Growth and Development of International Oil Markets

TRADING AND PRICE DISCOVERY FOR CRUDE OILS

ADI IMSIROVIC

Trading and Price Discovery for Crude Oils

Adi Imsirovic

Trading and Price Discovery for Crude Oils

Growth and Development of International Oil Markets

palgrave
macmillan

Adi Imsirovic
The Oxford Institute for Energy Studies (OIES)
Oxford, UK

ISBN 978-3-030-71717-9 ISBN 978-3-030-71718-6 (eBook)
https://doi.org/10.1007/978-3-030-71718-6

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

To those whom I love most: Edin, Haris, Jasmine, Manik, Nana & Meda.

The original version of the book was revised: Affiliation in the copyright page has now been updated. The correction to the book is available at https://doi.org/10.1007/978-3-030-71718-6_16

Acknowledgements

I am grateful to my family for their patience and understanding of my frequent antisocial behaviour during this project. Especially, I am grateful to my wife, Dr. Manik Imsirovic, who found the time and patience to read every single chapter.

This book would not have been possible without a number of colleagues and friends who helped with their advice, comments, recollections, and opinions.

I would particularly like to thank (roughly in chronological order).

Prof. Antonio Fatas, Prof. Dimitra Petropoulou, Ken Leask, Michael Lynch, Owain Johnston, Jorge Montepeque, Kurt Chapman, Liz Bossley, Colin Bryce, Simon Andrews, Daniel Brusstar, Javier Blas, Adrian Binks, Paul Horsnell, Dave Ernsberger, Robin Mills, Jonty Rushforth, Nick James, Ben Pryor, Ronny Davidson, and Florian Thaler. Needless to say, any omissions and errors are entirely mine.

I would like to thank the Oxford Institute for Energy Studies for the use of the excellent Institute library. My personal thanks go to the Institute director, Prof. Bassam Fattouh and Ms. Kate Teasdale for making it available.

Lastly, I am grateful to my editor, Ms. Tula Weis for her understanding, support, and encouragement.

This list is certainly not exhaustive and should be extended to a number of my friends and colleagues who I worked with and learned from throughout my trading, teaching and research careers.

Ascot
February 2021

Contents

List of Figures

1

Introduction

Why This Book?

In the early 2019, I was asked to write a chapter on the topic of trading and price discovery in oil markets for the Palgrave Macmillan 'Handbook of International Energy Economics'.[1] Writing this chapter, I realised that it was impossible to do justice to the topic without taking a broader historical perspective with regard to the growth and development of the oil markets. Later, I decided to expand this chapter into a short book on the same topic.

There is a vast amount of literature on the subject of oil industry and prices. What should make this book different is a focus on the oil markets (rather than the oil industry as a whole) and a synthesis of three of my key experiences: I spent over thirty years trading in the international oil markets, almost half of which in Asia (Singapore), trading physical oil, all the key benchmarks and associated derivatives; I spent a number of years of teaching undergraduate courses in Energy Economic and Resource and Environmental Economic at Surrey University; and my work on the contemporary issues in the oil markets at the Oxford Institute for Energy Studies (OIES).

It is well known that the international oil markets have hardly ever been competitive. It is often assumed that this is inevitable. It is said that natural monopolies are common in energy markets, generally resulting in either private or government monopolies. There is some substance in this, and it is discussed in Chapter 2 of the book. Like other commodity markets, oil markets are assumed to be 'unstable' and 'volatile' and in need of some market power as a stabilising force.

A. Imsirovic, *Trading and Price Discovery for Crude Oils*,
https://doi.org/10.1007/978-3-030-71718-6_1

I hope that this book will dispel that thinking. Markets have been destroyed by unregulated monopolies with government regulation of such monopolies often coming only when it was too late. For example, Rockefeller's oil monopoly was already under pressure at home, but especially abroad, when the US government intervened and broke up the Standard Oil Trust.[2] Soon, however, governments stepped in and supported the old colonial and crony capitalist relationships, all in the interest of a supposed 'energy security'. In the process, both producers and consumers suffered.[3]

Legislators have often been keen to intervene in markets where they are not needed, but reluctant to regulate market failure. Presumably, the former is a source of political power, whereas the latter is hard work. Failed government intervention when it was not needed and a lack of it when it was needed is one of the key themes of this book. The urgent need for them to do just the opposite, regulate market failure[4] and keep out of the well-functioning markets is one of the book's conclusions. Only the policies designed to keep new, independent firms from monopolised incumbents, ensuring that the markets are transparent and competitive and rules of the game clear, can be the basis for flexible, responsive, yet stable and reliable energy system. Such policies will not only ensure a speedy and smooth energy transition but also prevent the new technologies from turning into new monopolies.

