IPRPD
International Journal of Business & Management Studies
ISSN 2694-1430 (Print), 2694-1449 (Online)
Volume 04; Issue no 10: October, 2023
DOI: 10.56734/ijbms.v4n10a2

OIL PRICES AND THE GLOBAL ECONOMY: A NEW PARADIGM

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Abstract

Since the dawn of the automobile age at the beginning of the 20th century, oil has guided the growth of the global economy. The availability of oil and its price have been a determinant in times of both war and peace. The Allied nations achieved victory in two world wars in large part because of their ability to dominate the oil supply. The post-war boom ran on oil that was widely accessible and reasonably priced. When that supply tightened and became subject to political manipulation with the formation of OPEC, there was a direct correlation with slowing growth. This supply and demand relationship between oil and the rest of the modern economy was the underpinning of a Paradigm: when oil was readily available the economy could grow; when it became too scarce or expensive, the economy stalled. Following the end of the Cold War, geopolitics focused on ensuring access to supplies in the Middle East - the swing producing region whose output determined marginal cost and price – even at the expense of wars in Iraq, Kuwait, and Syria and ongoing tensions with Iran. Following the financial crisis of 2008, the pattern of economic growth began to diverge from the supply and price of oil. In the emerging New Paradigm, renewable energy, climate impacts, and new sources of supply from fracking and new discoveries are the determining factors. Oil and its derivatives remain important but their close link to economic performance has been broken.

Keywords

Automobile, Oil Prices, Global Economy, Economic Growth, Paradigm

Introduction

Oil prices have been and remain a key metric of the global economy. They drive many aspects of economic performance while in turn being influenced by a wider environment in its purely economic dimensions – supply and demand – as well as by the prevailing geopolitical context. Because of these multiple forces, oil prices are extremely volatile. Paradoxically, this volatility increased in the decades from 1970 onward even as Organization of Petroleum Exporting Countries (OPEC) gained market power and developed a sophisticated strategy for using this power to adjust prices in ways that suited the interests of its members and associated states such as Mexico and Russia (OPEC plus). This OPEC focused paradigm governed economic thinking during the final decades of the twentieth century. Oil prices continued their wild ride during the first decade of the twenty-first century. From a bottom of $28 per barrel in 2001, the attacks of September 11, the Iraq War, and a series of "oil shocks" in 2007 – disruptions in Nigeria, trade disputes in Venezuela, and production blockages in Iraq – pushed prices to $165 per barrel by mid-2008. But the financial collapse of late 2008 led to a dramatic drop in prices. Following a decade of recovery, the COVID-19 pandemic led to another drastic drop in demand as the global economy abruptly shut down. For a brief period in the spring of 2020, the price of West Texas Intermediate crude (WTI) actually turned negative as storage facilities could not accept delivery of added supplies. The sharp recovery of the global economy from the pandemic followed by the outbreak of war in Ukraine in February of 2022 reversed all of this downward pressure. But the feared oil crisis due to constraints on the supply of Russian oil never materialized. While prices remain well above their post-financial crisis levels, other sources of supply and the steady rise of renewables have allowed the global economy to move forward. One could say that the Paradigm has shifted. While OPEC remains an important player, there have been fundamental changes on both the supply and demand sides. Oil prices will operate in the future within this new framework - a New Paradigm – that is driven by new renewable and by new sources of supply such as nuclear and fusion energy and by changes in demand which are being increasingly driven by the widely recognized need to reduce emissions that are the inevitable by-product of fossil fuels.

History: The Rise of the Oil Economy

Oil fueled the twentieth century in both war and peace. Its rise as the primary source of energy saw the end of King Coal - the driver of economic growth and military strength during the Industrial Revolution - as it withstood the advances of alternative energy sources that had seemed promising, notably the new technology of nuclear energy which during the heady days of "atoms for peace" during the 1950s had seemed to offer a reliable and renewable alternative. Given its prominence, oil also shaped geo-politics, turning the key supply areas, most notably the Middle East but also Venezuela and Russia, into global flash points in the search for a stable source of energy. The experience of the 1930s showed that economic growth and steadily rising living standards were essential foundations for democratic politics. Because energy was in turn the key to this growth, elected officials took ensuring its steady supply as one of their most important responsibilities.

