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Global Events (2010–2022) and Oil Pricing Mechanisms: Impacts and Future Prospects

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Abstract:

This research endeavors to elucidate the historical context of oil pricing and to investigate the repercussions of the Arab Spring, the COVID-19 pandemic, and the Ukraine conflict on oil prices. Additionally, it seeks to analyze the future potential and viability of denominating oil transactions in a currency, or multiple currencies, alternative to the U.S. dollar. The study adopts a descriptive-analytical methodology, presenting fundamental concepts pertaining to oil pricing, the historical trajectory of pricing mechanisms, and a chronological exposition of the Arab Spring, the COVID-19 pandemic, and the Ukraine conflict, thereby illustrating their impacts on the oil market and their influence on pricing mechanisms.

The findings of this study confirm that oil pricing is predominantly conducted in U.S. dollars and that global events have not significantly altered the internationally established pricing mechanisms. Achieving a departure from U.S. dollar dominance necessitates the collective address of specific conditions and scenarios by oil-exporting nations. However, the prevailing lack of political consensus and cooperation among these nations, coupled with their increasing reliance on the U.S. dollar, renders a shift from dollar hegemony highly improbable, particularly in the short-term.

Keywords: oil prices, ,petrodollar; Arab Spring, COVID-19 pandemic, Ukraine conflict.
JEL Classification Codes : F1 ; G2

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آثار الأحداث العالمية على آليات تسعير النفط خلال الفترة 2010-2022 وأفاقه المستقبلية

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ملخص:

تهدف هذه الدّراسة إلى إبراز خلفيات تسعير النفط وتبيان آثار كل من أحداث الربيع العربي وأزمة كورونا والأزمة أوكرانية على أسعار النفط كما هدفت إلى تحليل أفاق ومدى امكانية تسعير النفط بعملة أو عملات غير الدولار مستقبلاً، وهذا باستخدام المنهج الوصفي التحليلي من خلال عرض مفاهيم حول أسعار النفط والتطورات التاريخية لآليات التسعير المتبعة بالإضافة إلى تسلسل زمني لكل من أحداث الربيع العربي وأزمة كورونا وأكرانيا وتبيان الآثار الناجمة عنها على السوق النفطية وكيف آثرت على آليات التسعير

وقد توصلت الدّراسة أن عمليات تسعير النفط تتم بالدّولار الأمريكي وأن الأحداث العالمية الدولية لم تأثر على آليات التسعير المعمول بها دوليا، وحتى يتم التحرر من الهيمنة الدولارية يوجد شروط وسنريوهات لا بد للدول المصدرة للنفط العمل عليها معا، لكن مع عدم توفر الإرادة والاتفاق بين الدول المصدرة للنفط وتزايد الحاجة لعملة الدولار لديها. جعل من إمكانية التحرر من الهيمنة الدولارية شبه مستحيل على الأقل في المدى القصير

الكلمات المفتاحية: أسعار النفط ؛ البترودولار؛ الربيع العربي، أزمة كورونا، أزمة أكرانيا.

تصنيف JEL : F1 ؛ G2

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11. INTRODUCTION

Since the discovery of oil, the world has experienced a substantial industrial expansion, as oil has become a principal energy source for both industrial and agricultural domains and a foundational element in excess of 8,000 diverse industrial products globally. Furthermore, oil constitutes one-eighth (1/8) of total international commerce. Its elevated demand has established it as a strategic commodity that exerts influence over the economic and political destinies of nations and the global community.

This prominence is attributable to the characteristics of the oil industry, which encompass ease of transport, the variety of its derivatives, and its comparatively reduced extraction cost relative to alternative energy sources, all of which contribute to economic advancement. However, oil prices and trade transactions are subject to numerous determinants that directly affect its valuation. Notably, from the inception and subsequent proliferation of the oil industry, oil has been denominated in U.S. dollars. Nevertheless, the regulatory frameworks and pricing methodologies have undergone evolution over time in response to prevailing conditions and developments.

The global landscape has recently been marked by three pivotal events that have exerted considerable influence on international economies across diverse sectors. Specifically, these include the Arab Spring in 2010, the COVID-19 pandemic commencing in late 2019, and the subsequent Ukraine crisis originating in late 2021. Furthermore, the Russian Federation's implementation of a discrete policy within the petroleum industry, mandating that crude oil the world's predominant energy commodity be transacted in its national currency, has precipitated market perturbations.

Amidst escalating discourse concerning the potential advent of a new epoch and the imperative to revise petroleum pricing mechanisms a foundational procedure within the oil sector in response to persistent and evolving global transformations, both direct and indirect impacts on petroleum valuations have become increasingly manifest. Given the continued primacy of crude oil as the world's primary energy source, the inquiry persists as to the potential emergence of a viable alternative, coupled with the requisite resources and expertise to facilitate its widespread adoption

Research Problem:

This study addresses the following research problem: To what extent did global events, specifically the Arab Spring, the COVID-19 crisis, and the Ukraine crisis, influence oil pricing, and to what degree did oil-producing nations endeavor to modify the petrodollar system during the period spanning 2010 to 2022?

Research Hypotheses:

- Oil pricing is predicated upon a singular international currency for valuation.
- The oil market experienced perturbations during the Arab Spring and the COVID-19 crisis, while the mechanisms governing oil pricing remained unaltered.
- The Ukraine crisis has instigated a global reevaluation and a pursuit to decouple

oil from the United States dollar.

Research Significance:

Understanding oil pricing mechanisms is crucial for maintaining economic stability in oil-dependent economies. This study aims to:

Analyze historical oil pricing phases.