Plan of the Book

The book is roughly divided into two parts. A historical overview is covered in Chapters 3–10 and contemporary markets are covered in Chapters 11–15.

The book begins with a discussion about some theoretical concepts in economics that underpin the whole book. As a result, it may be a bit dense for a general reader who may prefer to move straight to Chapter 3. It starts with a simple concept of market power. Market power manifests itself by firms that do not take market prices as given. In trader speak, if all the participants are price takers, the market is competitive. When firms influence the market price, they have some form of market power. Oil industry has some characteristics which make it prone to concentration of market power. Oil projects tend to be big, risky, capital intensive with long gestation periods, with project-specific assets, lasting very long-time periods. There are large economies of scale and often one refinery or pipeline is more efficient than two or more. Economists refer to this as 'natural monopolies'.

Large, vertically integrated firms may even be beneficial to both firms and society as a whole. Modern antitrust policy has its roots in the Chicago school

of economics, combining economics, organization theory, and contract law to study how vertical integration of related activities within a firm can resolve some market failures. Rather than focusing just on the size of the firm in relation to the size of the market, this approach is based on the economic theory, considering the economics of scale, transaction costs, and uncertainty.

Instead of simply breaking up a dominant firm in the market, such as in the case of the Standard Oil Trust in 1911, this approach would consider each case individually, on its economic merits. For example, a large electric utility may have both elements of natural and 'pure' monopoly. While transmission and distribution of power have all the characteristics of natural monopolies, there is no reason for generation and retail parts not to compete in the marketplace. In a similar fashion, parts of national oil, gas, and pipeline companies that can be competitive could be privatised, creating efficient markets. Monopolies are often disrupted by new technology. A good example is gas markets being shaken up by the rapid expansion of the liquified natural gas (LNG) trade. However, it is always the job of governments to regulate market power. It was the government policies in the United Kingdom and the United States that successfully privatised most of the energy sector in these countries after 1980. Markets flourished and the privatised companies reduced costs, increased output, and improved their profitability.[5]

Early Days of Competition

Chapter 3 discusses the early days of the oil industry. The first 'killer app' for oil was illumination. Coal oil, manufactured by distilling cheap and widely available coal, was just beginning to take off. It did not go unnoticed that using crude oil would remove the need for the first part of the production process. The key concern was whether there was enough crude oil available at the right price to substitute coal. This concern was soon dispelled by applying the existing technology for salt water drilling.

As the drilling technology improved,[6] costs fell dramatically. Not only was oil a widely available source of illuminating oil, but it was becoming cheap as well. By 1860, all aspects of the oil industry as we know them today were in place: exploration and production technology was originally borrowed from the drilling for salt water and refining and the transportation and distribution infrastructure were already in place for the coal-oil production. The coal-oil refineries had established technology, easily adaptable to the refining of oil. They already had markets for wax, lubricants, naphtha, and solvents

for cleaning and kerosene for gas making and anaesthetics. This explains the lightning speed by which the oil industry expanded in the 1860s.

The first 'gusher' wells appeared in 1861 overwhelming the markets, and transportation and storage became a problem. Between 1860 and 1862, oil prices fell from almost $20 to $0.10 per barrel. This was the first 'oil shock'. Then, as now, producers made attempts to reduce output, but cheating and free riding were common, and the results were disastrous.

The first oil traders were known as 'dump men'[7] on Oil Creek. They would make markets for small producers who had to sell oil relatively quickly due to limited tankage. They provided liquidity in illiquid markets and took price risk. They provided the earliest price discovery mechanism.

The real breakthrough came with the introduction of gathering pipelines, taking oil from the wells to the nearest railway hubs. The gathering lines started issuing 'tickets' as proof of oil delivery. They were made in duplicates and denominated in volume and not value. They were tangible assets that could be traded for cash and an excellent vehicle for speculation. Each barrel of oil could be traded many times, providing price liquidity, and creating the first 'paper' markets for oil.

