions for public procurement” Cambridge University Press, 2016

³¹⁴ Article 29 of VCLT is not meant to regulate extra-territorial treaties such as human right or denuclearisations, rather the treaty applies in the light of its texts, its objects and the purpose. The applicable rules are derogational and parties are free to agree differently. It this should be noted that, the derogation is made by treaty clause, but it can also flow from any type of common intensions either established at the time of the treaty or later

withdrawal from the treaty as a State is cannot invoke a part of its internal law as a justification for its failure to perform a treaty³¹⁵.

Moreover, not only treaty making is primarily conducted between states, but also modern development reflects that an increased tendency to create rights and obligations is not only for states but also to international organizations, private sectors and economic operators. For instance, in recent years there has been an establishment of international organizations that regulate cross-boarder activities on a specific area/field such as the World Trade Organisation (WTO), Organisation of the Petroleum Exporting countries (OPEC), Energy Charter Secretariat (ECS) and etc. due to their growing importance in a variety of fields. These organisations plays a significant part in creating, adopting new rules as well as in supervising their application and enforcement, and thus play an important rule in every closer integration. The nature of the treaty used by these organisations is legally binding to all contracting states.

While, formally speaking, fully or partially incorporated treaties by “adaptation” have the status of statutory law (or administrative regulation, as the case may be), incorporated rules originating in international legal obligations have a distinctive status for different reasons, and special considerations come into play when they are being interpreted and applied on the domestic level. In their interpretation and application it is necessary to look into their background and objectives and ensure that they are achieved. This chapter demonstrates that international law plays an important role in regulating trade through milliards of bilateral and multilateral agreements between countries. While such agreements mostly focus on trade and economic relations, some of the recent ones include environmental protection, fish

³¹⁵ See, G Shwazenberger “International Laws-As Applied by international Courts and Tribunals, Vol. I 3rd edn (London 1957)

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industry, and the use of natural resources, however it has being argued that, there are very few treaties that cover regulation of oil industry. Rather, the industry has been included into generic international agreement treaties .i.e agreements covering trade, thus making it difficult in regulating the oil industry, at-least in the international market. In this essence, the study urges that, the regulation of energy essentially oil industry³¹⁶, either in international law and/or under international agreement constellations is highly fragmented and largely incoherent. In this regard the study addresses the extent to which oil industry is regulated by multilateral agreements and its relationship to domestic law.

Trade agreements between States were mainly declarations of intent, rather than functional legal frameworks for trade. However, with the passage of time intergovernmental treaties have become vital in providing legal framework for the negotiations or regulating energy trade cross-boarder activities as such pipeline and maritime transport), commercial presence (e.g. foreign investment in oilfield services or distribution of gasoline, etc.) or movement of natural persons (e.g., the entry of foreigners to provide exploration or other oilfield services) and the like. For instance, in the context of the GATT 1994, commitments can be negotiated to extend "market access" and/or "national treatment" in those sectors, but neither is a general obligation under GATS. However, all measures applied to trade in services must be extended on an unconditional Most Favored Nation (MFN) basis, unless applied in the context of a regional integration agreement which meets the criteria of Article V of GATS, or subject to a specific derogation under Article II:2 Commitments can be traded for commitments in trade in other services or in goods on the basis of reciprocity. However it should be noted that, petroleum-exporting countries have not

³¹⁶ In this study the term petroleum and oil are used interchangeably

made commitment on oilfield services. The latter has sparked debates among WTO members, arguably, OPEC countries are violating their obligations under the WTO agreements, for instance, one of the vital rule under the WTO is the prohibition of pricing restrictions on exports, yet despite this, OPEC has regularly being accused of setting quotas for each of its member states, and able to significantly control oil prices in the international markets by regulating oil supplies. In the essence, in order to assess the need to interfere with the OPEC's policies from a legal point of view, the effect of the actions of the OPEC on the world market for crude oil needs to be established by contracting members that have been affected by the OPEC unfair trade. Nevertheless, it has proven difficult in taking legal action against OPEC as an organization as the WTO deals with member states or state organs only. Notwithstanding that, other international agreements i.e. Under Article 18 (3) of the Energy Charter Treaty recognises sovereignty of states over its energy resources³¹⁷. This principle recognizes that it is a country's sovereign right to utilize its natural resources in the best interest of the country and its people without having to justify its actions³¹⁸. In this context, it is important to note, that according to the OPEC, the OPEC acts only as a consultation forum for the member states. Thus, thus is up to the member states themselves to decide what amount of oil to produce. In this way, member countries maintain absolute sovereignty over their oil production, which, in

³¹⁷ The article provides that; “each state continues to hold in particular the rights to decide the geographical areas within its Area to be made available for exploration and development of its energy resources, the optimalization of their recovery and the rate at which they may be depleted or otherwise exploited, to specify and enjoy any taxes, royalties or other financial payments payable by virtue of such exploration and exploitation, and to regulate the environmental and safety aspects of such exploration, development and reclamation within its Area, and to participate in such exploration and exploitation, inter alia, through direct participation by the government or through state enterprises

³¹⁸ Melaku Geboye, “The Organization of Oil Exporting Countries, the World Trade Organisation and Regional Trade Agreements”

practice, is in the hands of each member countries' national oil company. With regard to the latter, it could be argued that, under the WTO law, a state could be responsible by its acts or affiliated to its organs. But, majority of OPEC members have yet to conclude their WTO accession negotiations, hence they cannot be liable as they are yet to be legally bound by the agreements.

Apart from the WTO and OPEC, there are other multilateral legal instruments that cover various aspects of cross-boarder energy sectors. Among most important include the UN Convention on the Law of the Sea 1982³¹⁹ and the Energy Charter Treaty (ECT), the Organisation for Economic Co-operation Development (OECD) just to name a few . An insight of into very promising future agenda for negotiations relating to energy issues essentially petroleum can be glanced through regional agreements. In many cases regional agreements with most implication of the petroleum sector such as North America Free Trade Agreement (NAFTA) ³²⁰ , Asia-Pacific Economic Corporation (APEC), Economic Commission for West Africans (ECOWAS) have found their way to the multilateral stage, for instance NAFTA in many respects reflected an attempt to reinforce and supplement GATT 1994 disciplines³²¹

In a classic international setting, the conclusion of treaties is the pre-eminent tool for maintaining legal relations, and a sure sign of independent actorship. International organizations have long entered the select group of international treaty-makers, and they are now party to a large number of treaties. Organizations³²² are also associated with treaty law and practice in other ways: notably in their role as facilitators for the

³¹⁹ United Nations Convention on the Law of the Sea, 10 December 1983, UNITS,1833,3

³²⁰ North America Free Trade Agreement, 1994

³²¹ United Nations Conference on Trade and Development (UNCTAD), "Trade Agreements , Petroleum and Energy Policies" UNCTAD/ITCD/TSB/9,2000

³²² An international organisation is a separate legal personality established by international legal bars from piercing a corporate veil for the purpose of obtaining an additional obligation

conclusion of multilateral treaties by states, sometimes in such a prominent position that one could forget that technically they are not themselves a contracting party³²³. In this sense, member states cannot be legally bound by international treaty concluded between their international organisation and third parties³²⁴. However, some treaties concluded by international organizations explicitly states “treaties concluded by international organizations are binding for all member states³²⁵. For brevity and scope and limitation, the study focuses only on major regional agreements (TRAs) and their energy-related aspects. When it comes to multilateral energy trade governance the study will only focus on WTO energy related agreements and Energy Charter Treaty.

As of today, it is believed that energy industry, specifically oil, is the largest primary commodity industry of international trade in terms of both volume and value. There is also the obvious national security element involved in it for both producing/exporting and consuming/importing countries. Nevertheless, it is widely believed that oil prices and economic recession have highly contributed to the advancement of oil industry regulations. The latter has paved a way to the evolution of international organizations that ought to regulated state trading under the principles of international laws. Such organisations that has been in place, and specifically hold interests in regulating energy trade include Organisation For Economic Co-operation and Development (OECD), Organisation for Petroleum Exporting Countries (OPEC), International Energy Agency (IEA) the Energy Charter Treaty (ECT), North America Free Trade Agreement (NAFTA), the World Trade

³²³ Catherine Brolman “International organisations and treaties: Contractual Freedom and institutional Constraints, 2012

³²⁴ Article 35 of Vienna Convention on the Law of Treaties 1969 protect such interests.

³²⁵Article 216 para 2 of Treaty on the Functioning of the European Union (TFEU), Energy Charter Treaty, the WTO rule ³²⁵ just to name a few.

Organisation rules just to name a few. Major pivotal roles of these agreements are to facilitate free and fair agreements between states. Within the realm of the agreements covered under the international organisations, in practice, many treaties that are concluded between states and the third parties-“mixed-treaties”, all member states are parties to the treaty and they are legally bound to the entire agreement.

a) The WTO **and** the Energy Sector

The role of the multilateral trading system on the international trade, essential in oil industry has always not been clear³²⁶. In principle, under the WTO, oil trading is governed by the rules of trade just like other products. Following this, the WTO members have discussed energy trade in several rounds of the GATT negotiations. Prior to the creation of the WTO, trade in energy was included in the accession negotiation although no binding commitments were made between the member countries and energy exporting countries. In the alternative, tariffs on fossil fuels, such as crude oil, were already present in Members’ Schedules of Concessions (Article II (a) of GATT 1947) while issues relating to crude oil and petroleum refined products were included in the Harmonised System (HS) Convention that is used by the WTO members in their schedules of concession and in the definition of product coverage for a number of WTO agreements³²⁷.

³²⁶ See, Melaku Geboye Desta “the GATT/WTO System and International Trade in Petroleum; An overview” 2015, Olga Y Trofimenko “Integrating into the multilateral trading system and global value chains: The Case of Russia” 2013, Uri Dadush & Chuedu Osakwe “WTO accession and Trade Multilateralism: case studies and lessons from the WTO at twenty” Cambridge University Press, 2015

³²⁷ The Harmonized System is normally amended by the World Customs Organization every four to six years. These amendments pose considerable challenges for the WTO and its Members. Members need to periodically update their historical schedules of concessions into the latest nomenclature. See, the *Harmonised System Convention*, Chapter 27 ‘Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes’, quoted in Anna Marhold, “*The World Trade organization and Energy: Fuel For Debate*”, Vol. 2, Issue 8,

Notwithstanding that, GATT and GATS provide significant provisions on trade. Article I cover Most Favourable Nation (MFN) principles and Article III of GATT 1994 covers National Treatments (NT) provisions. The (MFN) prohibits a WTO Member from treating the products originating in or destined for another member less favorably than the “like” products originating in or destined for any other country (including non-WTO members), also sets rules with respect to internal taxation and domestic laws, regulations. Under the national treatment obligation, WTO Members must tax and regulate imported products no less favorably than “like”³²⁸ domestic products. In order to establish whether the products are “like”, the following factors are usually analysed: products’ physical characteristics, product’s end-users, consumers’ tastes and habits, and tariff classification of products. In *US – Superfund*³²⁹, the Panel suggested that energy products such as petroleum, crude oil, natural gasoline, and certain other hydrocarbon products were “like” because they served substantially identical “end-uses” in the market.

³²⁸ However, in some cases the appellate body determines like products according to circumstances or based on a case. See, *Appellate Body Report on European Communities—Measures affecting Asbestos*, WT/DS135/ AB/R, at paragraph 102 (Hereinafter EC—Asbestos); *Appellate Body Report on Japan—Taxes on Alcoholic Beverages*, WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R at paragraph 113 (Hereinafter Japan—Alcoholic Beverages)

³²⁹ *United States- Taxes on Petroleum and Certain imported Substances*, L/6175-34S/136 adopted 17 June 1987. Canada, the EEC and Mexico stated that the tax on petroleum was levied at the rate of 11.7 cents a barrel on imported products while domestic products were subject to a tax of only 8.2 cents a barrel. The United States thus imposed an internal tax on imported products in excess of the tax applied to like domestic products and therefore acted inconsistently with Article III:2 of the General Agreement. According to GATT practice an infringement of obligations assumed under the General Agreement was considered prima facie to constitute a case of nullification or impairment within the meaning of Article XXIII (BISD 26S/206). Canada, the EEC and Mexico therefore requested the Panel to find that the tax on petroleum was inconsistent with Article III:2 of the General Agreement and nullified or impaired benefits accruing to them under the General Agreement and to recommend that the United States bring the tax on petroleum in conformity with the General Agreement.

Further, Article XI: I of the GATT prohibits the application of quantitative restrictions to imports or exports, other than tariffs, taxes or other charges. In relating to the aforementioned, over recent, some energy-endowed countries Such as Russia and Saudi Arabia have undertaken tariffs commitments with respect to energy products³³⁰. In spite of that, the situation in the world trade, essentially, regulation on energy trade on refined crude oil products has become a little bit difficult due to the uneven distribution and different policies of these resources across different countries. Countries endowed with energy resources tend to reserve its rights on the regulations over its natural resources by embracing the concept of sovereignty on natural resources as a basis for fostering economic development without interference from other countries. Thus, the desire of a net energy-endowed member to maximize its government revenues through export duties on energy can lead to a disproportionate increase in the world price for this resource, if such policies are accompanied by the regulation of the maximum ceiling on domestic energy prices.

Further, concerning trade in services, GATs set some rules that could be applicable to all measures that affect services related to trade in energy, but these rules are limited; they are not applicable to services provided by governmental authority³³¹. Adding to this, under GATs the issue of energy services are only provisional and so far there is no definition of what ought to be energy good. Consequently it might be difficult to make a distinction between the two and as of today, there is no clear definition on

³³⁰ However, Aside from the accession commitments of certain individual Members and rules on non-discrimination, WTO law does not constrain the amount of duties that can be imposed by WTO Members on their exports.

³³¹ See Article 1. 3 (b) of GATs, and, Rüdiger Wolfrum, Peter-Tobias Stoll and Clemens Feinäugle (eds.), *WTO - Trade in Services* (Martinus Nijhoff Publishers, 2008) 60-69. Hereinafter Wolfrum, *WTO - Trade in Services*.

what should be categorised as energy trade or service, and what are “like” energy products.

b) The Energy Charter Treaty (ECT)

Energy Charter Treaty also covers various issues related to energy trade, transit and investment³³² based on the WTO rules with respect to trade in goods and energy sector. The ECT provisions are more specific and clear on energy trade regulations; in particular, unfair trade practices. Article 6 of the ECT provides significant regulations anti-competitive behaviours in energy markets. The treaty requires contracting members to work to alleviate market distortions and barriers to competition energy sector. Further to that, under ECT rules, contracting parties are obliged to ensure that within its jurisdiction it has and enforces laws that are necessary and appropriate to address unilateral and concerted anti-competitive conduct in economic activity in the Energy Sector. For instance, the principles as applied to trade in energy provides that “All internal taxes (VAT, excise duties, etc.) have to be the same for domestic energy and imported energy³³³. Domestic electricity is to be taxed at the same rate as imported electricity. The same applies for domestic gas and imported gas and any other energy product and its imported equivalent”.

³³² The ECT represents a political commitment to cooperation in the energy sector based on some key principles: the establishment of market conditions that will stimulate private investments; the respect for state sovereignty over natural resources; the application of the principle of non-discrimination among participants; and the recognition of the importance of environmental sustainability. For a detailed explanation of the Energy Charter Treaty and the scope of its application, visit <http://www.ena.lt/pdfai/Treaty.pdf>; http://www.energycharter.org/fileadmin/DocumentsMedia/Legal/ECT-Positive_Annex_W.pdf; and <http://www.encharter.org/>

³³³ Article 4 of the ECT, that is similar to article 3 of GATT on National Treatment rule

Other Treaties and Regional Trade Agreements

a) EC, NAFTA and ECOWAS

Multilateral Environment Agreements and European Community (EC) are among associations or free trade agreements that cover various issues related to energy trade and services. Some of these agreements as such as EEC Treaty³³⁴ provide that any public aid that distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods would be incompatible with the agreement in force. These provisions potentially offers effective instrument to regulate subsidies between contracting parties and their wording allows for more strict interpretation than most GATT provisions. Similar to that, NAFTA has as well has a special chapter devoted to energy products³³⁵ as other multilateral agreements. Nevertheless, this agreement goes beyond GATT and introduces a separate provision explicitly prohibiting the use of export duties³³⁶. Further to that, NAFTA imposes strict obligations on the requirements for invoking exceptions similar to those in GATT Articles XI:2(a), XX(i), j. For instance under these restrictions, NAFTA has successfully negotiated with Mexico (a NAFTA contracting member state) a reservation excluding application of these NAFTA obligations. This shows that regional agreements rather than multilateral agreements are being increasingly pursued to secure access to supplies³³⁷. Nevertheless, it is worth mentioning that, from the point of view of international law, all instruments find themselves on the same

³³⁴ Article 92 EEC prohibits all state aids unless they are compatible with the common market rules.

³³⁵ See chapter 6 of NAFTA

³³⁶ NAFTA Article 604 of NAFTA states that "No Party may adopt or maintain any duty, tax or other charge on the export of any energy or basic petrochemical good to the territory of another Party, unless such duty, tax or charge is adopted or maintained on: a) exports of any such good to the territory of all other Parties; and b) any such good when destined for domestic consumption

³³⁷ See *Prewitt Enterprises, Inc. v. Organization of the Petroleum Exporting Countries, United States District Court for the Northern District of Alabama, Southern Division, Civil Action Number Cv-00-W-0865-S* (21 March 2001), pp. 4-5.

footing, with more specialised or more recent agreements enjoying preferred application vis-à-vis general rules³³⁸. From the point of view of WTO law, other instruments may only apply to the extent that they influence the application and interpretation of WTO rules.³³⁹

Other significant agreements on energy issues are dealt in a fragmented manner and some energy specific agreements and institutions such as OECD that is dealing with export of credits. But, the application of this agreement is argued to be somehow contradictory in relation to GATT agreements³⁴⁰.

APPLICATION OF RTAs ON THE ENERGY SECTOR

Today, WTO jurisprudence clearly confirms that the WTO treaty must be applied and interpreted in the broader context of general international law. This centralizing or uniting theme has given us ample and rich references to evidence, attribution, jurisdiction, countermeasures and treaty interpretation³⁴¹. Not to mention, the WTO law is apart of the system of international law. This inevitable interaction both with international law and non-WTO treaties has lead countries to become a part of RTAs in the pursuit for trade liberalization.

