Japanese Business Strategy in the International Oil Industry

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LIST OF ABBREVIATIONS

1. AIOC: Azerbaijan International Operating Company
2. AOC: Arabian Oil Company
3. ANRE: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry, Japan
4. ARAMCO: Arabian-American Oil Company
5. BP: British Petroleum
6. BTU: British Thermal Unit
7. CFP: Compagnie Française de Pétrole
8. EIA: Energy Information Administration of U.S. Department of Energy
9. ENI: Ente Nazionale Idrocarburi
10. IEA: International Energy Agency
11. JAPEX: Japan Petroleum Exploration Corporation
12. M&A: Merger and Acquisition
13. MOFA: Ministry of Foreign Affairs
15. OECD: Organization for Economic Co-Operation and Development
16. OPEC: Organization for Petroleum Exporting Countries
17. PIL: Petroleum Industry Law
18. SOCAR: State Oil Company of Azerbaijan
The driving forces in the international oil industry have changed over time. The “threat for new entrants” was the determinant force until the 1960s, during the period when the majors dominated the industry through cartels. It was replaced by the “bargaining power of producers” when OPEC gradually acquired control over oil prices by nationalizing concessions in the 1970s. However, a “threat of substitute products” arose, posed by both non-OPEC oil and by alternative energies such as nuclear and natural gas. At the same time, the “bargaining power of buyers” increased as more non-OPEC oil was traded through spot and futures markets. As a result, OPEC lost control by the mid 1980s, and “intra-industry competition” has since become the determinant force in the current oil industry.

Lacking oil reserves of its own, Japan has depended on the majors for its oil supply. The Japanese government tried to form an integrated national oil company, but that effort failed due to opposition from Japanese refineries. Those same oil companies have been protected by government regulations that restricted foreign participation. As a result, the Japanese oil industry possessed few assets in the upstream, while the downstream industry became inefficient and congested. After market liberalization in 1996, the “intra-industry competition” became intense in Japan, and M&A and alliances between oil companies were observed. It appears that for oil companies to survive in the global competition, it is necessary to (a) achieve both vertical and horizontal integration among oil companies, including trading companies, (b) purchase concessions in proven oil fields, where a high return is expected, and (c) establish outlet networks in Asia, where further growth in demand is expected.
INTRODUCTION

Purpose of Study

Japan has little crude oil of its own and depends on imports from abroad for 99.7 percent of its supply (ANRE, 2002). Since oil is currently the most common source of energy there, comprising 49.1 percent of total energy used in Japan in 2001 (ANRE, 2002), its strategic procurement is vital for the economy. Japan relies heavily on oil imported from the Middle East (86 percent in 2002). However, its oil industry has little competitive position in the global market, the result of a long period of governmental protection that lasted until 1996.

On the other hand, countries such as the United States or the United Kingdom have huge oil companies (the so-called “majors”: Exxon Mobil, Royal Dutch Shell, BP AMOCO, Chevron Texaco), who used to dominate from the up-stream to the down-stream of the industry, and who thereby succeeded in providing oil to the world and to their own economies at low prices. Such success depended on factors such as the support of their national governments, war, relationships between host governments, company strategies, and luck. Although those companies do not maintain the control over the oil industry today as they did in the 1950s and 1960s, they still maintain a significant influence in the industry. Even with the occasional price fluctuation, considered together they have been one of the most successful and profitable enterprises in the world. In 2003, three of the largest five corporations, and five of the largest fifteen corporations on earth (ranked by revenues) were oil companies (Fortune, 2003).

Compared to those multinationals, Japanese oil companies such as Nippon Oil, Idemitsu, or Cosmo Oil are small in capital, less competitive in product prices, and have little sales network around the world. Not until number 158 does a Japanese oil company appear in the Fortune Global 500 (Fortune, 2003). Oil is today an international commodity traded in spot markets and futures markets, rather than a special political commodity as it used to be in the past.
However, this does not provide an easier business environment for Japanese oil companies. On the contrary, competition is becoming severe under the liberalized market. Still, the challenge can offer a chance for Japanese companies to restructure their business and become competitive in the global market. The purpose of this thesis is to analyze the changes in the structure of the global oil industry by identifying the driving forces in the industry, and to find a strategy by which the Japanese oil industry may survive in global competition. It is often argued in Japan that oil prices are maneuvered by the majors or by the Middle Eastern states. However, frequent fluctuation of oil prices today seems to be out of their control. Who controls the oil industry today, and is there any way that Japanese oil companies can survive?

### Nature of Oil

The characteristics of the oil industry, naturally, are strongly influenced by the characteristics of the product, oil. First of all, oil is a natural resource that can be found thousands of meters underground in the form of liquid. Therefore, searching and mining requires high technology and a vast amount of capital. For a commercial operation, it is necessary to drill dozens of wells, each of which costs ten million dollars (Ishii and Fujii, 2003). However, since it is not a resource that is renewable in a short period of time, pumping faster and increasing consumption could cause exhaustion. Continuous searching and development of new oil fields are necessary to maintain sufficient oil supply to the world. At the same time, burning oil causes carbon oxide and sulfide oxide emission, which are major causes of environmental degradation.

Secondly, oil has to be refined to become a product such as gasoline, heating oil, or jet fuel. Crude oil cannot be used as a fuel, itself, because its structure contains such a broad spectrum of molecular sizes. Through the atmospheric distillation process, crude is heated, vaporizing most of it, and then split into several fractions each concentrating a particular range of molecular size (Conaway, 1999). Thus, before being able to sell petroleum products, one must possess the requisite refining technology.

Thirdly, oil has a high economic efficiency as a fuel. Its high thermal efficiency, relative abundance as a resource, and the ease of transportation through pipelines have made oil a primary energy for industries such as transportation, electricity, and the military. As a consequence it has become a critical resource for industrial economies and for our daily life.
This has given oil prices a rather inelastic nature. High demand for oil not only provided entrepreneurs with a strong incentive for its development, but also made it a commodity of national interest.

Finally, however, oil is unevenly distributed around the world, the crucial fact that made it a political commodity. Fortunately or not, as will be observed later in this paper, many of the oil reserves are discovered in the less developed regions of the world such as the Middle East, Southern America, North Africa, and Central Asia. For this reason, oil became an international product traded by multinational oil companies from less developed countries to industrialized countries. The history of oil since the late 19th century is one of competition among oil companies, conflict between nations, and conflict between nations and companies. The situation was complicated by the fact that it was not always conflict but often cooperation among them. To analyze the structure of the current international oil industry and to find a strategy for the Japanese oil industry, it is necessary to understand the underlying historical background of them both.

Framework of Analysis: Porter’s Forces

Many analyses have been made of the oil industry in the past. Edith Penrose explained the profit distribution mechanism between the oil companies and oil producing countries by focusing on the oil prices and the tax system (Penrose, 1960). Anthony Sampson’s The Seven Sisters (1991) is a masterpiece of the industry that focuses on the power struggle between oil companies and governments over control of oil. Daniel Yergin has provided a thorough examination of the industry in The Prize (1993), by revealing the characteristics of the oil industry as a source of world politics and power, symbol of capitalistic business enterprise in the 20th century, and also as a cause of modern environmental degradation.

In this paper, I will use Michael E. Porter’s (1979) concept of ‘forces’ governing competition in an industry. As it takes into consideration the competition of customers and suppliers as well as corporate rivals, this model is useful for examining the change in the underlying economics and structure of the oil industry, and for observing the factors which are most influential for the survival in the industry today. Those forces are (a) threat of new entrant, (b) bargaining power of suppliers and buyers, (c) threat of substitute products, and (d)
intra-industry competition. “Awareness of these forces can help a company stake out a position in its industry that is less vulnerable to attack” (Porter, 1979, P.1).

New entrants to an industry can threaten existing competitors by bringing new capacity, the desire to gain market share, and often substantial resources as well. The seriousness of the threat of new entrants depends on the barriers present and on the reaction from existing competitors. Major sources of barriers to entry are economies of scale, product differentiation, capital requirements, cost advantages unavailable to rivals, access to distribution channels, and government policy (Porter, 1979). All of these are significant barriers in the oil business, though with relatively less effect from product differentiation.

Both suppliers and buyers can exert bargaining power on participants by influencing the prices and the quality of products. Suppliers are powerful, for example, when the industry is dominated by a few companies and is thus more concentrated than the industry it sells to; when suppliers are not obliged to contend with other products for sale to the industry; when suppliers can pose a credible threat of integrating forward into the industry’s business. On the other hand, buyers are powerful, for example, when they are concentrated or purchase in large volumes; when the products they purchase from the industry are standard or undifferentiated; when the buyers pose a credible threat of integrating backward to make the industry’s product (Porter, 1979). As will be observed in the following chapters, a shift in bargaining power from suppliers to buyers gave rise to a structural change in the oil industry.

Substitute products limit the potential of an industry by placing a ceiling on prices it can charge. Substitute products that deserve the most attention strategically are those that are subject to trends improving their price-performance trade-off with the industry’s product, and those that are produced by industries earning high profits (Porter, 1979). In the case of the oil industry, substitute products in the short term are oil discovered in other areas; Middle East oil became a substitute for American oil in the 1940s, and Russian oil threatened Middle East oil in the late 1950s. In the long term, substitute products for oil could be coal, natural gas, and other new energies such as nuclear power or solar power. Just as oil replaced coal in the early 20th century, new energies could replace oil if they become more cost efficient.

Existing competitors jockey for position by using tactics like price competition, product introduction, and advertising. Rivalry is intense, for instance, when competitors are numerous or are roughly equal in size and power, when industry growth is slow, precipitating fights for
market share, or when fixed costs are high or the product is perishable, creating a strong temptation to cut prices (Porter, 1979). Although occasional cooperation through cartel among the majors has been one of the remarkable characteristics of the upstream oil industry, there was always a severe competition in the downstream. Merger and acquisition among oil companies since the 1980s shows severe rivalry in the industry.

The determinant competitive force in an industry changes over time. By observing the factors that have or have not changed in the oil industry, I will find out the dominant force in the industry today. This thesis consists of four chapters. The first three chapters will deal with the shift of dominance in the oil industry, chronologically; first, control of the industry by the oil majors until the 1960s, second, nationalization and domination of the industry by Organization for Petroleum Exporting Countries (OPEC) until the mid 1980s, and finally, the domination by the global oil market today. The fourth chapter will discuss the situation of the Japanese oil industry and the strategy necessary for its survival. I will mainly observe the development and production of oil in the Middle East, and also the oil development in the Caspian Sea region, to analyze the current condition of the upstream industry. Although the prime movers in the industry change over the time, major actors are governments, oil companies, and some entrepreneurs of the United States, Europe, Russia, China, Japan, and OPEC member states.

I will argue that the determinant competitive forces in the industry have changed from “threat for new entrants” under the control of oil majors to the “bargaining power of the suppliers” as OPEC increased its power, and that due to the “threat of substitute product” from non-OPEC countries and an increase in the “bargaining power of customers,” control over oil has shifted to the global market today. As a result, “intra-industry competition” has become the critical force in the industry. At the same time, however, the nature of oil has not changed. Oil is an international commodity whose prices tend to fluctuate widely depending on the political and economic environment. Under such circumstances, the Japanese government could no longer protect its oil industry. Thrown into a global competition, the survival strategy for Japanese oil companies will be to (a) integrate vertically and horizontally among oil companies, including trading companies, (b) purchase concession in proved oil fields in which high return is expected, and (c) establish an outlet network in Asia where further growth in demand is expected.
CHAPTER 1: THE OIL MAJORS

Origin of the Industry

The modern oil industry started in northwestern Pennsylvania in 1859, when oil was found for the first time using well-drilling techniques (Podolny and Roberts, 1998). Its main use was in kerosene (lamp oil) and lubricants. From its very beginning, the oil industry was characterized by alternate periods of shortage and glut (Sampson, 1991). “The promise of quick profits and low barriers to entry enticed many “entrepreneurs” to sink drills into the Pennsylvania and Ohio countryside, even when prices were low” (Jones and Wadhwani, 2003, p.2). The “rule of capture” was the main reason for the overproduction; owners of land had the right to draw out whatever wealth lay beneath it. “Inevitably, when applied to oil production, the owners of adjacent wells were in heated competition to produce as much as they could as swiftly as possible, to avoid having the pool drained by another” (Yergin, 1993, p.32). “The year after the discovery, the price of oil was twenty dollars a barrel; at the end of the next year, it was ten cents a barrel, and sometimes a barrel of oil was literally cheaper than a barrel of water” (Sampson, 1991, p.30).