Soon, the first exchanges were established at Oil City, Titusville, Parker, Bradford, Pittsburgh, New York, Philadelphia and elsewhere. The spread of telegraphy greatly facilitated the transmission of information and trading. They attracted not just producers and refiners, but also investors and speculators, providing ample liquidity. The oil markets were born.

Building a Monopoly

It was the Rockefeller's refining monopoly that destroyed them. The rise of the Standard Oil monopoly is discussed in Chapter 4. Both Rockefeller and his right-hand, Henry Flagler started as traders.[8] They made their money in their early thirties, trading grain and other commodities, but saw a better opportunity in the new and thriving market for kerosene. The early 1867 partnership of 'Rockefeller, Andrews & Flagler' was a means of attracting additional capital for a massive refinery expansion and addition of new oil depots, rail tank cars and general efficiency improvements.

In the early 1870s, half of the delivered cost of oil was rail transportation. This is where Flagler came to the fore: He had an in-depth knowledge of the transportation aspect of trade and a personal relationship with many officials on the railways.

Unlike roads and canals, railways were generally being built by private capital, utilising state legislation granting them a 'charter' or a concession, to be exercised in a way to provide public utility. The growing business of railroads as well as the oil industry was well ahead of the development of legislation. There was little federal legislation to facilitate and regulate business across several states. In such an environment, 'combinations' and abuses were common and in a hunt for revenues, 'anything went'. Railroads usually gave rebates for a guaranteed volume of agreed business. But it was the drawbacks that were rewarding large shippers with additional compensation from the fares paid by their competition. Flagler made sure they got a better deal from the railways than anyone, making the partnership eventually a monopoly.

Eventually, the Standard Oil Company controlled all the plants in Cleveland and key refineries in Pittsburgh, New York and the Oil Regions as well as the best refiners, officers, and agents throughout the country. By mid-1880s, it also controlled the key pipelines which gradually replaced railroads as the primary carriers of oil and refined products. In January 1895, in the final act of stamping its monopoly power in the marketplace, the main Standard Oil buyer of oil,[9] posted a notice to the oil producers informing them of the end of the oil purchases based on the exchange prices. The Trust would only buy oil at prices which they 'posted' themselves. They became the sole price maker.

Oil Markets Go Global

While the Standard Oil monopolised the domestic refining market, they did not have their own way overseas. The emergence of the international oil markets is the subject of the fifth chapter. Foreign sales were becoming important for the growing American oil industry and there they faced stiff competition from Russia which was soon to become the largest oil producer in the world. Standard Oil might have been a price maker at home, but it had to accept the going market price for kerosene overseas. The key competition came from the Noble brothers who brought drillers from the United States and produced Russian oil in 'Pennsylvania fashion'. They run an efficient operation, bringing cheap and plentiful oil supply by pipeline to a well-organized refining plant. Just like Rockefeller, the Nobel brothers realized that the key missing link to the operation was a cheap and efficient transportation system. Not unlike Rockefeller's New York headquarters, Nobels' central office in St. Petersburg ran a sleek logistical operation.

At the same time, the Rothschilds established their own export monopoly via the Southern route, formed the Caspian and Black Sea Company in 1884 and quickly became the biggest kerosene exporter from Russia. That very same year, there was some dissatisfaction with the quality of the American product in the UK, then the biggest European market. The Nobel brothers skilfully exploited it to enter this new market. Both Nobels and Rothschilds strengthened their positions by forming companies and exclusive distributors in the country.

1890s Asia, not unlike a century later, was a large and growing market and Russian kerosine had a competitive advantage—it was much closer than the American product. This is where another trader had an established operation: 'Marcus Samuel & Co'. Having seen the first kerosine tankers on the Caspian, his audacious plan was to copy it for bulk transportation to the Orient. Eventually, his branded kerosine in 'Shell oil' tins was a huge success in Asia.

But the real prize was to find a steady supply of oil within the region. One well-capitalized company producing oil in Asia was the Royal Dutch. The company had a well-established production in Sumatra, including a refinery, railroad, pipeline, and a harbour. In charge of the operation was an ex-trader, Henri Detering. Intense competition in the region was ripe for consolidation and in 1906 Marcus Samuel's Shell Trading had to accept difficult terms[10] to create a new company, the Royal Dutch Shell.