RTAs include all arrangements between states concerning their trade relations. Sometimes RTAs are called Free Trade Agreements ("FTAs"), Preferential Trade Agreements, or, in some circumstances, Customs Unions. These agreements may be

³³⁸ Unlike OPEC of which its main objective is to ensure that its member states obtain fair shares with respect to the value of Oil

³³⁹ Thomas C, Gabba M, Sofya M, Olga N, Joelle S ans Sadeq “*Energy in WTO Law and Policy*” 2009

³⁴⁰ GATT Analytical Index, p. 144. Income tax exemptions have, however, given rise to findings of violation under the Subsidies Agreement (see Appellate Body report on *US – Tax Treatment for “Foreign Sales Corporations”*, adopted 20 March 2000, WT/DS108/AB/R).

³⁴¹ Joost Pauwelyn, *Interplay between the WTO Treaty and other International Legal Instruments and Tribunals: Evolution After 20 Years of WTO Jurisprudence*, 2016

bilateral, trilateral, or multilateral. Their sectorial and substantive coverage may be significant, minimal, or illusory.¹² For purposes of this chapter the term "RTA" includes all regional trade arrangements except customs union. Currently, RTAs represents a major characteristic of the multilateral trading system and covering more than half of international trade and operate alongside global multilateral agreements under the WTO. The WTO rules on both trade and services contain sets of regulations that allow its member states to negotiate more liberal trade policies as such custom unions (CU), Free Trade Areas (FTAs) and interim agreements that are aiming at contributing the expansion of free world trade, at the same time be compatible with GATT rules. Article XXIV of GATT 1994 states that “

*“...the contracting parties recognize the desirability of increasing the freedom of trade by the development, through voluntary agreements, of closer integration between parties to such agreements. [...] The purpose [...] should be to facilitate trade between the constituent territories and not to raise barriers to the trade of other contracting parties with such territories.”*³⁴²

According to the WTO, as of 2014, already the number of RTAs accounted for 379³⁴³. Statistic shows, over 90% of RTAs have WTO-plus in services, over 85% in investment, and almost 80% in transparency. The emphasis on investment (both for goods and services) attests to the increasing importance of securing market presence as opposed to only market access to trade. Some RTAs contain chapters on improving the overall business environment, which is broader than the protection-cum-promotion rules on investment covered in traditional FTAs and Bilateral Investment

³⁴² Article XXIV 4-8 of GATT 1994 sets out formal and substantive requirements under which WTO members have the conditional rights to enter into CU, FTAs and interim agreements

³⁴³ See, Jo-Ann Grawford and Roberto V. Fiorentino, “*The Changing Landscape of Regional Trade Agreements*”, World Trade Organization, 2005

Treaties (BIT)³⁴⁴. It has been noted that another consideration for reflections on “regionalism multilateralisation” is the representativeness of economies that have endorsed WTO-plus commitments in RTAs. WTO-plus measures in services and investment issues often do not discriminate *de facto* between trading partners. In many cases, the domestic reforms apply equally to domestic and foreign operators, thereby guaranteeing national treatment as well³⁴⁵. Further, in the area of rulemaking, WTO-plus and WTO-beyond measures often do not represent a deviation from MFN principles³⁴⁶ although in some case RTAs contains discriminatory effects relate to the design of rules of origin. Yet, it is not surprising that countries, especially developing countries are showing much interest in RTAs³⁴⁷.

Moreover, there is a question as to whether RTAs covers energy sector regulations and to what extent. It has thus been noted that only a few RTAs include specific provisions regulating the energy sector. Among them are the North American Free Trade Agreement (NAFTA)³⁴⁸, the European Union (EU)³⁴⁹, the Association of

³⁴⁴ See, generally D Coppens, *WTO Disciplines on Subsidies and Countervailing Measures-Balancing Policy Space and Legal Constraints* (Cambridge: Cambridge University Press, 2014).

³⁴⁵ See, PC Mavroidis, G Bermann and M Wu, “*The Law of the World Trade Organization – Documents, Cases and Analysis*” (WEST Publishing, New York 2010) 567.

³⁴⁶ Leal-Arcas, R.et.al “*International Energy governance: Selected legal issues*. Cheltenham: Edward Elgar, 2015

³⁴⁷ See, Growford, *Regional Trade Agreements*, 2014

³⁴⁸ NAFTA came into effect in 1994, creating one of the world’s largest free trade zone between United States, Canada and Mexico. Contrary to the Treaty of Rome establishing the European Economic Community, NAFTA does not establish a custom union, but only a free trade zone that is based on a series of rule and principles as such National Treatment rules, Most Favoured Nations and transparency of government regulations and practices. The treaty embraces both trade in goods and services as well as offers dispute resolution system Visit, <http://www.api.org/~media/Files/News/Letters-Comments/2017/APIAMEXHICAPPJointPositionPaperONAFATAV1002Aug2017.pdf>

³⁴⁹ The EU disciplines related to energy subsidies is covered under Article 107-109 of TFEU. For instance, Article 107 states that “*Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form*

Southeast Asian Nations (ASEAN)³⁵⁰, the forum for Asia-Pacific Economic Cooperation (APEC), the Mercado Común del Sur or Southern Common Market (MERCOSUR)³⁵¹, the and the Free Trade Area of the Americas (FTAA)³⁵². Relating the RTAs to the regulation of energy trade policies, it is however beyond the scope of this paper to provide comprehensive analysis for each treaty due to the complexity of their legal framework and instruments that have been developed to regulate energy trade in each region. Instead, the study has highlighted the vital objectives of these RTAs and their scope of applicability.

Further, recently there have been announcement of three mega-regional initiatives that are on an entirely new scale. These initiatives are– the Trans-Pacific Partnership (TPP), the Transatlantic Trade and Investment Partnership (TTIP), and the Regional Co-operation in Asia and the Pacific (RCEP) – represent over three-quarters of global

whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market”

³⁵⁰ ASEAN free trade area was established in 1992, xurrently the treaty is composed of 10 countries, namely, Indonesia, Malyasia, Philipines, Singapore, Thailand, Brunei, Vietnam, Laos, Myanmar and Cambodia. The agreement was established with the aim of facilitating free trade area between member countries with the purpose of implementing Common Effective Preferential Tariff (CEPT) commitments in the lowering of intra-regional tariffs. See, Helen E.S Nesadurai “*The Association of Southeast Asian Nations (ASEAN)*” 2008, 13/2 *New Political Economy* 226-227

³⁵¹ Is a common market treaty between Brazil, Argentina, Paraguay, Uruguay and Venezuela. Recently Chile, Colombia, Peru, Ecuador, Guyana, and Suriname have acquired the status of associated countries. MERCOSUR’s main agreements include the establishment of a free trade area through the elimination of customs duties and non-tariff restrictions on the flow of goods and services; the establishment of a common external tariff and the adoption of a common trade policy in regard to third States; the coordination of macro-economic and sectoral policies among Party States; and the commitment to harmonize Party State legislation in order to strengthen the integration process. In relation to energy trade, the treaty sets basic criteria for coordination of national energy poliiies among MERCOSUR’s Member states and aims to achieve greater energy integration and more efficient use of natula resources among the member states.

³⁵² See, Roberto Rios Herrain and Pietro Poretti, *Energy Trade and Investment under the North American Free Trade Agreement* in Yulia Selinova (Ed.), *Regulation of Energy in International Trade Law*, Wolters Kluwer, 2011

GDP and two-thirds of world trade. Although negotiations have not yet concluded, the initial ambitions are certainly high, and some aim to go beyond providing preferential access to member countries' markets by seeking to establish "high standard" 21st century trade agreements with deep and comprehensive market integration. For instance, the agreement between the European Community and the United States, the TTIP aim at liberalizing trade and investments between the US and the EU. On its proposal, the agreement on trade in goods, in particular, energy sector covers prohibition on export monopolies, transit, and export of pricing³⁵³. Also, this agreement aimed at aligning regulations and standards rather than simply removing trade-inhibiting tariffs. With regard to energy trade regulation, the treaty sets fundamental principals of transparency, market access, and non-discrimination. With regard to non-discrimination on energy trade, the treaty provides that, neither contracting parties should be allowed to impose a local content requirement (reserving business for local businesses) yet both contracting parties should have sovereign over its natural resources. However, government intervention in the pricing should be limited and, dual pricing and subsidies to industrial users on energy goods should be prohibited³⁵⁴.

³⁵³ Article X,XX and XXX of TTIP. See, Transatlantic Trade and Investment Partnership; EU Textual Proposal- Energy and Raw Materials, 2016, available at http://trade.ec.europa.eu/doclib/docs/2016/july/tradoc_154801.pdf

³⁵⁴ See, Sonja Van Renssen, Why an EU-US Trade Deal Matters for the Energy Sector, 2013.

THE ROLE OF MULTILATERAL AGREEMENTS ON THE ENERGY SECTOR; how far do they go?

International petroleum agreements (IPAs) have structures that are well established yet strongly influenced by changes in political relationships and markets. These agreements are drafted, negotiated and agreed within the context of international law. Modern IPAs are generally either production-sharing contracts or modernized concession agreements with host countries (HC) control over petroleum operations and state participation³⁵⁵. These structures have evolved to accommodate international legal binding obligations. When writing this section, I realised, there is ample room for a series of complex issues of international law and policy to arise within the oil industry such as: does the WTO, ECT and/or other multilateral treaties have any role to play in the petroleum sector? If yes, the question to follow from this should thus be as to whether the WTO and ECT are a part of public international law?

Starting with the first question, in principle, trade in petroleum products among GATT/WTO Members is governed by the rules of the trading system just like other products. There are neither specific agreements that cover petroleum industry under the WTO provisions nor explicit exclude petroleum products from the scope of the multilateral trade agreements, a combination of factors have, de facto, brought the virtual exclusion of international trade in petroleum products from the trading system³⁵⁶.

In practice, among the major trade behaviours that are actively practiced by the OPEC's include price control and restricting oil supply. These are measures that

³⁵⁵ Park, Patricia D, "International Law for Energy and Environment" 2 edition, 2002

³⁵⁶ Melaku Geboye Desta "The organization of Petroleum Exporting Countries, the World Trade Organization, and Regional Trade Agreements, *Journal of World Trade* 37(3) 523-551, 2003

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could technically be termed as “quantitative restrictions” in the sense of GATT Article XI:1

As noted in the earlier chapter, OPEC has adopted the devices of direct price setting (between 1973 and 1985) and restriction of supplies (since 1985). These practices could be termed as “quantitative restrictions” under article XI: 1 of GATT. Under these rules, the covered agreements prohibits imposition of quantitative restrictions both on exports and imports between member states, so as price setting techniques that has been established under GAT case laws³⁵⁷. Further to that on *Japan-Semiconductors*, based on the findings of this case, the panel suggested that, “the CONTRACTING PARTIES had decided in a previous case that the import regulation allowing the import of a product in principle, but not below a minimum price level, constituted a restriction on importation within the meaning of Article XI. Relating this to OPEC oil supply restriction, under the WTO provisions member have the rights of challenging the OPEC based on their unfair trade behaviour of restricting supplies, hence the falling prices below the OPEC-approved price range or any other threshold, such measures could well qualify as quantitative restrictions effected through minimum export price requirements. At least the latter is a theory, in practice, no WTO member has ever been lodged a complaint against oil exporting WTO Member Countries that resort to supply restrictions. Public policies as such sovereignty over natural resources considerations might have played a significant role behind this³⁵⁸. In practice, Article XX provides for limited and conditional exceptions from the substantive obligations, dispute settlement practice has determined that Article XX must be construed restrictively and that the party invoking Article XX bears the

³⁵⁷ See, *European Communities-Program of Minimum Import Prices, Licences and Surety Deposits for Certain Processed Fruits and Vegetable*, Panel Report (L 6309 BISD 35S/116) adopted on 4 May 1988 (hereafter *Japan—Semi-Conductors*), para.105

³⁵⁸ See Article XI (2), XX and XX1 of GATT 1994

burden of proof. Meaning that, both OPEC and WTO Member Countries have to justify their actions on the basis of this provision, they should be able to prove that: (1) the supply restrictive measures relate to the conservation of an exhaustible natural resource; and (2) those measures are made effective in conjunction with restrictions on domestic production or consumption. Moreover, case laws under GATT has recognized petroleum as an exhaustible natural resource³⁵⁹.

On the other hand, with respect to the role of ECT regulating petroleum industry, the study urges that, facts remain the same as the ones discussed above under the WTO provisions. Arguably, the ECT simply assumes that all its Contracting Parties will eventually become members of the WTO and any reference to trade issues in the Treaty is aimed only at filling the gap in the interim period pending accession of the few remaining countries that are parties to the ECT but not yet WTO Members. Hence, with regard to the relationship between WTO Members inter se, the ECT trade regime is simply the WTO trade regime³⁶⁰. Likewise, the trade relationship between ECT Contracting Parties one or more of which are not members of the WTO is also governed by WTO rules—but, this time, “subject to some exceptions and modifications³⁶¹”

³⁵⁹ The WTO Appellate Body indirectly recognized petroleum as an exhaustible natural resource. Rejecting complainants’ arguments that the concept of “exhaustible natural resources” under Article XX(g) applied only to “finite resources such as minerals, rather than biological or renewable resources”, the Appellate Body said: “Article XX(g) is not limited to the conservation of ‘mineral’ or ‘non-living’ natural resources ... Living resources are just as ‘finite’ as petroleum, iron ore and other non-living resources.” See *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, Appellate Body Report (WT/DS58/AB/R), issued on 12 October 1998 (hereafter *Shrimp/Turtle*), para. 128. See also *United States—Taxes on Automobiles*, Panel Report (DS31/R, issued on 11 October 1994, not adopted), para. 5.57

³⁶⁰ Mason Willrich and Melvin Conant, *The International Energy Agency: an Interpretation an Assessment*, 71 *A.J.I.L* 2 (1977), 202

³⁶¹ See ECT Article 29; see also ECT Transparency Document: *Applicable Trade Provisions of the Energy Charter Treaty* (1998), p. v

Turning on the other question as to whether the WTO is a part of international law, the answer to that is subjective. First, based on the principle of *pacta sunt servanda* and agreements covered under Multilateral and bilateral agreements studies suggests that international organisation covered agreements as such the WTO is a part of public international law. For reasons of legal certainty, an argument could be established that the WTO was not created in a vacuum nor does its legal existence continue into a vacuum. The organisation's covered agreement has emerged in the context of international law and other treaties³⁶². For instance, Article 3 (2) of the WTO DSU³⁶³ provides, "the dispute settlement system of the WTO "serves to preserve the rights and obligations of the members under the covered agreements are to be interpreted in accordance with customary rules of interpretation of public international law. Based on the latter, stating that all WTO rules are a part of international law is one thing but reaffirm it is another thing. Arguably, international law rules under article 31-33 of Vienna Convention on the Law of Treaties, 1969, directs that in interpreting a treaty, account must be taken not only of the treaty itself but also of any rules of international law applicable in the relation between the parties.³⁶⁴ Further to that, the study urges that, both the WTO and the ECT agreements were created against the background of public international law, a norm that by its very nature applies to all contracting member states without exception. A further evidence of the proposition is that the WTO dispute settlement encompasses more than two WTO covered agreements and these agreements could in some cases be interpreted in the light of other rules of

³⁶² Henok B Asmelash "The Trade and Environment Debate on the Regulation of Energy Subsidies in the WTO: What Kept Fossil fuel Subsidies off the radar Screen"?, 2018

³⁶³ Dispute Settlement Understanding

³⁶⁴ See, Korea-Measures Affecting Government Procurement, WTO Doc. WTDS163/R para 7.96, 2000. On this case, the panel applied general rules of customary international law on good faith and error in treaty negotiations, in particular Article 48 of Vienna Convention.

international law. Moreover, these interpretations do not include a general and automatic conflict clause in favour of WTO agreements. The sense of the approach suggested here is that, the WTO rules applies differently to different members depending on whether or not have accepted other non-WTO rules, as the WTO seek to promote non discriminatory and trade liberalization in the context of regulatory diversity³⁶⁵.

CHALLENGES FACING THE WTO & ECT LEGAL FRAMEWORK ON ENERGY TRADE; the Case of Dual Pricing

The WTO serves as the most effective and legitimate channel in regulating free and fair trade as it takes equal interests of its members. The organization's provisions advocates for "national treatment" wherein such case, foreign goods acquire equal status upon entering the domestic market. In this regard, it prohibits any discriminatory practices of the trade like bias tariffs, subsidies and advancing "favored nation status" to its members unless justified. Although the WTO under GATT provisions prohibits discriminatory trade practices among its members yet issues evolving subsidization have become particularly acute. Many believe that the fluctuations and unfair trade practices in international trade could persist for decades if actions will not be seriously taken.

Traditionally, the rationale used to subsidize the energy sector is that countries seek to expand their of energy supply, given greater access to and consumption of energy are closely linked to economic growth and improved social and economic conditions of the population³⁶⁶. This could be through government intervention policies on its

³⁶⁵ See, *Argentina-Measures Affecting Imports of Footware , Textiles, Apparel and other Items*, WTO Doc.(WT/DS56/AB/R, Para 65 (Quoting the IMF memorandum) and Para 68, April 1998

³⁶⁶ **The IEA World Energy outlook, 2011,pg 508**

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domestic energy resources.³⁶⁷ To this end, the government subsidizes programs have been in the resource-based energy sector, especially, in developing countries are commonly utilized to promote a variety of public policy objectives such as supporting schemes for economic development, particularly, green and renewable energy supporting schemes. The main concern between the WTO members remain if such subsidies could be justified under the WTO provisions as an incentive to promote green energy or causes unfavorable and discriminatory trade practices in international markets among contracting parties? In answering the latter, the appellate body in the *Canada-Feed-in Tariffs*³⁶⁸ found that Canada had acted inconsistent with Article III: 4 of GATT and 2:1 of TRIMs as FIT programs were not intended for government purposes rather the Government of Ontario and municipal governments would profit from the resale of electricity under the FIT Programme and Contracts, and because the resales of electricity are made in competition with licensed electricity retailers, the purchases of electricity by the Government of Ontario are undertaken "with a view to commercial resale.