Another familiar characteristic already found in the early oil industry was monopolization, and government regulations to prohibit it. John D. Rockefeller, who established Standard Oil Company in 1870, observed the deteriorating business condition caused by too many wells and too much oil, and conceived his bold vision of consolidating nearly all oil refining into one giant combination (Yergin, 1993). He realized that the only way to dominate the industry was not by producing oil, but by refining and distributing it, and undercutting his rivals by using cheaper transport. “He persuaded the railroads to give secret rebates to his oil, extending the existing practice of allowing discounts for large quantities of freight” (Sampson, 1991, p.32). Standard Oil increased its capitalization to facilitate takeovers and in great secrecy.
began by attempting to buy out the leading refiners in each area. It would cut prices in that particular market, forcing the competitor to operate at a loss. Many refiners never knew that their local competitors, who were cutting prices and putting other pressures on them, were actually part of Rockefeller’s growing empire (Yergin, 1993).

By 1879, the company controlled ninety percent of America’s refining capacity (Sampson, 1991). In the mid 1880s, when the signs of depletion in Pennsylvania were observed, Rockefeller took a step and entered into the upstream business of production of oil in Ohio. By 1891, Standard was itself responsible for a quarter of America’s total output of crude oil (Sampson, 1991) Legal assaults against Standard Oil Trust were launched as early as the late 1870s, which revealed its manipulation of rebates and drawbacks in business.

However, a far more serious threat came immediately after Roosevelt’s presidential election in 1904 when his administration launched an investigation of Standard Oil and the petroleum industry. In 1906, the Roosevelt Administration brought suit against Standard Oil, charging it under the Sherman Antitrust Act of 1890 with conspiring to restrain trade. After a long trial in the Federal courts, the Supreme Court in 1911, decreed that the company would be dissolved in six months (Sampson, 1991).

The Seven Sisters

Meanwhile, on the global scene, Standard Oil was facing competition in Europe and Asia. In Europe, the Nobel brothers from Sweden acquired a concession for oil in Russia, where the Czar after 1873 had allowed foreign interests to prospect for oil in the Caucasus. With financial help from the French Rothschilds Bank, they began selling Russian oil, which soon impinged on the Rockefeller monopoly. “In Europe, the Nobels and the Rothschilds reached a temporary understanding with Standard and carved up the market between them” (Sampson, 1991, p.58).

In Asia, though, Rockefeller was determined to maintain his monopoly and the task of challenging him was almost as formidable as in the United States. Standard Oil, fortified by its huge American profits, could afford to undersell in any single market until it forced its competitors there out of business. Marcus Samuel, the founder of Shell, who was involved in a syndicate to sell Russian oil, soon realized that the only way to withstand a price war from
Standard was to compete in every market at once. He had storage tanks built in the key distribution points in the Far East, and at the same time he ordered a fleet of tankers of a new design which fitted the stringent requirements of the British directors of the Suez Canal. By the end of 1893, they were carrying Russian oil to the eastern storage tanks, presenting Standard with a simultaneous challenge. Despite both a succession of counterattacks by Standard Oil and depressed oil prices, Samuel survived with a growing fleet of ships, access to Russian oil, and widely scattered trading stations. He rejected an offer from Standard to buy him out, and in 1897 he formed the Shell Transport and Trading Company (Sampson, 1991).

Royal Dutch, a Dutch concern operating in the East Indies, also managed to withstand the price wars, and soon came up against both Shell and Standard Oil. The three of them fought intricate battles over a period of sixteen years, collaborating with other interests under different names, each plotting with another to destroy the third. Standard tried again to buy out Shell by offering forty million dollars and promising a joint subsidiary with Samuel as chairman. But he preferred to join with Royal Dutch, and agreed to share Shell’s marketing system in the Far East in a joint company with Henry Deterding (who was in charge of selling Royal Dutch oil throughout the Far East) at the head. Although Royal Dutch was much smaller, it controlled valuable resources in the East Indies and soon it was paying dividends of fifty percent against Shell’s five percent. In addition, Deterding took every advantage to weaken Shell. Finally, in 1907, the new giant, Royal Dutch Shell came into being through a merger with terms advantageous to Royal Dutch, and with Deterding as the managing director (Sampson, 1991).

During 1910 and 1911, there was a “great oil war” between Royal Dutch Shell and Standard Oil Company, who were fighting each other in almost every market in the world. By 1914, Shell had purchased controlling interest in the infant Venezuela oil industry, had grown to be one of the largest oil companies in Russia, and even in Standard’s homeland had acquired one of the largest oil producing companies in California (Jones and Wadhwani, 2003).

In the United Kingdom, because the British had no oil in their own country and were dependent on finding it in remote parts of the world, there were no antitrust cases. There was no total confrontation between companies and governments, and so both they and the Europeans were more tolerant of cartels (Sampson, 1991). The British government, though, was suspicious about the loyalty of Shell, with all its foreign networks, especially after the merger with Royal Dutch. When the navy began converting its fuel from coal to oil, Shell was excluded from the
big contracts. In 1914, the British government announced that it would buy a controlling interest of fifty-one percent in Anglo-Persian Oil Company, which had immensely promising oilfields in the Middle East (Sampson, 1991). Under the protection of the British government, it grew rapidly first as Anglo-Persian, then as Anglo-Iranian and finally as British Petroleum or BP. The early development of BP did not call for any special entrepreneurial skill because it had a captive production in Iran, and a captive market protected by the army in order to supply the navy (Sampson, 1991).

Standard Oil was at last dissolved into thirty-eight companies, though they were still owned by the same group of men and led by Rockefeller himself with a quarter of all shares. Three of the offspring were soon to become bigger, in terms of profit, than the original parent as the oil industry expanded to provide fuel for industry, and gasoline for cars, planes, and tanks (Sampson, 1991). Those three were, Standard Oil of New Jersey (Exxon), Standard Oil of New York (Mobil), and Standard Oil of California (Socal). Other large multinational oil companies also arose in Texas in the early 1900s, where antitrust law had been enacted, and Standard Oil thus missed the chance to enter that field. Gulf was founded in 1901 and controlled by the Mellon family of Pittsburgh. Texaco was founded a year later (Podolny and Roberts, 1998). These five American, one British, and another Anglo-Dutch oil companies were “the seven sisters” who were to dominate the global oil industry.

The Cartel

It was the First World War that dramatically raised the importance of oil. Internal combustion engines were used for powering tanks, trucks, and planes during the war. “Thus even before safe access to oil became seen as an economic necessity, it was a central international strategic and military concern” (Podolny and Roberts, 1998, p.4). Both in the United States and United Kingdom, governments preferred not to be closely involved with such a controversial commodity, and used oil companies, at a discreet distance, as an instrument of national security and foreign policy (Sampson, 1991). However, to encourage the oil companies, the government of the United States proclaimed the doctrine of the “Open Door” which demanded that the Allies should not discriminate against each other in oil supplies. Immediately, the disintegrating Ottoman Empire became the battlefield of postwar oil diplomacy between the
United States and the United Kingdom (Sampson, 1991).

The conference at San Remo in 1920, convened to draw up the peace treaty with Turkey, divided those Arab countries which had been under Turkish rule into British and French mandates. The treaty also incorporated a special oil agreement reconfiguring the old Turkish Petroleum Company. Originally, almost half of the company was owned by British Petroleum, about a quarter by Shell, a quarter by the German Deutsche Bank, and five percent by an American entrepreneur, Calouste Gulbenkian. By the agreement, the German share was given to France. “It was a classical European horse trade, and it deliberately excluded the United States, on the semi-plausible grounds that America had not declared war on Turkey and was not therefore concerned with the peace treaty” (Sampson, 1991, p.83).

Exxon, who worried about the alliance between the British and the French and about one between Shell and BP, protested vigorously to the State Department, which no less vigorously denounced the agreement as a violation of the cherished principles of the Open Door (Yergin, 1993). The hostile prewar relationship between oil companies and Washington had completely reversed, due to the specter of oil shortage, suspicion of British treachery, and the wartime experience of business-government collaboration in which Exxon, alone, had supplied a quarter of all the oil used by the Allies (Yergin, 1993). After a long negotiation among these parties, at last in July 1928, nine months after the discovery of oil in Iraq, a full contract was signed and Shell, BP, the French, and the group of American companies would each receive 23.75 percent of the oil produced by the newly established Iraq Petroleum Company, and the residual 5 percent was maintained by Gulbenkian (Yergin, 1993).

At the same time, the partners bound themselves with “The Red Line Agreement,” not to engage in any oil operations within the vast territory of the now-defunct Turkish Empire, except in cooperation with the other members of the Iraq Petroleum Company (Yergin, 1993). The area stretched from Turkey down through Jordan, Syria and Iraq, down to the bottom tip of Saudi Arabia. Although it was not known at the time, this encompassed all of the major oil-producing countries in the Middle East, except for Iran and Kuwait. The fact that the Iraq Petroleum Company included four of the major companies, Shell, BP, Exxon, and Mobil made the process of controlling production much easier (Sampson, 1991).

In the late 1920s, while the oil majors were dividing shares in Iraq, they were also competing furiously to secure new markets and sources of supply; the source of chaos was
Russia, where one company after another was lured by the promises of the Bolshevik government and the tremendous fields of Siberia and the Caucasus (Spar and Vietor, 1995). The Soviet oil industry, virtually dormant from 1920 to 1923 after the revolution, thereafter revived quickly and soon reentered the world market as an exporter (Yergin, 1993). In 1928, realizing that a price war would ruin them all, Shell and Exxon, together with BP (who had grown increasingly important to the world’s stage by controlling the oil in Iran and quarter of Iraq,) gathered in Achnacarry Castle in Scotland, and came away with a secret “As-Is” Agreement. “The heart of the agreement was that each company was allocated a quota in various markets – a percentage share of the total sales, based upon its share in 1928. A company could only increase its actual volumes insofar as the total demand grew, but it would always keep to the same percentage share… In order to increase efficiency, markets would be supplied from the nearest geographical source. That meant extra profits, since the sales price would still be based upon the American Gulf Coast price plus the going freight rate from that coast to the market, even if the oil was coming from a closer location” (Yergin, 1993, p.264).

Although the “As-Is” was never completely achieved because of the difficulty of incorporating smaller companies, the oil majors collaborated in the 1930s so as to restrict competition among themselves and to share profits from outsiders (Sampson, 1991). “Most of the world’s oil resources were in the hands of the big companies, and the agreements succeeded in their main object of maintaining stable prices at the American levels, and of limiting competition inside each country” (Sampson, 1991, p.95).

Control by the Sisters

The American oil majors would not have been able to gain control over the oil industry without acquiring oil concessions in Saudi Arabia. The first step into the region was made by Socal, who acquired the concession in Bahrain while other big oil companies were either less interested in the region at a time of world glut or not able to join the concession due to the restriction of the Red Line Agreement. Supported by the Open Door principle of the State Department, Socal was able to own a concession in the British Protectorate. By 1931, Socal had struck oil, and two years later Bahrain was exporting oil to the world market. However, the real importance of this country was as the stepping-stone to the mainland of Saudi Arabia, twenty
In 1933, Socal achieved their far more valuable concession in Saudi Arabia by providing financial assistance to King Ibn Saud, who was in a desperate need of money. Although the drilling in Saudi Arabia was promising after the success in Bahrain, Socal realized that it was very short both of capital and of marketing outlets, many of which were tightly controlled by Exxon. Thus it came to partner with Texaco, who was not bound by the Red Line Agreement and so had plenty of markets, including the newfound customers in Franco’s Spain, and was glad of a new source of oil. By May 1939, the Arabian oilfield was ready for production, and the King soon increased the size of the concession to 444,000 square miles, the size of Texas, Louisiana, Oklahoma, and New Mexico put together (Sampson, 1991). “The establishment of an all-American oil company in Saudi Arabia was to change the whole Middle Eastern balance of power” (Sampson, 1991, 111).

After World War II, Socal and Texaco realized the need for access to more markets, and also felt very unsure of the political future of Saudi Arabia. Therefore, they considered bringing Exxon and Mobil into their Arabian partnership; Arabian-American Oil Company (Aramco). Although both companies wanted to join Aramco, there still remained the restriction of the Red Line Agreement. Supported by the State Department’s Open Door policy, both companies tried to break the agreement. By offering a massive expansion in Iraq to the French company CFP and Gulbenkian, they finally succeeded in erasing that agreement. As a result, Exxon and Mobil acquired 30 percent and 10 percent of the Aramco concession respectively (Sampson, 1991).