Tectonic Shifts and Governments

The first decade of the century saw the widespread application of internal combustion engines both for power and mobility and the adoption of electricity for lighting. The result was a fall in the use of kerosine and exponential growth in the use of gasoline, fuel oil and lubricants. The intensity of the fighting in the First World War could never have been possible without mechanization and the oil that powered it. The importance of oil in the mobility of the armies would make the commodity one of the ultimate goals (or 'The Prize'[11]) in the World War Two. Chapters 6 and 7 deal with the subject of the post-colonial era, government intervention and growth of oil majors.

After the war, government involvement and the post-imperial nature of the international relations resulted in oil markets being largely controlled by the national champions of the US, Britain and France, an oligopoly of the oil 'majors'. Aside from being vertically integrated, these companies were also integrated 'horizontally' to ensure maximum control of the market and

profits. Oil was carefully supplied from various geographic areas at the lowest possible cost and to ensure that supply and demand were balanced, and prices were kept stable. Such integration enabled the supply of oil to be fine-tuned to the prevailing demand for end products, thus ensuring political as well as market stability. The ascent of the majors came primarily through the post-colonial government intervention in the Middle East with the Foreign Office orchestrating various agreements in the former Turkish empire. This angered the American allies who saw it as imperial and discriminatory. After the war, Americans saw the world through a non-exclusive, competitive, 'open door' lens. At least until they got in and then slammed the door shut.

Also, the British government was the first to intervene in the private sector, by the acquisition of a controlling share in the Anglo-Persian (later BP). The role of American majors was particularly prominent in the 'Marshall Plan', which was partly designed to affirm the dominant position of the American companies in the Middle East. With the US majors in a dominant position, it was only natural that oil price was US-centric. Oil prices were based on the 'US Gulf Plus'[12] pricing. With increasing volume of oil and petroleum products coming from the Middle East, 'phantom freight' was generating oil majors large, unjustified profits. The British Auditor General learned it the hard way, being charged bunker prices for the Royal Navy, based on very high USG prices plus some non-existent freight to the Middle East, for the product refined from cheap Iranian oil in the Abadan refinery.

The majors were making lots of money from selling Middle Eastern oil to their own governments, from the concessions they obtained with their very help. The arbitrary pricing continued with shifts to the UK and then New York as delivery points, the latter effectively becoming 'Gulf Minus' formula, discriminating against the oil produced in the Middle East. To avoid embarrassment, the majors tweaked freight rates in a totally arbitrary manner. They were price makers with such market power that allowed them to do as they pleased.[13] In 1949, the majors controlled 82 per cent of reserves outside the United States, produced 95 per cent of oil in the Easter Hemisphere and 99 per cent of the oil from the Middle East. They owned 77 per cent of the global refining capacity outside the US and Russia, two-thirds of the privately owned tanker fleet and pretty much every single, important pipeline outside the United States.

Consuming country governments, and the US government in particular, used the majors not only to keep the supply of oil stable and affordable but also as an instrument of their foreign policy. Under the threat of Communism, the policy started to develop after the war, with the goal of supporting pro-Western governments. The companies would take care of appeasing

some rulers (often the Shah of Iran) by increasing output, while the Shah would buy American weapons 'to keep his country safe from Communism', supporting the US military industry and balancing the books. To facilitate this oil balancing function, the American Majors were explicitly exempt from the antitrust sanctions by the US Justice Department.[14] This cosy relationship between companies and producing governments contained the seeds of its own destruction. The US government abandoned free markets. At home, the Texas Railroad Commission (TRC) supported the small domestic producers and prices and abroad, the US government abdicated the supply and balancing function to the majors.

Competition

Profits of the major oil companies did not go unnoticed. New companies without integrated systems and national refiners entered the market. More than half of the Libyan production ended up in the hands of companies with no integrated systems in Europe and hence no outlets for the oil. They left the 'balancing of the market' posted prices to the majors and sold their oil at the best price they could get, driving the spot prices down. With the US import quota system protecting the domestic oil producers in place, many independents were 'stranded' with oil which had to find markets elsewhere.