Besides, resource-based energy subsidies can be categorized into two: subsidies provided to resource-based energy industries (these type of subsidies could be direct or indirect to coal, natural gas, oil or bio-fuel industry) and, the second category are subsidies of resource-based energy inputs to consumers and domestic industry (subsidized provision of resources such as oil, natural gas, cooking fuels, coal, and electricity to consumers and domestic industry)³⁶⁹.

³⁶⁷ John Wilen, *Oil Rises on Uncertainty About OPEC Move*, The Associated Press, Dec. 3, 2007

³⁶⁸ *Canada – Measures Relating to the Feed-In Tariff Program – Appellate Body Report* (6 May 2013) WT/DS426/AB/R and *Canada – Certain Measures Affecting the Renewable Energy Sector – Appellate Body Report* (6 May 2013) WT/DS412/AB/R

³⁶⁹ **Reforming Energy Subsidies: An Explanatory Summary of the Issues and Challenges in Removing or Modifying Subsidies on Energy that Undermine the**

According to the WTO law, when examining the international regulations on subsidies in general, the General Agreements on Tariffs and Trade Agreements (GATT) contain agreements on Subsidies and Countervailing Measures “*SCM Agreements*” deals specifically with subsidies³⁷⁰. SCM agreement defines what government conducts constitute subsidies, classifies different kinds of subsidies, and establishes different regulations for each type of subsidy. The SCM Agreement also sets out the remedies available to WTO Members affected by subsidies and provides detailed guidance on how domestic countervailing duty investigations should be conducted. However, it has been contended that, energy subsidies are one of the most controversial issues in international trade regulation, especially under the multilateral agreements such as the WTO. This is hardly surprising. First and foremost, the WTO does not contain provisions that are expressly dealing with petroleum industry subsidies neither specify in which category they fit into.

For these reasons it has been argued that the WTO law is a minor fraction of international law that addressing energy-related issues yet there are no other attempts

Pursuit of Sustainable Development, United Nations Environment Programme, Division of Technology, Industry, and Economics (2002), 6.,

³⁷⁰ Although in the early years of GATT, subsidy rules, which were contained in Article XVI, were neither well developed nor imposing³⁷⁰. Under these rules, signatories were only required to notify any subsidy, including any form of income or price support, which operates directly or indirectly to increase exports of any product from, or to reduced imports of any product into, its territory...” The notification was required to specify the extent and nature of the subsidization, its estimated effects on exports and imports, and the circumstances making the subsidization necessary. If the subsidization was deemed to cause serious prejudice to the interests of any other party, the subsidizing contracting party was only required to discuss the possibility of limiting the subsidization. Thus, no form of subsidization was prohibited, but instead the focus was on the demonstration of **trade effect namely, serious prejudice to other countries’ interests**

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at multi-national regulation of subsidies on what can be considered as a global level³⁷¹. It is recalled that international trade in energy is mainly based upon contracts subject to international private law and commercial arbitration³⁷². The latter will be described in detail in the following paragraphs. An underlying theme of this chapter will be focusing on analysing the government subsidization schemes of resource-based energy inputs, in particular, dual-pricing practices. In this regard, the emphasis the emphasis will be given to addressing the adequacy with which the current disciplines on energy dual pricing policy within WTO rules are covered. Further, the study is aiming at addressing the legibility of dual pricing and subsidies practices, state trading and exportation of restricted subsidies. In this motivation, the study analyses energy pricing policies in-line with WTO law and on international law on selected developing oil producer countries such Russia and Saudi Arabia.

THE CONCEPT OF DUAL PRICING

a) The Rationale of Dual pricing in the Energy Industry

Dual pricing on production, consumption, and exportation of energy resources have come to the forefront of international debates in recent years. These practices have become a common policy choice for both developed and developing countries, applied to trade in gas, coal, electricity, and oil-based products as such fuel oil³⁷³. Concerns have been expressed that preferential natural resources pricing, essential for refined petroleum products has been, if not addressed, continue to be a source of

³⁷¹ See, J. Steenbergen, Regulation of Subsidies in International Trade; David Palmeter, *“The WTO as a Legal System : Essay on International Trade Law and Policy, 2003*

³⁷² T. Cottier, S. Matteotti and O. Nartova, 'Winterkrieg im Gasgeschäft: Ursachen und Auswirkungen' (2009) 140*UniPress*, 40.

³⁷³ H Birhanu Asmelash, 'Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies Are Challenged' (2015) 18 *Journal of International Economic Law* 261-270.

considerable trade distortion and friction. The main question has been how energy exporting and importing states perceive energy dual pricing prices. Some countries have related the latter to sovereignty over natural resources as a justification for their pricing policies.

The energy sector is often capital intensive and closely connected to the industrial policy of a state, whether based on fossil fuels, or, renewable energy production. Thus, because of the encapsulated nature between states and energy sector, dual pricing policies are usually implemented through price controls or a price ceiling price set by the government, or even through the sale of energy resources by state enterprises to domestic consumers at preferential rates³⁷⁴. In other words it could be said that, dual pricing involves government policies that encourage energy resources being sold at the discounted prices at either domestic market or on export prices compared to the available prices in international markets. For these reasons, often governments of energy-endowed countries control price levels of energy inputs at artificially low prices in order further economic or social policy such as providing benefits to underdeveloped regions, promoting specific areas of the economy, and encouraging research and development³⁷⁵. Thus, it should, therefore be highlighted that these practices expressly deal with the favourable treatment of products that are destined for exports and not those destined for domestic consumption.

³⁷⁴ Pogoretsky V. “*Energy Dual Pricing in International Trade: Subsidies and Anti-dumping Perspectives*”. In: SELIVANOVA, Y. (ed.). *Regulation of Energy in International Trade Law*. Global Trade Series, Wolters Kluwer, 2011, p. 183

³⁷⁵ There could be different reasons for applying dual pricing in energy industry. The practice could either be apart of a state’s national plan for developing its domestic industry, a social subsidy for private households or a matter of food security. Energy dual pricing has been a widespread tool used by countries in the face of early industrial development but has later been abandoned by many countries as a part of the liberalization of their energy markets.

On the other hand, dual pricing practices have been treated or at-least thought to have a close affiliation with consumption of subsidies as the practices ought to pursue different policy targets, including those of providing low-cost prices as a means of subsidizing domestic industrial production or as a social subsidy.

A study by the Organization for Economic Corporation and Development (OECD) defines a subsidy in general terms as “ any measures that keep prices for consumers below market levels, or for producers above market levels or that reduces costs for consumers and producers. In this motivation, the study argues that dual pricing could be categorised as a form of distortive subsidies that are actively practiced in energy industry as the practices by natural resources rich countries allow for domestic price of energy resources to be set significantly lower than export market prices³⁷⁶. Under dual pricing practice, there is one price of the natural resource for exports, and another (relatively lower) controlled price for domestic consumption, benefiting thereby domestic producers and exporters, especially those who use the resource intensively in their own manufacturing processes. For instance, some form of restraint normally accompanies dual pricing on the export of the natural resource inputs or the practice could relate to a system of controlled price for refined/processed products based on natural resources. These practices are of particular concern in industries that require either large energy input or a large provision or resource-based energy commodities. Further, it has been noted that certain government practices, particularly in developing countries with significant reserves of oil, natural gas or coal make available to domestic users some important inputs at a price sustainably lower than the international market price. Such practices confer an evident benefit to the domestic

³⁷⁶ Cossy M, *Energy Transport and Transit in the WTO*. Paper Presentation at Conference on Global Challenges at the Intersection of Trade, Energy Environment, Centre for Trade and Economic Integration (CTEI) at the Graduate Institute of International and Development Studies, Geneva 2009.

users as compared to their foreign competitors who have to purchase their supplies at a higher price. In this regard, dual pricing affects the competitive balance on the world market between energy-intensive products and products using energy-intensive products as inputs. Not to mention that dual pricing practices have been argued to discourage domestic energy-related investments and impose financial constraints as the practices are usually accompanied by the requirement for energy producers to sell significant stake of their energy resources locally³⁷⁷.

While dual-pricing practises has been considered inconsistent with international agreements and competition law, particularly, practices that either contain potential prohibited export subsidy or an actionable *de facto* specific subsidy under the WTO³⁷⁸, however, as a policy instrument, energy dual pricing has often been used to achieve different public policy goals serving as a subsidy scheme, an instrument of national economic development. From a general public international law perspective, state energy practices affecting natural resources have been closely linked to state sovereignty over natural resources. Thus, the issue of natural resources input pricing policy and, whether such a policy can be considered a form of subsidisation of a country's exports, have become sensitive and a subject of increasing debate and even confrontation among countries³⁷⁹. This general principle, however, has, outer limits, and is subject to states' obligations under international treaties, such as WTO law,

³⁷⁷ Julia Selivanova "Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter", 2006.

³⁷⁸ Y Selivanova, The WTO and Energy – WTO Rules and Agreements of Relevance to the Energy Sector (ICTSD Programme on Trade and Development: Geneva 2007) 29; Also see R Quick, 'Chapter 18 – Dual Pricing', in: J Pauwelyn (ed), Global Challenges at the Intersection of Trade, Energy and the Environment (The Graduate Institute: Geneva 2010) 193, 194.

³⁷⁹ Under public international law, the right of a state to regulate its energy resources for economic development and wealthy is based on the general principle of permanent sovereignty over natural resources embodied in the customary international law. See Article 18 of the Energy Charter Treaty and UN General Assembly Resolution 626 (VII) of 21 ell Dec 1952

ECT, NAFTA just to name a few imposes on their member's additional requirements and rules.

LEGALITY OF DUAL PRICING UNDER THE WTO AND OTHER INSTRUMENTS OF INTERNATIONAL LAW

The historical record on the discussions on of oil industry, essentially trading contracts and price volatility in international trade clearly indicate that the subject of the governing law has been considered to be the main role in negotiations of international oil industry in many cases. That being mentioned, however, there is no direct law that regulates dual pricing in oil industry; rather the industry is governed by a complex combination of national, regional and international norms and principles³⁸⁰. There are a number of international agreements between states, governments and private sectors that are concluded to facilitate oil trade at national and international markets. The rules and regulations of these agreements, differs significantly as the provision tend to cover different spheres of law. There are various multilateral and bilateral agreements specifically concluded or dealing specifically with all aspects of trade, including oil trade. For instance the General Trade Agreements of Tariffs and Trade (GATT 1994 deals with all aspects of state trading³⁸¹. Most of these agreements have been concluded in order to facilitate secure, fair and favorable trade and investments regimes in the world markets, while defending and improving market access for exports within the framework of international agreements.

Relating this to the WTO law, as earlier mentioned, the practices of dual pricing of resource-based energy inputs are likely to be found inconsistent with the WTO law.

These practices have been a recent topic of debate especially in terms of WTO

³⁸⁰ Patterson, Emmre Usenmez, Greig Gardon” Oil and Gas Law; current practice and emerging trends”,2011

³⁸¹ It should however be noted that, the GATT 1994 do not provide/cover a special agreement on energy trade

accession negotiation. Many countries looking to future accession into the WTO may be politically pressured into halting such practices as a condition of accession under what is commonly referred to as WTO-plus obligations. In this regard, the WTO offers a room to any state or customs territory having full autonomy in the conduct of its trade policies to become a member (accede to) the organization but all the members must agree on the terms. This is done through the establishment of a working party and through a process of negotiations. With the accession of a lot of energy-endowed countries to GATT and the WTO³⁸², recently the energy sector has become relevant in multilateral negotiations³⁸³. Hence, the issue of natural resources

³⁸² Acceding to the WTO is far different from joining other international organizations, most of which operate under an implicit principle by which, in the absence of truly egregious political problems or especially intractable diplomatic difficulties, all sovereign states have a presumptive right of membership. There may be agreements to sign, dues to pay and other obligations to meet, but the process of accession is rarely burdensome or lengthy. It will generally involve little or no formal scrutiny of the country's existing laws and policies, and even fewer demands that changes be made as a condition of entry. Accession negotiations are deliberately one-sided affairs, with all of the requests coming from the existing members and the full burden of adjustment falling on the acceding country. The applicant is not entitled to request tariff concessions or services commitments from the existing members. WTO Article XII and its predecessor, GATT Article XXXIII, establish a framework within which accession negotiations are conducted. Further, there are two states in accession negotiation: i) discovery process in which the applicant country first describes its economic and trade regime in a detailed document known as the foreign trade memorandum, and must then respond to the all questions that are posed by the existing WTO members ii) negotiation that has two components. It is partly a multilateral process in which the WTO membership collectively negotiates with the applicant country over multiple issues. There is also a bilateral component to the negotiations, in which individual WTO members negotiate with the applicant over very specific market access commitments. These are primarily on tariff rates for goods and commitments on trade in services. See, History and future of the WTO, 2014. Visit, https://www.wto.org/english/res_e/booksp_e/historywto_o4_e.pdf and https://www.wto.org/english/thewto_e/acc_e/cbt_course_e/c4s1p1_e.htm

³⁸³ Some of the issues WTO Members addressed in relation to the energy policies of exporting countries included dual-pricing practices and resulting subsidies, and/or reverse dumping; export restrictions and export taxes; and problems of natural resource product displacement by substitutes. Notably, these agreements included new rules with potential impacts on energy products and policies applied by energy exporting countries. Importantly during this negotiation the issue of dual

input pricing policy and, whether such a policy can be considered a form of subsidization of a country's exports, became a subject of increasing debate and even confrontation among countries. For instance, among the prevalent previous WTO negotiations on energy trade has been the issue of dual pricing during the Doha round³⁸⁴. In the context of the Doha Round, the U.S in dealing with the topic of natural resources, understood that dual pricing would be a government intervention in the energy sector that could, among other effects, cause distortions in the market since it created benefits for domestic producers, unfairly improving comparative advantages that should be determined by market forces and by productive efficiencies. However, WTO negotiations on dual pricing did not show further developments, and the Members had doubts about the definition of dual pricing, and the possible applicability of SCM agreements on adverse impacts of such policies in international trade.³⁸⁵

pricing practices was addressed with no substantive decision on how these practices could be tackled. See Tokyo Round of Multilateral Trade negotiations 1973-1979

³⁸⁴ Dual pricing has been referred to as a price controlling mechanism. During Doha Round, WTO members presented proposals on expansions of multilateral rules to address practices related to energy trade regulations,. In presenting their proposals, the United states allucidated that "*Preferential natural resource pricing has been and, if not addressed, will continue to be a source of considerable trade distortion and friction... There is no difference between the government provision of a natural resource at less than fair market value and the government provision of a cash grant allowing the purchase of a natural resource at less than fair market value...The advantage provided to domestic producers in this situation unfairly magnifies the comparative advantage that would otherwise be determined by market forces and production efficiencies*" See, Communication of the United States to the Negotiating Group on Rules, TN/RL/W/78, 19 March 2003. See also comments by Venezuela on document TN/RL/W/78 submitted by the United States, TN/RL/W/107, 13 May 2003

³⁸⁵ WTO. Negotiation Group on Rules, USA Communication: Subsidies Disciplines Requiring Clarification and Improvement. TN/RL/W/78, p. 3; WTO. Negotiation Group on Rules, Venezuela Communication: Observations and Comments by Venezuela on Document TN/RL/W/78 Submitted by the United States concerning prohibited subsidies and other subjects under the WTO Agreement on Subsidies and Countervailing Measures. TN/RL/W/107, p. 2

In a system of dual pricing, fixed price concept applies to only a part of the output and the remaining output could be sold at prices determined by market forces. In fact, dual pricing ought to target domestic markets, at least in theory. Further, the term dual pricing has often being used to describe a two-tier pricing policy whereby governments or its state organs (State Enterprises) charges domestic consumers, including industrial users, lower energy prices compared to the export or international prices³⁸⁶. Thus, Domestic prices for energy products are artificially regulated at a below-market level so as to create a price differential between domestic prices and the prevailing international prices³⁸⁷. It has long been recognized by GATT/WTO Members that such enterprises can create serious obstacles to trade, by abusing their exclusive rights and privileges and thereby circumvent Members' WTO obligations. Nevertheless, dual pricing can be considered a subsidy that grants benefits³⁸⁸, but this does not mean that its use will necessarily be incompatible with the provisions of the SCM. Dual pricing could be admitted if access to the lowest price is not conditioned to the export of a product (therefore, it would not be an export subsidy); or if it is not specific; and if it is specific, that it does not cause damaging effects to the interests of another Member³⁸⁹. The latter usually happens when a state is applying different pricing schemes for different consumers. Using intuitive language at this stage, dual pricing by natural resource-rich countries allow for the domestic price of natural resources to be set significantly lower than export market prices. These actions are of

³⁸⁶ Julia Selivanova "Regulation of Energy in International Trade Law : WTO, NAFTA and Energy Charter" 2004

³⁸⁷ Photini Pazzartizis, Maria Gavouneli, " *Reconceptualising the Rule of Law in Global Governance, Resources, Investments and Trade*, Bloomsbury Publishing Plc, 2016

³⁸⁸ See, Appellate body finding in *Canada- Certain Measures Affecting the Renewable Energy Generation Sector, Canada –Measures Relating to the Feed-In-Tariff Program*, 2013

³⁸⁹ Paulo Skaf, "The regulation of international energy trade:fuels and electricity"2013,

Tesi di dottorato "Speculative Pricing of Crude Oil in International Markets. Implication for Dual Pricing Practices on Refined Crude Oil Products in line with the WTO law & ECT laws"

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particular concerns in industries that require either large energy input or a large provision of resource-based energy commodities.