Meanwhile in Kuwait, which was outside of the Red Line Agreement, BP and Gulf were fighting for concessions with support from their governments. The British government was insisting on a British nationality clause, while Gulf was wielding the power of Washington and the Open Door principle. In 1934, both companies signed with the sheikh, and the joint company struck oil four years later (Sampson, 1991).

By the end of the World War II, the new oilfields had been divided among the seven sisters. Since most of them, except BP, were also producing oil in the United States, they would not let the new oil undercut the Americans’ price (Sampson, 1991). “Their interests were interlocked, in Iraq, Kuwait, Bahrain and Saudi Arabia. So that though their competition in marketing was fierce, they all shared the same concern for maintaining high prices and avoiding an uncontrollable glut: between them they could avoid opening up too many new fields”
Through this oligopoly, the oil business provided a huge profit to the companies.

In spite of that, they created another profitable mechanism when the oil-producing countries started to demand fifty-fifty profit sharing arrangement in the early 1950s. When the King of Saudi Arabia clamored for a 50 percent tax, Aramco agreed on a scheme later called the “Golden Gimmick” with the State Department, which was worried about the Communist danger in the Middle East (Sampson, 1991). With this new scheme, “additional payments to the King should be regarded as constituting a foreign income tax, so that under the existing rules for double taxation, they would not be taxed inside the United States. The King’s share would simply be deducted from the company’s tax bill” (Sampson, 1991, p.134). For example, in 1949, royalty revenue paid from Aramco to Riyadh was 39 million dollars, while tax paid to the U.S. government by Aramco were 43 million dollars. By the new mechanism, Riyadh would collect 78 million dollars, and the U.S. government 4 million dollars (Yergin, 1993). The tax device suited the State Department as well, for it was really a means to provide foreign aid to a strategically important Arabian country without having to submit it to Congress, at the time when Israel was struggling for survival, and Korean War had begun (Sampson, 1991).

In addition, by the fifty-fifty arrangement, oil-producing countries became partners with oil companies in the profits. They soon started to insist that crude oil must be sold at a publicly fixed price. “Accordingly, the companies agreed to publish a ‘posted price’ at which they would offer their oil for sale to anyone; and on that price would be based the taxes paid to each government” (Sampson, 1991, p.135). As a result, however, producing countries became so accustomed to a steady income derived from this fixed posted price, it soon became an artificially high price on which companies paid their taxes. On the other hand, companies went on obtaining tax relief on the posted price basis, and were allowed to pay lower U.S. taxes than any group of industries (Sampson, 1991). “In 1972, for instance, Exxon paid out of its global income only 6.5 percent in U.S. taxes, and Mobil only 1.3 percent” (Sampson, 1991, p.136). Through these means, the oil companies acquired sources of power, not only for economic expansion but also for controlling foreign relations among oil-producing countries.

The power of the majors became clear through Mossadeq’s attempt to nationalize Iranian oil in 1951. Facing this crisis, BP, which had dominated the oil in Iran, enlisted the support of the other six sisters to make sure they would not buy “hot oil” when it was
nationalized. With the British government’s help and by cooperation among the sisters, BP was able to enforce the boycott. “Each of the seven sisters had an interest in proving to the Iranians and to other potential miscreants that they could quite well do without their oil” (Sampson, 1991, p146). As a result, the nationalized company of Mossadeq could not sell anything abroad, and unrest began to grow in the country over the lack of their biggest export. Finally in 1953, Mossadeq was forced out of office by the Shah’s supporters, who were in turn led by the CIA (Sampson, 1991). And now, Iran was open for the entry of the American oil companies. Observing the vulnerability of Middle Eastern oil, the British government wanted coordination among oil companies, the goal being to improve relations with the oil producers and ensure a safe flow of oil (Sampson, 1991).

On the other hand, in the United States, the old antitrust prejudice had resurfaced due to the apparently high oil prices since the economic boom and revival in Europe after the World War II. The State Department, which wanted to include five American sisters in a deal to develop Iranian oil fields for “national security reasons,” fought over the Iranian consortium with the trustbusters of the Justice Department. At last, in 1954, the National Security Council gave its support to an international consortium, concluding that in view of the security requirements, the consortium would not in itself constitute a violation of the antitrust laws (Sampson, 1991).

**Force of Forces: Threat for New Entrants**

The dominant force of the forces in the early international oil industry was the “threat for new entrant,” which was partly inherent to the industry, but was greatly strengthened by the activities of major oil companies at that time. For example, the huge capital requirement for oil exploration and for acquiring concession is an unchangeable barrier to those who want to enter the industry. “Because of the immense size and speculative nature of the original undertaking in the geographically and politically inhospitable countries of the Middles East, only big, financially responsible companies could enter the field with any assurance of success, and that this itself limited the possibilities of competition” (Penrose, 1959, p.162). However, what the Seven Sisters did was to increase the difficulty of entrance by dominating other factors.

First of all, as Rockefeller initially did in the early U.S. oil market, the Sisters
dominated the access to distribution channels. Even with abundant oil at hand, one cannot sell it without a distribution network. SoCal invited Texaco, and then Exxon and Mobil, into Saudi Arabia because of the need for market. This holds true for the oil-producing countries as well. “Regardless of the producing country’s ability to produce the oil efficiently, the control of international distribution channels by the major oil companies can be used to prevent the country from selling the oil. The major companies not only can refuse to accept oil offered by a producing country but they may also be able to dissuade others from doing so, thus barring markets and forcing oil operations to shut down” (Penrose, 1959, p.163) It was because of the lack of buyers that Mossadeq failed to nationalize Iran’s oil industry.

Secondly, partly due to the ignorance of the host government and partly to the backup of the State Department or the Foreign Office, the Seven Sisters were able to gain almost exclusive access to the world’s most abundant source of oil, in the Middle East. Proprietary technology to search, drill, and refine oil was also an advantage that the companies had but the producing countries did not. The producer governments had neither the money nor the expertise to produce oil themselves, nor, more importantly, to supervise adequately the terms of its production and marketing by the companies. Key information and expertise were effectively controlled by the majors as late as the 1960s (Turner, 1976).

Thirdly, control of the industry from the upstream to the downstream provided the companies with the economies of scale. This in turn allowed them to cut oil prices and eliminate smaller competitors.

Fourthly, during this period, government policy was generally supportive of the majors’ activities. As mentioned above, in the United Kingdom, where little oil was produced at home, the government possessed half of BP’s share and made hardly any attempt to regulate the oligopoly of the companies. In the United States, although the antitrust laws broke Standard Oil Trust in 1911 and the trustbusters were active afterwards, in the 1950s, the government, under pressure from the threat of communism and the need to maintain support for Israel, prioritized national security issues over the principles of a competitive free-enterprise democracy.

Finally, the cartel among the oil companies played a huge role in threatening new entrants. As Rockefeller created the Standard Oil Trust to avoid the price fluctuation of oil, the majors carved up the oil industry by the “As-Is” agreement for fear of the cheap Russian oil. “Though the Achnacarry Agreement was dissolved in 1939, charges that the handful of large
multinational corporations that controlled most of the world’s oil markets were still colluding to set prices and exclude independent firms from the industry persisted well into the post-World War II era” (Jones and Wadhwani, 2003, p.14).

It is not to say that other forces did not influence the industry. On the contrary, when we observe specific incidents, there have been times when other forces had as much impact as the threat for new entrant. At the time when the Russian oil flowed in the market, “threat of substitute products” was the major force looming to Anglo-American oil companies. A look at the downstream of the industry shows that there was always a severe competition among oil companies to expand their outlets, and the determinant force would have been “intra-industry competition.” It might also be possible to argue that the bargaining power of the majors as suppliers were stronger than the consumers as ultimate buyers. Or, the producing countries can be seen as suppliers and the oil companies as buyers with strong bargaining power.

Penrose (1959) examines the bargaining power balance between oil-producing countries and the majors under three presumptions; lack of effective competition among companies, lack of ability of the countries to run the industry, and no inter-governmental political maneuvering. She compares the costs for both the countries’ threat of nationalization of oil and companies’ resistance to it, and argues that the companies had the bargaining power because they had their choice of countries from which higher returns could be expected, and because they were in a strong position to precipitate an economic crisis from lack of revenue, which could drive the negotiating government out of office.

However, the underlying structure of the industry in the period dominated by the Seven Sisters was not determined by the cartel alone, but rather by the factors mentioned above, including the cartel. Together they functioned as a barrier to deter new entry into the industry. Change in the structure of an industry does not appear suddenly; rather, it is a gradual process. The spread of the fifty-fifty agreement marked the beginning of the process by which oil-producing countries increased their bargaining power.
CHAPTER 2: OPEC

Challenges to the Majors

In the 1950s, challenges to the majors’ control were made by two resource-poor countries, Italy and Japan. Enrico Mattei, the president of the Italian hydrocarbon companies ENI (Ente Nazionale Idrocarburi), had long wanted to ensure that Italy had its own international oil supply independent of the seven sisters. He began talking seriously to Iran and to the Shah who was also in urgent need of a larger share of oil revenues than he obtained from the existing consortium. In 1957, Mattei agreed with the Shah on their profit sharing terms; 75 percent to the National Iranian Oil Company and 25 percent to ENI – breaking the prevailing fifty-fifty agreement (Yergin, 1993).

The same year, a Japanese consortium named the Arabian Oil Company, led by an entrepreneur, Taro Yamashita, was pursuing concessions from Saudi Arabia and Kuwait to explore the area offshore from the Neutral Zone. Because the consortium lacked the capital for an up-front payment, it agreed to take only 44 percent, leaving the Saudis with 56 percent, and allowed Saudis the right to acquire an equity stake in the company should it strike oil. Kuwaitis were able to win 57 percent (Yergin, 1993). Although American and British oil companies were outraged by these agreements, there was little that they could do to change them. In 1958, even an American company, Amoco (Standard Oil of Indiana at the time) accepted a concession in Iran with a 75 – 25 joint venture arrangement. While ENI did not strike oil, the Arabian Oil Company and Amoco found a good deal of it (Yergin, 1993).

Another challenge to the majors’ control came from rising Arab nationalism. “Since the early 1950s, a number of meetings and contacts among what were semi-officially called ‘Arab Oil Experts’ had been taking place in the Middle East” (Yergin, 1993, p.509). In 1956, Nasser, a dictator of Egypt as well as an advocate of pan-Arabism and a gifted student of Mossadegh,
seized the Suez Canal to acquire the toll revenues, which were till then enriching European shareholders. He survived the British, French, and Israeli military attack, and retaliated by blocking the waterway at the canal, thus choking off the supply of oil. Saudi Arabia embargoed its oil supply to Britain and France. Kuwait also had to shut down its supply system (Yergin, 1993).

Meanwhile, the United States believed that military invasion “would arouse not only the Arabs but the entire developing world against the West and would play into the hands of the Soviets” (Yergin, 1993, p.484). Without support from the United States (and without sufficient oil supply,) the British and French troops had to withdraw from the Suez. Nasser won, and the canal unequivocally belonged to Egypt (Yergin, 1993). At this point, the strong spirit of Arab nationalism broadened its scope; economic warfare formerly directed against Israel was extended to the majors, and to the Western nations themselves. They also discussed building domestic refining capacity and an Arab tanker fleet, and creating an Arab international body that would manage Middle Eastern oil production, increase revenues, and counterbalance the power of the petroleum companies (Yergin, 1993).

As a last blow, increase in the number of independent oil companies in the industry combined to undermine the relative power of the majors. In the late 1950s, exploration of oil fields in Africa became active as a new frontier. Governments adopted concessionary policies that favored the entry of independents and new players. In Algeria, the French Régie Autonome des Pétroles discovered oil while CFP was preoccupied with sorting out the Iraq Petroleum Company and its position in the Middle East. The Libyan government adopted a petroleum law that provided for a host of much smaller concessions, and thus gave many of the concessions to independent companies. It also attracted foreign investment by pegging its share to the actual market price for its oil, which was lower than the posted price used by Middle Eastern producing countries. Since Libyan oil was a very high-quality crude with low sulfur, and was geographically favorable to the West because it need not pass the Suez Canal, it soon started to flood into Europe and the world market. By 1965, it was the world’s sixth-largest oil exporter, responsible for 10 percent of all petroleum exports. More than half of the Libyan oil was produced by independent oil companies (Yergin, 1993).
Rise of OPEC

While world oil demand was growing during the 1950s, production capacity was growing still more rapidly, especially due to the Soviet oil industry resuming its position in the world market. “Between 1955 and 1960, Soviet oil output actually doubled, and by the end of the 1950s, the Soviet Union had displaced Venezuela as the second-largest oil producer in the world, after the United States” (Yergin, 1993, p.515). Divergence between the actual market price and the posted price on which revenues of the producing countries were based was expanding. That meant oil-producing countries were actually taking more than fifty percent from the profit realized from the actual price.