These 'newcomers', not unlike the shale producers in the 2010s, were keen to get the oil out of the ground and sell it as soon as possible, securing a quick return to their investment, thus putting pressure on prices. Lower spot market prices meant higher discounts relative to the posted prices and higher effective tax rate. The majors were losing money, market share, and the ability to balance the market and keep prices stable. The integrated structure of the industry was crumbling. At the heart of the problem was the oil pricing structure that ceased to make any sense. The Majors could no longer balance the market by rationing supplies. Therefore, they could not keep prices fixed. Increasingly, the spot market dictated them.

Producers' Cartel

This was a revolutionary period, a decade marked by the Suez crisis, anti-colonial movements, Sputnik and the Cuban revolution. On the 14th of September 1960, Venezuela, S. Arabia, Iran, Iraq, and Kuwait met in Baghdad and set up the Organisation of the Petroleum Exporting Countries

(OPEC). Chapter 8 discusses the impact of the orgnisation on the market and prices.

OPEC was an expression of oil producers' sovereign right to manage their own resources and align them to the needs of their economic and social development, rather than the needs of consuming nations. Algeria nationalised the oil industry in 1971. By the end of 1972, Libya nationalized BP assets in the country. In June of the following year, Iraq nationalised the Iraq Petroleum Company. In October 1973, the Arab–Israeli War started.

Consuming government policies did not help. In August 1971, President Nixon froze prices and wages. The freeze removed the incentive for refiners to produce the petroleum product, causing shortages. In December 1975, President Ford signed the Energy Policy and Conservation Act.[15] The key provision of the act was a separation of the US production into 'new' and 'old' oil. As a result, the production of all oil significantly declined. European and Japanese governments were trying to dampen the social impact of this transition through the imposition of subsidies and import taxes and supporting the national champions of the oil industry. In the process, price signals were distorted, giving wrong incentives to both domestic producers and consumers, and exacerbating the perception of a shortage of oil.

While OPEC effectively took control of the posted prices for oil, it had no mechanism for balancing the market without the help of the major oil companies. But as long as the oil demand grew and the market remained tight, everything was fine. OPEC could simply continue increasing prices to the levels markets would bear.

OPEC Fails

The end of the vertically integrated structure of the oil majors was brought about by the 1979 Iranian revolution. The new regime in Iran was quick to cancel all contracts with the US and European oil companies, but it was soon followed by other producers. Having lost the oil, the companies were forced to cancel their contractual deliveries to third parties, driving buyers to the spot market. Even though OPEC members agreed to limit spot sales, high spot prices often proved to be too tempting. Iraq, Libya, and Nigeria used the spot market frequently and Iran even used it exclusively for a period of time. As a result, Markets took the lead, and OPEC was following.

Oil production from other sources was creeping up. Britain, Norway, Mexico, USSR, and others would sell their oil at prices at which the markets would clear, effectively setting the 'free market' price. In a weak and falling

market environment, OPEC official prices were lagging behind the market. In an effort to support prices, the organisation was losing market share. The fixed system of oil prices was broken and OPEC abdicated their price-making power to the market by linking their official prices to the benchmarks in the three key markets: United States, Europe, and Asia.

Liberalisation and the 'Age of Benchmarks'

Chapter 10 discusses liberalisation of the energy industries in the UK and the US. This was the most significant event in the rebirth of the oil market as an alternative to the OPEC power. In March 1983, the New York Mercantile exchange successfully launched its first crude oil futures contract. In 1988, a successful Brent contract took off the ground. From the mid-1980s, the benchmarks became a pillar of the international oil pricing system. How they work and how they are traded is the subject of the rest of the book.

Chapter 11 discusses the main global benchmark, Brent. It is a pricing reference for as much as 70 per cent of the world exported oil.[16] History and details of the workings of the benchmark are explained.

The most peculiar feature of the physical Brent benchmark is that the deliverable basket of cude oils are generally traded as a differential to Dated Brent assessment. Therefore, the price reporting agencies (PRSs) are challenged to assess the Dated Brent price based on physical trades which are themselves differentials to Dated Brent. We discuss this and the whole ecosystem of Brent derivatives ('paper markets') that facilitate better assessments. The Brent market is highly concentrated and the top five traders make up almost 60 per cent of all the cash trades. However, it does not necessarily mean they have a major influence on the outright prices. Brent is traded on the two exchanges as well, and any major deviation from the exchange prices could be easily arbitraged by any other trader.