Examine the rationale behind dollar-based oil pricing.

Assess the impact of global events on oil pricing.

Investigate the feasibility of pricing oil in alternative currencies.

Methodology:

This research employed a historical methodology, encompassing the review of extant research, scholarly studies, and relevant reports. Furthermore, a descriptive-analytical methodology was utilized to analyze data and evaluate the effects of global events on oil pricing dynamics

.2. Theoretical Framework of the Study

2.1 Previous Studies

Flahi, S. O., & Belkacem, M. (2012). "Transformations of the Oil Market and Their Impact on Oil Pricing Systems in International Markets". This study aimed to identify the factors influencing oil pricing decisions within the oil market by providing a historical overview of the market's development, presenting and analyzing various data related to oil product trading. Employing an analytical-descriptive approach, the study concluded that the period of announced oil prices was characterized by the absolute monopoly of major oil companies in setting crude oil prices. During the subsequent period of official prices, control shifted to OPEC countries, though this proved short-lived due to policies implemented by the International Energy Agency and major oil-consuming countries. Consequently, the market-based pricing system was adopted, thereby entrusting oil price determination to the forces of supply and demand.

Kawthar M. D, & Ahmed A. S, (2020) investigated the "Oil Pricing Mechanism in Global Oil Markets" between 1970 and 2017. Employing a descriptive methodology, the authors determined a correlation between oil prices and global oil consumption rates. Their findings indicated that crude oil pricing in the three major markets is predicated on: (1) the Brent crude oil price traded on the international oil market; (2) the Brent-WTI average crude price traded on the New York Mercantile Exchange (NYMEX); and (3) the Brent crude oil price traded on the Singapore Mercantile Exchange (SIMEX).

2.2 Oil Prices and Pricing Mechanisms

2.2.1 Definition of Oil Prices

Oil prices denote the monetary value, expressed in U.S. dollars, of a barrel of crude oil, which comprises 42 gallons. This price, denominated in U.S. currency, has been the standard unit of measure throughout the evolution of the oil industry (Al-Hiti, 2011, p. 139) Thus, oil prices can be defined as the value of a barrel of oil as expressed in a given currency.

2.2.2 Factors Affecting Oil Prices

2.2.2.1 Economic Factors

The interplay of oil supply and demand significantly influences market prices, encompassing numerous contributing factors. These factors are detailed below:

Global Oil Supply : Key determinants of global oil supply include oil reserves, OPEC production rates, demand elasticity, domestic and international political interests, and OPEC's capacity to coordinate production and pricing strategies. Increased supply leads to greater global oil availability, resulting in price decreases, and conversely (Rizqah Sidi Umar, 2020, p. 396)

A historical analysis of oil prices indicates that between 1979 and 1980, nominal oil prices increased due to the cessation of Iranian oil production and the Iran-Iraq war, which caused partial production halts in 1980. This decline in production drove oil prices to $25 per barrel (Omar, 2018-2019, pp. 66-70) In 1986, OPEC's oil supply mismanagement and a peak in North Sea oil production contributed to price declines. This coincided with a substantial price crash in 1986 as Saudi Arabia attempted to saturate the market, lowering prices to $18 per barrel. Furthermore, the Iraqi invasion of Kuwait caused production disruptions in both nations, raising prices to $23 per barrel. The 1998 crisis also stemmed from an imbalance in international oil supply and demand, as did the 2014 crisis, which was caused by an oversupply of oil and gas and the U.S. decision to lift the 40-year ban on Iranian oil exports (Omar, 2018-2019, pp. 66-70)

Global Oil Demand: can be categorized into two primary types:

Consumption Demand: This form of demand is positively correlated with global economic growth rates, as exemplified by the economic expansion and industrial development observed in nations such as India and China (Marwa Ayad, 2021, p. 1917) Furthermore, increases in personal consumption and population growth rates also contribute to elevated global oil demand.

Speculative Demand in Futures Markets: This demand type is also influenced by economic growth rates (Marwa Ayad, 2021, p. 1917)The industrial and transportation sectors constitute the largest proportion of oil demand. Member countries of the Organisation for Economic Co-operation and Development (OECD) allocate oil consumption as follows: 50% to road transport, 8% to aviation, 14% to petrochemicals, 9% to housing, trade, and agriculture, and the remaining 15% to other applications (Jefferson, 2020, p. 2)

A key characteristic of oil demand is its short-term inelasticity, stemming from the challenges associated with identifying viable oil substitutes. Significant investments are required for oil production, and the realization of these investments necessitates time. Consequently, crude oil prices tend to exhibit stability or only marginal fluctuations in the short term. Conversely, long-term demand demonstrates greater elasticity and is subject to change over time (Marwa Ayad, 2021, p. 1917)

- **Prices of Alternative Energy Sources**

Alternative energy sources encompass products fulfilling the same functional

roles as oil, including natural gas and other energy forms. Consequently, the utilization of an alternative product exerts a positive influence on oil demand if that alternative is either non-competitive or priced at a premium relative to oil. Conversely, a negative impact on oil demand arises when the alternative product is priced lower than oil. This dynamic constituted a significant contributing factor to the 2014 crisis, as the adoption of alternative energies expanded, particularly subsequent to recent discoveries pertaining to shale oil and gas (Omar, 2018-2019, p. 49).

2.2.2.2 Political Factors

Political instability, conflicts, and wars in oil-producing and refining regions substantially impact the security of oil supply flows to consumers and result in price increases. This was manifest during the Iran-Iraq War (1981-1988) and the Kuwait invasion in 1991, as well as the Asian financial crisis (1997-1998).