Oil companies wanted to cut the posted price so that producing countries would share the burdens of competing with the Russians. In early 1959, BP made the first move by cutting 18 cents a barrel, which infuriated the producing countries (Yergin, 1993). Moreover, in August 1960, Exxon announced that it would unilaterally cut 14 cents a barrel from the posted price of the Middle Eastern crude; other companies followed suit. Their national revenues being slashed, oil-producing countries were outraged. In the following September, the major exporting countries – Saudi Arabia, Venezuela, Kuwait, Iraq, Iran, and Qatar (observer) – gathered in Baghdad and established the Organization of Petroleum Exporting Countries. Its objective was to defend the price of oil, and restore it to its precut level (Yergin, 1993).

However, during the 1960s, OPEC did little to serve its member states. For one thing, in all member countries except for Iran, the oil reserves belonged by contract to the companies, and host countries’ control was limited. Thus, oil companies insisted on negotiating with individual countries rather than with OPEC. Another reason was that the oil-producing countries were competing with each other, in a saturated market, to maintain their revenues (Yergin, 1993).

The change in the balance of power between the governments of the oil-producing countries and the oil companies began in Libya in 1970, when the new radical government led by Quaddafi attacked an independent company, Occidental. Since the company had no other alternative production source, Libya attained a thirty-cent increase in the posted price and a hike in its share of profit from 50 to 55 percent. Soon, Iran followed suit with a 55 percent agreement, then Venezuela passed legislation that raised its profit share to 60 percent and allowed it to raise
oil prices without reference to or negotiation with the companies. Subsequently, OPEC endorsed 55 percent as the minimum country share and threatened to cutoff supplies to the companies if its demands were not met (Yergin, 1993). Now the companies tried to negotiate with OPEC in a united front, but OPEC insisted that they should negotiate with regional groupings of exporters. In the negotiations in Tehran, “the new accord established 55 percent as the minimum government take and raised the price of a barrel of oil by 35 cents, with a commitment to further annual hikes” (Yergin, 1993, p.582). In the negotiations in Tripoli, the posted price was raised by 90 cents (Yergin, 1993).

Furthermore, the oil-producing countries went on to outright nationalization or participation of oil concessions. They did not want to be mere tax collectors, but to have sovereignty over their natural resources (Yergin, 19991). ‘Participation’ was a mechanism for a partial ownership devised by the major exporters, who wanted to maintain the interests of oil companies in their concessions. In this way the countries would not become direct sellers, and could thus avoid competition among them. The participation agreement reached in 1972 between the Gulf states and the companies provided for an immediate 25 percent participation share, rising to 51 percent by 1983 (Yergin, 1993). Meanwhile, radical states nationalized foreign assets. Algeria took 51 percent ownership in the French oil Operations, Libya nationalized BP’s holding and 50 percent of ENI’s operations, and Iraq nationalized Iraq Petroleum Company (Yergin, 1993).

**The Oil Embargo**

Compared to the glut until the early 1960s, the late 1960s and the early 1970s saw a rapid catch up of demand, caused by high economic growth in the industrial world. Because of environmental and price concerns, primary energy sources had shifted from coal to oil in this period. In 1949, coal had provided two-thirds of world energy, but in 1971, oil along with natural gas, was providing two-thirds of world energy (Yergin, 1993). “Free world petroleum demand rose from almost 19 million barrels per day in 1960 to more than 44 million barrels per day in 1972” (Yergin, 1993, p.567). As a result, the world was rapidly becoming dependent on the Middle East and North Africa for oil. On the other hand, the United States was running out of surplus capacity, something on which the Western world had depended for security. In the
event of an emergency, there would be no stand-by supply from the United States. Outside the United States, the surplus production capacity was only 500,000 barrels per day, just one percent of the free world consumption (Yergin, 1993).

Oil demand continued to rise worldwide, and in early 1973 the market price exceeded the posted price. Although oil-producing countries’ revenues were increasing, they did not welcome the fact that the companies’ share of revenues was also growing. The OPEC countries called for a new deal to replace the Tehran and Tripoli agreements, and required a 100 percent increase in the posted price, whereas oil companies were offering a 15 percent rise (Yergin, 1993). It was during these negotiations that Egypt and Syria attacked Israel.

Following the outbreak of the fourth Arab-Israeli War in October 1973, Arab members of OPEC met in Kuwait to discuss the possible use of oil as a weapon to change the policies of the United States and the Netherlands. They agreed on an immediate cutback in oil production of 5 percent, and warned in their communiqué that the same percentage would be applied each month, until the Israelis withdrew from all Arab territories occupied in June 1967 and restored the legal rights of the Palestinian people (Sampson, 1991). As a result, the Arab oil producers embargoed oil shipments to the United States and the Netherlands. They reduced their total oil exports so that embargoed countries could not simply purchase oil from other importers. Out of fear and uncertainty about the future, companies and consumers began panic buying, which pushed up the oil prices dramatically. The embargo, having originated quite separately, was now rapidly exacerbating the shortage, and thus affecting the price. The price of oil had quadrupled from US$3 to US$11.65 in just over two months. Having discovered its monopoly power, OPEC had become the champion of the marketplace (Sampson, 1991).

The embargo was not necessarily a success with regard to its original objective, which was to change the policies of the United States and some other OECD countries supportive of Israel. Licklider, who studied the policies of the Netherlands, the United Kingdom, Canada, Japan, and the United States, argued that the contribution of oil weapon to Middle East policy change was at best indirect, and that its apparent success seemed due to the increased wealth in the Arab states; they themselves became major customers for major exporting countries in a very short period of time (Licklider, 1988). Indeed, when it was followed by the second oil crisis triggered by the Iranian revolution, the embargo was a success for Arab oil-exporting countries in that the annual oil revenues quadrupled from $52 billion in 1974 to $208.3 billion in 1980.
Nearly 45 percent of all crude oil in 1980 was sold directly by OPEC producer governments in the world market, up from only 8 percent in 1973. Out of the $320 million of OPEC’s total 1981 investible cash surplus, nearly $300 million belonged to its Arab members (Luke, 1983).

**Force of Forces: Bargaining Power of Suppliers**

The driving force that changed the structure of the international oil industry in the 1970s was the “bargaining power of the suppliers.” Significant factors that enhanced the bargaining power of the oil-exporting countries were (a) an increase in the number of buyers compared to the relative concentration of the sellers, (b) the build up of switching costs (Porter, 1979) in the industrialized countries, and (c) the credible threat posed by the suppliers to integrate forward into the business of buyers through participation or nationalization.

As Penrose argues, “even a small amount of competition for new concessions…is significant, for whenever any producing country obtains terms in an important agreement better than those prevailing elsewhere, an immediate pressure tends to be created for the revision of old agreements, because the amount the government can reasonably expect to get and the point at which it would be willing to compromise are both raised” (Penrose, 1959, p.158). Diffusion of technology, improvements in travel and information, and the tendency of producing countries’ policies to prefer the entry of independents increased the number of new players. In the Middle East, only 9 oil companies operated in 1946, but by 1956 it was 19, and had reached 81 by 1970 (Yergin, 1993). This increase in the number of oil companies, especially the independents who had no alternative source of oil, provided producing countries with the bargaining power to exploit better terms in their concessions. However, OPEC itself was not completely united, for it had non-Arab states such as Iran and Venezuela, and even the Arab states were not united having divided between moderate states such as Saudi Arabia and Kuwait, and radical members such as Libya, Algeria, and Iraq. However, OPEC served to concentrate the interests of exporters, and allowed them to achieve higher profits from their oil.

“Switching costs” are fixed costs that buyers face when changing suppliers (Porter, 1979). Due to oil’s cheap price and environmental friendliness compared to coal, industrialized countries had shifted their primary energy from coal to oil by the 1960s. During this period, huge investments were made in transportation and utilities, based on the use of cheap oil from
the Middle East and North Africa; these switching costs increased the bargaining power of producing countries. Between 1960 and 1970, free world oil demand had grown by 21 million barrels per day, while production in the Middle East (including North Africa) had grown by 13 million barrels per day. Two-thirds of the increase in oil consumption was fed by the Middle East countries (Yergin, 1993).

Nationalism encouraged oil-producing countries to become the owners of their natural resources. They could and did pose credible threats of nationalization or of participating in the production and selling operation of oil companies, and by doing so, achieved better shares of profit and higher posted prices. They not only used the threats, but also did in places nationalize or acquire parts of their concession, which made the general threat more credible. Now, the producing countries could make unilateral decisions about level of oil prices or production. The oil embargo in 1973 showed to the world that oil was now controlled by the producing countries.

Naturally, this increase in the bargaining power of oil-producing countries coincided with a decline of the majors’ influence. The largest companies were especially vulnerable to the pressure from the producing governments, who, being now more effectively organized, were thus able to guarantee or hold back their long-term supplies (Sampson, 1991). Ironically, the companies became the “arms and legs” for the producing governments, enabling them to implement the embargo, thus cutting back the supply to the United States. They benefited from it, however; the price hike that resulted from the embargo provided the companies with record profits (Sampson, 1991).

Other forces also had certain effects. The “threat of new entry,” which was the decisive force under the control of the majors, was less influential during this period, allowing many new players into the industry. The oil industry still required huge capital and access to distribution channels, which the majors possessed. However, the policies of host governments were against them, and they gradually lost direct access to resources, either through nationalization or participation. Moreover, the power of both the American and the British governments was receding, and the political basis for the old petroleum order was weakening. The British announced the end of their defense commitments east of Suez in 1968, while the Americans were then mired in the costly and unpopular war in Vietnam (Yergin, 1993).

“Intra-industry competition” in the upstream became intense after these new players
entered. Competition in the downstream continued to be intense, especially because of the cheap oil flowing into the world market. Europe had become the most competitive market in the world since the United States had adopted its quotas to protect domestic oil productions. Companies were forced to respond: Exxon for instance started to offer road maps and local tour information for free at its gas stations in Europe. In 1964, it came up with its first version of the slogan “Put a tiger in you tank” in Britain (Yergin, 1993).

At the same time, it is worthwhile to note that the bargaining power of the oil-producing countries vis-à-vis consumers of oil has diminished because of the increased competition among suppliers. Unless the competition can be checked, this must in the end undermine the position of companies and governments alike, (Penrose, 1969).

The “threat of substitute product” was posed by oil itself towards the coal industry. Within the oil industry, again, it was posed by Soviet oil, as well as by North African oil that flooded into the market and lowered oil prices. Oil fields in the North Sea and Alaska had been discovered by the time of the embargo, but were not in production yet.
Rise of the Global Market

In the long term, the oil embargo served to decrease the relative power of the Arab oil-exporting countries. First, high oil prices decreased the demand for oil.

The massive twentieth-century march toward higher and higher dependence on oil within the total energy mix was reversed by higher prices, security considerations, and governmental policies. Coal staged a massive comeback in electricity generation. In Japan, liquefied natural gas increased its share in the energy economy and in electricity generation. All this meant, around the world, that oil was being ejected from some of its most important markets and was rapidly losing ground. Its share of the market for total energy in the industrial countries declined from 53 percent in 1978 to 43 percent by 1985 (Yergin, 1993, p.717-718).

Improvement in energy efficiency also contributed to decrease oil demand. For example, by 1985, the United States and Japan were 31 percent and 51 percent more oil efficient respectively than they had been in 1973 (Yergin, 1993).

Second, high oil prices also encouraged the development of oilfields in other areas of the world. “The major buildup of production in Mexico, Alaska, and the North Sea coincided with the turmoil of the Second Oil Shock. Egypt was also becoming a significant exporter. So were Malaysia, Angola, and China. Many other countries became producers and exporters, minor league in themselves, but significant in the aggregate” (Yergin, 1993, p.717). The development of non-Arab oil encouraged oil-importing countries to diversify their source of oil and decrease the dependence on the Middle East.

Finally, a worldwide oil stocking system was introduced to reduce the risk of such an embargo. In 1974, the International Energy Agency (IEA), a co-operative grouping of most of the member countries of the OECD, was established and committed to responding swiftly and effectively in future oil emergencies and to reducing their dependence on oil.
(IEA, 2004). It established the Coordinated Emergency Response Measures (CERM), which require countries to maintain oil reserves equivalent to 90 days of net oil imports, to have ready program of demand restraint measures equal to 7 percent to 10 percent of national oil consumption, and to participate in an oil-allocation system for a severe supply disruption, if necessary (IEA, 2002).