John Arbuthnot "Jacky" Fisher became First Sea Lord in 1904 and dedicated the next six years to modernizing the British Royal Navy. Known as the "Godfather of Oil," Admiral Fisher pushed a reluctant high command to convert the fleet from coal to oil. Control of oil supplies in Persia and access to oil from America and from the Baku fields in Russia was decisive in securing Allied victory in World War I. (1) Following the Bolshevik take over in 1917, Imperial Germany tried unsuccessfully to take control of the Baku fields. In early 1918 the High Command estimated that the U-Boat campaign in the Atlantic and offensives on the Western Front could not continue beyond the end of the year without new fuel supplies. In fact, an exhausted Germany surrendered on November 11. Ten days after the Armistice Lord Curzon – former Viceroy of India and soon to be named Foreign Secretary – rose to address a celebratory dinner. "The Allied cause," he stated, "has floated to victory on a wave of oil." Senator Berenger, the French representative at this event, was even more eloquent. He called oil the "blood of victory," and went on to reinforce his point by saying that "Germany had boasted much of its military strength in iron and steel, but had not taken account of our superiority in oil." He then went on to prophesy that "oil would become the blood of peace. Our civilian populations, our industries, our commerce, our farmers are all calling for more oil, always more oil, more gasoline, always more gasoline." (2)

Oil played an even more determinant role in World War II. Rising militarists in Japan focused on lessons from German experience in the first war and the vulnerability that oil shortages had created. They saw Japan as even more vulnerable, particularly its reliance on imports from the United States for 80% of its oil supply. Determined to address this shortcoming, they crafted plans for a Greater East Asian Co-Prosperity Sphere, a vast autarchic zone that would be energy self-sufficient due to its control over oil supplies in the Dutch East Indies. (3) The war aims of Nazi Germany had similar objectives. The Wehrmacht's drive through the Soviet Union in the summer of 1942 came close to seizing the Baku oil fields which were again a prime strategic objective as they had been in 1918. If this drive had not been stopped at Stalingrad it is possible that Germany's control over Eastern Europe could have solidified to the point where an Allied re-conquest of the Continent would have been impossible. Deprived of a secure oil supply, Field Marshall von Rundstedt, German commander in France at the time of the Normandy invasion, was forced to issue the order: "Move your equipment with men and horses – don't use gasoline except in battle." (4)

On the peace front, oil's dominance was even greater than in war. The automobile revolution that began with Henry Ford's mass production along with the need for petroleum-based lubricants, the rise of aviation, and the growth of oil-fired power plants – all converged to put oil at the center of the demand side in the global economy. Discovery of new oil fields in Saudi Arabia and the Gulf in turn meant that the Middle East dominated the supply side, a dominance solidified with the formation of OPEC. Accompanying the emergence of this new petroleum centered global context was the battle between coal and oil for the businesses and consumers of the post war world. Coal had powered the Industrial Revolution through the eighteenth and nineteenth centuries. In 1865 W. S. Jevons, leading British economist of the time, wrote that King Coal "stands out not just beside but entirely above all other commodities. It is the material energy of the country, the universal aid, the factor in everything we do. With coal almost any feat is possible or easy; without it we are thrown back into the laborious poverty of early times." (5)
Despite the rise of the automobile and national self-sufficiency in oil, the United States economy remained primarily a coal dependent economy until the middle of the twentieth century. But coal's cost structure began to lose out to cheaper petroleum. Equally important in tipping the balance was the chronic labor strife within the coal industry. John L. Lewis, the combative president of the United Mine Workers, lead repeated strikes in the coal fields causing serious supply disruptions that required energy cutbacks. Cheaper oil from Texas and especially from Venezuela became an attractive alternative. Indeed, one Venezuelan oil executive reflected that "We ought to take up a public subscription throughout Venezuela to erect a statue of John L. Lewis in the central square in Caracas – to honor him as one of the great heroes and benefactors of the Venezuelan oil industry." (6) Similar episodes of labor strife plagued the economies of Europe, coming to a head in the clash between miners and the government of Margaret Thatcher in the "winter of discontent" in 1978.