Furthermore, regulatory interventions also affect oil prices. A significant example occurred in 1973, when OPEC raised oil prices in October 1973 from $3 to $12 per barrel, an increase of 400%, effectively pricing oil at its real value. This action aimed to implement an oil export trade embargo on countries supporting Israel, resulting in financial losses in European and American markets, disruptions in industries, and surging gasoline prices in the United States and the United Kingdom (Omar, 2018-2019, pp. 49-66-70).

The enduring influence of political factors on oil prices is well-documented. The terrorist attacks of September 11, 2001, precipitated a surge in these prices. A similar price escalation occurred in 2004 following the cessation of Iraqi oil production due to the U.S.-led invasion of Iraq. This pattern was replicated in 2014 during the conflict with ISIS. Furthermore, the collaborative agreement between the United States and Saudi Arabia to reduce oil and gas prices, intended to apply pressure on Russia and Iran, exemplifies this dynamic (Omar, 2018-2019, pp. 49-66-70)The 2022 Ukraine crisis, discussed infra, similarly exerted a significant influence on oil prices.

2.2.2.3 Climatic Factors

Climate exerts an influence on oil prices due to its seasonal impact on personal oil consumption. Demand typically decreases during summer months as temperatures rise and increases in winter months due to colder conditions (Marwa Ayad, 2021, p. 1917).

2.3 The Historical Development of Pricing Mechanisms (1880-2010)

Oil pricing is defined as a set of arrangements and systems established to determine the price of oil (Allal, 2016, p. 200)The pricing process has undergone several phases:

Table 1: Crude oil pricing methods prior to 2010

Pricing Method	Phase Features		
-The posted price was first used at production wells by Standard Oil of New Jersey at export ports. After increased production and the emergence of other oil companies, crude oil prices were standardized.	-Dominance of global oil companies. -Price stability	1936-1880	Phase 1: The Monopolies Era
-The posted price for a barrel of crude oil in any region of the world was equal to the posted price in the Gulf of Mexico plus a nominal transportation cost between the Gulf of Mexico and the import port.	-The United States was the primary and leading oil producer in the world. -A single pricing point for all types of crude oil.	1936-1939	
- Two pricing bases were used: one in the Arabian Gulf and another in the Gulf of Mexico. The posted price in both locations had to be unified, accounting for transportation costs from the Arabian Gulf to the import port and from the Gulf of Mexico to the import port.	-The emergence of new oil production areas. -The need for nearby and low-cost oil sources. -Increased production and reserves in the Arab region and expansion of company activities.	1939-1945	
-The unified price rule was implemented, selecting an equalization zone where the posted price plus transport costs were identical. Initially, Naples, Italy, was chosen, later replaced by Southampton, UK, and eventually by New York, USA, in 1948. This ensured that the posted price of Caribbean oil was equivalent to that of Arabian Gulf oil upon entering the global market, with added costs of transport, shipping, and insurance.	- Arabian oil gained the ability to compete with American oil. -TheU.S. transitioned from an oil-exporting to an oil-importing country. -The emergence of new oil sources (Caribbean, Middle East, and Arabian Gulf countries).Increased European demand for oil.	1945-1950	
- The previous pricing system was maintained despite OPEC's attempts to modify prices.	-Entry of the oil industry into joint and full ownership by producing states due to nationalization movements.	1970-1960	Phase 2: The Decline of the Monopoly
-The posted price, official selling price, and buy-back price were used, allowing buyers to acquire oil at different prices. This system was inefficient.	-Lack of information and transparency in global oil trade and the absence of adjustment mechanisms to ensure price alignment.	1973-1971	
-A managed oil pricing system was introduced, based on a reference price set for Saudi Arabian Light crude, with official OPEC member crude prices adjusted periodically according to this benchmark.	Oil price determination based on multiple factors such as supply and demand for each crude type and the relative price of petroleum products.	1975-1974	

- The official selling price or government-set price for crude oil, determined by OPEC for Saudi Arabian Light crude, was also used as a benchmark for pricing other crude oils.	-Government intervention in setting prices for buyers.	**1979-1976**	
-A market-linked pricing system using a price formula was introduced, where the price of a particular crude was determined based on the price of a benchmark crude using the equation: **Price of the crude oil to be priced = Spot or futures price of the reference crude ± Differentials**. -These differentials ensured competitiveness among similar crude oils. These could result in either premiums or discounts, making the equation: **Price of the crude oil to be priced =Benchmark crude price + Quality differential + Geographical location differential**.	- Oil market recession in 1983. Major companies continued to enjoy preferential access to crude oil, leading to a narrowing of the competitive oil market. -The emergence of suppliers outside OPEC and an increase in the number of buyers. -The complexity of the futures market structure. -Technological advancements and the development of electronic trading tools worldwide.	**2010-1980 –**	**Phase 3: Free Market Competition**

Source: Compiled by the researchers, based on (Hassiba, 2014-2015, p. 59): (Al-Hiti, 2011, pp. 139-145)), (Fattouh, January 2011, pp. 17-18) (Allal, 2016, p. 200)

3.Applied Aspect: The Impact of Global Events (2010-2022) on Oil Pricing and Its Prospects

3.1 Key Global Events During the Period 2010-2022

3.1.1 Arab Spring Revolutions

The Arab Spring denotes a series of popular uprisings and revolutions (Al-Shammari, Tayea, 2023, p. 1029)Commencing in Tunisia on December 18, 2010, these movements proliferated across numerous Arab nations, including Egypt, Libya, Yemen, Syria, Iraq, Algeria, Saudi Arabia, Palestine, Lebanon, Sudan, Bahrain, Jordan, and Morocco by early 2011 (Ismail, 2012, pp. 97-107) The primary objectives of these revolutions were the removal of oppressive and authoritarian regimes, as well as protests against prevailing government policies. These actions were fueled by deteriorating economic conditions, declining living standards, poverty and unemployment. The ramifications of these events were substantial, impacting diverse sectors within the affected nations and the broader Arab world (Al-Shammari, Tayea, 2023, p. 1029) .