These three trends gradually undermined the power of OPEC countries over the oil industry. In addition, much of the new oil, particularly that from the North Sea, was sold on spot markets, which made it very responsive to overall market conditions. Spot prices for particular quality oil could be as much as eight dollars a barrel lower than term contract prices. Until the end of the 1970s, no more than 10 percent of internationally traded oil was to be found in spot markets. However, by the end of 1982, more than half of internationally traded crude oil was either in spot market or sold at prices that were keyed to the spot market (Yergin, 1993). The increase in spot market deals encouraged the development of a futures market, where buyers and sellers minimize the risk of volatile oil prices by acquiring the right to buy or sell crude at some month in the future at a specific, known price. These crude oil futures contracts would undermine OPEC’s price-setting powers (Yergin, 1993).

Facing these problems, OPEC, which had produced 31 million barrels per day in 1979, set an output limit for the group of 18 million barrels per day in 1982, with individual quotas for each country, except for Saudi Arabia, which would adjust its production to support the system (Yergin, 1993). In spite of these efforts, oil-producing countries were losing control over oil. Saudi Arabia would not long bear a vast loss of market share and a huge fall in revenues for the sake of other OPEC members, let alone of non-OPEC producers. By 1985, the Saudis had started to regain lost markets. As a result, the price collapsed from its peak of 31.75 dollars a barrel at the end of November 1985, to 10 dollars. More oil was seeking markets than there were markets for oil, and individual OPEC countries were battling with each other for customers. Buyers rather than sellers were playing leapfrog, each jumping over the other in pursuit of the lowest price (Yergin, 1993). “Now price was being established, every day, instantaneously, on the open market, in the interaction of the floor traders in the Nymex with buyers and sellers glued to computer screens all over the world” (Yergin, P.725-726).

Since then, OPEC has tried to maintain a “right” price, which allows the highest level the exporters could attain while still stimulating economic growth in the rest of the world and
thus energy demand. This also met the needs of importers like Japan where too-low oil prices would undercut the large and expensive commitment they had made to alternative energy sources, leading back to higher oil dependence and eventually to renewed vulnerability. With the cooperation of non-OPEC countries, OPEC members agreed to a “reference price” of eighteen dollars, to a quota, and to managed prices between 15 and 18 dollars until the late 1980s (Yergin, 1993).

However, under the market mechanism, oil prices fluctuate due not only to the supply itself, but also to anxiety, fear, or an optimistic view of future supply. When Iraq invaded Kuwait in 1990, prices on the futures markets leaped toward 40 dollars per barrel (Yergin, 1993). On the other hand, in December 1998, oil prices went down to 10.82 dollars per barrel. After the terror attack on September 11, 2001, oil prices went up to 29.59 dollars per barrel, and during the writing of this paper, oil prices reached a record of 42.33 dollars after a terrorist attack in Saudi Arabia (EIA, 2004A).

**Merger and Acquisition**

As the result of the power shift to the oil-producing countries through sweeping new arrangements or through nationalization and outright expropriation in the 1960s and 1970s, oil companies had lost much of the direct access to resources. They were no longer integrated companies, but rather buyers or traders shopping around the spot market for the cheapest crude oil (Yergin, 1993). The oil industry was not excepted from the market deregulation and liberalization of the 1980s, and was completely deregulated in the United States by 1981. Due to the overcapacity and weakening prices, the value of an oil company’s shares did not fully reflect what its oil and gas reserves would deserve in the marketplace. This meant that shareholders’ value could be enhanced by introducing a better management. Even more unsettling, it cost less to acquire an oil company with existing operation than to explore new reserves of oil. The result was a great upheaval of merger and acquisition (M&A) in the industry (Yergin, 1993).

The merger movement had already started in 1979 when Shell acquired Berlridge, a California heavy oil producer, for a total of 3.6 billion dollars. In 1981, DuPont acquired Conoco for 7.8 billion dollars. Marathon, a former Standard Oil production company, escaped a takeover attempt from Mobil by falling into the arms of U.S. Steel for 5.9 billion dollars. Mobil
acquired Superior Oil, the nation’s largest independent, for 5.7 billion dollars. Texaco competed with Pennzoil over Getty Oil, and got it for 10.2 billion dollars. The largest acquisition in the 1980s occurred among the majors. After losing the concession in Kuwait, Gulf had become less competitive in the market, and had not been able to find a new production source. After it survived a takeover bid by Mesa Petroleum, an independent oil company led by Boone Pickens, in 1984, Chevron acquired Gulf for 13.2 billion dollars. In the late 1980s, Royal Dutch Shell spent 5.7 billion dollars for the 31 percent of Shell Oil U.S.A. which it did not already own, and BP came to own 53 percent of Sohio. Only Exxon was less active in mergers and acquisition. It returned the money to the shareholders through a share buy-back, on which it spent 16 billion dollars between 1983 and mid-1990. Exxon did acquire other assets, but it was interested in specific properties rather than entire companies. It also decreased the number of employees by 40 percent (Yergin, 1993).

Several factors further encouraged the restructuring and M&A in the oil industry in the 1990s. First, pressure from powerful institutional shareholders to enhance share prices made boards of directors try to drive the stock prices higher by lowering costs. The shift toward option-based executive compensation can be credited to this trend (Nyquist and Friedemann, 1998). Secondly, since national oil companies of oil producing countries such as Saudi Aramco and Petroleos de Venezuela were becoming more aggressive in terms of the spread of their activity, oil companies needed to take defensive action to compete with them (Toal, 1999). Thirdly, the global playing field had changed after new arenas such as China and the former Soviet Union had opened to foreign investment (Nyquist and Friedemann, 1998). Fourthly, extending a company’s scope of operations by merging synergistic assets, capabilities, relationships, and brands was an effective way of survival in the international competition (Nyquist and Friedemann, 1998). Finally, gaining scale and financial strength in the industry was essential to take on the sort of large-scale projects that could offer a truly distinctive return (Toal, 1999).

During early to mid 1990s, independent oil companies such as Tosco, Sun, and Clark Oil & Refining purchased the non-core businesses of some majors who were in process of restructuring. In March 1996, BP and Mobil announced a joint venture in European refining, which would have five billion dollars in asset and sales of more than 20 billion dollars a year (Knott, 1996). The same year, Shell, Texaco, and Saudi Aramco announced an alliance in
refining and marketing operation in the United States. The Asian financial crisis and the resulting downturn in demand caused a glut of crude oil, and consequently a low oil price climate. Urged by the low oil prices (around 10 dollars per barrel), the consolidation trend moved upstream and grew to include mega-mergers (Rhodes, 1998). In August 1998, BP and Amoco announced a merger amounting to 48 billion dollars. Following this, Exxon and Mobil, and France’s Total and Belgium’s Petrofina announced mergers in December. In addition, in April 1999, BP Amoco and Arco announced that the two had reached a definitive merger agreement (Rhodes, et al, 1999). Finally, in October 2000, Chevron and Texaco announced that they agreed to a merger based on a stock acquisition valued at about 35 billion dollars (See Table 1 of Appendix A for Revenues, net incomes, and oil reserves of the major oil companies).

**Oil Development in the Caspian Sea**

Although oil has become more like an ordinary commodity, it is still the basis for the world’s biggest businesses and remains an essential element in national power. It is a major factor in world economies, a critical focus for war and conflict, and a decisive force in international affairs (Yergin, 1993). Development of oil fields around the Caspian Sea, after the collapse of the Soviet Union in 1992, shows that oil still remains a political and strategic commodity.

Of the world’s estimated total proved oil reserve of 1,265.8 billion barrels, the Caspian Sea basin states (Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) reserves consists of 17.2 billion barrels of oil, which is between the size of Mexico (15.7 billion barrel) and the total of Western Europe (18.2 billion barrels). Although the size was small compared to the Middle East (726.8 billion barrels) or Africa (87.0 billion barrels) (Oil & Gas Journal, 2003), the amount of oil concentrated in a small area was attractive not only to the host governments but also to the countries and companies that wanted to diversify their source of oil from the Middle East. Although the OPEC countries will continue to dominate the oil market for decades to come, development of oil in the Caspian basin could help diversify, secure, and stabilize world energy supplies in the future (Kalicki, 2001).

However, the Caspian Sea is landlocked, and the oil produced there has to be transported by land to a port connected to the open sea in order to reach the world market (See
Figure 1 in Appendix B). Deciding the routes of pipelines became a political issue not only because pipelines were source of transit fee revenues, but also because they would allow host governments to control the flow of oil. In addition, political instability in the region such as the ethnic conflict between Armenia and Azerbaijan, the antagonism between the Turks and the Kurds, or the battle in Chechnya was also a threat to pipeline projects. Countries surrounding the Caspian Sea including Russia and Iran as well as foreign interests such as the United States, European states, Japan, and China sought to influence future pipeline routes in accordance with their perceived strategic interests (Klare, 2002).

After the dissolution of the Soviet Union in 1992, countries of the Caspian basin, Kazakhstan, Azerbaijan, and Turkmenistan in particular, started trying to establish political and economic independence, seeing the key to that independence in their abundant energy reserves (Forsythe, 1996). In 1993, Kazakhstan started developing the giant Tengiz oil field under the 20 billion dollars joint venture between the state-owned Kazakhoil and Chevron, later joined by Exxon Mobil, and BP. The next year, the State Oil Company of Azerbaijan (SOCAR) established the Azerbaijan International Operating Company (AIOC) joined by BP, AMOCO, Lukoil, Unocal, Pennzoil, Statoil, and number of other firms. SOCAR also participated in 4 billion dollars Shah-Deniz project led by BP, Statoil, Elf Aquitaine, Lukoil, and the National Iranian Oil Company, and the 2 billion dollars Lenkoran-Taylysh Deniz project led by ELF Aquitaine and Total (Klare, 2002). These newly independent countries did not want the pipelines to pass through Russia because their resources would become vulnerable to the Russian control and political unrest in Chechnya (Forsythe, 1996).

Russia’s main interest was to maintain political influence over the region, and to ensure that a significant portion of the Caspian’s energy output travels through the existing Russian pipeline system to the Black Sea and Europe. By doing so, the Russian government can collect lucrative transit fees and gain some degree of control over the distribution of Caspian energy supplies (Klare, 2002). To achieve these purposes, Russia has brought political and economic pressure on the Caucasus states. It took the initiative in suspending the war in Nagorno-Karabakh, while in Kazakhstan it forced the Kazakhs to sign a series of agreements enhancing Russia’s influence, including one that merges some functions of their military institutions (Forsythe, 1996). In Chechnya and Dagestan through which pipeline route must pass one or the other, Russia responded with a full-scale invasion when Chechnya guerrilla attacked
southern Dagestan in 1999 (Klare, 2002). Also, the Russian government has bid aggressively for a stake in oil deals (Forsythe, 1996). It was successful in securing a 10 percent share of AIOC, and in the Caspian Pipeline Consortium (CPC), which carries Kazakhstan’s Tengiz oil to the Russian Black Sea port of Novorossiysk (Klare, 2002).

Iran’s interest in the region included “political influence, profitable economic and commercial relations, the spread of religious ideology, procurement of former Soviet weaponry, and the acquisition of nuclear expertise and materials” (Forsythe, 1996). Iran has been active to become a regional leader, and in 1992 it hosted the successful meeting of Economic Cooperation Organization among Central Asian states to discuss Caspian issues (Forsythe, 1996). The most expedient routes for transporting Caspian oil to the world market would have extended southward from the region through Iran to existing oil terminals on the Persian Gulf. However, this route would clash with the United States policy, which by the Iran and Libya Sanctions Act imposes sever penalties on foreign firms that invest more than 20 million dollars in Iran (Klare, 2002).

The United States had three main policy goals in the region; to support the sovereignty and independence of the countries of the region; to support its own commercial involvement in the region’s oil production and export; to support the diversification of world oil supplies to reduce future dependence on Persian Gulf oil (Forsythe, 1996). U.S. oil policy in the Caspian region was promoted through multiple channels. Government officials including the President and Vice-President maintained extensive contacts with domestic leaders and company representatives to endorse a new pipeline system traveling to the market without passing through Russia or Iran (Klare, 2002). Bilateral financial institutions such as the Overseas Private Investment Corporation and the Export-Import Bank also supported the implementation of the Caspian states’ projects. In 2002, five hundred U.S. Special Forces soldiers were stationed in Georgia to train the country’s army in antiterrorist warfare (Kleveman, 2003).