The affiliation between subsidies and dual pricing

In the energy context, subsidies have been classified into two folds; a) subsidies granted to energy producers and downstream industries³⁹⁰ b) subsidies related to investments³⁹¹. The WTO laws provide for detailed agreements under SCM which are dealing with specific aspects of trade distortions. These agreements are binding to all of the WTO members and they do control the use of trade distortive subsidies. In respect to the SCM agreements³⁹², there should be two conditions cumulatively applying to a situation in order for a subsidy to exist: a) there should be financial contribution by government or any public body within the territory of a member *or* any form of income or price support in the sense of Article XVI³⁹³ where: a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees); (ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits) ; (iii) a government provides goods or services other than general infrastructure, or purchases goods; (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of

³⁹⁰ This category includes direct payments that support production for instance deficiency payments and operating subsidies to producers as well as consumer subsidies); tax-related subsidies (exemptions from taxation, tax credits, etc.); policies that reduce costs of inputs (budgetary subsidies to energy inputs, price controls for inputs. On the other hand, investment subsidies incorporate equity participation, loans at preferential rates, loan guarantees, debt forgiveness, liability funding); policies that create transfers through market prices, See, OECD report 1997.

³⁹¹ These types of subsidies are most applicable in developing countries/ emerging markets.

³⁹² GATT Article I.I of ASCM

³⁹³ For a discussion on what constitutes income price support in the sense of GATT 1994 Article XVI see Section B.4

the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments. It appears from this definition that for a financial contribution to qualify as a “subsidy” for the purpose of SCM agreement it must be provided by the government or public body³⁹⁴. Whether there has been a cost to the government is irrelevant in this context rather to qualify as a subsidy, a financial contribution or income or price support must confer a benefit³⁹⁵.

A number of cases have dealt with the question of how to establish that a benefit has been conferred.³⁹⁶ In *Canada–Aircraft*³⁹⁷, the Appellate Body confirmed the Panel’s finding that a financial contribution had to make the recipient “better off” than it would have been, and that the appropriate basis for comparison in this regard was the marketplace in order for a “benefit³⁹⁸” in the sense of SCM Article 1.1(b) to exist, and thus for the measure to have trade-distorting potential. Further, in *Canada–Diary*³⁹⁹ it was argued that a subsidy involves transfers of economic resources from the grantor to the recipient for less than full consideration. Thus, according to these guidelines, a benefit to recipient exists if the financial contribution was received in terms of more favorable than those available to the recipient market. It thus appears for the purpose of analysing dual pricing practices, the provisions of energy inputs to domestic

³⁹⁴ The term government include includes the local and regional governments while the term public body does not cover all entities owned and/or controlled by the government by only those that possess, exercise or are vested with governmental authority. See Article I.1 of GATT 1994, for the broad list of types of financial contribution.

³⁹⁵ Peter Van De Bossche, Denise Prevost “Essentials of WTO law” Cambridge University Press, 2016

³⁹⁶ Article 14 lays down guidelines for the calculation of the “benefit”.

³⁹⁷ *Canada–Measures Affecting the Export of Civil Aircraft*, DS20, 14th April 1999

³⁹⁸ Article 14 of the SCM sets out guidelines for the calculation of the amount of a subsidy in terms of the benefit to the recipient.

³⁹⁹ *Para 87 WT/DS103/AB/R, WT/DS113/AB/R*

industry at less than market prices by a government body constitutes a subsidy under the SCM agreements⁴⁰⁰.

As stated earlier, dual pricing has been categorised as a form of subsidies because in most cases the practices involve depression of prices for domestic industrial users, hence, domestic industrial producers tend to pay lower market price for their energy inputs, this situation has adverse implications for the ability of imported goods to compete with products that benefited from low energy prices. However, these practices in most cases have not been found inconsistent with WTO law unless when the preferential pricing is linked to export performance, thus dual-pricing policies could be prohibited under WTO rules. Under the WTO law, a subsidy is prohibited or actionable⁴⁰¹. Article 3 of SCM, explicitly prohibits the export of subsidies meaning subsidies that are contingent upon export performance or is contingent upon the use of domestic over imported products. A prohibited subsidy need not be targeted to a specific industry. The fundamental issue to underlying issues inevitably lead to further differences of opinion in respect of procedural matters, such as the question whether dual pricing should be prohibited per se or only to the extent that they cause injury (in theory this issue has been long settled in GATT but differences of opinion between the anti-distortion and the 'injury-only' schools keeps coming back by way of differing interpretation in respect of degree of injury justifying the imposition of countervailing issues). It has been noted that, in terms of dual pricing, the provision of energy inputs at subsidized prices would only be prohibited or considered as an actionable subsidy if it was either conditioned on products set for export or conditioned on the use of

⁴⁰⁰ Simmonetta Zarilli, *Dual Pricing Practice and the WTO Law, Oil, Gas, and Energy Law Intelligence*, Vol 3, Issue 3, 2005

⁴⁰¹ Actionable subsidies are subsidies that impose adverse effects upon the interests of other WTO member countries. See, Article 2 of SCM agreements.

domestic products over imported products or energy inputs on conditions are more favorable than those commercially available in the world market or if such inputs impose a local content requirement in the industry receiving subsidies on its energy industry. In some circumstances, even non-prohibited subsidies could be actionable if they are targeted to a specific industry. Most notably, a subsidy is to be considered “specific” if access to it is explicitly limited to certain enterprises. Conversely, if eligibility of enterprises is based on objective criteria and neutral conditions, which are economic in nature and horizontal in application, such as size, and if eligibility for the subsidy is automatic, specificity does not exist. Article 2 of the SCM Agreement acknowledges that a subsidy programme may appear non-specific according to these principles but may turn out to be specific in the way it is implemented.

In addition to prohibited and actionable subsidies, a subsidy may still be actionable in fact if the subsidy is found to be de facto specific. The most persuasive argument for finding dual pricing practices WTO-inconsistent would be to demonstrate that a country’s dual pricing policy of natural resources, although generally available throughout a country’s economy, confers the disproportionate benefit of a de facto specific subsidy on certain industries. For instance, even when energy products are available at lowered prices to all domestic producers, benefits are de facto limited to specific industries. Admittedly, some industrial users de facto benefit from the dual pricing mechanism more than others because their production process is more energy intensive. Article 2.1(c) provides the scope for the de facto specificity analysis as follows,

“Notwithstanding any appearance of non-specificity, there are reasons to believe that the subsidy may be de facto specific other factors may be considered such as: a limited number of enterprises that receive the subsidy, predominant use by certain enterprises, disproportionately large amounts of subsidy to

*certain enterprises, the manner in which the granting authority exercised discretion. If eligibility criteria for a subsidy are such that access is limited to a specific industry or group of industries, the subsidy would be de facto specific*⁴⁰²

Provided there were a broad consensus on the determination of prohibited subsidies and the level of countermeasures that is deemed acceptable in the case of subsidized exports cause injury to the domestic industry of the importing country, it would still remain difficult to define an adequate response in respect of the impact of subsidies on exports to the subsidizing country or on exports in international markets/third markets.⁴⁰³

In accordance to the above provision, the panel in *Canada- softwood lumber*⁴⁰⁴ elucidated that, if the inherent characteristics of the good provided by the government limit the possible use of the subsidy to a certain industry, the subsidy is all the more likely to be specific. If certain goods are of use only to a limited number of enterprises or industries, the provision of such goods would be specific to these enterprises or industries. But, in the aforementioned case, the panel did not consider that “any provision of a good in the form of a natural resource would automatically be specific, precisely because in some cases, the goods provided in the energy industry such as for example oil, gas, and etc. may be used by an indefinite number of industries in all sectors of the economy, thus it is unlikely that dual pricing in energy resources to be found to inconsistent with WTO rules. The broad approach to the reach of prohibition of the *de facto* discrimination is also confirmed by the strict interpretation

⁴⁰² The Agreement does not say explicitly whether specificity refers to the recipients or the beneficiaries of subsidies.

⁴⁰³ The products that benefit from low priced energy inputs could merely be subject to countervailing duties if they are causing injury to the domestic industry in their export markets, See, Selinova, *The WTO and Energy: WTO Rules and Agreements of Relevancy to the Energy Sector*; ICTSD programme on Trade and Environment

⁴⁰⁴ *United States- Final Countervailing Duty Determination with respect to certain Softwood Lumber from Canada, DS257, January 2004*

given by the panel in *Canada-Autos*⁴⁰⁵ of the footnote following paragraph 1 of Article XVII GATS. In addition, the Appellate Body in *EC and Certain Member States – Large Civil Aircraft*⁴⁰⁶, states that *de facto* export contingency is present when the granting of the subsidy is geared to induce the promotion of future export performance of the recipient.

The latter approach, on the contrary, is based on circumstances that governments decides to grant certain kinds of subsidies that have to do with efficiency considerations, based on a simple welfare analysis may be it will be more easy to circumvent subsidy discipline if a certain government would be able to specifically establish the industries that they are intending to subsidize⁴⁰⁷. A good example of an energy-related measure that was found to violate the principle of non-discrimination under the GATT 1994 is the Canadian feed-in tariff (FIT) program, which was challenged by the EU and Japan in the two formally separate WTO cases, *Canada — Feed-In Tariff Program* and *Canada — Renewable Energy*⁴⁰⁸. The FIT program, introduced by the Canadian Province of Ontario to encourage investments in the generation of renewable energy, provided to the generators of electricity produced from renewable energy sources, prices more favourable than those generally charged in the electricity wholesale market. However, to be eligible for taking part in the program, the generators had to purchase a certain amount of energy-generation equipment of the domestic origin. Both the Panel and the Appellate Body found that the Ontario's local content requirement was discriminatory and, therefore,

⁴⁰⁵ *Canada Certain Measures Affecting the Automotive Industry, WT/DS139/R/WT/DS142/R, 11th February 2010*

⁴⁰⁶ See, the Panel report in *EC and Certain Member States – Measures Affecting Trade in Large Civil Aircraft, WT/DS316/AB/, 2010*

⁴⁰⁷ Virginia R Hildreth, *Renewable Energy Subsidies and the GATT*, Chicago Journal of International Law, Vol 24, 2014

⁴⁰⁸ See, *Canada- Renewable Energy/ Canada-Feed-in Tarriff program., DS412.426. Adopted May 2013*

inconsistent with GATT Article III:4 and the TRIMs Agreement Article 2.1 (which incorporates by reference Article III:4)

Put it differently, non-actionable subsidies may not be countervailed or subject to multilateral challenge if these subsidies were for certain assistance to research activities; certain assistance to disadvantaged regions; and certain assistance to promote the adaptation of existing facilities to new environmental requirements. Otherwise, if a member believes that these practices by other members have been distortive to trade and most importantly, that form of subsidy has been specific to an enterprise or industry, or group of enterprises or industries, or a region then a member should challenge either through multilateral dispute settlement or through countervailing action in the event that they cause adverse effects to the interests of another Member⁴⁰⁹. In addition to that, a panel report in Korea on Alcoholic Beverages⁴¹⁰ provided that an assessment of whether there is a direct competitive relationship between two products or groups of products requires evidence that consumers consider or could consider the two products or groups of products as alternative ways of satisfying a particular need or taste”.

Aside from SCM agreements, another provision in the WTO provisions that could be applicable on the use dual pricing practices is TRIMs agreements under Article 2. Although these agreements are not directly applicable to subsidies Article 2 of the TRIMs Agreement expressly prohibits a government’s offer to confer a benefit on a foreign investor contingent upon a local content requirement. That is to say, if the provision of energy inputs at prices below export prices under a dual pricing system is

⁴⁰⁹ Sijal Mathur, “Trade, the WTO and Energy Security: Mapping the Linkage for India

⁴¹⁰ Panel Report on Korea – Taxes on Alcoholic Beverages, adopted on 17 February 1999, WT/DS75/R, para. 10.40)

contingent upon a foreign investors compliance with any local content requirement hence such a contingency would be in violation of the TRIMs Agreement⁴¹¹

Application of WTO Laws on Energy Trade: Not enough for regulating dual-pricing practices?

As mentioned previously, governments usually implement dual pricing policies with the goal to make a certain product cheaper in domestic markets. This in principle should not decrease the aggregate welfare of an importing country, quite to the contrary, provided that the markets in question are competitive and well functioning⁴¹². These practices are however not only frequently resented as a large share of polices, whether domestic or international do affect foreign consumers as well as corporations abroad. In the WTO la context, the rules that are set up in regulating policies for subsidies, essentially dual pricing policies are intricate. The provision mainly covers regulation of subsidies on renewables and agriculture.

As of this 2017, consistency of dual pricing polices that are said to be a form fossil fuel subsidies essentially refined petroleum products within the SCM Agreement have not been challenged in the WTO forum directly. Renewable energy schemes, however, remain sensitive to WTO dispute settlement as is evidenced by a recent string of cases before the DSB⁴¹³.

In practice, dual-pricing policies usually granted by the government towards the production and consumption of energy resources from fossil fuels or refined petroleum products or renewable energy resources. Through dual pricing, governments of

⁴¹¹ Daniel Behn, "The effect of Dual Pricing Practices on Trade, Environment and Economic Development: Identifying the winners and the Losers under the current WTO Law, 2007, See also, Article 3.1 (b) of TRIMs agreements.

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⁴¹³ See, Panel Report, India – Certain Measures Relating to Solar Cells and Solar Modules, WT/DS456/R, circulated to WTO Members 24 February 2016 [appeal pending] and EU – Biodiesel DS473, European Union – Anti-Dumping Measures on Biodiesel from Argentina, WT/DS473 (Panel composed on 23 June 2014).

resource-rich countries sell their energy abroad at much higher prices than domestically as dual-pricing policies could either reduce prices at domestic market⁴¹⁴ or increase domestic supplies of energy resources. The policies involve the aspects of public policy, including domestic policy investment, trade, and environment⁴¹⁵. It has thus been acknowledged that, establishing that dual pricing as practiced by some of WTO members is a daunting task in the context of the ASCM and without a common concept of the role of the state⁴¹⁶. In addition to that, the WTO law does not contain detailed provisions on dual pricing on resource-based energy commodities as such refined petroleum products since the organization provisions do not deal with energy as a distinct factor. Alternatively, it incorporates a number of principles dealing with specific aspects of potentially trade distortion practices. Among such principles are the Most Favoured Nation (MFN) and National Treatment (NT)⁴¹⁷. Relating the aforementioned clauses to the energy industry, in practice, these provisions restrict energy resources and refined products to be discriminated on the basis of their origin (exports) or destination (imports). Article XVII of GATT requires each member to accord to services and service suppliers of any other member, in respect of all measures affecting the supply of services, treatment no less favorable than that accords

⁴¹⁴ This occurs when consumers are paying less for refined oil products below the costs of supply or the actual prices that are available at the market. On the other hand, dual pricing policies could as well be applicable at high intensive industries or firms. The latter occurs when the firm or an industry pays below the actual costs of distribution and supply or when taxes are paid below their efficient level.

⁴¹⁵ Daniel Behn, *The effect of Dual Pricing Practices on Trade, Environment and Economic Development: Identifying the winners and the Losers under the current WTO Law*, 2007

⁴¹⁶ Article 1.1(a)(1)(iii) SCM Agreement (n 3) and World Trade Report 2010 (n 65) 173 ff.

⁴¹⁷ Article III provides that, with respect to internal taxation and domestic laws, regulations and requirements, imported products shall be accorded treatment “no less favorable” than that accorded to domestic products. While MFN applies to all policies – both border measures and internal measures – national treatment applies to treatment of products after entering the territory of a state, i.e. after customs clearance.

to its own services and service suppliers. Additionally, clauses under NT are applicable not only to taxation but to other laws, regulations requirements that affecting the internal sale, offering for sale purchase, transportation, distribution or use of energy materials or products⁴¹⁸. Given the silence on the WTO Agreements concerning the nature of dual pricing, Members have been including provisions in protocols of accession of new Members prohibiting such measures, especially when it comes to energy producing countries.⁴¹⁹ For instance, Saudi Arabia was pressured to take on an explicit commitment to eliminate its dual pricing program for the natural gas sector. But, the country chose not to do it, limiting itself to the commitment of acting in accordance with normal trade considerations that take into account the full recovery of costs and reasonable profits⁴²⁰. In similar vein, Russia protocol on accession followed the same traits as Saudi Arabia even though Russia reserved some of its rights⁴²¹ on its natural resources. In its accession prices to the WTO, Russia argues that dual pricing could not be considered as a specific subsidy as pursuant to Article 2 of SMC agreements as lower prices for natural gas in the internal market would be granted unconditionally within the whole economic sector and would be made available to everyone including the entities established within Russian territory, making its application widespread (that is, not specific) and eliminating, in this way, the possibility of qualifying in the category of prohibited or actionable subsidies⁴²².

⁴¹⁸ Otherwise these clauses provide a number of exceptions to the rule See, Article IV: 4 of GATT

⁴¹⁹ These accession commitments go beyond the WTO legal framework. See, R Piermartini, *The Role of Export Taxes in the Field of Primary Commodities*, WTO 2004

⁴²⁰ WTO. Report of the Working Party on the accession of the Kingdom of Saudi Arabia to the World Trade Organization. WT/ACC/SAU/61, November 1, 2005, pp. 11-14 and 99, Para. 26-33 and 315.

⁴²¹ By having the full right over the exploration, exploitation and trading its natural resources without interference from other members

⁴²² WTO. Report of the working party on the accession of Russia to the WTO, WT/ACC/ RUS/70; WT/MIN (11)/2. November 17, 2011, §124, p. 30

Similarly, in US – Export Restraints case, Canada challenged the United States’ approach that treated its export restraints as ‘financial contributions’ in countervailing duty investigations to suspected subsidized imports. The US treated these restraints as financial contributions, in the sense of government entrusted or directed provision of goods by a private body in the sense of Article 1.1(a)(1)(iv) SCM. However, the Panel disagreed with the US and concluded that the treatment of export restraints cannot qualify as a financial contribution, therefore making it inconsistent with Article 1.1(a) of the SCM Agreement. In this case, it was emphasized that, finding on dual pricing prices may be treated differently depending on the facts. Relating the this to NT obligations, Article II GATS does not apply generally to all measures affecting trade and services but only comes into play if Members choose to commit service sectors or sub-sectors in their schedules of specific commitments. Similarly, the MFN clause Article II of the GATS does not apply to sectors where members have scheduled an exemption. Moreover, even in sectors where WTO members have undertaken commitments, the GATS do not apply to services provided in the exercise of governmental authority. This derogation of the MFN principle might very well come into play in view of the governance of energy sectors and related to sovereignty over natural resource concerns. By the same token, the GATS expressly does not prevent WTO members from adopting measures that are necessary to pursue public-interest goals such as national security, public health, safety, and other public interest goals⁴²³. Relating latter to the energy sector, GATT, however, leaves the WTO members significant leeway to tailor trade disciplines to their individual needs and obligations

⁴²³ Subject to each member’s specific commitments, Article XVII GATS sets out a three tier test of consistency which requires the examination of whether the measure at issue affect trade in services, the foreign and domestic services and service suppliers are like services or service suppliers and, the foreign services or service suppliers are granted treatment not less favourable

exceeding the existing requirements of the WTO agreements. Such obligations are also known as the “WTO-plus” obligations. The constellation of the WTO-plus obligations undertaken by newly acceding WTO members is done through the accession negotiations. However, acceding countries find it difficult to defend their position in the accession negotiations, as there are no clear guidelines or conditions for becoming a WTO Member. In addition to that, the WTO Agreement itself neither contains detailed provisions on accession to the organization nor clarifies what commitments acceding countries should undertake and the scope and extent of demands that WTO Members can present. Thus it has been argued that the WTO accession process is one of negotiation rather than agreement compliance⁴²⁴.

