

The Factors That Influence the Price of Crude Oil

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Abstract: The current Russia-Ukraine war that started on February 24th, 2022, saw almost an immediate drop in stock market indices around the world but a corresponding rapid rise in the Crude Oil and Gold prices in the world commodity market. This is a most interesting cause-and-effect reaction, but apparently, the commodity of Crude Oil has always been closely related to wars, social struggles, economic upheavals, and geopolitical confrontations. This paper will attempt to concentrate on world history since 1950 and observe and study and analyze the interrelationship between oil prices and these outside factors that influence them. The ultimate aim is to arrive at some conclusions that will support several preliminary observations and hypotheses.

Keywords: crude oil, history, economic

1. Introduction

1.1. Crude Oil History

Crude oil was first discovered in China around 600BC. But it didn't influence the world. In 1859, the first modern discovery of crude oil and the first oil well was drilled by Colonel Edwin Drake in Pennsylvania. After this, oil-derived products went into daily usage in the world and became the most essential energy source. Almost everything around us has some connection with crude oil. Crude oil can be used to produce products such as nylon which is a kind of polyethylene used for the fabrics to make the clothes we put on. Crude oil can be refined into fuel products that are used also used to power cars, planes, trains, and ships. Plastic is one of the most important raw materials in the world that was created from crude oil. Also, crude oil, diesel, engine, oil, fuel, and many other energy products are produced to support modern industries of all categories.

1.2. The Formation of Crude Oil

Crude oil is also called fossil fuel since it is derived from prehistoric organisms. The dead body of plants and animals under the land and the sea are covered by sedimentary rock buildup which provides heat and pressure. Under high heat and high pressure, the remains will first turn the organic matter into kerogen which later will turn into liquid and gaseous hydrocarbons. This process might need millions of years to form the crude oil. In other words, there was only a limited supply of crude oil that had already formed underground.

1.3. The Supply of Crude Oil

Crude oil resources are not distributed evenly around the world. According to estimates published for 2015 by the U.S. Department of Energy, as few as 15 countries account for more than 75 percent of the world's oil production and hold roughly 93 percent of its reserves. The main producers of crude oil are the following countries: Saudi Arabia, Iraq, Kuwait, Iran, Russia, Sub-Saharan Africa, and the United States [1].

1.4. The Demand for Crude Oil

According to the U.S. energy administration, the breakdown of U.S. petroleum consumption is the following: 66% in transportation, 28% in industry, 3% in residents, 2% in commercial, and less than 1 % in electrical power. This data will be used as the main usage of crude oil.

2. Methodology

I will be referring to several global events since 1950, and monitor the crude oil price before these events, during these events, and after the events happened, finally compare and contrast these data, and suggest the reason behind the fluctuation. I shall try to find a connection between the global events and the fluctuation in crude oil price by analyzing these data from these perspectives: supply and demand of crude oil; the relationship between countries; public psychology and media influence; the usage of crude oil during that time and the importance of crude oil during those specific times. After comparing these data and analyzing these factors, I will try to arrive at some conclusions about the pattern of the fluctuation of the crude oil price. The conclusions, hopefully, should explain if not directly fit with most of the situations in the past 100 years.

3. Actual Events and the Corresponding Oil Price Movement

3.1. Event 1: The Yom Kippur War

In October 1973, Arab desired to win back territories taken by Isreal in 1967. The Arab invaded Israel, causing the Yom Kippur War to happen. The War ended with an Israeli victory. This war ended quickly but left a huge impact on the crude oil market. The price of crude oil increased dramatically after the war.

During the war, the U.S. sending armies to Israel. This angered the Arab delegation of OPEC.

They attacked the U.S. and its allies by having an embargo of oil sales. This would result in the normal supply decreasing and translate into a sharp increase in prices. OPEC also prohibited oil exports to the United States and western Europe. To avoid trading with the embargoed countries, oil traders and companies having to shift supply lines and resources led to large transport and transaction costs which played into the already high price resulting from the decrease in supply. These actions caused the price of oil to increase dramatically from \$ 26.83 in December 1973 to \$ 62.38 in January 1975. (energy education) By May 1974, Israel withdrew their troops. The embargo was canceled which let the supply of crude oil to flow. This caused the price of crude oil to decrease back to the normal level [2].