For historical reasons, most grades of oil trading 'East of Suez' base their prices on the basis of the Dubai benchmark. This benchmark is discussed in Chapter 12. This has resulted in monthly Dubai swaps being the primary hedging instrument. These swaps are regularly traded as a differential to Brent futures[17] or a spread to Brent swaps. This spread is the heart of the international trade flows. We discuss the history and evolution of the benchmark. Market power in Dubai is even more concentrated than Brent. The top three players account for about sixty per cent of the market and just half a dozen players accounted for almost all the deals in Dubai cash partials.

Oman benchmark is also mentioned in this chapter. In spite of a large exposure to this benchmark, the liquidity of the Oman contracts is relatively poor. The chapter discusses the reasons and possible remedies.

Chapter 13 is about the grand old benchmark, West Texas Intermediate (WTI). Throughout modern history, the United States have been the world's single largest regional oil market. The benchmark WTI assessment is based on one of the world's most liquid contracts, physically delivered in Cushing, Oklahoma. The interaction between the oil gathering centres, pipelines, storage, refining and import/export facilities are the key to understanding the history, development, and dynamics of the benchmark. The pipeline links to the US Gulf Coast are essential in keeping the benchmark linked to the international oil markets. The launch of the NYMEX WTI futures contract in March 1983 heralded a return of the oil futures trading in the United States and the world. The timing of the launch was perfect, as OPEC was struggling to control the market and price volatility was growing.

Being land-locked, WTI has had a fair share of problems over the years. The greatest challenge came from rising Canadian and domestic shale production while the oil export ban was still in place. Eventually, common sense prevailed among the US legislators, and the US oil export ban, imposed in 1977 was lifted in 2015. This relieved the glut at Cushing and lifted domestic oil prices. WTI price reconnected with the international oil markets, increasing, and eventually achieving record volumes of open interest.

The Chapter 13 also addresses the shale phenomenon and its impact on the domestic and internationally oil markets. The benchmark was severely tested in April 2020 when it traded in deeply negative territory. Possible reasons and remedies are discussed at the end of this chapter.

Market Lives On

Chapter 14 follows the benchmarks in action, under the stress of the 2020 demand shock. After the April debacle and the increasing importance of oil exports, the focus of the WTI benchmark may be shifting towards the US Gulf Coast exporting facilities. While the Brent complex performed relatively well, the falling volume of the physical crude underpinning the benchmark was becoming a concern. Brent assessments are increasingly including delivered barrels and the addition of WTI in the Brent basket is the next obvious step. Asian benchmarks experienced some disconnects and issues with Dubai, Shanghai INE, and DME Oman contracts are discussed. Abu Dhabi, in

conjunction with ICE have launched a Murban futures contract. The consequences for the country and OPEC may be profound and are discussed. The Demand shock of 2020 also had an impact on the way artificial intelligence is used in the oil markets and this is addressed at the end of the chapter.

Chapter 15 is a short epilogue, pointing to possible future developments in the international oil markets. Depending on government policies, the structure of the market will probably be very different, partly due to the limitations imposed by the remaining carbon budget. The chapter draws on the lessons from the history of the oil markets and how they may be applied to other markets, especially at this age of energy transition.

Notes

1. Hafner M. and Luciani G. (Eds), Handbook of International Energy Economics, Palgrave Macmillan, 2021.
2. Standard Oil started posting monopsony prices in 1895 and it was finally broken up in 1911. See Chapters 4 and 5.
3. See Chapter 6.
4. As in the case of climate change and general environmental degradation.
5. See Chapter 10, endnote #60.
6. Mainly by reducing the number of dry holes (from four in five to five in eight) and increasing life expectancy of the well (from 18 months to over three years) in the period 1865–1871. See Chapter 3, endnote #21.
7. After 'dumps' where oil was stored.
8. At the time, they were called merchants.
9. J. Seep.
10. 60:40 split in favour of the Dutch entity and with Detering in charge.
11. Hence the name of the book 'The Prize' by D. Yergin (1991).
12. US Gulf Coast was the price basis with the 'plus' freight cost added to any other delivery location.
13. See Chapter 6, 'Discriminatory Pricing'.
14. See Chapter 7.
15. It was so dense that it was termed '99-page filibuster'.
16. Assuming Dubai is a part of the same complex.
17. Exchange of Futures for Swaps or EFS.