3.1.2 COVID-19 Pandemic

The COVID-19 pandemic, caused by the novel coronavirus, is an emergent infectious disease primarily targeting the respiratory system (Amal, 2021, p. 251) Originating in Wuhan, China, in December 2019,the virus rapidly disseminated, initially as an epidemic, to other Asian countries, notably Iran, before its global spread to Europe, North America, Africa, and Latin America. The pandemic's global reach resulted in over six million confirmed cases and more than 375,000 deaths worldwide. Consequently, widespread shutdowns of commercial and industrial operations were

implemented, and over three billion individuals were subjected to stay-at-home orders to mitigate viral transmission(Zahran, 2020, p. 6).

3.1.3 The Ukraine War

The genesis of the crisis in Ukraine occurred in 2013, initiated by demonstrations protesting President Yanukovych's decision to abstain from signing the Free Trade and Partnership Agreement with the European Union. These demonstrations intensified, subsequently prompting the Russian Federation to advise Russian nationals residing in Ukraine to exercise vigilance. Concurrently, Russia elected to undertake an intervention in Crimea, citing the protection of citizens of Russian origin as justification. President Vladimir Putin submitted a formal request to the Russian Federation Council for authorization to deploy armed forces within Ukraine, which was ratified in 2014,resulting in Russian intervention in the Crimean region (Tawfiq, 2023, p. 373).

The adversarial relationship between Ukraine and Russia endured for a period of eight years, culminating in the escalation to a full-scale war in 2021. The salient developmental phases of this conflict are delineated in the subsequent table:

Table 2: Historical Development of the Ukraine War.

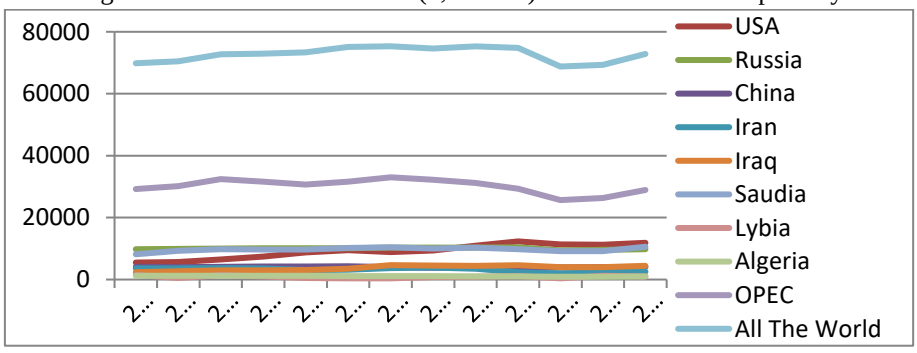
Event	Date
Reports of unusual Russian troop movements near Ukraine.	12/ 2021
The U.S. evacuates embassy staff and their families from Ukraine; NATO forces placed on high alert.	01/ 2022
Escalation of fighting.	02/ 2022
President Putin announces a "special military operation."	02/24/ 2022
Russia declares territorial gains.	02/ 24-28, 2022
Fighting slows down, and the situation stabilizes.	03/ 2022
Russian troops begin withdrawing from the Kyiv area.	04/ 2022

Source: (J.Neely, 2022, p. 1)

3.2 2.The Impact of Global Events on Factors Controlling Oil Pricing :

3.2.1 The Impact of Global Events on Crude Oil Production

Figure 1: Crude Oil Production (1,000 b/d) – Thousand Barrels per Day



Source: Compiled by the researchers, based on: (OPEC Annual Statistical Bulletin, 2015-2019-2023)

Figure 1 delineates crude oil production trends for a selected cohort of nations, demonstrating a contraction in both global and OPEC output during the Arab Spring and the COVID-19 pandemic, juxtaposed with an expansionary trend during the Ukraine conflict.

The figure reveals a substantial impact of the Arab Spring on Libyan oil production, evidenced by a 67% reduction in 2011, culminating in a production volume of 489.5 thousand barrels per day. Subsequently, a 196% recovery was observed in 2012. However, production experienced a subsequent decline, registering 389.1 thousand barrels per day in 2016. Concurrently, production decreases were documented in Algeria (2.37%) and China (0.60%). Conversely, other nations exhibited a marked increase in production, contributing to a 3% augmentation in OPEC output and a 0.77% increment in global production during 2011.

By 2012, global production demonstrated an elevation of 72,784.6 thousand barrels, corresponding to a 3.35% increase. Nonetheless, in 2013, the rate of growth decelerated to 0.17%, primarily attributable to reductions in Iranian (4.4%), Saudi Arabian (1.29%), and Libyan (31.5%) oil production. Consequently, OPEC's aggregate output experienced a contraction of 2.53%.