Although many acceding energy exporting countries receive non-discriminatory treatment in the WTO Members’ market even before they accede the organization yet the WTO-plus obligations impose more stringent disciplines on members than standard WTO rules, however, such obligations also raise a fundamental question for the WTO system: whether the WTO should create “plus” rules on a member-specific basis. Theoretically, what the “plus” rules does is to delimit particular aspects of a certain kind of government intervention and build a set of rights and obligations around these practices on the basis of the trade distortive impact of the measures. In this regard, and in the light of energy producing countries, it is pragmatic to speculate that, accession to the WTO-plus on dual pricing has only be concluded on a tailored manner that suit an energy producing country, for instance, Saudi Arabia undertook a

⁴²⁴ For further deep analysis on WTO accession, see, Neumayer, *Strategic Delaying and Concessions Extraction in Accession Negotiations to the World Trade Organization.*”

Mimeo, London: London School of Economics and Political Science, 2011

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legally binding commitments on dual pricing but with a limited scope as the commitment only covered natural gas and natural gas liquids⁴²⁵.

In the GATT 1994, the provision addressing the issue of price controls on internal maximum control is Article 111:9, reads as follows;

“The contracting parties recognize that internal maximum price control measures, even though conforming to the other provisions of this Article, can have effects prejudicial to the interests of contracting parties supplying imported products. Accordingly, contracting parties applying such measures shall take account of the interests of exporting contracting parties with a view to avoiding to the fullest practicable extent such prejudicial effects”

It is worth acknowledging that the aforementioned article does not contain any substantive obligation, rather the article requires members to pay in accordance with the interests of exporting member countries prior to applying the measures. Further, within the meaning of GATT Article XI:1⁴²⁶, there is another relevant provision on energy dual pricing that prohibits the exports or imports of energy materials or products below a certain price. But, Article XI foresees several exceptions to the prohibition of quantitative restrictions⁴²⁷. The most relevant for the energy sector is the provision that allows countries to temporarily invoke export prohibitions in order to relieve critical shortages of products essential to the exporting country. Moreover, it is worth acknowledging that GATT/WTO rules only apply to governmental measures. They do not generally restrict the conduct of private operators. But one might ask, what happens with in-between situations like conduct of enterprises owned

⁴²⁵ Julia Selinova” *Regulation of Energy in international Trade Law : WTO , NAFTA and Energy Charter*

⁴²⁶ No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party

⁴²⁷ See, *United States - Standards for Reformulated and Conventional Gasoline*" (WT/DS2/R), available at https://www.wto.org/english/tratop_e/dispu_e/2-9.pdf

by the state? What limitations do WTO rules as impose, for example, on a state-owned oil trading company?

In order to avoid that WTO Contracting Parties circumvent their obligations in respect of governmental energy policies, disciplines are imposed also on actions taken by so-called state trading enterprises. Indeed, if no restrictions would apply to such enterprises, WTO Contracting members could easily delegate all of its policy-making powers to such an enterprise, in effect still control this enterprise, but avoid having to comply with WTO rules, provisions on dual pricing are also covered within the meaning of Article XVII: 1, which provides that:

“ a) Each contracting party undertakes that if it establishes or maintains a state enterprise, wherever located, or grants to any enterprise, formally or in effect, exclusive or special privileges, such enterprise shall, in its purchases or sales involving either imports or exports, act in a manner consistent with the general principles of non-discriminatory treatment prescribed in this Agreement for governmental measures affecting imports and exports by private traders”.

b) The provisions of subparagraph (a) of this paragraph shall be understood to require that such enterprises shall, having due regard to the other provisions of this Agreement, make any such purchases or sales solely in accordance with commercial considerations, including price, quality, availability, marketability, transportation and other conditions of purchase or sale, and shall afford the enterprises of the other contracting parties adequate opportunity, in accordance with customary business practice, to compete for participation in such purchases or sales.

(c) No contracting party shall prevent any enterprise (whether or not an enterprise described in subparagraph (a) of this paragraph) under its jurisdiction from acting in accordance with the principles of subparagraphs (a) and (b) of this paragraph”

In the light of the above guidance, already the above provisions on the dual pricing seem very incoherent, thus the limits their effectiveness in addressing distortive government practices on exportation of preferential rates energy products, unless the practices are conducted by STEs through the sale of energy inputs, then article

XVII:1 GATT may apply⁴²⁸, nevertheless, it is not clear if the latter article is supposed to cover either Most Favoured National clause or National Treatment requirement or both⁴²⁹. Besides, if we are to assume that Article XVII covers national treatment requirement, yet it is unclear to what extent that would ensure an adequate regulation of dual pricing on imports while the practice of dual pricing ought to affect the export side. And, It should be noted up-front, however, that the WTO does not in principle prohibit its members from maintaining state monopolies nor prevent them from engaging in commercial activities.

Besides lack of proper guidance on the rules to tackle energy dual pricing practiced in the energy sector under the GATT rules, in the WTO energy dual pricing in some cases it may fall under the Agreements on Subsidies and Countervailing measures (SCM) and the Anti-Dumping Agreements.

iii) The WTO law and Legitimate Exemption for Dual Pricing Practices

In practice, Under the current WTO disciplines, even if a complaining country could establish that dual pricing practices were inconsistent with the WTO rules under SCM and/or TRIMs agreements, the WTO member practicing dual pricing on energy sector could still possibly abscond scrutiny by invoking the general exception under Article XX of the GATT, or if applicable, the Special and Differential Treatment (SDT) Provisions of the SCM Agreement⁴³⁰. These agreements contain provisions that give developing countries special rights and give developed countries the possibility to treat developing countries more favorably than other WTO

⁴²⁸ The provision requires that STEs to act in accordance with the principle of non-discrimination

⁴²⁹ Maria Gavouneli, Phontini Pazartzis “ Reconceptualising the Rule of Law in gLOBAL governance, Resources, Investment and Trade, oxford and Portland Press, 2016

⁴³⁰ Julia Selivanova, “Regulation of Energy in International Trade Law:WTO, NAFTA and Energy Charter

Members. For instance, Article XX (g) of GATT allows for measures that relate to the conservation of exhaustible natural resources natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption. Relating this to dual pricing practice, under article 27 of SCM agreements the WTO recognizes the important roles that subsidies can play in the economic development programs of developing country members⁴³¹, it provides that,

“Any developing country Member shall phase out its export subsidies within the eight-year period, preferably in a progressive manner. However, a developing country Member shall not increase the level of its export subsidies⁴³², and shall eliminate them within a period shorter than that provided for in this paragraph when the use of such export subsidies is inconsistent with its development needs. If a developing country Member deems it necessary to apply such subsidies beyond the 8-year period, it shall not later than one year before the expiry of this period enter into consultation with the Committee, which will determine whether an extension of this period is justified, after examining all the relevant economic, financial and development needs of the developing country Member in question”

In the light of what has been provided above, in general, not all subsidies are illegal in the WTO context and a distinction is made between prohibited and actionable subsidies. SCM agreements prohibit two categories of subsidies: subsidies contingent upon exportation and upon the use of domestic over imported goods that are specifically designed to affect trade. However it is worth acknowledging that, it is overall much easier to establish specificity in production subsidies than in consumer subsidies. The reason for this is that consumer subsidies are often more general in nature⁴³³. Thus, in respect of dual pricing, the current schemes for these practices neither fall under the category of prohibited subsidies nor do they fulfill the de jure

⁴³¹ See, Article 27 of SCM agreements

⁴³² For a developing country Member not granting export subsidies as of the date of entry into force of the WTO Agreement, this paragraph shall apply on the basis of the level of export subsidies granted in 1986.

⁴³³ Anna-Alexandra Marhold, “*EU State Aid Law, WTO Subsidies Disciplines and Renewable Energy Supporting Schemes: Disconnected Paradigms in Decarbonizing the Grid*” ISSN 15724042-2017

specificity criterion, since they often apply equally to all sectors to the general benefit of the domestic manufacturing sector and not of specific government organs as provided under Article 2 of SCM agreements. Nevertheless, one might ask, due to the absence of explicit subsidies discipline on the energy industry, how would WTO restrain energy subsidies or dual pricing practices? The main point here is that a certain discipline on subsidies exists by virtue of the rules on non-discrimination such as the most favored nation and national treatment provisions. National treatment is particularly relevant since members can schedule national treatment commitments with respect to particular service activities in specified modes of supply. If these commitments do not contain explicit exemptions that permit subsidies to be granted in a discriminatory manner, then the national treatment principle will require that “like” foreign and national services and service suppliers must be given the same treatment in relation to subsidies. While this discipline does not directly regulate the granting of subsidies neither dual pricing in the energy sector, it has been argued that WTO should impose some restraint on the willingness of governments to subsidize their energy industry. In addition to that, energy dual pricing practices should either be included within the category of prohibited subsidies, in particular, dual pricing schemes falling within the ASCM definition of ‘subsidy’ and within the meaning of Article 2 & 3 of SCM agreements⁴³⁴ or to inquire as to whether or not a resource-endowed country could extend dual pricing policies to other renewable and non-renewable resources. It has been argued that governments mostly initiate dual pricing

⁴³⁴ For a prohibited subsidy, no adverse effects need to be proven in dispute settlement. Rather all that is required is to prove that the measure falls within the definition of a prohibited subsidy. The mandatory multilateral remedy for a prohibited subsidy is that the subsidizing Member must withdraw the subsidy, without delay. For an actionable subsidy, however, it is necessary to prove adverse trade effects in respect of a particular product in a particular market where the subsidized goods compete.

policies on energy resources for the reasons that, in most countries, the energy sectors are dominated by state-owned enterprises (SOEs) that are subject to government pricing policies. In this regard, recently the WTO members have raised their concerns on possible amendments on WTO provisions on subsidies. Arguably, Article 3.1 ASCM should also outlaw ‘the provision, by the virtue of government action, of goods to domestic production on terms and conditions more favorable than those generally available for such goods when destined for exports’⁴³⁵.

6.2.4 Unsettled Issues on Energy Regulations in line with supranational laws

Issues pertaining to energy subsidies, essentially a form of fossil fuel and refined products subsidization have remain unsolved under the WTO law. Nevertheless it would be wrong to say, oil industry has been fully excavated by the WTO law. The WTO contains provision through SCM agreements, GATTs and the TRIMs that regulate all trade in goods and services, and in which indirectly they could be extended to energy trade regulations. However, it has been argued that there are several GATT rules as such Article XXI that provide exceptions to, or tend to make ambiguous the applicability of the WTO rules to trade in energy. This Article give a lee way countries to take actions that ought to undermine GATT provisions since they fall within national security interests. Further, the general exception under Article XX of GATT provides legal means for oil exporters to impose restrictions on their production and exports of oil.

In the context of dual pricing policies, the WTO prescribe “plus obligations” for countries that wish to accede the WTO. These obligations most of them are permanent, impose more stringent disciplines on acceding members with respect to

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EC Revised Submission on Export Taxes, TN/MA/W/101, Jan 2008

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their rule of law, and foreign investment, however, for countries that have acceded the WTO such as Russian and Saudi Arabia, have reserved its rights on sovereignty over its natural resources. Thus, it has been argued that these countries have been manipulating energy resources prices through policies that constitute hidden subsidies to downstream products. According to the WTO agreements on SCM, a subsidy exists when there is financial contribution, by a government or public body or there is any form of income or price support that confers a benefit. Nonetheless, it has proven difficult in pointing out this form of subsidization (dual pricing) practices since most these practices are neither specific, nor confer benefits in the sense of Article 1:1, and 14(d) of SCM. Most importantly, Article 2.1 of SCM agreements requires a condition of a specificity to be met for a subsidy in question to be actionable. Not only that but also, it has been noted that it is difficult to prove benefits or financial contribution, reasons being, it is difficult to show specificity in these instances, without having to include any form of governmental income support in it⁴³⁶. For instance, Saudi Arabia when acceding the WTO made a commitment by which producers and distributors of natural gas liquids will operate within relevant regulatory framework, on the basis of normal commercial consideration based on the full recovery of cost and reasonable profit. As we see, element would come very close to the concept of selling gas at the cheaper price in Saudi Arabia domestic market not necessarily at unprofitable price, while on the other hand the profit will be a contribution to the aggregate welfare of a country. For this reason, already the latter is not at the heart of the SCM agreements as it does not breach Article 2 of SCM agreements.

⁴³⁶ Daniel Behn, *"The effect of Dual Pricing Practices on Trade, Environment and Economic Development: Identifying the winners and the Losers under the current WTO Law, 2007"*

Further, it has been asserted that provision that some provisions on GATT provisions and TRIMs agreements that have been used in matters relating to energy sector, contracts each other. This was argued in Canada- Feed-In-Tariffs case where it was noted “ the TRIMs Agreement deals specifically with investment measures related to trade in goods or TRIMs and not otherwise. Looking at the TRIMs Agreement as a whole, it could be considered that the "further" provisions that it contains mainly clarify the application of Articles III and XI of the GATT 1994 to a specific set of measures – namely, TRIMs. In doing so, however, there is little, if any, indication that the provisions of the TRIMs Agreement were intended to override rights recognized in the GATT.

Lastly, Lack of clarity on rules governing energy sectors with the WTO, in recent years many countries have become a part of bilateral and regional agreement as such the Energy Chartered Secretariat, OECD, European community, MERCOSUR just to name a few. The current proliferation of RTAs reflects, in part, a demand for deeper integration than what has been achieved by older multilateral agreements. To the extent that they go beyond commitments made in the WTO and remain open to additional participation by countries committed to meeting their standards. Provided the fact that RTAs do meet countries commitments on expanding free and fair trade and policymakers are mindful that these agreements must be consistent with multilateral rules and that coherence across regional arrangements, as well as between regional and multilateral systems however it has been argued that, in some circumstances RTAs provisions overlaps with the WTO provisions, for instance the WTO encourage its members in forming regional agreements but the WTO rules shall prevail over other agreements. As opposed to the latter, some of RTAs rules overlap the WTO provisions. For instance, NAFTA provides that a forum can be

chosen at the discretion of a complaining party and gives preference to the NAFTA forum when the action involves environmental, SPS or standards-related measures. It further provides that, if the complaining party has already initiated GATT/WTO procedures on the matter, the complaining party shall withdraw from these proceedings and may initiate dispute settlement mechanism under NAFTA⁴³⁷. Not to mention, Article 23 of the WTO/DSU provides that a violation of WTO law should be addressed only according to DSU mechanism. Nonetheless, it has been questioned how Article 23 of and the quasi-automatic process of the DSU be reconciled with the preference and, in some circumstances, the exclusive priority given to the NAFTA dispute settlement mechanism for obligations, which are similar in NAFTA and in WTO for the same facts. This already creates conflict of laws between the WTO and RTAs. Perhaps, if jurisdictional conflicts cannot be solved at a normative level, or if a PTA does not include a jurisdiction clause in the first place, solutions to the issues of overlapping jurisdictions have to be found elsewhere.

In the light of what have been analysed on regulation of dual pricing practices on refined crude oil products and fossil fuel under the WTO law and RTAs, it is however worth noting that, at large the WTO and other supranational laws have significantly addressed the issue of subsidies in on renewable energy (green energy) and a number of cases have initiated under the WTO/DSU mechanisms so as under other RTAs. However do to complex public policy objectives and methodologies deployed by energy exporting/importing countries pose a multiple set of challenges in terms of legality under various WTO agreements in solving disputes that fall within energy sector, particularly dual pricing practices Hence, it has been contended that, although a number of WTO member countries such as Russia, Saudi Arabia, Mexico, China

⁴³⁷ See Article 2005 (7) of NAFTA

just to name a few have adopted dual pricing practices to some stage or the other, still, as to date there has been no challenge to dual pricing practices in the WTO dispute settlement. The latter will be analysed in the following chapter.

CHAPTER 5

STATE RESPONSIBILY AND THE GOVERNANCE OF OIL INDUSTRY; The Relationship Between Domestic law and International Law

The phase of globalization, especially, the international economic activities and the development of inter-dependence of national economies continue to take headlines on International journals. Governments finds increasingly difficult to implement economic policies as such activities often crosses boarders in ways to escape the reach of much government control. A strictly theoretical treatment of the relation between international law and municipal law is today of the utmost practical importance. While international law is developing at a pace without precedents in the past centuries, international agreements are not longer limited to topics of peace and security have expanded to areas such as economics, environment, trade just to name a few. This order not only determines the means by which international law acquire status of binding law within the jurisdiction of particular country but also the relationship between different organs of the state that is involved in implementing international law. Accordingly, national courts in many countries have increasingly taken notice of and refer to international treaties and agreements when applying and enforcing laws on the national level⁴³⁸, not least in the field of international economics and trade.