In post war Europe, the shift to oil was also driven – ironically in light of current preoccupations with a Green Economy free of fossil fuel –by environmental concerns. Large cities suffered from debilitating air pollution and "Killer Fogs" which caused traffic accidents and serious outbreaks of respiratory disease. Reductions in oil

prices also tipped the balance. In 1955, coal provided 75 percent of energy use in Western Europe, and petroleum just 23 percent. By 1972, coal's share had shrunk to 22 percent while oil's had risen to 60 percent. (7) In Japan, oil had been restricted primarily to military use, representing a source of commercial energy that was less important than firewood. Lower oil prices and the ongoing threat of labor unrest in the coal mines, moved the country to change its energy policy. By the end of the 1960s, oil was providing 70 per cent of total energy consumed in Japan, compared with on 7 percent in 1950. The economic historian Alfred Chandler summed up the success of the post war success in Europe and Japan: "The German and Japanese miracles were based on improved institutional arrangements and cheap oil." (8) By 1971 oil and natural gas provided two-thirds of the world's energy. Cheap, abundant, and relatively clean petroleum had replaced King Coal while safety concerns and an uncompetitive cost structure prevented nuclear energy from emerging as a viable alternative.

The "golden age" of cheap oil ended with the first oil crisis of 1973. The crisis was provoked by the Yom Kipper War between Egypt and Israel and subsequent oil embargos from oil exporting countries. However, this crisis was preceded by a new assertiveness on the part of the oil exporting countries which used new contracting arrangements to wrest control of oil supplies from the international oil companies. This new type of arrangement was pioneered by Indonesia and Caltex in the late 1960s and extended to other major producing countries. The oil companies, instead of controlling both production and distribution, were reduced to the status of contractors who operated at the bequest of the producing countries. Concurrently, the formation of OPEC gave oil exporting countries the incentive to demonstrate the application of basic economic theory. Economists showed OPEC planners that the demand for petroleum is price inelastic; in other words, a rise in price will not generate a proportionate fall in demand. Oil exporters could raise their prices without losing customers. Without the benefit of oil companies as traditional middle men and with a coherent pricing policy monitored by OPEC, the amount of oil sold directly by the exporting countries into the market quintupled from 8 percent of total output in 1973 to 42 per cent in 1979. The oil exporting countries were in charge of the international market. The Iranian Revolution of 1979 and the consequent disruption of supply led to a further restriction on the free play of market forces and a new surge of demand. (9)

Oil Prices and the Global Economy: The Old Paradigm

During the decades between the 1970s and the financial crisis of 2008, oil prices and the global economy operated in fairly predictable patterns. Any sharp rise in prices – whether engineered by OPEC or caused by a geo-political shock such as the Iranian Revolution or the first and second Gulf Wars – tended to depress global economy growth and asset prices. During the 1980s a period of low oil prices following the conclusion of the Iranian Revolution coincided with strong economic growth in the industrial economies. An increase in prices during the first Gulf War was followed by relaxation during the 1990s and another period of extended prosperity and rising asset prices in the industrial economies. Following the 9/11 attacks and the build up to the Iraq War oil prices rose in tandem. This paradigm was based on the predominant role that petroleum had achieved in the late twentieth century. Given the reduced role of the international oil companies in determining supply at the source, any rise in prices by oil exporters flows through to manufacturers and then to consumers in industrial countries. This price increase has the effect of a tax increase as it takes money that would otherwise be used to lower prices or improve quality to the benefit of the consumer. Conversely, a drop in prices acts like a tax cut. Consumers spend less on basic transportation as reflected in the prices of gasoline and benefit from cost savings in the manufacturing process. As long as oil represents the major energy source and as long as its price remains inelastic due to lack of readily available substitutes, the supply side will tend to drive price changes which in turn have a direct impact on the entire global economy.