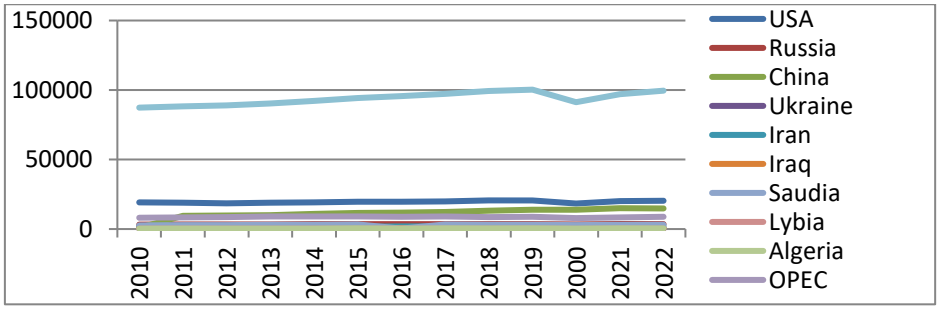
The emergence of the COVID-19 pandemic in 2019 precipitated a decline in global oil production to 74,819.0 thousand barrels per day, representing a 0.63% reduction. Concurrently, the Organization of the Petroleum Exporting Countries (OPEC) experienced a 5.9% decrease in output, attributable to diminished global oil demand and the cessation of numerous industrial operations. Producers encountered additional impediments to production escalation, including labor deficiencies, compromised transportation supply chains, and unfavorable meteorological conditions.

In parallel, Iranian oil production underwent a substantial contraction, with a 33% reduction in 2019, followed by a further 15% decrease in 2020, resulting from imposed sanctions. In Algeria, a sustained decline in production was observed from 2018 to 2021, initially stemming from political instability and subsequently compounded by the COVID-19 crisis.

Conversely, the onset of the Ukraine crisis instigated a surge in production levels across all oil-producing nations. By 2022, global output attained 72,801.0 thousand barrels per day, with the United States, Saudi Arabia, and Russia positioned as the leading producers. Their respective production volumes were recorded as 11,887.0 thousand barrels per day, 10,591.0 thousand barrels per day, and 9,756.0 thousand barrels per day.

3.2.2 The Impact of Global Events on Oil Demand :

Figure 2: Oil Demand (1,000 b/d)



Source: Compiled by the researchers, based on: (OPEC Annual Statistical Bulletin, 2015-2019-2023).

Figure 2 delineates the volume of global oil demand spanning the years 2010 to 2022. It demonstrates that global events within this period exerted both direct and indirect influences on global oil demand, with the magnitude of these impacts varying across nations according to their respective economic and political circumstances.

A sustained increase in global oil demand is observed from 2010, commencing at 87,337.1 thousand barrels per day, and culminating in a peak of 100,275 thousand barrels per day in 2019. Subsequently, a decline of 9.06% in demand occurred in 2020, attributable to the COVID-19 pandemic and the resultant imposition of restrictive measures by various countries to mitigate its propagation. Following the relaxation of these restrictions, a resumption of the upward trajectory in global oil demand is evident.

Furthermore, the figure illustrates that the Arab Spring had a notable impact on oil demand, particularly in Libya, where a precipitous decline was registered from 301.1 thousand barrels per day in 2010 to 231.3 thousand barrels per day in 2011. This downward trend persisted, reaching its nadir in 2022 at 192 thousand barrels per day. Iran also experienced a reduction in oil demand as a consequence of the Arab Spring, with a decrease from 1,820.4 thousand barrels per day in 2010 to 1,764.7 thousand barrels per day in 2013, prior to a subsequent recovery. However, the COVID-19 pandemic once again affected Iran's oil demand, resulting in an 8% decrease.

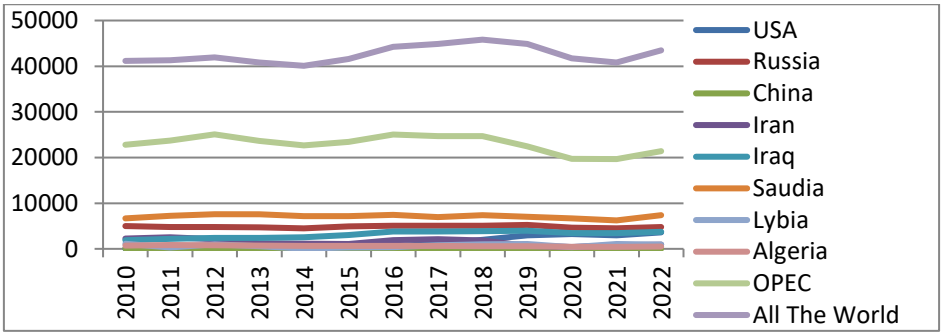
The United States, which leads global oil demand, consistently recorded a demand exceeding 18,000.0 thousand barrels per day during the entirety of the period from 2010 to 2022. In contrast, Russia's oil demand did not exceed 3,600.0 thousand barrels per day during the same period, exhibiting only slight fluctuations attributable to the COVID-19 crisis and the Ukrainian crisis, which resulted in a 5% and 1.5% decline in its oil demand, respectively.

China recorded its highest oil demand in 2021, reaching 14,997.0 thousand barrels per day. Notably, China appeared largely unaffected by global events during this period.

As for Algeria, Saudi Arabia, and Iraq, their oil demand fluctuated between 2010 and 2022. Concurrently, Ukraine was substantially impacted by the war, with its oil demand dropping from 250 thousand barrels per day to 184 thousand barrels per day.