European countries such as the United Kingdom, France, Italy, have shared “political goals with the US, including encouraging stable, independent, secular, democratic, and market-oriented countries in the Caspian region, and pursuing profitable commercial deals that would benefit their own domestic firms” (Forsythe, 1996, p.28). Owing to their government’s diplomatic support, European oil companies have been successful in the region. BP has been the leading foreign company in the AIOC since 1994, and after the merger with Amoco, it owns
more than one-third of the consortium (Kleveman, 2003). With a strong support from the
government of the United States, the consortium is now constructing Baku-Tbilisi-Ceyhan
(BTC) pipeline, which will carry one million barrels of oil per day, traveling from Azerbaijan to
Turkey via Georgia. Italy’s ENI is leading the consortium in Kashagan oil field off the coast of
Kazakhstan, with British Gas, Exxon Mobil, TotalFinaELF, and Shell (Kalicki, 2001).

Japan found its way to the Caspian Sea through bilateral financial cooperation to the
region. Prime Minister Hashimoto’s “Silk Road Diplomacy” initiated in February 1998, when
President Aliyev of Azerbaijan Republic visited Japan and agreed with a Joint Statement, which
announced cooperation in the development of resources. At the same time, loans for a gas fired
classic production project (20.7 billion yen) and voluntary finance cooperation for purchasing
agricultural devices (0.4 billion yen) were committed for the first time to Azerbaijan by the
Japanese government (MOFA, 1999). By fiscal year 2001, it had provided 88.8 billion yen to
Kazakhstan and 39.0 billion yen to Azerbaijan (MOFA, 2002). In 2004, the Japan Bank for
International Cooperation announced that it had committed 580 million dollars to the BTC
pipeline construction project, in which two Japanese oil companies, ITOCHU Oil Exploration
and Inpex, join (JBIC, 2004).

China became a net oil importer in 1993. Although coal still provides 64 percent of
China’s primary energy today, it was the world's third largest consumer of petroleum products in
2002, following the United States and Japan, with total demand of 5.26 million barrels per day.
Its oil demand is projected to reach 10.9 million barrel per day by 2025 (EIA, 2003A). Therefore,
finding a new source of oil for import is urgent. China had realized the potential opportunities to
be gained by cooperating with its new neighbors in Central Asia. Trade across the border
between them flourished, and Free Trade Zones have been established. In 2001, China and
Russia formed an economy and security pact with all Central Asian States, except for
Turkmenistan. In 2002, China even held joint military exercises with Kyrgyzstan (Kleveman,
2003). The state-owned China National Petroleum Company (CNPC) has bought three large oil
fields in Kazakhstan, and is planning to build a pipeline from the Caspian Sea to Urumqui, and
further to Shanghai (Kleveman, 2003). The China National Offshore Oil Corporation has
announced in 2003 that it would buy nearly one-tenth of the Kashagan oilfield in Kazakhstan
(Kleveman, 2003). Today, another competition among China, the United States, and Iran is
beginning whether to transport Kashagan oil to the east, west, or south.
Afghanistan and Pakistan is a candidate for oil and gas pipeline route from Turkmenistan. The route towards the Arabian Sea is considered cheap and short. In spite of its political unrest from the civil war between Taliban and anti-Taliban groups, Unocal and Delta Oil of Saudi Arabia have been involved in the pipeline project since the mid 1990s. However, Unocal abandoned the project in 1998 when the United States attacked the terrorist group, Al Qaeda, relating for its bomb blasts at U.S. embassies in Kenya and Tanzania. Today, after the American victory over the Taliban regime, the Afghan pipeline plan has reopened. The United States has a strong interest in this potential transit route for oil and natural gas. On the other hand, there are also strong oppositions to this project. Russia and Iran are eager to promote their own pipeline route, and India does not want its enemy Pakistan to extend its influence in the region (Kleveman, 2003).

**Force of Forces: Intra-Industry Competition**

The force that structure the current international oil industry is “intra-industry competition.” The bargaining power of OPEC gradually decreased after the oil crises in the 1970s due to the “threat of substitute products.” This threat came from different directions. One was a same product in the sense it was oil, but it was non-OPEC oil from Alaska, Mexico, and the North Sea. Substitute products not only limit profits in normal times, but they also reduce the bonanza an industry can reap in boom times (Porter, 1979). The oil embargo that eventually profited the OPEC countries also benefited the non-OPEC producers. The incentive of high oil prices and the motive of national security were stimulating oil development outside OPEC (Yergin, 1993). Non-OPEC countries that produced on average of 25 million barrel per day in 1973, increased their level of production to 38 million barrels per day in 1985, and to 43 million barrels per day today (EIA, 2004B). On the other hand, OPEC countries who produced on average of 31 million barrels per day in 1973, decreased their production level as low as 16 million barrels per day in 1985, and still have not recovered the production level of 1973 (EIA, 2004C).

The other substitute was literally different sources of energy. After the oil crises, industrialized countries tried to decrease their dependence on oil either by returning back to coal or by introducing nuclear energy or liquefied natural gas. The share of oil as primary energy in
OECD countries has declined from 53.1 percent in 1973 to 40.8 percent in 2001. During the same period, the share of gas and nuclear energy have increased from 18.8 percent and 1.3 percent to 21.3 percent and 11.2 percent respectively (IEA, 2003). Japan, who experienced a serious economic setback from the crises, decreased its dependency on oil from 77 percent in 1973 to 49 percent today (ANRE, 2003). Non-OPEC oil, substitute sources of energy, and of course reduction of the use of oil decreased the relative significance of oil, and thus gradually undermined the power of OPEC.

At the same time, another force was increasing its influence in the industry; the “bargaining power of customers.” The buyer group is powerful if it is more concentrated than the seller group, because they can always find alternative suppliers and can play one supplier against another (Porter, 1979). As mentioned above, alternative sources of oil in non-OPEC countries were developed, and they provided with buyers the opportunity to shop around for cheaper oil. Especially, when buyers are purchasing products that are undifferentiated, consumers tend to be more price sensitive (Porter, 1979). Strictly speaking, crude oil differs from one region to another according to the level of sulfur. However, in general, the difference is relatively small. In addition, discord among OPEC members over the production quotas contributed to weakening the supplier group, thus making the industry more advantageous to the buyer group.

The expansion of spot market and futures market further enhanced the opportunities for buyers to find the cheapest crude. Since the mid 1980s, most of oil, except for those of major oil-producing countries in the Middle East, has been traded through these markets rather than long-term contracts. As a result, OPEC was no longer a price maker, but rather a price taker (Ishii and Fuji, 2003). The benchmark price for transactions are Western Texas Intermediate (WTI), and others such as UK Brent, Dubai.

In the current international oil industry, ‘market’ is the dominant power. In other words, no one has the power to control oil. Under such circumstances, oil prices fluctuate frequently, from consumer’s fear of losing access to resource or from producer’s fear of losing market share, just as has been observed from the mid 1980s until today. Lack of real time information about production, consumption, and stock is another cause of price fluctuation. In spite of the fact that oil is traded through computer networks, even OECD member’s information is provided by the IEA two months later, and with revision of that information further one or two months after that
Needless to say, oil companies were not free from this change of structure in the industry, especially because oil prices could become extremely low. Even after they delegated their power to OPEC, they could still benefit from high oil prices because OPEC had a common interest in high oil prices. Now, however, they are dependent on the market to determine the price, and are always scared that any fearful event in the Middle East might happen. It is impossible to speculate the oil price a year later. Restructuring and M&A of oil companies since the 1980s was in a sense a process to reorganize their business structure into one less vulnerable to price fluctuation. At the same time, however, an increase in the number of independent oil companies, market liberalization in the 1980s, prevalence of the notion of ‘shareholders value,’ and oil-producing countries’ integration into the downstream business brought about a severe competition for survival in the industry.

The decisive force today is “intra-industry competition.” There has always been intense competition in the oil industry, but never to an extent that one of the majors merges with another, let alone one acquires another. Size does matter in the oil industry. One of the incentives behind the mergers was creation of a major exploration and production company with the technological expertise and the financial muscle to take big shares in very large-scale projects with many risks (Fletcher, 2004). Another goal of the mergers was to acquire a competitive stake in the industry through cost cutting, integrating complementary assets. Chevron Texaco became the top producer in the Caspian region, Indonesia, and off Angola, and number two off Nigeria, with an expanded deepwater position (Oil & Gas Journal, 2000). Through their merger, Exxon Mobil achieved the size and scale of the downstream consortium of Shell, Texaco, and Saudi Aramco (Oil & Gas Journal, 1998).

Competition in the Caspian region is not only fought between governments. Oil companies from around the world are also trying to acquire profitable interest in this area with the support of their national government, or sometimes under the restriction of it. Recent M&A activities have also affected the power balance among the companies in the region. British Petroleum established the top position in Azerbaijan through combining Amoco’s interest in AIOC. BP Amoco’s position in Azerbaijan is so dominant that hardly any important government decision concerning oil is made without its consent (Kleveman, 2003).

The latest annual reports of major oil companies show the current competitive
environment in the oil industry. “Despite high decline rates in the mature areas of North America and Europe, all the oil majors are expected at least to maintain 2002 levels of production over the next five years. This will require significant new investment and replacement of declining positions…. Capital spending on refining and marketing is peaking and all the oil majors are constraining downstream capital expenditure in favour of upstream and gas opportunities” (Shell, 2004, p16). In the upstream, companies are trying to maintain, “a portfolio of investments that offers diversified sources of growth and the ability to replace production while minimizing the effect on profitability” (BP, 2004, p.15). In the downstream, oil companies are, “working to improve returns by focusing on areas of market and supply strength” (Chevron, 2004, p.9).

In spite of the intense competition, the international oil industry still seems to have room for further growth. Even the five largest oil companies (Shell, Exxon Mobil, BP Amoco, Chevron Texaco, and TotalFINA ELF) together command only 15 percent (including gas) of the world production (Fletcher, 2004). In addition, worldwide oil consumption is predicted to rise 60 percent greater by 2030. Even if demand growth in the oil industry is relatively modest, natural production decline requires replacement of today’s production in the next 10 years (Fletcher, 2004). Under the current structure of the international oil industry and the forecast of the future growth, will there be any chance for Japanese oil companies to grow or to survive? If there is, what will be their strategy?
CHAPTER 4: THE JAPANESE OIL INDUSTRY

Background of the Japanese Oil Industry

Origin of the Industry

10 years after the first commercial well was developed in 1859 in the United States, the first American geologists were invited to Japan by local entrepreneurs and at the expense of the Meiji government. Nippon Oil was established in 1888, and its oil field in Niigata began Japan’s first production in 1891. The number of oil production firms increased from five in 1888 to 430 in 1891, but decreased to 58 by 1897, either from bankruptcy or acquisition by the two domestic giants, Nippon Oil and Hoden (Samuels, 1987).

Multinational oil companies also entered in Japan at this time. Mobil (Socony at the time) and Shell (Samuel Trading Company at the time) started selling lamp oil in the 1890s, and then moved on to exploration, production, and refining in Japan in order to evade tariffs on imported petroleum products (Samuels, 1987). The Imperial Navy, which converted its coal-fired boilers to heavy oil in the early 1900s, signed a long-term agreement with Shell’s subsidiary for one million barrels of oil per year from Borneo (Samuels, 1987).

A serious concern of the Japanese producers was the geological limits of domestic reserves, since production peaked at just under 3 million barrels in 1915. The Nippon Oil Company, accounting for 80 percent of the nation’s production after the merger with Hoden, soon began importing and refining foreign crude itself. Mitsubishi Shoji concluded long-term crude oil purchase agreement with Getty Oil (Samuels, 1987). When Standard and Shell were embroiled in a price war in the international market, the Japanese market was not spared. Their price war nearly eliminated the Japanese industry; by 1924, imported crude surpassed Japan’s domestic production. “Between 1923 and 1934 domestic crude oil lost market share, declining from more than one-third to less than one-tenth of the refined products market” (Samuels, 1987,
The flow of cheap Russian oil in the 1930s further damaged the Japanese oil market, and more formal state intervention was desired (Samuels, 1987).