In 2016, Ben Bernanke, former Federal Reserve Chair, wrote an article in the Wall Street Journal suggesting that the relationship between oil prices and economic performance – as measured by the stock market – in the United States had changed. He began by stating that we should see a negative correlation between stocks and oil prices because decreasing oil prices are a benefit to the US economy and vice versa. But in fact, Bernanke's analysis of the prior 5 and ½ years showed a positive correlation between the two price patterns. He concluded that there are two reasons for this positive relationship. "Much of this positive correlation can be explained by the tendency of stocks and oil prices to react in the same direction to common factors, including changes in aggregate demand and in overall uncertainty and risk aversion" In other words, weakening global demand caused stocks and oil prices to drop. He concludes that his "demand equation" indicates that oil prices would have fallen by 40-45% as a result of demand, having nothing to do with oversupply. Bernanke's analysis was criticized by such influential thinkers as Gary Cohn, COO of Goldman Sachs and subsequently Director of the Council of Economic Advisors under President Trump. Critics like Cohn pointed out those new supply considerations; particularly the dramatic rise in US shale production from 2012 to 2014 shifted the supply-demand balance. Saudi over-production beginning in 2014 accelerated the oil price decline. Whichever factor – supply or demand – is given the predominant role; the conclusion of the debate is that when looking at the role of oil prices in the global economy, "this time is different." (10) It is time for a paradigm shift.

Oil Prices and the Global Economy: A New Paradigm

Oil fueled the twentieth century economy and shaped its geopolitics. In the new reality, while the role of oil will certainly remain important, its impact and the impact of oil prices on global economic growth seems likely to be different and less determinant. In 2023 the world is recovering from an energy shock that is speeding up this shift to a new order. As covid-19 struck the global economy in 2020, demand for oil dropped by more than a fifth and prices collapsed. The price of Bent crude fell to $20 per barrel, something not seen since the 1960s and the price of West Texas Intermediate crude, where the market requires that owners of contracts take physical delivery and arrange for storage of their purchases, actually fell below zero at the end of the April futures delivery deadline. Since then, there has been a recovery, but a return to the old order is unlikely. As a sign of the times, Exxon Mobil was ejected from the Dow Jones Industrial Average where it had been a member since 1928. Most oil exporting countries require a price of $70-$80 to balance their budgets. As of May 2021, the price hovered below $60. Venezuela, a key player in the global market, a founding member of OPEC, and until recently a consistently prosperous petro-state, has seen its economy collapse as social programs designed to gain political control have collapsed under the weight of falling oil prices. (11)

The key piece of the new paradigm is the widespread concern with climate change. This concern has been present for a number of years. The Kyoto Protocol of 1992 established a framework committing industrial economies and economies in transition to reduce and eventually limit greenhouse gas emission. In 2006, former Vice President Al Gore produced a documentary film, "An Inconvenient Truth," that sounded the alarm about damage done by rising temperatures. Ever since the Industrial Revolution began in England in the late nineteenth century, mankind has become increasingly dependent of fossil fuels – first coal, then oil and natural gas – that release carbon dioxide into the atmosphere. As these emissions accumulate, the planet has heated up. In 2015 more than 150 countries signed the Paris agreement committing them to limit this warming to below 2 degrees C. over pre-industrial levels. Net emissions have grown by over 40% since the original Kyoto agreement in 1992. To meet the Paris goal will require a 90% reduction by the middle of the twenty-first century. During this same period world population is expected to increase by two billion and gross product to triple. The global economy currently derives four fifths of its energy consumption from fossil fuels. This consumption represents the equivalent of 55 tons of greenhouse gas, with approximately one fifth of this coming from agriculture and the balance from energy consumption and industrial processes. The world will need to change its entire pattern of energy use. It will need to shift to a new paradigm with obvious impact on the demand for oil and the way it is priced in global markets. (12)

The global pandemic – which shows how interconnected the world is and consequently how susceptible it is to common threats such as climate change – has given new urgency to the problem. But the transition away from fossil fuels is a massive challenge. The International Energy Agency estimates that reconfiguring power systems will require $1.2 trillion of incremental annual investment. In fact, capital investment in climate related technology has already started to grow significantly, increasing by 70% to over half a trillion dollars between 2013 and 2019. This paradigm shift will presumably mean changes in lifestyle such as fewer commuting trips, less air travel, energy efficient homes and offices, and electric vehicles. The preferred approach to such behavior modification is a carbon tax that puts a tariff on each ton of carbon dioxide emitted. While those carbon taxes currently in effect set the tax at $20, most experts feel that a tax of $100 per ton will be necessary to achieve carbon reduction goals that have been set. Adele Morris, an economist and carbon tax advocate at the Brookings Institute, a progressive think tank in Washington, D. C., summarized the situation quite succinctly. "As long as burning dirt (i. e. fossil fuels) is the cheapest form of energy, that's what we will do. Conversely, raising fossil fuel prices with carbon taxes will motivate switches to clean energy across the economy by making it economically rewarding to move to non-carbon fuels and energy efficiency." (13)