3.2.3. Impact of Global Events on Oil Exports :

Figure 3: Global Crude Oil Exports by Country (1,000 barrels per day)



Source compiled by the researchers, based on: (OPEC Annual Statistical Bulletin, 2015-2019-2023)

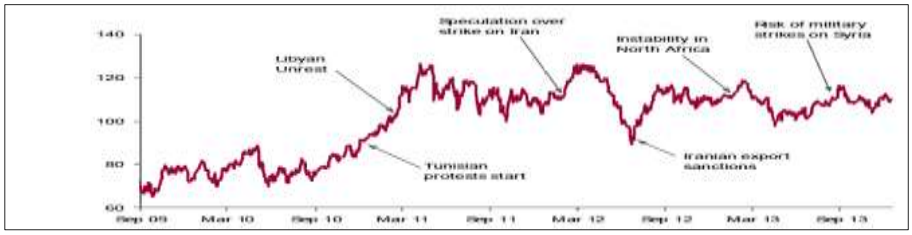
Figure 3 delineates the evolution of oil exports for a selected cohort of nations spanning the period from 2010 to 2022. It is discernible that Saudi Arabia maintains its position as the preeminent oil exporter, succeeded by Russia, Iraq, Iran, and the United States. The aggregate export volume exhibited a consistent upward trajectory, punctuated by contractions in 2013 and 2014, attributable to the repercussions of the Arab Spring, and subsequently in 2020 and 2021, consequent to the global COVID-19 pandemic.

Member states of the Organization of the Petroleum Exporting Countries (OPEC) demonstrated variations in export volumes, notwithstanding the organization's endeavors to modulate the market. The zenith of export volume was registered in 2012, at 25,070.0 thousand barrels per day, while the nadir was observed in 2021, at 19,656.0 thousand barrels per day.

The Arab Spring exerted a substantial influence on oil export dynamics, precipitating a precipitous decline in Libyan exports from 1,118 thousand barrels per day in 2010 to a mere 41.0 thousand barrels per day in 2014. Analogously, Algerian exports experienced a decrease from 709 thousand barrels per day to 623.0 thousand barrels per day in 2014. The COVID-19 crisis further induced a reduction in oil exports across all referenced countries, with China experiencing the most pronounced impact.

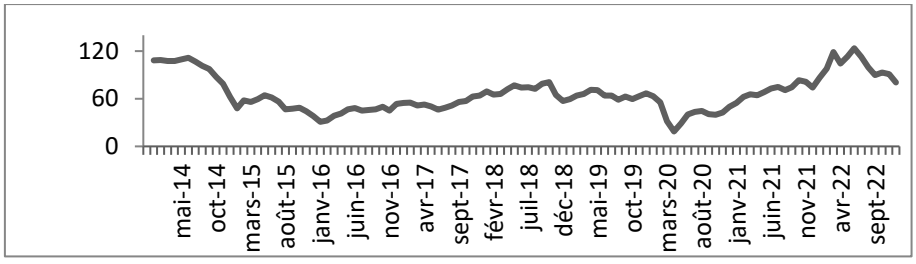
3.2.4 The Impact of Global Events on Oil Prices :

Figure 4: The Evolution of Oil Prices from September 2009 to September 2013



Source: (Laura El–Katiri, 2014, p. 14)

Figure 5: The Evolution of Oil Prices from January 2014 to December 2022



Source: compiled by the researchers, (based on: data from the Organization of Arab Petroleum Exporting Countries (OAPEC), various editions.)

Figure 4 illustrates the trajectory of oil prices from September 2009 to September 2013, emphasizing the influence of the Arab Spring. The Libyan revolution in early 2011 precipitated supply disruptions, consequently driving oil prices upward. This resulted in a surge exceeding $120 per barrel, followed by a period of fluctuating decline in the second quarter of 2011, culminating in a price of approximately $100 per barrel by year's end. Subsequently, a fluctuating upward trend emerged,

attributable to substantial oil reserves and the expansion of U.S. shale oil production, concurrent with a deceleration in global economic growth rates and a corresponding reduction in global oil demand. Despite the rumor of potential sanctions against Iran in February 2012, oil prices surpassed $120 per barrel in March 2012. However, these prices subsequently decreased, stabilizing at approximately $93 per barrel in the latter half of 2012 following the implementation of sanctions on Iranian oil exports.

Meanwhile, figure 5 presents the evolution of oil prices from January 2014 to December 2022. The COVID-19 pandemic and associated precautionary measures engendered a substantial contraction in the global economy, leading to a sharp reduction in global oil demand in 2020. In early March, certain major producers opted to increase production despite existing market surpluses, instigating a crisis within oil markets. This culminated in a price collapse in April 2020, with oil prices plummeting to $18.8 per barrel. A gradual recovery ensued, driven by the phased resumption of economic activity, reaching $83.5 per barrel by October 2021.

As illustrated in Figure 5, the conflict between Ukraine and Russia initially precipitated market anxieties, resulting in a decline in oil prices to $81.3 per barrel during November–December 2021. However, subsequent escalation of the conflict, coupled with intensified supply chain disruptions and fuel supply shortages, triggered a price surge, reaching $86.6 per barrel on January 19, 2022. This trajectory persisted, culminating in oil prices attaining six times their April 2020 levels by the end of March 2022, at $118.8 per barrel. This peak represented the most substantial energy price escalation since the 1973 oil crisis, reflecting a 55% increase relative to December 2021.

Following the announcement by the United States and several International Energy Agency (IEA) member states regarding the release of considerable volumes of oil from strategic reserves, Brent crude prices experienced a decline in April 2022. Despite this intervention, Brent crude reached $123.6 per barrel in June 2022, a 42% increase from 2021 and the highest price recorded since 2013.

The profound influence of the Ukraine crisis on oil prices emphasizes Russia's pivotal position within the global oil market. The International Energy Agency identifies Russia as the world's third-largest oil producer and second-largest oil exporter, accounting for approximately 5 million barrels per day (Studies, 2022, p. 21)

3.3.Oil Pricing Mechanism During the Period 2010–2022

The Arab Spring, the COVID-19 crisis, and the Ukraine war exerted both direct and indirect influences on oil prices and their determinants. Furthermore, a number of decisions and measures disrupted the conventional operation of market forces. Standard market mechanisms dictate that OPEC and oil-exporting nations should modulate supply levels through production increases or reductions to re-establish price equilibrium or implement corrective secondary measures.