2

Oil, Policy, and Market Power

Market Power

The history of oil markets is a story of rags to riches. In this story, individuals and firms seek to make a fortune exploiting the most important commodity in the world. Some make it, but more often than not, they fail or get swallowed by larger competitors. Cycles of intense competition and volatile prices are followed by consolidation, the emergence of dominant players and stable prices.

In general, market power manifests itself by firms that do not take market prices as given. They have the power to influence those prices. In the market jargon, they are 'price makers' rather than 'price takers'. Market power can be derived from several sources: The ability to differentiate their product, capacity constraints in the market that prevent prices from collapsing if competitive forces are unleashed, barriers to entry, and through strategic vertical integration. High initial capital costs involving risk are usually mentioned as a barrier to entry in the oil industry. Mitigating these risks through vertical integration was a source of market power of the oil majors for very many years.

Dominant players can and regularly do emerge from perfectly competitive markets in which many firms are simply 'price takers'.[1] At the very beginning of the US oil industry, the Oil Region of Pennsylvania in the 1860s had a perfectly competitive, emerging oil industry, consisting of hundreds of small producers and refiners who simply bought and sold the commodity at the going market price. First drillers were rewarded with high prices and made

A. Imsirovic, *Trading and Price Discovery for Crude Oils*,
https://doi.org/10.1007/978-3-030-71718-6_2

it rich quickly. Contemporary journalist Ida Tarbell pointed out the 'extravagant' expectations of the early drillers: '*No oil producer thought in the sixties that he was succeeding if his wells did not pay for themselves in six months*'.[2] This caused the 'oil rush' attracting thousands of fortune-seekers, resulting in overproduction, and a collapse in prices. As Figure 2.1 shows, oil price in late 1859 were around $20 per barrel, only to fall below £3 by the end of 1860. Instability and volatility were the norms. The region had an informal but functioning oil exchange, where most of the oil changed hands. Yet, by the mid-1880s, it ended up being dominated by a single entity, Standard Oil Trust, controlled by Rockefeller.

While most of the major actors in this story abused their power at some stage or another, there also may have been genuine attempts to reduce costs, improve efficiency to achieve economies of scale, stable prices and predictable profits. Rockefeller's 'Standard Oil' was vilified for the abuse of market power, but it was also synonymous with planning, standardisation, efficiency, and attention to detail.[3]

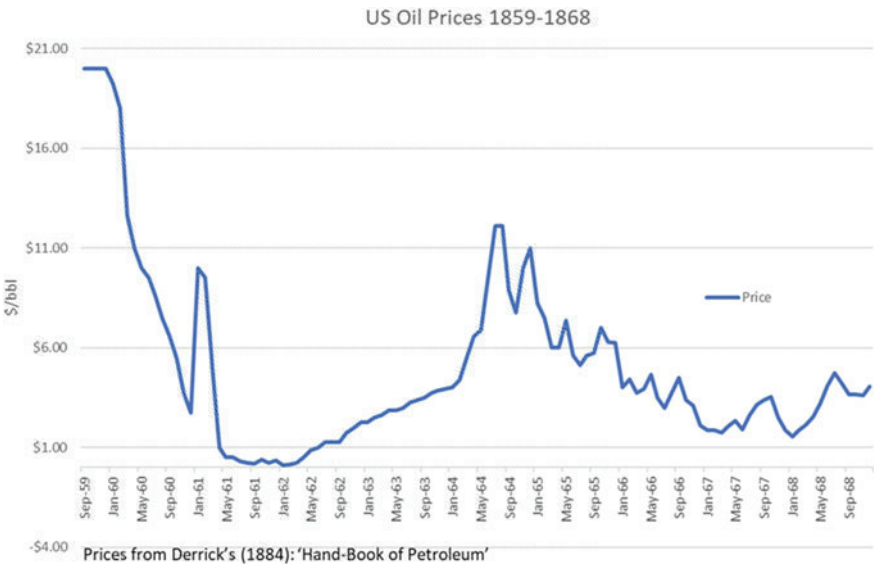

Fig. 2.1 Average crude oil prices at oil wells, oil region, Pennsylvania (Data from 1884 Derrick's Hand-Book of Petroleum)