3.2. Event 2: the Iranian Revolution and the Iran–Iraq War and the Gulf War

Before 1979, Iran was a monarchy. Iran was ruled under king Mohammad Reza Pahlavi who was supported by the United States to rule more firmly as an absolute monarch. After the Iranian Revolution, Iran turned from a monarchy to an Islamic republic. This revolution not only influenced Iran but also influenced the international crude oil market. It caused the price of crude oil to increase

dramatically from \$63.41 in December 1978 to \$122.49 in December 1979 [3].

One year after the Iranian revolution, the Iran-Iraq war broke out. It was a armed conflict that began on 22 September 1980 with the invasion of Iran by Iraq. The war ended on 20 August 1988. At beginning of the war, crude oil price increased sharply, during the war, the crude oil price decreased dramatically. After the war ended, crude oil rebounded to normal.

But, from January 17 to February 28, 1991, the multinational coalition broke out a local war against Iraq. This war was called the gulf war which ended with Iraq completely failing in the war. The price of crude oil stayed quite stable during the war. But the crude oil price rose and fell sharply before the gulf war.

These three events all caused a dramatic change in the crude oil price. The price of oil increased from \$ 64.54 in April 1979 to \$140.9 in April 1980. The price slowly went down to \$80.36 in October 1985 and then decreased to \$27.69 in March 1986. The crude oil price then rebounded to normal but met an increase from \$38.00 in June 1990 to \$86.09 in September 1990. The price then went down to normal. These Large changes in price are caused because the supply of crude oil was affected by these three events.

The first big change in crude oil price was between April 1979 and April 1980. After the Iranian Revolution, Iran stopped exporting crude oil to other countries. Meanwhile, the Iran-Iraq war broke out, causing the production of crude oil in both countries to decrease. These two events decreased the total supply of crude oil in the international market. The Great decrease in supply ultimately led to the increase in the price of crude oil.

The second big change in price was between October 1985 to March 1986. The price went down to \$80.36 in October 1985 and then decreased to \$27.54 in March 1986. It was mainly caused because of a decline in OPEC's share of the crude oil market, which fell to less than 30 percent in 1985 from about 50 percent in the 1970s.

Due to its own need to regain market share, Saudi Arabia unilaterally announced to sell crude oil at a low price in 1986. Subsequently, OPEC decided on the agreement of "market division" and began to significantly increase production. From December 1985 to March 1986, OPEC's daily output increased by 2.5 million barrels. In December 1986, OPEC began to cut production. The price of crude oil then slowly increased to \$54.3 in July 1987.

The third big change in price was between June 1990 to September 1990. During this period, the gulf war happened. The Gulf war happened mainly because Iraq invaded The State of Kuwait. Both these two countries: Iraq and Kuwait, produced a large amount of crude oil. More importantly, most of the western oil was exported by Kuwait. The war between these two countries would cause the workers to leave their job and infrastructure to be destroyed, which would cause the production of crude oil to decrease and thus decrease the supply of crude oil in the international market.

So the war between these two countries caused the supply of crude oil to decrease dramatically and shifted the supply curve to increase the price of crude oil in the international market. The price of crude oil then dropped down to the normal price level mainly because each country decided to use its national oil reserve. It helped to alleviate the crude oil shortage problem and the price of crude oil fell from \$86.09 in September 1990 to \$42.05 in March 1991.

3.3. Event 3: September 11 Attacks; Dot Com Bubble in 2000

The dot-com bubble is a stock market bubble. The dot-com bubble is also associated with the NASDAQ Composite index, which rose by 582% from 751.49 to 5,132.52 from January 1995 to March 2000. The NASDAQ fell by 75% from March 2000 to October 2002, erasing most gains since the bubble started building. One year after the breaking of the bubble, another big event happened [4].

On the morning of September 11, 2001, two hijacked planes crashed into World Trade Center

buildings in New York.

In response to this terrorist attack, the US government decided to begin the "War on Terror" action, obtruding Afghanistan in order to wipe out Afghan Taliban, which harbored al-Qaeda terrorists. On October 7, 2001, U.S. the military offense begin.

These two events both directly and indirectly affect the price of crude oil.