Nevertheless, throughout this period, OPEC's decisions frequently deviated from expectations, particularly with the support of Saudi Arabia. As the key stabilizing force within the oil market, Saudi Arabia resisted production cuts despite appeals from

numerous OPEC and non-OPEC members to curtail output and mitigate market oversupply. Consequently, oil prices experienced unprecedented lows, declining to $30 per barrel in 2016 and further plummeting to $18.8 per barrel in 2020, notwithstanding the implementation of price formula mechanisms in oil pricing (Laib & Hadjer, 2021, p. 611).

4. Oil Pricing Prospects

To comprehend the future trajectory of oil pricing, an analysis of attempts by nations and organizations to denominate oil in currencies other than the U.S. dollar is crucial.

Subsequent to the dissolution of the international gold standard, the Bretton Woods Agreement established the U.S. dollar as the world's reserve currency (Salama, 2015, p. 62)In 1970, member states of the Organization of the Petroleum Exporting Countries (OPEC) consented to transact oil sales in U.S. dollars, thereby instituting the petrodollar-based pricing mechanism of the global oil market (Paybars, 2023, p. 553) .

In 1973, the United States concluded an agreement with Saudi Arabia, stipulating that all oil purchased from the kingdom would be exclusively priced in U.S. dollars. This accord was designed to sustain global demand for the dollar, as any nation seeking to acquire Saudi oil was required to first convert its domestic currency into U.S. dollars. Consequently, all Saudi oil exports were dollar-denominated, augmenting demand for the U.S. currency and U.S. Treasury bonds. In return, the U.S. pledged to safeguard Saudi oil fields (Salama, 2015, p. 62)

Subsequently, the U.S. extended similar arrangements to other Gulf states, offering military protection in consideration for pricing their oil in dollars. This precedent encouraged other oil-exporting nations to adopt the practice, and ultimately, OPEC members standardized oil pricing in U.S. dollars (Atta). Consequently, the U.S. successfully solidified its currency's position within the global oil market, establishing a direct correlation between oil prices and the U.S. dollar exchange rate wherein a depreciation of the dollar's value typically correlates with elevated crude oil prices, and conversely.

The United States' dominance in the oil market, the U.S. dollar's hegemony in international transactions, and the dollar-based pricing of oil are direct consequences of its economic supremacy. This position has enabled the U.S. to shape global economic policies in accordance with its national interests, effectively compelling other nations to conform to its conditions. However, recurrent oil crises have spurred various attempts to decouple oil pricing from the U.S. dollar. Several proposals have been advanced, most notably:

First Proposal: encouraging the U.S. to reduce its dependence on oil, particularly given the susceptibility of oil markets to U.S. domestic policies and strategic decisions. However, this proposal presents enforcement challenges, as no nation or organization possesses the authority to mandate such measures upon the U.S.

Second Proposal: a more viable strategy involves pricing oil in currencies other than the U.S. dollar (Paybars, 2023, p. 564). This concept has arisen due to the

declining purchasing power of the dollar, which has adversely affected oil revenues. The persistent depreciation of the U.S. dollar has prompted discussions regarding pricing oil in alternative currencies, such as the euro or a basket of currencies.

This concept initially emerged in 1971, following the U.S. dollar's devaluation by 7.85%, and a subsequent 10% devaluation in 1973. In response, OPEC initiated efforts to reform the petrodollar system, including the 1972-1973 Geneva Agreement, which established nine major currencies as benchmarks for evaluating the dollar's value. Under this framework, official oil prices were adjusted in accordance with the dollar's depreciation relative to these currencies.

In 1999, Iran explored the possibility of selling oil in euros (Atta, p. 50), positioning the euro as a viable alternative to the dollar. This initiative aimed to bolster global financial stability, as the euro represented the first significant competitor to the U.S. dollar since its introduction in 1999. The euro accounts for approximately 20% of global foreign exchange reserves (Bhandari, 2019, p. 11). However, the euro's economic and political influence has diminished, particularly following the United Kingdom's withdrawal from the European Union, raising concerns about its long-term stability.

Furthermore, Iraqi President Saddam Hussein announced his intention to sell Iraq's crude oil exports in euros, a decision widely speculated to have contributed to the U.S.-led invasion of Iraq (Atta, p. 15).

Several Asian nations, particularly China and India, driven by their rapid economic expansion, have explored pricing oil in their respective local currencies. China's economy, equivalent to 6% of the U.S. economy in 1990, had expanded to 63% by 2017. Similarly, India’s economy grew from 5% to 13% of the U.S. economy during the same period.

These two nations have become significant actors in the global oil market. China currently holds the position of the world’s second-largest oil importer and consumer, while India ranks as the second-largest importer and third-largest consumer. The United States, while the world's largest oil consumer, is not the largest importer due to substantial oil production (Bhandari, 2019, p. 11). China and Russia have twice executed oil trade transactions using their local currencies. The initial transaction occurred in 2014, involving a currency exchange of 150 billion yuan ($24.5 billion) (Atta, p. 50)Subsequently, a portion of China and Russia's oil trade shifted away from the U.S. dollar in favor of their national currencies.

These currency swap arrangements yielded several positive economic outcomes:

Increased Chinese exports to Russia, strengthening bilateral economic ties.