Much of this study, of-course, does not have the glamour or visibility of nation-state relations as such use of force, human rights, interventions and et.al, but it does in deed discuss a significant part of international law, and particularly treaty law. As the thesis

⁴³⁸ A major source of information on these topics is Oxford Reports on International Law(international Law in Domestic Courts), which brings together decision on public international law from international law courts, domestic courts and ad hoc tribunals, visit, <http://opil.ouplaw.com/home/oril> and, <http://opil.ouplaw.com/page/ILDC/oxford-reports-on-international-law-in-domestic-courts>

title suggests, a part of the study covers regulation of oil industry in international markets, wherein, the subject automatically fall within international economic law spectrum. In analysing the rule of economic law on oil industry, the study covers four main areas such public international law as activities and cases related to international economic law are often contain practices that are related to international law, especially concerning treaty and practice. Further to that, the study discusses the relationship between international economic law and internal (“hereinafter referred to interchangeably as municipal, national or domestic law”). This relationship and interconnection between international economic law and municipal law is particularly vital to the operation and effectiveness of international economic regulations. The core theme of the study is to address the intersection between municipal/domestic law and international, and their role in regulating oil industry in international markets. Interaction between international law and domestic law according to concurrent trends of international legal frameworks will be analysed also.

With the raise of nationalism and codifications of the 21th Century, international law has diverted from its norms: being a toolbox to all legal solutions. In the recent decades it has become more evident for international law being incorporated into municipal laws of each country or became blended with peculiarities of national law.

The search of understanding on the relationship between these two legal systems has been analysed from the perspective of monism and dualism theories.

MONIST-DUALIST THEORY

According to monist theory, national and international legal system forms a unity, and that international law is automatically a part of national legal system⁴³⁹, while in the light of dualism theory, international law and national law are two separate legal

⁴³⁹ Nolkaemper, André “National Courts and International Rule of Law” 2011
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spheres. Arguably, international law will not gain a force of domestic law unless a state is a part of that treaty and that law has been made a part of internal law by the legislature. Not only that but also, where there is conflict of laws, domestic law prevails and international law yields.

Provided of the perception on the above theories, yet understanding of the relationship between these two legal systems varies. Some studies argue that, international law form a part of national legal orders, and is incorporated and directly applied in the domestic context, most of the time prevailing over inconsistent laws⁴⁴⁰.

Other argues that, international law, unlike domestic legal system is “decentralized”.

Meaning that, international law has no legislator creating the rules. The creators of international law are at the same time the main subjects of international law, namely states. States are subjects of international law, unlike individuals in domestic law, do not elect and international legislator, which is then mandated to make law in their behalf ⁴⁴¹. Further to that, Anne-Marie Slaughter and William Burke-White ⁴⁴² advanced the argument that “the future of international law is domestic. Focusing more on the interaction between the international and domestic law, the study provides that, the interfaces between these two legal paradigms creates opportunities for self-reflection. The interactions are the points where the actors, norms and procedures belonging to respective legal orders connect and interact with one another.

The possibilities for interactions and mutual self-reflection could be shown or traced through acts on international economics as such trade, investments environment

⁴⁴⁰ Fisnik Korenica and Dren Doli “The Relationship Between International Treaties and Domestic Law: A view from Albanian Constitutional Law and Practice, Vol 24, 2012

⁴⁴¹ Joost Pauwelyn “The Role of Public International Law in the WTO: How Far Can We Go?”, 2017

⁴⁴² Anne-Marie Slaughter and William Burke-White” The Future of International Law is Domestic (or the European Way of Law), Harvard Internal Law Journal. 327, 2007

conservations or in some cases the interactions could through human rights, crimes and public healthy. In principal, international law must address the capacity and the will of domestic government to responds on issues that ought to have cross-boarder impacts or might cause adverse effects on an international community. For instance, BIJ⁴⁴³ participants considered three judicial cases that show how domestic courts are taking on international legal issues. The case concerned the filling of a claim by Argentina in the International Court of Justice (ICJ) against the United States of America, argued that, “.... the US had committed violations of Argentine sovereignty and immunities..” as a result of judicial decisions adopted by US tribunals concerning the restructuring of Argentine Public debt. The act by the domestic order of the US was thus challenged at the ICJ as a violation of international law that has caused adverse impact on Argentina. In this regard, the study suggests that, national and international law regulating the exercise of authority do not overlap. Such an area of law generally represents the idea of the ‘rule of law’ , which the study considers as the regulation of the exercise of authority. Both national public law and international human rights law regulate how the government ought to exercise its authority against individuals and entities within its jurisdiction. While the national and ‘ international’ rule of law are both indispensable components of global governance, the overlap has given rise to greater chances of conflict between the two branches of the rule of law. Based on this, the interface between national law and international law can be analysed from three different angels namely: firstly, how the national rule of law understands, accepts, and resists the international rule of law; (ii) how the international rule of law understands; accepts, and resists the national rule of law; and how the interactions can be understood and evaluated from external (outside) angles.

⁴⁴³ Brandeis Insitute for International Judges

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However, as the title suggests, a central theme of the study is to analyse the relationship between domestic and international economic law.

International law is a law of corporation and not subordination⁴⁴⁴. Its creation depends essentially on consents of states, be it explicit or implicit. Meaning, lack of consensus by a given state means that the created rules cannot be implemented by that state. In this regard, international law has a unique future of being a genetically incomplete legal order. Its main role is to supply the source to allow the adoption of a common regulation for all states participating in the regime. Moreover, the study underlines that, the role of international law is not mainly to supply implementation mechanism for its rules, rather this task fall on municipal law within the richly articulated organic structure of the States. Put it differently, this is to say that; international law produces the norms and refers to a great extent to municipal law for their execution.

With regard to the above, it could be articulated that, each state is largely its own lawmaker and, it is the duty of the state to adopt necessary laws and regulations so as to enable the municipal organs to correctly implement the international obligations of the state. This implies that, the legal relationship between states varies significantly depending on the state concerned, as apposed to the relationship between individuals under domestic law where legislation and other generally applicable law is more significant than private contracts.

At the outset, municipal law does include an element with futures of international legislation; general international law composed of general customary international law and general principles of law. The rules of general international law are binding on all

⁴⁴⁴ Stephane Beauluac “The Westphalian Model in Defining International Law: Challenging the myth” 8 *Australian J Legal Hist* 181, 2004

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States. States and new treaties are automatically born into it⁴⁴⁵. This sharing of work implies that international rules must be applicable by state organs at municipal level. But, this municipal applicability of international law is not self-explanatory since international law and municipal laws are two distinct legal orders. As mentioned earlier, international law is significantly made by consent of state organs. This is manifestly the case for treaties that which have to be ratified or acceded to. These legal acts performed by State organs according to their internal law bring together international law within municipal law. In order to understand the exact affiliation for these two legal orders, the study use two legal theories; dualism and monism.

With regard to the above, on one hand the study discusses the modern law and its foundation, state's will, and presents aspects of monism and dualism approach of the interaction of international law and domestic law. On the other hand, the study addresses the relationship between international law and domestic legal orders through incorporated treaties as such multilateral and bilateral agreements. The study then modules the relationship between treaties and domestic legal orders, arguing, international treaties form part of national legal order and are incorporated and directly applied to in the domestic context, most of the times prevailing over inconsistent laws. The question of international treaties and mechanisms in place to ensure the prevalence of treaties over in consistent domestic laws are also addressed.

By the principal that governs international law, states are committed towards respecting the treaties that they establish and also to determine their application by their own legal, executive and judicial institutions. However, international law does not rule on how states could incorporate its international law obligations into domestic legal structure and internal legal system. This matter is left for each state to decide the

⁴⁴⁵ International law is not a decentralized system, rather is a compilation of varying bilateral legal relationships and multilateral treaties

condition in which legal provisions included in treaties are to be integrated in the state's internal legal system. This interaction has been inspired by two theories that are either written into states constitution or just followed in practice.⁴⁴⁶

For, monism, law is regarded as a contract, that is, as the outcome of negotiation process between self-interested and self-determined parties. In this sense, international law is regarded as being forged according to states desires-an explicit or implicit consent between the multilateral will of states⁴⁴⁷. The establishment of will under international law plays a significant role in international relations within a legal and political modern narrative environment. According to monists, states are sovereign, that is, there should be no superior political or legal power over state that the states own political and legal power⁴⁴⁸. States being sovereign, meant to have its own will, capability to create and sustain a legal, political, and economic order. Thus, if the international law coerces the state, it happens because the state has agreed to limit its sovereignty: state's self-imposed limitation by its freely complied will to take part in treaties and by the freely acceptance of the customary international law. Further to that, monist concept considers international law as a law of freedom as institutions are tailored to maintain international relation agreements based on a *pacta sunt servanda* principle⁴⁴⁹.. The consequence of monism is that, treaty will be automatically applicable on the territory of a state at the very moment it intentionally enters into

⁴⁴⁶ J.G. Starke, B.C.L., "Monalism and Dualism in the Theory of International Law" 17 Brit Y.B.Int .66, 1936

⁴⁴⁷ Thomas Skouteris, "The Notion of Progress in International Law Discourse", 2010

⁴⁴⁸ Mark W.Zacher, "The Territorial Integrity Norm: International Boundaries and the Use of Force", 55 INTL ORG.215, 2001

⁴⁴⁹ States really bound to fulfil the commitments they undertake pursuant to a bilateral or multilateral treaty once it has been ratified and then enters into force? According to *pacta sunt servanda*, they are. The principle describes a significant general rule of international law that underlies the entire system of treaty-based relations between sovereign states.

force. In this relation, no municipal organ will be required to do something particularly to this effect.⁴⁵⁰

Further to that, monists conceive that international law and domestic law are one single legal order and for that, antinomies would possibly derive from the clash of their rules. In contrary to the latter, some studies have argued that, international legal order should overrule domestic legal orders to avoid conflict of laws, while other studies argues that domestic norms should prevail over international law. In settling these two arguments, the study urges that, a State, by virtue of its sovereignty, may decide as it deem fit which sources applies with what degree in its municipal order. However, if a state has given precedence on its territory to a municipal norm over a treaty norm, it will then be responsible for breaching its treaty obligations towards other treaty partner. In this regard, the study argues that, in inter-State relations, the international law, will always, with no exceptions prevails over norms of municipal law.

For, dualism, international law and domestic law are neatly separated legal orders⁴⁵¹: one is for inter-states relations (external regulations); and the other is for state dealings (internal regulations). Thus this approach provides that international law and domestic law are distinct legal orders that do not overlap. As international law deals with inter-state relations-multilateral will of states and domestic law with intra-state matters-unilateral states will⁴⁵². In this regard the study argues that, the presence of two legal system in dualism reflects precisely the idea of an inside independence from

⁴⁵⁰ There is only once exception to this rule, that is, there is rule of law requirement that when a treaty interferes with the right of individuals it cannot be applied by municipal organs before it is published

⁴⁵¹ David T, "The Intersection of International law and Domestic Law; Monism and Dualism in Practice", 2014

⁴⁵² Petersen, Niels in "The Reception of International Law by Constitutional Courts Through the prism of Legitimacy", 2009

outside. Under dualism the study considers that between internal and international provisions there cannot exist any kind of conflicts since these provisions differs from their objectives. Internal provisions are applied exclusively between the state boarders and cannot interfere with the international legal system. The theory teaches that, domestic and international law are two separate legal systems holding in common international responsibility. For instance, a perfect international treaty would only be effective at an international level. For it to be applied at domestic level, a state has to be a contracting member and has adopted the legal measures from the treaty to the national provisions. Based on this the study urges that, subject of laws cannot be the same in both legal system unless the international treaty has gone through nationalization that open the doors for it to be applicable at the domestic level or within internal regulations. However, one should note that, internal provisions are represented by state's constitutions while international law is represented by the principle of *pacta sunt servanda*. In this essence, it could be argued that international law provisions out to be introduced in the internal law by internal provision, recognizing, neutralising and introducing it through an internal measure and applied as such. Thus, it is evidently that domestic/internal and international law are not rigorously separated as they compliment each other's validity.

Analysing these two theories the study reached a conclusion that, under dualism the basis for mandatory forces of municipal law provisions are presented by a state's constitutions, as opposed to international law that is represented by the principle of *pacta sunt servanda*. The principle is as fundamental as it is classic⁴⁵³ and it is however applicable to treaties that a State or its organs has ratified and without exceptions or

⁴⁵³ See the discussion of classical cases in J.B Whitton , “La règle *pacta sunt servanda*” *RCADI*, Vol 49, 1934, III, P 147ff

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reservations. Thus, in case of the breach of the treaty, the implications are thereof regulated under the law of State responsibility⁴⁵⁴.

Further to that, international law is introduced to municipal law based on an approval of a State for such law to prevail over municipal law. On other hand it has been argued that, municipal law makes a reference to international law, through a system of reference and borrowing, the norm being nationalized and applied as an internal legal provision.⁴⁵⁵ Thus, from an institutional point of view domestic and international law do intersect, since international law is not a decentralized system or does not dispose yet its own specific authorities, it is still up to the state's institutions to rule and enforce its own rules⁴⁵⁶

This is not to say that the conclusion of these theories are accepted without a question: it is necessary mentioning that, provided there is an opening toward the growth of international law, the evolution that took place recently in the law field i.e. the development of international law and expansion of domains on which treaties have been signed⁴⁵⁷, created a delamination between international law and municipal law has become difficult, and the approach to these paradigms more debatable. In practice neither of these theories in pure form is still applicable. Some studies have asserted that, scholars that mostly develop these theories are with limited practical relevance⁴⁵⁸. Further to that, it has been urged that, monism with its doctrine of

⁴⁵⁴ Refer the coverage of state responsibility in chapter 5 of the study, and also, J. Crawford, A. Pallet and S Olleson (eds) "The Law of International responsibility" Oxford Press, 2010

⁴⁵⁵ David Thor Bjorgvinsson "The Intersection of International Law and Domestic Law: Theoretical and Practical Analysis, Edward Elgar Publishing Limited, 2015

⁴⁵⁶ Aust, Anthony, "Modern Treaty Law and Practice, 2nd Edition, 2007, p 182

⁴⁵⁷ Shaw Malcom N "International Law" 2008, P. 33

⁴⁵⁸ See, Henking, Louis, "International Law: Political and Values , 1995, p.65; Brownlie Ian, Principles of Public International Law, 2008, p 33; Cassese, Antonio "International Law", 2nd Ed. 2005, Pg. 216

automatic incorporation⁴⁵⁹, and dualism, with its doctrine of transformation⁴⁶⁰, do not pay attention to the wide range of influences international law has on domestic law and which complicates the issue to the extent that the doctrine ignores reality of the situation⁴⁶¹. It may be true that, in reality courts or tribunals do not expressly apply monist or dualist theory⁴⁶². Arguably, in reality the rules on making treaties, ratifications and their incorporation in individual countries rarely fit completely within one theory or the other, and the sole reference to them does not much about the concrete legal position in individual countries. Thus, In the search of common interactions between monism and dualism, it has been suggested that when it comes to rules on making and ratification of treaties and their incorporation to national law and application of international law by judiciary and executive, certain elements could be identified as a characteristics for monist principle. For instance, Article 27 of Vienna Convention on the Law of Treaties on a provision pertaining to domestic law and observance of treaties “ a party may not invoke a the provision of its internal law regarding competence to conclude an international treaty, neither the Vienna Convention nor any other rule of international law may imposes on states any duty as to how observance of international law should be achieved in domestic law.” This rule aims at ensuring efficiency in the treaty making at an international level. In this sense,

⁴⁵⁹ Kelsen, Hans “Principals of General Theory of Law and State”, 2007,pp362.380

⁴⁶⁰ See, Juristic, ”Is Dualist-Monist Controversy in international Law Simply a Fiction? Visit <http://mezinarodni.juristic.cz/51001/clanek/mpv1.html>

⁴⁶¹ Conforti Benedettom “International Law and the Role of Domestic Legal Systems, 1993,pp.13-14

⁴⁶² In the Alabama Claims Arbitration case, the ICJ held, that ".a piece of national law can not be regarded as an excuse for the breach of obligations given by international law." In another case this court also held, that ".it is the duty of every state to bring its domestic law in line with international law.See, Alabama Claims for United States of America against Great Britain, Visit http://legal.un.org/riaa/cases/vol_XXIX/125-134.pdf

the study concludes that, even though monist-dualist theories are neither directly applicable in practice nor easier finding states that either purely monist or dualistic, yet, this does not change the fact that these theories have played an important role in developing international law as the relationship between international law and national law still today demonstrates elements of both monism and dualism. For instance, rules relating to making treaties and status of customary international law and treaties are in reality often derived from monism and dualism theories.

After all, one of the purposes of the study is to evaluate the relationship between international law and municipal, and analyse how these two norms interact in regulation oil trade in international markets.

After affirming the relationship between international law and domestic law, the next question is how far would supra-national law go in attributing states on the violation of their obligations in international trade?

It is clear by now that WTO rules are binding as international law. As a rule, remedies for violations of WTO obligations remain available only to the Member(s) whose international trade interests have been affected, in actual or potential terms. Nonetheless, contracting parties have decided to extend to a limited number of WTO obligations the legal regime of indivisible obligation and to consider immaterial for the purpose of resorting to the dispute settlement system the effects of their violations⁴⁶³.

In spite of the fact that under the WTO Dispute Settlement Understanding is generally for the affected person's state to take action and that compensation is not generally available for affected private persons. On the other hand, one's view on the remedies that international law ought to provide must be the rules that are complied with or should there be room for bilateral settlement, re-negotiation or even unilateral

⁴⁶³ Tarcisio Gazzini, "*The Legal Nature of WTO obligations and Consequences of their Violation*" *The European Journal of International Law* Vol. 17, No 4, 2006

Tesi di dottorato "Speculative Pricing of Crude Oil in International Markets. Implication for Dual Pricing Practices on Refined Crude Oil Products in line with the WTO law & ECT laws"

di MALLE ELISIANA STANLEY

discussa presso Università Commerciale Luigi Bocconi-Milano nell'anno 2019

La tesi è tutelata dalla normativa sul diritto d'autore (Legge 22 aprile 1941, n.633 e successive integrazioni e modifiche).

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breaches as long as compensation is paid for-is ultimately determined by how one perceives international law more generally: what is its normative value and role and what goals can it achieve⁴⁶⁴. In relation to the aspects of energy regulation under the WTO law, the organization offers dispute settlement mechanism that is applicable equally to all of its members. Of all WTO affairs, energy disputes are treated the same and solved similarly to other disputes as provided under Article 1 of DSU⁴⁶⁵.