This new paradigm of energy supply and demand privileges the long-term dimension. It is essential for planning, but it may not help much in charting the course of oil prices as the world moves out of the pandemic and resumes normal economic activity – even if this normal is actually a "new normal" with greater use of remote work options, shorter supply chains, and more focus on recycling of raw materials. Notwithstanding these trends, oil prices are likely to participate in a commodities boom set off by the economic reopening and by a massive stimulus – both monetary and fiscal – that has been pushed through as governments sought to ease the pain of prolonged lockdowns and residual unemployment that affected many sectors as the economy returned to pre-pandemic levels of activity.

The stimulus tail wind originates in the United States but governments and central bankers in other industrial countries of tended to follow the lead of Chairman Jerome Powell at the Federal Reserve. In response to the coronavirus pandemic of 2020 and 2021 and resulting government-imposed lockdowns, the Fed took a number of steps to support the banking system as well as consumers and businesses. The Paycheck Protection Program Liquidity Facility (PPPLF) provided money to banks so that they could in turn lend money to small businesses, allowing them to keep employees who would have otherwise been laid off on the payroll. The Main Street Lending Program was a similar initiative that supported loans to small and medium businesses; but this program was discontinued in January of 2021. Using the technique of Quantitative Easing pioneered during the 2008 financial

crisis the Fed expanded its purchase of US government debt. It took a new initiative by adding corporate debt to its balance sheet. It purchased investment grade corporate debt, in addition to exchange traded funds that contained bonds. All of the activity increased the balance sheet of the central bank from $4.7 trillion in March of 2020 to $7.8 trillion in March of 2021. This increase compares to a Fed balance sheet of $1 trillion prior to the financial crisis of 2008. (14) On top of this massive monetary stimulus, the US government added approximately $5 trillion to the national debt through a series of direct payments to individuals, supplemental unemployment insurance, public health interventions - such as vaccine research, development and distribution – and increase aid to families via an augmented child tax credit. The Biden administration is f0ught for an additional $1.9 trillion in infrastructure spending that was passed on a bi-partisan basis despite initial Republic opposition.

As long as the economy remained in lockdown, this wave of fiscal and monetary stimulus had limited direct effect on consumer price inflation but it has led to asset inflation in the stock market and in commodities prices. Prices of key commodities – copper, gold and other precious metals; corn, wheat and other agricultural products; lumber – continued to rise in the first quarter of 2021, as the Fed signaled its ongoing willingness to prioritize economic growth over price stability. This inflationary trend included metals needed in the transition to electric vehicles: cobalt, lithium, and rare earths such as neodymium and praseodymium. (15) As the economy reopened, this inflation worked its way to the consumer level and can be expected to provide continuing upward pressure on oil prices. Warren Buffett, the investment guru widely respected for his forecasts, joined a long list of business executives saying that serious levels of inflation are starting to take hold as the US economy recovers from the pandemic. Buffett told shareholders at the May 2021annual meeting of Berkshire Hathaway that “we are seeing substantial inflation. We are raising prices. People are raising prices to us, and it's being accepted." Buffett called out much higher steel costs impacting Berkshire's housing and furniture businesses: "People have money in their pocket, and they pay higher prices... it's almost a buying frenzy," (16)

While a rising tide of commodity inflation may lift all boats in the short run, it is likely that during the 2020s, prices of oil and other key commodities will begin to diverge, as demand for crude ebbs and that for electric cars and other green technologies jumps. The push for green energy has widened and the investment climate has changed. Normally, rising demand in face of supply constraints would prompt increased capital investment in exploration and extraction. However, low returns have soured investors on energy stocks. The Biden administration has signaled its hostility to the fossil fuel industry generally. Among its first initiatives was cancelling the Keystone Pipeline linking Canada to the US Gulf Coast and eventually to Mexico, with the promise of creating an integrated continent-wide distribution and refining network. It has also announced a moratorium on drilling in Federal land, stricter emissions limits, and greater scrutiny of pipeline construction. On the investor side, many funds are insisting that portfolios follow ESG guideline by ensuring that investments are aligned with a dedication to principles of Environment, Society, and Governance. In January 2021 BlackRock, the world’s largest asset manager, advised leaders of its businesses to disclose plans for becoming carbon neutral by mid-century. Meanwhile, the electric vehicle revolution is finally gaining traction. Tesla, despite mediocre financial performance, has a market capitalization of equal to the next largest automobile makers combined. J. P. Morgan estimates that the global market share of electric vehicles will rise from the current 3% to 15% in 2030. (17)