The price of crude oil kept following during 2000 and 2001. It fell from the highest point of \$ 55.84 in August 2001 to \$ 31.51 in November 2001. This dramatic decrease in the crude oil price level was mainly because of two things.

In the first part of this period, the dot-com bubble broke. After the bursting of the Internet bubble in 2000, the investment in science and technology in the United States entered a trough, and the main driving force for the medium-high growth of the American economy in the "new economy era" disappeared. Under these conditions, America's economic development slowed down. The slowdown in economic development would mean less demand for crude oil to produce things. With less demand, the price of crude oil would fall.

In the second part of this period, September 11 Attacks. This attack both, directly and indirectly, influenced America's economy which would affect the global crude oil price. The 911 attack caused America to lose 200 billion dollars. Furthermore, it caused the investors and companies to lose the confidence to keep investing in America. They were afraid of another terrorist attack like this. With fewer investors and companies in America, America's economic growth in the short run would inevitably slow down. The slowdown in economic growth would cause the demand for crude oil in America to decrease, which would cause the price for crude oil to keep going downward.

After the September 11 attacks, economic growth went back to normal, and the price of crude oil rebounded to the normal price level of \$43.88 in April 2002. Moreover, America's announcement to start military offensives in Afghanistan would cause the demand for crude oil to rise. Furthermore, Afghanistan was one of the suppliers of crude oil. This attack would cause the production of crude oil to decrease. The increase in demand for oil and the decrease in the supply of crude oil would cause the price for crude oil to rise to a level higher than normal.

Furthermore, after the 911 attack, global tension began to rise. Each country was afraid of being attacked by terrorists. Under this condition, countries began to buy more crude oil than they needed. This would cause the demand for crude oil to increase which would lead to a higher price level.

3.4. Event 4: the Subprime Mortgage Crisis and the Financial Crisis of 2007

In 2007 August, the US economy met one of its biggest threats: The subprime mortgage crisis as banks sold too many mortgages to feed demand for mortgage-backed securities sold through the secondary market. When home prices fell, it triggered a serious problem: the collapse of the U.S. housing market. It furthermore caused the failure of several major investment and commercial banks. In the end, it precipitated the Great Depression in September 2007. This series of events caused the price of crude oil to fluctuate dramatically during 2007 and 2008. In August 2007, the price of crude oil was \$ 102.4. It rose to its highest point in June 2008 and then fell dramatically to \$ 56.77 in January 2009 [5].

The price of crude oil fluctuated after the outbreak of the subprime mortgage crisis, financial market problems continue to break out, and the financial industry in the United States continued to suffer a heavy blow. Now investors and analysts were worried about whether the biggest investment banks, such as Goldman Sachs and Morgan Stanley, would be vulnerable as financial markets weakened. So major US investment banks rushed into oil and other commodity markets, leading to the sharp rise in oil prices in the first half of the year. During the second half of the year, the situation changed. Oil prices fell from \$133.88 in June 2008 to \$39.09 in February 2009. The huge decrease in crude oil price was caused because of the financial crisis. The financial crisis caused the demand

for crude oil to decrease sharply since many workers were unemployed; factories closed. The close of the factories caused the demand for crude oil to decline, which caused the price for crude oil to decrease greatly.

3.5. Event 5: COVID-19 Crisis

The COVID-19 pandemic is a global outbreak of coronavirus which caused numerous death around the globe. It was first discovered in Wuhan, China on the 31st of December. On the 30th of January 2020, the WHO declared the outbreak of COVID-19 as a public health emergency. Even today, some countries still suffers under the impact of COVID-19 [6].

This event also had a large impact of the price of crude oil.

From December 2019, the crude oil price had a dramatic decrease from \$68.69 to \$21.25 in April 2020. Then it rebounded to \$40.04 in May 2022. This dramatic change in the price of crude oil was main caused because of the pandemic.

After the pandemic happened, many factories were closed because of the locked down. Many countries decided to lockdown in order to prevent the spreading of COVID-19. During the lockdown, all the factories were closed. The close of the factories meant the production for goods decrease. The decrease in the production of goods would cause the demand for crude oil, the raw material of many different goods, would decrease. This decrease in demand would cause the demand curve to shift to the left which will cause the price of crude oil to decrease dramatically from \$68.69 to \$21.25. After the lockdown, all the factories reopened and the production for goods needed to begin. So, the demand for goods will increase causing the demand curve to shift to the right, and cause the price to increase from \$21.25 to \$40.04.