In respect to the WTO dispute settlement on energy related matters, it is worthy reciting that, as of to date the DSU mechanism has only initiated energy disputes that covers non-renewables (green energy). The situation as it stands thus leads to the following ‘policy paradox’: Members are unlikely to challenge harmful and trade distorting fossil fuel (non-renewable energy resources subsidies) subsidies in the WTO, inter alia because of their presumed lack to meet the specificity requirement under Article 2 of the ASCM. On the other hand, governments (states) ought to have options available in initiating claims related renewable energy subsidies against state or state organs.

As the title suggests, the responsibility of state/state enterprises will be analysed within the scope of two supra-national regimes, such as the ECT and the WTO law in respect to trade in good and services. The chapter focuses on three prominent issues

⁴⁶⁴ Joost Pauwelyn, “How Binding are WTO Rules? A Transatlantic Analysis of International Law, 2004

⁴⁶⁵ The WTO Agreement provides for the discipline applicable to all dispute settlement procedures is the “Understanding on Rules and Procedures Governing the Settlement of Disputes” or Dispute Settlement Understanding (DSU). The WTO dispute settlement mechanism also contains provisions for special or extra procedures under agreements such as Articles XXII and XXIII of GATS (General Agreement on Trade in Services) as well as the procedures and rules of the Appellate Body. The mechanism covers the procedures for mediation, conciliation, good offices and arbitration, and the core part of those procedures includes “consultation” and “panel procedures” and a series of other procedures relevant to them. See, Daniel, Brandon & Jane N Smith “ *Dispute Settlement in the WTO :An Overview*” Congressional Research Service, 2012

as such, how far are states held responsible in violation of their obligations under the WTO laws and ECT? In-order to arrive into a precise analysis, a more stringent threshold will be adopted to lift the veil of state enterprises, and the doctrine of state attribution in hand with the doctrine of veil-piercing will be employed as two complimentary doctrines to explain responsibility of state for the actions of its organs or 'agents'. The aim of the paper is to examine whether states could be held responsible for actions committed by state enterprises/organs.

States and States Enterprises

In general, state-enterprises are any enterprises that are owned, controlled or specifically designated by any level of government to undertake financial objectives by commercial means. Moreover, it is undeniably that, the energy industry is traditionally dominated by state enterprises, be it government owned, government controlled or affiliated to the government in some way, where the government may exercises or has the possibility of exercising decisive influence directly or indirectly by virtue of its ownership, its financial participation therein, by the rules or practices on the functioning of the enterprise, or by any other means relevant to establish such decisive influence⁴⁶⁶. On the other hand, State enterprises can be partly owned or wholly privatised although in most cases beyond the formal state ownership of an enterprise, private owned enterprises have always been under scrutiny and or controlled by government. Regardless of the fact that states are considered as the main 'regulators' of state enterprises, on the other hand these enterprises are also subject to supra-national laws. Having mentioned that, as the title provides, the

⁴⁶⁶ **State ownership should not be mixed with the public property that resources or assets available for the public use**

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paper will be within the scope WTO law and ECT. Other international law will also be mentioned, when applicable.

Under the WTO law, State enterprises are referred to as ‘State trading enterprises’ (STEs), of which their activities are governed by Article XVII of the GATT 1994.

Starting with what is considered to be an STEs under the WTO law, the understanding on the interpretation of Article XVII GATT 1994 makes a reference to state trading enterprises as a governmental and non-governmental enterprises, including marketing boards, which have been granted exclusive or special rights or privileges, including statutory or constitutional powers, in the exercise of which they influence through their purchases or sales the level or direction of imports or exports⁴⁶⁷. Looking at what the interpretation of GATT Article XVII provides, it seems like we may distinguish state owned enterprises from the private owned ones, but in reality the criterion have grey areas. In many circumstances it is proven to be difficult to determine with precision on whether certain enterprises, essentially in the energy sector fulfil the definition of an STE as provided in Article XVII⁴⁶⁸ Reason being, in some countries energy marketing enterprises have been fully privatised while some are set up by statute for a public purpose⁴⁶⁹. The good example could be cited in Japan-film case⁴⁷⁰ where the panel acknowledged the difficulties in differentiating the state enterprise actions from the private owned enterprises. It was stated that;

⁴⁶⁷ See, the Appellate Body Report on *Canada — Wheat Exports and Grain Imports*

⁴⁶⁸ John H. Jackson, “*International Law Status of WTO Dispute Settlement Reports: Obligation to Comply or Option to “Buy Out”?*”, 98 AJIL (January 2004).

⁴⁶⁹ These types of companies are at-times very similar to the ordinary private commercial enterprises with self-governing commercial management. In addition to the later, these kind of companies are very political in character as states retains a dominant position on the management of the company include shareholding.

⁴⁷⁰ Panel report, Japan — Measures Affecting Consumer Photographic Film and Paper, adopted on 21st March 1998(WT/DS44/R

“There has been a number of trade disputes in relation to which panels have been faced with making sometimes difficult judgments as to the extent to which what appear on their face to be private actions may nonetheless be attributed to a government because of some governmental connect to or endorsement of those actions”

Moreover, the coverage of article XVII of GATT extends the definition of a state trading enterprise to the ones that enjoys ‘exclusive or special rights’. That being said, it is therefore admissible that, under article XVII of GATT, state trading enterprises does not only focus on the ownership of an enterprise but also the extent to which any enterprise has been granted exclusive or special rights by the government as well as how the exercise of those exclusive bestowed rights has had impact on the trade. Not to mention that, members are subject to their GATT 1994 obligations in respect to those governmental measures affecting state trading enterprises. Nevertheless, as for the energy enterprises, the access for the exploitation of national natural resources that does not empower an enterprise to exercise government power.

Although state trading enterprises often have a dominant position thus play a major role in the energy sector, the WTO, under Article XVII.1 (a)⁴⁷¹ regulates behaviours of members undertake to ensure that state trading enterprises acts in a manner that is consistent with the general principles of non-discriminatory treatment for governmental measures affecting imports or exports by private traders. In addition to that, in circumstances that state enterprises makes purchases or sales that involves

⁴⁷¹ Article XVII.1 (a) of GATT states: “Each contracting party undertakes that if it establishes or maintains a State enterprise, wherever located, or grants to any enterprise, formally or in effect, exclusive or special privileges, such enterprise shall, in its purchases or sales involving either imports or exports, act in a manner consistent with the general principles of non-discriminatory treatment prescribed in this Agreement for governmental measures affecting imports or exports by private traders.”

either imports or exports, Article XVII instructs such actions to be carried solely in accordance with economic consideration, but the article XVII does not limit state enterprises from charging different prices for its sales of products in different markets, provided such prices are charged for commercial reasons. In these terms, it is undeniably that Article XVII does not aim to fully prevent discriminatory habits between member states since the provision do not impose any comprehensive ‘competition rule’ obligation for state trading enterprises⁴⁷². Not only that but also under Article XVII.I (b) the requirement in accordance of economic consideration does not provide a precise criteria of what is considered to determine whether an company is actually commercial and state-controlled, consequently, that leaves a room for interpretation about what these companies with special bestowed rights and privileges would be⁴⁷³. At the same time, the ECT, under Article 22 maintains that state enterprises are those enterprises established or maintained by states, but the provision never defined what is an enterprise that is ‘established’ or maintained by state, conversely, the treaty only extends the concept of state enterprises to ‘entities⁴⁷⁴’ that are established and entrusted with ‘special or exclusive privileges⁴⁷⁵’ including regulatory, administrative or other governmental authority. For the conduct of both, states acquire duties and responsibilities under the ECT as provided in Article 22(2&3), Article 23 and Article 32(1) respectively. With regard to the aforementioned, if we are to analyse Article 22 of the ECT, it is therefore the provision pioneer the effort of the Treaty to further extend the state obligations to certain privileged and dominant private companies, with the aim of ensuring that, the state can not escape

⁴⁷² See, Appellate Body Report, Canada – Wheat Exports and Grain Imports, para.

I45

⁴⁷³ Pagoretskyy, 2011

⁴⁷⁴ Under article 22 (5) an entity includes any enterprises, agency or other organization or individual.

⁴⁷⁵ Referred as ‘privileged entities’ provided under Article 22(4) of the ECT

from its obligations by devolving incriminatory actions to a state external agent such as state enterprises.

Relating these to the energy sector regulation, SCM agreements under Article 2 & 3 prohibits subsidies that are specific to an enterprise or industry or group of enterprises or industries within the jurisdiction of the granting authority. In addition to that, these subsidies have to be contingent upon export performance and/or upon the use of domestic over imported goods. Subsidies are considered “actionable”, which means that they can be challenged if they have adverse effects. Thus, a WTO member that is affected by subsidies granted by another member through state enterprises can challenge those subsidies in the WTO dispute settlement mechanism. Alternatively, the affected member can apply countervailing duties to the subsidized imports if it shows that they cause or threaten to cause injury to its domestic industry⁴⁷⁶.

On the other hand, the ECT covers binding agreements on the energy related matters such as promotion, transit and protection of foreign investments. The treaty provide dispute settlement that extends from state liability to state-controlled enterprises, regulatory agencies and legal entities, which have been connected with the government either ex post or since their establishment. In addition to that, the treaty provides a compulsory arbitration mechanism, which can be triggered unilaterally by the investor.

In the context of state responsibility on acts committed by state enterprises, Article 22, the ECT renders the state responsible for contractual misconduct of state-controlled enterprises and regulatory authorities that constitute violations of the ECT⁴⁷⁷. In

⁴⁷⁶ World Trade Report , “ *E, Natural Resources, international corporation and trade regulation*”, 2010

⁴⁷⁷ ECT operates under the bding rules of non-discrimination between its contracting members

addition to that, under the ECT rules⁴⁷⁸, where the government is a majority shareholder, the state could be held accountable for the management decision of public enterprises, private firms and independent agencies. In terms of state responsibility, the ECT established strict liability for states that receive foreign investment in their territory⁴⁷⁹. Provided the fact, ECT contain clear provision on state liability, however, it has been argued that, the state responsibility under the ECT advances the role of central governments and state agencies or enterprises in attracting foreign investment in their national energy sector rather than focusing in protecting domestic markets against unfair trade practices. In fact, there are a limited number of cases that have been adjudicated under the ECT⁴⁸⁰. Notwithstanding these explanations, the fact remains the ECT has not adjudicated any case on distortive subsidies on fossil fuels neither by rendering states liable for its actions nor its organs. Most of the initiated cases have been state liability due to a direct or indirect action by central governments and/or state liability due to direct or indirect action by state agency or state enterprises⁴⁸¹ to investors⁴⁸².

II. State Responsibility of Acts Committed by State Enterprises

a) The Doctrine of State Attribution under International Law

⁴⁷⁸ See, Article 22 of ECT

⁴⁷⁹ That has come with some Challenge that, despite of its clear reference to antitrust provisions, the weak enforceability of its antitrust classes reveals that the ECT is not strongly committed to competitive energy markets rather the ECT consolidates the position of states and facilitate energy investment contracts with states rather than focusing in protecting international energy market against unfair trade practices

⁴⁸⁰ See, <http://www.energycharter.org/what-we-do/dispute-settlement/all-investment-dispute-settlement-cases/> at <http://www.encharter.org/>

⁴⁸¹ Theocharis N Grigoriadis “*State Responsibility and Antitrust in the Energy Charter Treaty: Socialization vs Liberalization in Bilateral Investment Treaties*” 2008

⁴⁸² See, *Yukos Universal Limited (Isle of Man) v The Russian Federation*, PCA Case No AA 227, Interim Award 30 November 2009 (*Yukos Interim Award*)

We have been observing a continuous expansion of state responsibility doctrine in recent years, the government is not only held accountable for individual for failing to enforce the law but also for implementing legislation against a hierarchically superior set of rules and failing to enforce a judicial decision⁴⁸³ In principle, state responsibility falls within two categories such as direct responsibility which refers to any harm caused by state actors, while, indirect responsibility refers to the lack of diligence in preventing or reacting to harm caused by non-state actors⁴⁸⁴. In the causation of harm, state would be found liable in breaching its obligations when its or state actors acts are attributed to the state or such acts breaches the state's international obligations towards other states. In this regard, under the international law⁴⁸⁵ the attribution of state to the conduct is based on criteria determined by international law and not on the mere recognition of a link of factual causality. To establish there is an act of the state for the purpose of responsibility as a matter of principle, there has to be circumstances in which such attribution is justified, for instance when conduct consisting of an act or omission to be considered as the conduct of the State⁴⁸⁶. In this regard, for an action to be attributed to the state, it doesn't matter if such actions have

⁴⁸³ Daniel J. Meltzer, *Member State Liability in Europe and the United States*, 4 INT'L J. CONST. L. 39, 43 (2006). *But see generally* Andrea Ott, *Case Law: Deutscher Handballbund EV v. Maros Kolpak, Case C-438/00, 2003 E.C.R. I-4135*, 10 COLUM. J. EUR. L. 379 (2004) (stating that the increase in state liability has been uncertain); Pablo Martin Rodriguez, *State Liability for Judicial Acts in European Community Law: The Conceptual Weaknesses of the Functional Approach*, 11 COLUM. J. EUR. L. 605 (2005)

⁴⁸⁴ Hessbruegge, 2003

⁴⁸⁵ Article 2 of ILC on State Responsibility For International Wrongful Acts, 2001

⁴⁸⁶ It should be noted that, regardless of the fact that Head of State or Government or the minister of foreign affairs are considered to have the authority of representing the states without any need of providing full power, but, states can not be attributed to their wrongful acts for the purpose of state responsibility, rather, State would only be responsible when is engaged in the conducts that are incompatible with its international obligations, irrespective of the level of administration or government at which the conduct

been made directly by state or state enterprises. Retrospectively, the attribution rule intercedes the phenomenon of state enterprises.

Not with standing the above explanations, it might be surprising to the readers, as why the study has chosen the doctrine of state attribution instead of the law of agency or both in explaining how state could be responsible in acts committed by state actors, well, in my opinion, the law of agency should not be confused or combined together while explaining the responsibility of states in acts committed by its actors, simply because under international law, the law of agency until today is incapable to draw a solid finding of state attribution in acts committed by state actors. A legal relationship of an agency arises between two independent persons, one as a principle and the other as an agent⁴⁸⁷.

The doctrine of attribution is crucial in distinguishing the state actions from the private ones⁴⁸⁸. Additionally, studies shows that the doctrine of attribution is not only capable in comprehending modern theory of state responsibility but also the doctrine comprehends the substantive roles that states owe to international community in protection of economic interest amongst others. Having mentioned the later, it is therefore undeniably that the doctrine of state attribution upholds the responsibility of states for the actions committed by state actors either the actors are private enterprises or state owned enterprises which in one way or another their actions ought to harm other states. In other words, the state becomes responsible not only for acting but also failure to act. However, it is beyond the scope of this paper to focus on the obligation

⁴⁸⁷ See, Christenson, G.A *The Doctrine of Attribution in State Responsibility*, in *International Law of State Responsibility for Injuries to Aliens*, Lillinch,R.ed., University Press of Virginia, 1983, P 321.

⁴⁸⁸ The doctrine of attribution does negates the responsibility of states in private spheres, in other words, that could be said, the doctrine of state attribution incorporates the idea of states acting through legal entities and under private laws as long state actions does neither involve the complicity of state officials **nor duties that are performed on behalf of the government.**

of states in protecting substantive rights against the interference of private actors, therefore, the main focus will be on the direct state responsibility where any wrongful act of a state or state enterprise may give a rise to state responsibility.

b) Attribution of Acts Committed by State Enterprises to State

Since states are abstract, juristic persons can act only through their agencies, institutions, officials and employees; in general, all these are collectively referred to as state organs⁴⁸⁹ thus, as a general rule in international law, all acts of state organs are attributable to the state and may therefore engage the responsibility of the state. At least that has been in theory. Practically, the development of international law has continuously facing the problem on deciding whether states could be attributable to certain acts that have been performed by state organs. Currently, the status of customary law in attributing acts to states is largely influenced by International Law Commission Articles on State Responsibility (“ILC Articles”)⁴⁹⁰. Under the ILC Articles, rules that are applicable in attributing acts to states are provided under Article 4, 5 and 8 which states that:

“ The conduct of a person or entity which is not an organ of the State but which is empowered by the law of that State to exercise elements of the governmental authority shall be considered an act of the State under international law, provided the person or entity is acting in that capacity in the particular instance. On the other hand, article 4 provides that, conduct of any State organ shall be considered an act of that State whether the organ exercises legislative, executive, judicial or any other functions, whatever position it holds in the organization of the State, and whatever its character as an organ of the central Government or of a territorial unit of the State. Article 8 extends the attributions of acts to states when a conduct of a person or group of persons is in fact acting on the instructions of, or under the direction or control of, that State in carrying out the conduct”

”

⁴⁸⁹ Karl-Heinz (2006)

⁴⁹⁰ ILC Articles are not a treaty that is in force but are considered by tribunals and commentaries to accurately reflect customary international law on state responsibility.

In this context, it is evident that article 4,5 and 8 of the ILC Articles are thus the fundamentally rules concerning the attribution of acts to states, whether the actors in question are public or private, or the level on participation is minute, it does not matter. As long the ‘actor’ full-fill the legal category of being associated to the state, then, the state will be attributed to such acts. In other words, private actors are dealt with under Art. 8, they acts will neither be attributed to states if they do not act in fact on behalf of the state nor exercise a delegated governmental authority.

However, if we are to carefully analyse article 4, 5 and 8 it seems the Articles does not provide a general principle on attributing wrongful acts to states, for instance, it is unspecific of what is considered to be a “governmental authority”, essentially when we are referring different legal systems, therefore, I would rather suggest that, the provisions under article 4,5 and 8 attributes wrongful acts to states hinges from disputes to disputes, as such any wrongfully acts could be attributed to states if the requirement of structure, function and control are met by the ‘actors’ in question. Similarly, ILC Articles does not explicitly address the question of state enterprises as a part of the State, thus makes it difficult to attribute actions by all organs of the state that are exercising some elements of governmental authority or using clearly allocated state powers to state⁴⁹¹. The question of autonomy in law or in facts plays no role. The situation with respect to state owned enterprises and private enterprises fall in a grey area, consequently, in most cases, the case of piercing the veil of state enterprises to take into account and offset financial liabilities incurred by state enterprise or a state itself raises a lot of arguments as whether the veil of state enterprises are not pierces as often as of a veil private enterprises.