**Under the “Threat of Entry”**

While the Anglo-American multinational oil companies had carved up the oil market and started to acquire concession in the Middle East, Japan implemented the Petroleum Industry Law (PIL-I) in 1934, under the initiative of METI, to protect and strengthen the Japanese oil industry. By this law, METI was empowered to license production, refining, sales, and imports, as well as to establish quotas, fix prices, force compulsory purchases, allocate market shares, and require the stockpiling of six months of supplies by each refining and importing country (Samuels, 1987). PIL-I directly challenged Anglo-American suppliers and distributors, since the volumes of stockpiling requirements were calculated based on 50 percent of the previous year’s imports, clearly discriminating against foreign firms that imported 100 percent of their crude. Under the circumstance where four-fifths of crude oil imports were from the United States, PIL-I seemed to threaten American interests, and were interpreted as preliminaries to the Pacific war (Samuels, 1987).

On the other hand, under the protection of PIL-I, domestic firms succeeded in creating a cartel in price and sales, transportation, and storage. They received government indemnification to cover oil prices and oil supply losses, guaranteed dividends at six percent, intermediation for capital investment, and had grants available for tanker construction. However, as oil policy was designed around the large firms, the industry became consolidated. By war’s end, only eight refining companies survived: Nippon Oil, Nippon Mining, Showa Oil, Maruzen Oil, Daikyo Oil, Toa Nenryo, Koa Oil, and Mitsubishi Oil. (Samuels, 1987).

After World War II, the Japanese oil industry became congested with foreign capital, entry for which was made possible by the Supreme Commander for the Allied Powers’ policy. In 1949, to secure stability and security, Japanese refineries moved to tie up with the majors through supply agreements and partnerships: between Nippon Oil and Caltex, Mitsubishi and Getty, Showa and Shell. The exception was Idemitsu Kosan, who preferred to go alone (Samuels, 1987). The Japanese government continued to support the exploration efforts of the upstream industry, to circumvent the dominance of foreign capital. Recognizing the vulnerability of the Japanese oil industry after the Suez crisis in 1956, Taro Yamashita, an entrepreneur, made the first step into the Middle East and acquired direct access to oil in the Neutral Zone of Saudi
Arabia and Kuwait.

In the 1960s, the energy revolution occurred following the rapid expansion of the Japanese economy. Between 1961 and 1973, oil consumption nearly quadrupled, increasing over 11 percent annually. The share of oil in the nation’s primary energy supply increased from under 40 percent to almost 80 percent. As a result, refineries added capacity to keep pace with the exploding demand. Their numbers grew, and their financial structure weakened (Samuels, 1987).

When the IMF resolved in the early 1960s that Japan had to liberalize its markets, Japan feared sudden liberalization in sectors such as oil, where foreign governments and corporations appeared to wield overwhelming power. Believing that securing cheap and stable supplies of oil is the responsibility of the state, METI planned to increase its control over both upstream and downstream of the industry by creating a national oil company. METI was denied the extensive control it sought by the strong opposition from the industry, but was granted enlarged jurisdiction through the new Petroleum Industry Law (PIL-II). PIL-II was designed to strengthen domestic refiners and distributors, but foreign affiliates, who expected difficulties, rushed to expand their capacity before it was implemented. As a result, their share in the Japanese oil industry doubled (Samuels, 1987).

**Under the “Bargaining Power of Producers”**

The shift of control over the international oil industry from the majors to OPEC had a significant impact on the Japanese oil industry as well. After the oil crises in the 1970s, the Japanese government endeavored to reduce its dependence on oil through the introduction of nuclear power and natural gas, from a perspective of improving energy security. Promoting energy conservation measures and ensuring a stable supply of oil have also become the fundamentals of Japanese energy policy since then (ANRE, 2003).

Growth in demand dropped sharply after the oil crisis in 1973, and that effected a change in the policy of the Japanese government. Observing the overcapacity of refineries and the excessive competition among 31 refining firms and 13 distributors, METI, for the first time, focused on the consolidation of the downstream industry by market conformity rather than on direct market control. The revised approach encouraged consolidation into several groups, starting from the joint stockpiling clusters that developed in accordance with the evolving national commitment to the IEA. After the second oil crisis in 1978, price increases for
petroleum products led to a further decline in domestic demand, and underutilization of Japan’s refining facilities. Oil company profits on sales declined from an already meager 1.45 percent in 1973 to 0.81 percent in 1982, while all manufacturing companies dropped from 6 percent to 3.9 percent in the same period (Samuels, 1987).

In response to the deteriorating market conditions, at last, refining firms and primary distribution firms began to consolidate. Showa Oil and Shell disclosed a plan for merger in late 1982, and merged in 1985. In 1983, Daikyo Oil and Maruzen Oil, both in deep financial trouble, announced concrete plans to merge. Together with Kyodo Oil, both companies merged and created Cosmo Oil in 1986. Nippon Oil and Mitsubishi Oil announced their intention to tie up from crude transport to sales. General Oil and Exxon, Kygnus and Mobil, followed with similar announcements. Only Idemitsu Kosan remained alone (Samuels, 1987).

Under “Intra-Industry Competition”

Under the competitive global market, both internal and external pressure to open up the Japanese oil market became stronger. Pressure to liberalize the Japanese oil market increased in the mid 1980s when the Middle East oil-producing nations completed their move downstream to add refined products to world markets. IEA sought to share the new product without sacrificing refining capacity unevenly across member states, and pressured Japan to reverse its policy of refining at the doorstep of the consumer (Samuels, 1987). An internal challenge came from Lion’s Oil, an independent retail chain in the Kanagawa prefecture, when it tried to import gasoline from Singapore. Formally, the Japanese market was open without any legal restrictions, quotas, or prohibitive tariffs to prevent importation of petroleum products. However, although Japanese gasoline prices remained well above world levels, imports were zero under METI’s control. When METI intervened with administrative guidance to cut off Lion’s Oil’s financing, it became public that Japanese market was not open at all (Samuels, 1987).

In 1986, the Temporary Law for Specified Petroleum Product Imports became effective to respond to “the demands for open markets and refiners’ demands that the opening be painless, the new legislation stipulated that petroleum imports would be ‘liberalized,’ but only licensed firms would be permitted to engage in this business. Not surprisingly, only the refining firms would receive licenses” (Samuels, 1987, p.224).

The “soft landing” period of the temporary law terminated in 1996, and “deregulation” was added to the Japanese government’s fundamental oil policy (ANRE, 2002). Japanese
refineries have further consolidated into four groups under intense competition. Nippon Oil and Mitsubishi Oil merged to become Nisseki Mitsubishi in 1999 (today the name is changed to Nippon Oil), and Cosmo Oil allied with it the same year. Japan Energy, the second largest alliance, was created through the merger between Nippon Mining and Kyodo Oil that tied up with Showa Shell in 2000. The same year, General Oil, Exxon Mobil, Kygnus, and Toa Nenryo followed suit, thus creating the third largest group in Japan. Idemitsu again remains independent (Watanabe, 2002). As a result of these mergers, refining capacity was downsized from 5.0 million barrels per day in 2001 to 4.8 million barrels per day in 2003 (EIA, 2003B).

In the upstream, the Arabian Oil Company (AOC) failed to maintain its concession in Saudi Arabia after that expired in 2000. Its concession for the Kuwait portion of the Neutral Zone also expired in 2003, but the AOC could maintain its operation there (EIA, 2003B). In 2000, the Japan Petroleum Exploration Corporation (JAPEX) and Inpex, both of which are majority-owned by JNOC, began exclusive negotiations with Iran about the Azadegan oilfield. In the Caspian region, ITOCHU Oil Exploration maintains 3.9205 percent of AIOC and 3.4 percent in the BTC Pipeline Company (ITOCHU, 2004). Mitsui Corporation owns 15 percent of the shares in the Kur Dashi oilfield of Azerbaijan. Inpex owns and 10 percent of the Azeri-Chirag-Deep water Gunashli (ACG) project in Azerbaijan and 8.33 percent in the Kashagan oilfield of Kazakhstan (Inpex, 2004). Recently, Japan has been promoting a pipeline route from Anagarsk in Siberia to an export terminal on the Pacific coast at Nakhodka, competing with the Chinese proposal of transporting oil from Anagarsk to Daqing (EIA, 2003B).

**Analysis of the Current Japanese Oil Industry**

It will be worthwhile to organize the variable factors and constant factors in the international oil industry, in order to build a strategy for the Japanese oil industry. First and foremost of the changes, the driving force behind the industry has shifted from “threat for new entry” to “powerful suppliers,” and then to “intra-industry competition.” As a result, dominance over the industry has also shifted, from the majors to OPEC, and then to the global market, or in other words, to nobody. On the other hand, the nature of the product has not changed since the time of Standard Oil Company, and oil prices fluctuate according to demand and supply.
Without a cartel to control the prices, they fluctuate even more widely. OPEC has been trying to maintain oil prices, but its influence is limited to member states. Therefore, unpredictable price fluctuation must be taken as a constant for the oil industry today.

The Japanese oil industry has been late to respond to this situation. One of the serious weaknesses in the Japanese oil industry is that it has not been able to reflect changing costs in its product prices. Since the oil crisis in 1973, METI, through its administrative guidance, has built a price system peculiar to Japan. To minimize the damage to its citizens and economy from price hikes, METI froze the prices of heating oil for households and of light/heavy oil used in industries, while raising the price of gasoline, which was considered a luxury good (Japan is not as dependent on the automobile for transportation as America.) This distorted price mechanism has for a long time rendered oil companies unable to transfer production costs to consumers, by means of proper prices. After the market liberalization in 1996, the oil companies introduced a new price system, which was expected to set prices for all petroleum product above their producing costs. However, it turned out that gas prices fell lower than expected due to excessive competition, while marketers of other products found it difficult to raise prices because of prolonged recession and intense competition (Watanabe, 2002). To become competitive, Japanese oil companies need to be able to reflect the fluctuation of costs in their pricing system, or be able to cut costs of production.

The second variable to be appraised is a change in the marketing of oil, in that it has become one of the commodities traded in the international market, rather than a special strategic product traded among few players. Almost 40 percent of the world’s oil is traded in the spot market today (Ishii and Fuji, 2003). However, this is not to say that oil is no longer a product of national interest. As we have seen in the development of the Caspian region, oil production is still influenced by the balance of power among states. Surveys suggest that oil will continue to be the primary energy resource during the 21st century. Oil production is expected to peak in about 2060, and it is predicted that there would still be an oil industry in 2100 which is larger than that of 2000 (Odell, 2003). “Whilst oil’s geopolitical importance will undoubtedly continue into the early decades of the 21st century, it will, thereafter become merely another energy source of steadily decreasing importance in meeting the world’s energy demand” (Odell, 2003, p.11). Therefore, the political influence of oil will remain potent in the near future.

These two factors are most significant for the Japanese oil industry. Since most of the
major oil exporters in the Middle East persist in long-term contracts, and Japan depends on the Middle East for 88.5 percent for its oil import, the proportion of trade in the spot market is extremely low in Japan. This structure makes Japan not only vulnerable to the political instability in the Middle East, but it also obliged to purchase oil on less flexible terms (Ishii and Fuji, 2003). Concerning the relationship with their government, Japanese oil companies have not been as successful as the majors in lobbying for energy policy favorable to them. The Japanese oil companies have for a long time protested against their industry being controlled by the government, but have also depended on governmental protection from global competition. It would be wiser for Japanese oil companies to increase influence on their government, and gain its support for exploration projects outside the Middle East, thus reducing political and economic risks.

A last changing factor to consider is that there are now more players in the industry. The numbers of oil companies, oil-producing countries, and oil-consuming countries have all increased. This indicates that the industry is not only highly competitive, but also growing. The EIA forecasts that oil consumption in 2025 will rise to 287.9 quadrillion BTUs in a high economic growth scenario, and 209.3 quadrillion BTUs in a low-growth case, up from 156.5 quadrillion BTUs in 2001 (EIA, 2004D). On the other hand, the nature of the industry has not changed: in the upstream, it is still necessary to keep on investing in new oil fields to meet growing demand, and in the downstream, refinery capacity and an outlet network is required for continued production and marketing. There is nothing to suggest that the Japanese, properly prepared, could not effectively compete in such a market.

These factors seem to suggest that Japanese oil companies will have opportunities to grow in the future, provided that they can become competitive in the market. As for refinery, they have sufficient capacity, for the Japanese government has maintained the policy to refine oil domestically until 1996. Indeed, excessive capacity has in fact been the cause of destructive competition. Although recent M&A has contributed to a decrease in refinery numbers there is still a 490 million barrel per day supply capacity, to meet a demand of only 420 million barrels per day (Watanabe, 2002). As for outlet networks, Japanese oil companies have few except those within Japan.