The Global Outlook for Oil Prices – 2023 and Beyond

Looking at the short run, most economists see that ongoing recovery from the global pandemic will support demand for petroleum and that supply constraints will be the determinant of price movements. OPEC, in tandem with Russia, has the ability to enforce supply restraints. However, investment in America’s shale industry reached pre-pandemic levels sooner than expected and remains attractive at current oil price levels even in the political environment dominated by enthusiasm for a Green New Deal. The International Energy Agency has found that high fossil fuel prices resulting from Russia’s attack on Ukraine, concerns about energy security, and technology advancements have boosted the roll out of wind and solar installations by one third. According to Fatih Birol, the IEA Executive Director, “the global energy crisis has shown renewables are critical for making energy supplies not just cleaner but more secure and affordable.” He has also slammed “contradictions” from energy companies saying that existing oil fields, gas wells, and coal mines are “more than enough” if the world is serious about its climate goals.

Geo-politics in the Middle East do remain volatile and Iran cannot fully re-enter to global market as a major supplier as long as sanctions remain in place. However, rapprochement with Saudi Arabia and China promise more exports from Iran even as the Biden administration has not shown any enthusiasm for lifting sanctions. Ongoing conflicts in Yemen and hostility between Sunni and Shiite powers that hold the potential for wider regional conflicts may now be resolved. While the situation in Palestine has taken a turn for the worse, it is not likely to generate a point of tension with wider implications for security and oil supply. In the long run, the New Paradigm gives clear indications that oil is no longer the driving force of the global economy. While it will remain a significant element in the energy mix, its role will dwindle as new technologies and political priorities push it from center stage.

For the oil exporting countries the signals are clear. While continuing to manage their resources efficiently, they should not expect a return to higher oil prices; short of major upheaval in the Middle East. The trend to sustainability is embedded in the political system of major economies. Investors have embraced the ESG philosophy as a new guidepost in portfolio management. The media and the education establishment are committed to these ideals and are growing a wider circle of converts. Preparing for the emerging paradigm should be the strategic priority of all players in the global petroleum industry – exporting countries and regions, corporations, institutional and individual investors, and those working for energy companies. While the paradigm shift has been delayed by the outbreak of war in Ukraine and the consequent disruption of oil supply from Russia, this oil shock has had less impact than was widely anticipated. Europe, the most vulnerable region, has found alternative sources while US energy production has responded to fill the supply gap. Efforts by OPEC to reinforce high oil prices by restricting supply have had limited impact. A Gallup survey in April of 2023 reported that "Americans show significantly less concern about the energy situation than they did a year ago." (19) An end to the war in Ukraine would serve to further relieve pressure on prices and reduce the long term pricing power of OPEC.

A final piece of the new paradigm configuration is the revival on interest in nuclear energy as a viable alternative to oil for both political and environmental reasons. A Gallup poll in May of 2023 indicates that interest in nuclear energy is at a 10 year high with support from both those concerned about energy security in light of the increasingly unstable geo-political situation and those who realize the nuclear' s potential for reducing green house gas emissions. (20) Even more disruptive is the progress being made in development of fusion as a commercial rather than simply military source of energy. Enrico Fermi predicted in the late 1940s that once scientists learned to control the fusion reaction, energy would become "too cheap to meter." While this dream never materialized, recent success in reversing the input – output equation used to produce a fusion reaction has given hope to a viable commercial application that will not need to wait another two decades for implementation. Startups such as Zap Energy (21) are seeking to develop technology not requiring the use of expensive magnets. Pioneered at the University of Washington, this companyis embarked on this process of transformation and commercialization. In short, there are many new forces on the horizon that will continue to push forward the shift to a new paradigm.

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