⁴⁹¹ Thomas Roe, Matthew Haggold “*Settlement of Investment Disputes Under the Energy Charter Treaty, 2010*”

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Although the later analysis pointed out some grey areas of ILC Articles, yet it is worth to acknowledge that, principles of attribution under the ILC Articles to some extent covers the direct liability of conducts that violates international law, on top of that article 55 of the ILC Articles provides an exception to the applicability of the Articles as follows;

“...the articles do not apply where and to the extent that the conditions for the existence of an internationally wrongful act or its legal consequences are determined by special rules of international law”

Having mentioned that, it is axiomatic that Article 55 of the ILC Articles provides an important indication on a circumstance that special rules of international law may prevail over ILC Articles with an intention of preventing a normative inconsistency that may arise between the ILC Articles and other special rules of International Law. As far as special rules of International Law are concerned in attributing acts to states, however it is beyond the scope of this paper to explore all relevant special rules of International law, rather, the paper will focus only on the WTO Law and ECT provisions.

Relating the above to the energy sector, according to the ECT, the doctrine of attribution of acts in respect of state enterprises to states is implicitly connected to article 22(1) of the ECT where as treaty infers state responsibility from the action of any state enterprise that maintains or establishes any entity with regulatory, governmental or administrative authority, and, to any entity that receives exclusive grants or special privileges from the state in order to conduct its activities. On the other hand, under the WTO law the related jurisprudence on the attribution of conduct of states is stipulated under Art. XXIV⁴⁹², XVII of GATT 1994 and Article 1.1 (a) of the SMC, of which some of these provisions contain similar rules on

⁴⁹² GATT 1994

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attribution as those found under the ILC Articles on state responsibility. However, the WTO provisions are generic on the matter in question. There are no specific provisions that attributes states on acts committed by state enterprises

Piercing the veil of stat on Actions Committed by State Enterprises.

Veil piercing or ‘uplifting’ the veil in one hand, has been construed as a special form of attribution and as an equitable remedy on the other hand. In most cases the veil piercing doctrine has been defined as an exception to limited liability that is justified potentially only when the latter is not, a path that invariably leads to examining scenarios based on different types of creditors/claims, corporations, and shareholders⁴⁹³ (Back in time, corporations were able to enshroud themselves in a veil of limited liability, but today things have changed. Courts have been able to pierce the veil of even state owned enterprises and make shareholders or state liable for the wrongful conducts. For instance the case of Barcelona Traction⁴⁹⁴ is one of the international cases that have significantly contributed on the doctrine of veil piercing. Provided of the fact that courts have succeeded to pierce the veil of states enterprises

⁴⁹³ E Gaillard & Younan, J, *Are States Liable For the Conduct of their Instrumentalists?*, in State Entities in International Arbitration (IAI) Seminar Series No 4, Juris Publishing Inc, 2005

⁴⁹⁴ The Barcelona Traction, Light and Power Company Ltd, was incorporated and registered in Canada for the purpose of developing and operating electrical power in Spain. The majority shareholders of the company were Belgians. After the Spanish Civil war the company was declared bankrupt by a Spanish Court, and, all of its assets were seized. Belgium filed a claim against Spain for damages and claim to use the high diplomatic protection over its shareholders and disregard the fact the laws of incorporation of the company was that of Canada. In the ruling of the case, the court found that Belgium did not have *jus standi*, recognized rights, to exercise diplomatic protection for its nationals that held stake in the Traction Company since the company was incorporated in Canada, thus, the shareholders could seek legal action but only through Canada against Spain. The court ruled the case in favour of Spain since Belgium had no jurisdiction to do so and the shareholders seeking compensation was not given diplomatic immunity., See, *The Barcelona Traction, Light And Power Company, Limited (Belgium v. Spain)*, I.C.J. Reports 1964.

in some cases, but it has been argued that, up to date, there is no consistent form that the court applies whilst piercing the veil of corporations or enterprises, rather courts compile an expansive list of ex post fact-specific factors, none of which is dispositive, weighted, or necessarily related to the underlying wrongful acts⁴⁹⁵.

In sum, resolution of piercing the veil of a corporation or an enterprise in question is almost if not always left to the court's determination of corporate illegitimacy. With regard to the above, before we analyse the factors that court considers while piercing the veil of state enterprise, it is worth to explain briefly the laws that protects state enterprises both at the national and international level as far as veil piercing is concerned. Under International investment law, there is a clear distinction on how enterprises are treated, but the issue of their nationality hinges on several factors. An enterprise may have a nationality based on a place of incorporation or the effective seat of management or principal place of business. As such, the law govern corporations could either be treaty-based rules (between the treaty members) or in an absence of a treaty. The latter was provided in the *Barcelona Traction* case where as the main issue was whether Belgian nationals who were private shareholders of the Traction company could receive diplomatic protection from Belgium to a corporation that was incorporated in Canada. Thus, in this incident the court refused to pierce the veil. In this regard, the case gives us a clear view that, in-order to bring a claim in respect of breach of obligations, a state shall first establish its locus standi in bringing an action as well establish that the defendant has breached its obligations towards other state(s). Similarly, Article 17 (1)⁴⁹⁶ of the ECT recognises the status (nationality)

⁴⁹⁵ Walde T, *State Responsibility for Supranational Authorities and non-state national entities*, 27 *Netherlands Year Book of International law*, 1996

⁴⁹⁶ Article 17(1) of the ECT provides that Each Contracting Party reserves the right to deny advantages to a legal entity if citizens or nationals of a third state own or control

of the investor⁴⁹⁷ based on the criterion of the place of incorporation. In the context of energy sector, the WTO law remain silent in up lifting the veil of state enterprises. Conversely, under ECT law, the aforementioned doctrine has been addresses in the context of international law, not to mention that these kinds of disputes mostly involve state-investor disputes that are mostly decided in international fora.

CONCULUSION

The study addresses issues of relationships between international economic law, and energy trade, specifically oil market regulations at an international level. While the study approached this issue mainly from a supranational angle, it focused mainly on two supra-national regimes; the WTO law and the Energy Charter Treaty (ECT). Overall, the analysis developed in this study leads to four major conclusions. First, both crude oil and refined petroleum products prices are driven by market factors such as demand and supply; nevertheless, speculation in the oil industry is believed to play a significant factor in comparison to other factors. Based on this, the study surveyed

Statistical data from 1980s-2017, and it finds that, speculative demand shocks defined as any demand shock that reflects forward-looking behavior by traders played an important role in 1979 (following the Iranian Revolution), in 1986 (following the collapse of OPEC), in 1990/91 (following the invasion of Kuwait), in 1997-2000 (following the Asian crisis) and in late 2008 (during the global financial crisis), and 2014-2017. Unlike shocks to the flow demand or flow supply, speculative demand

such entity and if that entity has no substantial business activities in the area of the contracting party in which it is organized

⁴⁹⁷ Under Article 2 (I & ii) of the ECT an investor is defined as a natural person having the citizenship or nationality of who is permanently residing in that Contracting Party in accordance with its applicable law or as a company or other organization organized in accordance with the law applicable in that country

shocks can cause large immediate effects on the real price of oil, for example in response to geopolitical events. On the other hand, it is argued that prices for refined petroleum products have been associated with state intervention policies such as dual pricing policies. Although the study covers two different segments of oil markets; international and domestic trade for oil, it is worth mentioning in this respect that this study is based on a mutual significance to both sectors, namely international trade and trade in the oil industry, and encompasses important consequences to both sectors. The core theme is to analyse to the relationship between international economic law and national law, and their influence in regulating the oil industry. With regard to this, the study argued that, in general, trade in energy has been treated as a special case of international trade, different from other trade sectors and products. In fact, it is safe to consider that, energy trade sector as one of the most significant trade sectors – actually the most – for a variety of reasons, including its unique characteristics and the unprecedented challenges confronting it. There a number of multilateral and bilateral agreements that regulate the sector, however, the most powerful ones that deals with trade or energy as a specific industry and states have acceded and ratified are the WTO, NAFTA, and ECT. These treaties are not closed or self-contained regimes, there were created in the wider context of general international law; as well as other treaties. They all form a part of international public law, as public law is the law deals with matter between states. In other words, it could be said that the source of international economic and trade law is international treaty law. Under treaty law, obligations made between members are binding. Accordingly, multilateral treaties such as the WTO continues to incorporate international law and widely regulates trade in goods and services, the study finds that the applicability of the General Agreement on Tariffs and Trade (GATT)/ World Trade Organization (WTO disciplines to trade in energy do not deal with petroleum industry as a distinct sector rather, the study holds that international trade in energy is governed by WTO law, like any other trade in goods or services. However, the status quo is far from ideal, with a number of ambiguities and uncertainties prevailing. For instance,

although the WTO law prohibits quantitative restrictions on exports, nevertheless Article XX of GATT provides exceptions to this fundamental principle. Among these, paragraphs b, g and h give exceptions on economic and exploitation of natural resources⁴⁹⁸, wherein, these have the most potential significance to the petroleum sector. These exceptions permit the imposition of quantitative measures under limited conditions, and only if they are taken on policy grounds justifiable under the GATT, such as critical shortages of foodstuffs (Article XI:2) or balance of payment problems (Article XVIII:B). As long as these exceptions are invoked formally in accordance with GATT provisions, they cannot be criticized as unfair trade measures. In that sense, it is expected for petroleum exporting countries to continue relying on these exceptions as a means of justifying the unfair and anti-competitive behaviours of oil in international markets. While this controversy has traditionally been kept within the realm of politics, it is increasingly taking a legal form. A number of complaints have been brought against OPEC, OPEC member states as well as their national oil companies or subsidiaries, often for alleged breach of national competition regulation but none of them have been tried under the WTO dispute settlement mechanism. For this reason, it shows that effort to regulate energy, essential petroleum industry, at a multilateral level has not been effective. Recurring claims on violation of member's obligations as such from the OPEC members have often revolved around WTO members. As an added recipe to a disaster, the WTO provisions on quantitative restrictions are urged to be very broad and vague as they almost render those obligations meaningless. For instance, exceptions provided under Article XX (g) provides that when quantitative measures are not applied in a manner which would

⁴⁹⁸ See, Article XX of GATT 1994 on General Exceptions. For instance paragraph h of Article XX is considered relevant to petroleum exporters, as it provides for measures "undertaken in pursuance of obligations under any intergovernmental commodity agreement which conforms to criteria submitted to the CONTRACTING PARTIES and not disapproved by them or which is itself so submitted and not so disapproved". It might then be argued that 30 Article XX (h) could be relied on by OPEC members, in the sense that OPEC amounts to an intergovernmental commodity arrangement.

constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, or if such measures relates to the conservation of exhaustible natural resources and if such measures are made effective in conjunction with restrictions on domestic production or consumption, nothing under GATT agreements shall be construed to prevent the adoption or enforcement by any contracting party of measures. This exception could be used as a strongest defense and justification by the OPEC as an excuse for restricting the production and supply of oil to the international market.

Based on these arguments, the study finds possible to conclude that while WTO Members are in principle not allowed to impose quantitative export restrictions, however in practice the WTO law on quantitative restrictions falls in a grey area. The provisions on exceptions to the general principle provide room for member states to abuse the rules on quantitative restrictions on exports. As a matter of fact, to state the obvious is that countries will not give up sovereignty on energy easily. This can result in deliberate ambiguities and exceptions in rules. WTO members have largely agreed that sovereign ownership over natural resources should not be questioned and that governments have rights to regulate energy to ensure the security of supply.

Similarly, other multilateral agreements such as NAFTA and ECT seem to be a reminiscent or interpret the WTO provision on the energy trade regulations especially on the energy sector. Only NAFTA seems to have successfully imposed very strict exceptions on the export of quantitative restrictions among its members as covered under Article 604. With respect to ECT, the treaty provides similar regulation on energy sector as the provisions seem to interpret the WTO rules on energy trade. Furthermore, the ECT, which advocates non-derogation from the WTO, facilitates the general WTO legal framework with its investment and transit rules, which are more elaborate than that of the WTO. By comparison, the ECT is considered stronger in proving and a more clear legal framework both at international and

domestic level as the treaty promotes good governance instruments between its members and non-WTO ECT members aspiring to join the WTO.

Moreover, as earlier mentioned that, the study has analysed the driving factors for oil and refined petroleum products both at international and domestic markets. At the outset, the study finds that the significant feature of oil price shocks it is a crisis not only for crude oil supplies but also of petroleum refined products. Traders' reaction to the price shocks has been colored not only by the soaring prices but also by concerns when do distortions occur and why. In most cases, prices for refined petroleum products are significantly influenced by government intervention policies-called, "subsidies or dual pricing", with a purpose of meeting the market demand without incurring extra costs of importing refined petroleum that the prices are determined by the international determined market.

Although dual pricing seems to favour the local petroleum industry, these policies have been condemned in the international market as they distort markets hence led to inefficient market share "allocation within the energy sector". According to Article 1-3 of SMC agreements, subsidies are prohibited and are actionable only when they are specific to a certain industry and have an adverse impact on the industry of another member. There is one aspect of the ASCM with respect to specificity, however, that might be considered to have implications for oil-exporting countries (and natural-resource exporters more generally). In deciding whether a subsidy is indeed specifically bestowed on an industry, the question arises whether a measure that in fact, though not necessarily in law, confers a disproportionate benefit on a particular industry is open to countervailing measures. Even if a particular subsidy is considered to be specifically bestowed on an industry or sector, under Article 8.2 of the ASCM some specific subsidies such as industrial research and pre-competitive development subsidies, regional aid, and aid for compliance with environmental laws) are

considered non-actionable, so that no countervailing measures are permitted. However, their non-actionability depends on mandatory notification and examination by the WTO Committee on Subsidies and Countervailing Measures.

On the question of dual pricing, the latter could be considered a subsidy if it grants benefits to a specific industry, but this does not mean that its use will necessarily be incompatible with the provisions of the SCM. Dual pricing could be admitted if access to the lowest price is not conditioned to the export of a product (therefore, it would not be an export subsidy); or if it is not specific; and if it is specific, that it does not cause damaging effects to the interests of another Member. The reality of this argument is that most dual pricing practices tend to distort trade, and the issue remains critical among the WTO members. Much of the academic and policy debates on dual pricing practice reforms within the energy sector take place outside the WTO and often in isolation from the petroleum industry. The possible reasons for these remain, most of the WTO members have used dual pricing program as a part of national policy in developing natural resources. The policies involve the aspects of public policy, including domestic policy investment, trade, and environment⁴⁹⁹. It has thus been acknowledged that establishing dual pricing as a specific subsidy that has an adverse impact on another member's market is a daunting task in the context of the ASCM and, without a common concept of the role of the state⁵⁰⁰. In addition to that, the WTO law does not contain detailed provisions on dual pricing on resource-based energy commodities as such refined petroleum products since the organization provisions do not deal with energy as a distinct factor. Alternatively, it incorporates a

⁴⁹⁹ Daniel Behn, "The effect of Dual Pricing Practices on Trade, Environment and Economic Development: Identifying the winners and the Losers under the current WTO Law, 2007

⁵⁰⁰ Article 1.1(a)(1)(iii) SCM Agreement (n 3) and World Trade Report 2010 (n 65)

number of principles dealing with specific aspects of potentially trade distortion practices that could indirectly be applicable to energy trade. Among such principles are the Most Favoured Nation (MFN) and National Treatment (NT), SCM agreements, TRIMs, and Special and Differential Treatment (SDT) Provisions.

On the other hand, the ECT offers similar rules on regulation energy sector on unfair trade. The treaty does not contain a specific provision dealing with energy subsidies rather, Article 3, and 21 of ECT renders government or state organs for misconducts against free and fair trade.

In sum, the study finds that multilateral treaties such as the WTO and the ECT, have to some extent provide strict regulations on energy trade, yet the landscape of their agreements have failed to manage the tensions developing in global energy governance, more specifically, the oil industry. Further to that, the study argues that the WTO and the ECT have done little to clarify how trade in energy will be governed in future. Given the unresolved tensions, at least two big questions remain: what role will the WTO and ECT play in governing states and oil markets; how might oil exporting and importing countries will react to the existing gaps in governance; and what options for institutional design could countries consider? As for now, countries tend to choose energy governing arrangements that deliver direct benefits, rather than rely on grand bargains in trade negotiations of which energy is only one part.

Bringing it all together

International law is the law that states make and accepts to regulates themselves, let it be diplomatic relations, human rights, environment and the like. A similar case is applicable to international trade. Countries tend to choose laws and regulations that

suit their trade needs sufficiently and fairly. In the context of the energy sector, regulation of energy activities at the global and regional level is addressed under the public international law, which is the system of law governs relations between states. International relations of the energy sector, as such petroleum industry are found embedded in the rules of multilateral agreements applicable to a wide range of trade, as a matter of act, Article 27 of Vienna Convention on Law of Treaties show a clear relationship between international law and domestic law. Further to that, the relationship has been analysed under monism-dualistic theories. Under monist theory, national and international legal system forms a unity, and that international law is automatically a part of national legal system while, under dualistic principle, international law form a part of national legal orders, and is incorporated and directly applied in the domestic context, most of the time prevailing over inconsistent laws. Analyses both theories we can see that international law does interact both with national law and multilateral agreements if we are to consider that these agreements are a part of public international law. At the multilateral context, the most prominent example is article 3.2 of the WTO DSU that provides, the interpretation of the WTO rules shall be in accordance with the customary rules of international law public law. On the other hand, at national law context, for an international agreement can be applicable at the national level, however on agreements dealing with trade, for such law to be applicable, it first has to be ratified and adopted by State's or state organs for municipal applicability. In this regards, States could be held responsible for their acts or acts committed by state organs, as long as such State is a part of an international agreement and has to comply with agreeable rules.

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