3.6. Event 6: Russia-Ukraine War

On February 21, 2022, Russia announced its recognition of the Donetsk People's Republic and Luhansk People's Republic in the Donbas region and signed a treaty of Friendship, cooperation Mutual Assistance, under which Russian "peacekeeping forces" entered Donbas to assist in defending the Ukrainian army and gained the right to establish military bases. The next day, Russia's Federation Council permitted the president to use force outside the country. On the early morning of the 24th, Russia invaded Ukraine. This war is still happening, but its effect on crude oil is obvious. This war caused the crude oil price to rise to a new level.

The price of crude oil increased from \$91.77 on February 25 to \$123.48 on March 8th, 2022. This was mainly because of the war. The war happened between Russia and Ukraine. Russia was one of the big exports of crude oil. The war would cause the production of crude oil from Russia to decrease. On March 8, U.S. President Joe Biden officially signed an executive order banning the import of energy from Russia. Most European countries have also expressed sanctions on Russian energy, reducing energy imports to Russia. The problem was that one-quarter of Europe's imported crude oil was from Russia. With this sanction, Russia's oil export would cause a significant decrease in the supply of the crude oil market. The significant reduction in the supply of crude oil will inevitably increase the price of crude oil. The price of crude oil then fell.

4. Conclusion

Many different things will cause the crude oil price to fluctuate, but most of the time, the crude oil's price is determined mainly by the supply and demand. The supply and demand of crude oil are determined by the following:

1. War, pandemic

War, pandemic or other factors can affect the crude oil production, which will affect the crude oil

price. For instance, if a war happened between two countries that produce and export crude oil, the supply for crude oil will decrease since the number of workers to produce crude oil will decrease. With the decrease in the supply of crude oil, the price of crude oil.

2. Economic situation

The economic situation will affect the crude oil price. If the global economy is in a recession, the price of crude oil will decrease, which is mainly because the demand for crude oil decreased. With the decrease in demand but supply no change, the price of crude oil will go down. However, after the recession, the price of crude oil will rise to the price level before the recession. Since the factories will reopen after the recession to produce goods. In order to produce goods, they will need crude oil. The crude oil's demand will increase and thus cause the price of crude oil to increase.

3. OPEC's decision

OPEC controlled most of the supply of crude oil. If they decide to increase the supply of crude oil while the demand for crude oil remains unchanged, the price will go down since crude oil isn't that scarce in the market. If they decide to decrease the supply of crude oil while the demand remains unchanged, the price will increase due to the less quantity of crude oil in the market. Crude oil become a scarce resource and countries have to pay more money to buy the crude oil.

4. Alternative energy

Alternative energy also affects the price of crude oil. If alternative energy had a larger market share in the energy market than crude oil, the price for crude oil would decrease to win market share in the energy market.

5. International geopolitical situation

The international geopolitical situation will affect the price for crude oil. If the tension between the two countries rises, each country will have an intention to buy more crude oil to prepare for war, and the rest of the world would also store oil in anticipation of a shortage of supply. This would cause the demand for crude oil to rise and thus increase the price of crude oil.

References

- [1] Joseph P. Riva Major oil-producing countries Retrieved May 2022 from Britannica: <https://www.britannica.com/science/petroleum/Major-oil-producing-countries>
- [2] Oil crisis of the 1970s Retrieved May 2022 from Energy Education: https://energyeducation.ca/encyclopedia/Oil_crisis_of_the_1970s
- [3] Crude Oil Prices - 70 Year Historical Chart Retrieved May 2022 from Macrotrends: <https://www.macrotrends.net/1369/crude-oil-price-history-chart>
- [4] IXIC retrieved May 2022 from investing.com: <https://cn.investing.com/indices/nasdaq-composite-historical-data>
- [5] James D. Hamilton (2009) "Understanding Crude Oil Price" *The Energy Journal* 30(2), 179-206(2009).
- [6] Shi Y, Wang G, Cai XP, Deng JW, Zheng L, Zhu HH, Zheng M, Yang B, Chen Z. An overview of COVID-19. *J Zhejiang Univ Sci B*. 2020 May;21(5):343-360.