In the upstream, the huge capital investment required poses a serious threat to Japanese companies. Japanese oil companies are not only small in their capital size compared to the
majors, but they also lack experience in the areas of exploration and development. They have mostly been dependent on the majors, or on oil developing companies such as Japex and Inpex, or trading companies such as Mitsubishi, Itochu, and Mitsui. In other words, Japanese oil companies are not integrated, and thus cannot offset profits and losses between upstream and downstream.

**Strategies for Japanese Oil Companies**

Taking into consideration the driving forces in the international oil industry and the current problems that Japanese oil companies face, the most feasible strategy for their survival is to implement horizontal and vertical integration among oil companies, including trading companies. A report of McKinsey & Company suggests that survival strategies for non-majors oil companies will be to ally or merge with one of the majors, to focus on slivers, to forge new kinds of relationships with oil-producing countries, or to reposition their energy businesses or geographic portfolios (Ernst and Steinhubl, 1999). The latter two seem to apply most easily to Japanese oil companies. Following the path of the Western oil companies could not guarantee success for the Japanese oil companies because of the differences in their capital size and level of technology for exploration and development. However, they can offer the Japanese many object lessons, for they are operating under the same driving force.

Currently, in Japan, there are two oil exploration companies and three major trading companies in the upstream (see Table 2 in Appendix A), and ten downstream refinery and marketing companies (see Table 3 in Appendix A), including Showa Shell and Exxon Mobil (Tonen General.) Gradual integration will provide several benefits to Japanese oil industry.

First of all, it is necessary for downstream oil companies to establish a firm financial structure that can absorb oil price fluctuations and currency exchange risks. Horizontal integration among refineries will allow them to cut costs, restructure refinery capacities, and enhance outlet networks. It will also make it easier for them to reflect cost changes in their prices. Recent M&A have decreased the number of companies to nine, in four groups of alliances: Nippon Oil/Cosmo Oil/Kyushu Oil group, Japan Energy/Showa Shell group, Tonen General/Exxon Mobil/Kygnus group, and two independents Idemitsu and Taiyo Oil. These companies should further merge within groups or between groups.
Secondly, economies of scale should be pursued. Horizontal integration among upstream industry and vertical integration between upstream and downstream will allow Japanese companies a scale that they would not have achieved otherwise. Integrated oil companies will have a stronger bargaining position against oil-producing countries as well as against their own government. Using diplomatic support, such as Official Development Assistance, as a “sweetener” will make them more attractive when entering into the markets of oil-producing countries. Vertical integration will not only allow the upstream and downstream of the industry behave in a complementary fashion, but will also make possible a strategic distribution of profits between them. Trading companies such as Mitsubishi Corporation, Itochu Corporation, and Mitsui Corporation would be expected to play a key role in the integration. These companies have expertise in trading with and investing in foreign partners, have huge capital resources, and possess valuable human and information networks inside and outside Japan. The energy divisions of these companies already have acquired several interests in foreign oilfields.

Thirdly, it will be important for Japanese companies to expand the profitable upstream business outside the Middle East. After maximizing their capital scale, Japanese oil companies should start acquiring interests in existing profitable oil fields or in foreign oil companies with proven oil reserves. This will allow Japanese oil companies an efficient use of capital without exposing them to the risk of exploration and will give them an opportunity to hold a real stake in the growing oil industry. Expertise and technology in the upstream industry should be acquired during this stage. The amicable relationship between Japan and the Middle East states should not be jeopardized, for that region will continue to be the largest oil reserve in the world. However, new demands should be supplied by other regions through the spot market or the futures market to reduce dependence on the Middle East and thus increase bargaining power against them. Considering the transportation costs to Japan, oil from Asia, Central Asia, and Russia will be better able to command a competitive price.

Finally, establishing an outlet network outside Japan will be a key to competitiveness in the international oil industry. Of the expected future growth in oil consumption, developing countries in Asia (China, India, Korea, and others) have the highest rate of growth, within a range of 2.3 to 4.0 percent (EIA, 2004C). Although Shell and BP have extensive networks in Asia, and the China Petrochemical Corporation is growing through M&A in the region,
Japanese oil companies will still have a chance to enter into the market by selling oil from Central Asia and Russia.

However, this integration strategy is not free from flaws. Implementation of the strategy will take time, primarily because financial restructuring must take place in the downstream industry, and that could not be done quickly. Without this first step, though, there is little reason for the upstream companies to integrate forward, because they would be cutting into their profits. In addition to that problem, M&A is still not so popular in Japanese business culture, especially when it is associated with layoffs. Even when M&A takes place, it often requires time before different corporate cultures assimilate. Only three to four percent of M&A are said to have succeeded in Japan (Ishii and Fuji, 2003). Overcoming these hurdles will take patience and perseverance.
The advantage of Porter’s concept of ‘forces’ governing competition in industries is its equal emphasis on customers, suppliers, potential entrants, and substitute products as well as rivalry among other players. This framework was useful in analyzing the structural change of the international oil industry, in which these forces served to determine the owners of power.

As I have observed, the “threat for new entrants” was the determinant force until the 1960s, when the majors dominated the industry by creating barriers such as economies of scale, price cartels, and exclusive rights to access Middle Eastern oil. That determinant was replaced by the “bargaining power of producers” when OPEC gradually acquired control over oil by inviting non-major oil companies into the region and by nationalizing concessions in the early 1970s.

However, the “threat of substitute products” then superseded that for new entrants. It was posed by both non-OPEC oil and alternative energies such as nuclear and natural gas, especially after the oil crises in the 1970s. At the same time, the “bargaining power of buyers” increased as more non-OPEC oil was traded through spot and futures markets. As a result, OPEC lost control by the mid 1980s, and “intra-industry competition” became the determinant force in the current oil industry.

The reappearances of glut and shortage were always characteristic of the industry, even under the control of the majors and OPEC. It is still happening today, more frequently, without anyone to control the prices. Low prices in the 1980s and late 1990s encouraged the majors to restructure their businesses through M&A. Competition for survival is now more intense than ever before. Companies are trying, often with the support of their governments, to expand their high-yield upstream business in non-Middle East regions such as the Caspian Sea, so that they can respond to the growing demand for oil.

Lacking oil reserves of its own, Japan has mostly depended on the majors for importing
its oil supply. When the international oil industry was under the majors’ control, Japanese oil companies could not enter the global market because of the barriers built by the majors. Under such conditions, the Japanese government had been trying to form an integrated national oil company, but has failed due to opposition from Japanese refineries, who disliked government control over their business. After OPEC acquired control over oil in the 1970s, Japanese oil companies were forced to consolidate, suffering from low demand for oil caused by the recession after the oil crises. At the same time, however, these oil companies had still been protected by government regulations that restricted foreign participation into the Japanese market. As a result, the Japanese oil industry has come to possess few assets in the upstream, while their downstream holdings have suffered from inefficiency and overcapacity.

After the market liberalization in 1996, “intra-industry competition” became intense in Japan too, and M&A and alliances among oil companies were encouraged by the market. However, this restructuring is still not enough. For Japanese oil companies to survive in the global competition, it is necessary for them to (a) further integrate vertically and horizontally among oil companies, including trading companies, (b) purchase existing concessions from which high return is expected, and (c) establish an outlet network in Asia where further growth in demand is predicted.

Taking into consideration the predicted growth of world demand for oil, and the high potential of oil reserves to supply it, this current driving force seems likely to continue into the future, and further M&A could occur in the international oil industry. However, perspectives of other forces are worth mentioning in the end. The pursuit of economies of scale is, in other words, a way to create barriers against new entrants. Exclusive access to resources and distribution channels, and strong support from government will also serve to strengthen the barrier against companies without these merits. If the force in the oil industry is in a transitional period, shifting from “intra-industry competition” to “threat for new entrants,” it is vital for Japanese oil companies to enter the market before the barrier gets too high. Oil prices are high today. Now is the time to promote their restructuring.

If the mega-mergers continue and the number of oil companies decreases, the “new majors” could gain a bargaining power towards oil-producing countries and end users. On the other hand, if oil-producing countries further integrate their business into downstream operations, they could challenge the companies’ power. In addition, as long as the Middle East
possesses around two thirds of the world oil reserves, dependence on the region will gradually increase in the future. In this regard, the relationship between Japanese oil companies and Middle Eastern states is worth maintaining.

In the long run, it is most possible that the oil industry should suffer from the “threat of substitute products”; Natural gas will probably become a primary energy source in late 21st century. Inspired by its environmental friendliness, most of the multinational oil companies have already started to invest in natural gas businesses. Oil producing countries have already recognized the economic value of natural gas, which used to be a by-product of oil, and now starting to export it. In Japan, however, oil companies are not so involved in natural gas business because power companies and gas companies are the major players. It might be necessary for Japanese companies to prepare to consolidate with gas and power companies as well as to do so among oil companies.
**APPENDIX A**

**TABLES**

**Table 1: Revenues, Net Incomes, and Oil Reserves of Major Oil Companies**

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenues ($bil)</th>
<th>Net Income ($bil)</th>
<th>Oil Reserves (bil. barrel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal Dutch Shell</td>
<td>268.9</td>
<td>12.5</td>
<td>14.4</td>
</tr>
<tr>
<td>Exxon Mobil</td>
<td>246.7</td>
<td>21.5</td>
<td>12.1</td>
</tr>
<tr>
<td>BP AMOCO</td>
<td>232.5</td>
<td>12.4</td>
<td>10.1</td>
</tr>
<tr>
<td>Chevron Texaco</td>
<td>120.0</td>
<td>7.2</td>
<td>8.6</td>
</tr>
<tr>
<td>TotalFINA ELF</td>
<td>104.7</td>
<td>7.3</td>
<td>7.3</td>
</tr>
</tbody>
</table>

(Based on annual reports of 2003 of each company)

**Table 2: Revenues and Incomes of Japanese upstream oil companies (2003)**

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenues ($bil)</th>
<th>Income ($bil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japex</td>
<td>0.88</td>
<td>0.13</td>
</tr>
<tr>
<td>Inpex</td>
<td>1.48</td>
<td>0.68</td>
</tr>
<tr>
<td>Arabian Oil</td>
<td>1.28</td>
<td>0.39</td>
</tr>
<tr>
<td>Mitsubishi Corp.</td>
<td>33.58</td>
<td>0.61</td>
</tr>
<tr>
<td>Itochu Oil Exploration</td>
<td>-</td>
<td>0.02</td>
</tr>
<tr>
<td>Mitsui Corp.</td>
<td>12.33</td>
<td>0.49</td>
</tr>
</tbody>
</table>

(Based on financial statement of each company. The numbers of Mitsubishi and Mitsui are of energy divisions of each company.)
Table 3: Revenues and Incomes of Japanese Oil Companies (2000) and Market Share for Gasoline in Japan (2001)

<table>
<thead>
<tr>
<th>Company</th>
<th>Revenues ($bil)</th>
<th>Income ($bil)</th>
<th>Market Share for Gas(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nippon Oil</td>
<td>28.4</td>
<td>0.29</td>
<td>23.1</td>
</tr>
<tr>
<td>Idemitsu</td>
<td>20.0</td>
<td>0.28</td>
<td>14.6</td>
</tr>
<tr>
<td>Exxon Mobil</td>
<td>15.0</td>
<td>0.11</td>
<td>16.1</td>
</tr>
<tr>
<td>Japan Energy</td>
<td>14.8</td>
<td>0.20</td>
<td>10.6</td>
</tr>
<tr>
<td>Cosmo Oil</td>
<td>14.6</td>
<td>0.12</td>
<td>11.3</td>
</tr>
<tr>
<td>Showa Shell</td>
<td>14.2</td>
<td>0.34</td>
<td>12.5</td>
</tr>
<tr>
<td>Tonen General</td>
<td>11.0</td>
<td>0.28</td>
<td>5.1</td>
</tr>
<tr>
<td>Taiyo Oil</td>
<td>3.3</td>
<td>0.05</td>
<td>2.4</td>
</tr>
<tr>
<td>Kygnus Oil</td>
<td>2.3</td>
<td>0.02</td>
<td>2.2</td>
</tr>
<tr>
<td>Kyushu Oil</td>
<td>3.3</td>
<td>0.04</td>
<td>1.7</td>
</tr>
</tbody>
</table>

(Watanabe, 2002)
APPENDIX B

Existing and Potential Oil and Gas Export Routes from the Caspian Basin

Figure 1: Existing and Potential Oil and Gas Export Routes from the Caspian Basin (World Press Review, 2004)
APPENDIX C

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Shunsuke Hosaka
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Dear Mr. Hosaka:

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Date: June 17, 2004
REFERENCES


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