Provided an alternative to Western sanctions imposed on Russia, mitigating economic constraints for both nations.

China's increasing economic prominence has positioned it to challenge the U.S. in various sectors, including its endeavors to internationalize the yuan within the global oil trade (Bhandari, 2019, p. 12).

At the Asia-Pacific Economic Cooperation (APEC) Summit, Russian President

Vladimir Putin advocated for the utilization of national currencies in energy trade, citing the need to mitigate market instability caused by U.S. dollar dominance. He asserted: "If we can finalize major deals in this regard, the influence of the petrodollar on global oil markets will decline" (Salama, 2015, p. 61).

Russia's second significant step towards de-dollarization arose in response to the economic ramifications of the Ukraine crisis and heightened geopolitical tensions. As previously noted, this crisis disrupted the global economy, leading international organizations, governments, and major corporations to implement restrictions on trade and financial transactions with Russia.

This strategy sought to utilize oil trade as a geopolitical instrument in support of U.S. foreign policy objectives (Siwan, 2016, pp. 119-120). These measures included:

A U.S. ban on Russian oil and gas imports.

A UK announcement of plans to phase out Russian oil imports commencing in 2022.

Suspension of operations by major international oil companies in Russia.

Boycotts of Russian oil by numerous traders (Studies, 2022, p. 43)

During the period of U.S. sanctions against Iran, India facilitated payments for Iranian crude oil in rupees via Turkish and European banks, thereby circumventing the U.S. financial system (Bhandari, 2019, p. 12). This arrangement, however, proved detrimental to Iran, as the substantial accumulation of Indian rupees constrained its purchasing power, limiting expenditures to Indian goods. This case study illustrates that such mechanisms are sustainable only in the short term and are most efficacious for nations with substantial bilateral trade volumes.

Concurrently, amidst U.S. sanctions imposed on Venezuela, the country attempted to circumvent restrictions on its oil industry through the introduction of a cryptocurrency designated "Petro".

In broader terms, oil-exporting nations targeted by U.S. sanctions have typically prioritized the cultivation of alternative markets rather than the development of entirely novel financial infrastructures (Bhandari, 2019). Although these alternative strategies have provided some measure of mitigation, Venezuela's initiative underscored the potential for a system independent of the U.S. dollar and demonstrated the existence of a receptive market should a transition away from the petrodollar materialize.

Saudi Arabia, Kuwait, the UAE, and Qatar—prominent actors within the global petroleum industry—maintain their respective national currencies pegged to the U.S. dollar. This practice reinforces the U.S. dollar's dominance in both oil valuation and international commerce.

Decoupling these currencies from the dollar could afford these nations greater autonomy in petroleum pricing and potentially liberate oil markets from dollar dependency (Bhandari, 2019, p. 8). However, considering their integration within global financial markets and the interconnectedness of financial systems and international trade (AlDakhil, 2011), such a policy shift would engender substantial

economic ramifications. Historical efforts to denominate oil in currencies other than the dollar have consistently underscored the critical role of oil pricing mechanisms in shaping the global economic landscape. Although transitioning away from the petrodollar system constitutes a strategic objective, its realization necessitates the fulfillment of several conditions, which are summarized below:

Comprehensive research and analysis: In-depth studies of alternative pricing mechanisms are required at the international, regional, and local levels (Mouri, 2009-2010, p. 181).

Economic, political, and military power: Global economic and political influence, comparable to China's ascendance, is necessary to preclude outcomes similar to the Iraq experience.

Financial and infrastructural readiness: Robust financial systems and infrastructure must be established to facilitate the transition, learning from Venezuela's experience

Diverse and stable trade partnerships: A broad network of established trade partners is essential to mitigate economic instability, as exemplified by Indias.

Cooperation between oil exporters and importers: Arab nations, as principal oil suppliers, must decouple their currencies from the dollar and pursue viable alternatives.

Various studies suggest three potential approaches for replacing the petrodollar :

- ✓ **Establishing a Robust International Reserve Currency:**

A viable replacement for the dominant global currency must satisfy critical international benchmarks, including acceptability, stability, trust, and liquidity. Crucially, the issuing nation must possess a robust and stable economy. While the euro was initially considered a potential candidate in 1999, subsequent sluggish economic growth within the European Union diminished its prospects. The Chinese yuan subsequently emerged as a more compelling alternative, largely attributable to China's sustained economic stability. However, China's substantial economic interdependence with the United States, its primary trading partner, generates an indirect reliance on the dollar, thereby constraining the yuan's autonomy.

- ✓ **Utilizing Local Currencies :**

The feasibility of conducting oil transactions in local currencies necessitates broad diversification of global trade to ensure seamless execution. While such transactions can augment foreign exchange reserves, these reserves may be restricted to utilization within specific bilateral partnerships. Pertinent case studies illustrate this challenge such as Iran-India & Russia-China.

- ✓ **Implementing a Multi-Currency Basket Strategy:**

This strategic model necessitates both economic independence and stability within participating nations, as well as the de-dollarization of their respective currencies. The Gulf Cooperation Council (GCC), notably Saudi Arabia and its constituent states.

5. Conclusion

The pricing of oil in U.S. dollars was established through a structured and strategic process, rendering its dismantling increasingly challenging in the short term, particularly given the United States' growing economic and political influence. Despite various global events impacting oil prices and the global oil market over time, these events have not fundamentally altered oil pricing mechanisms. Absent a shift in existing regulations, strategies, and policies adopted by both oil-exporting and importing nations, these mechanisms are likely to persist especially considering the continued lack of a viable alternative to oil itself, which retains the potential to instigate change should producing countries choose to act.

China, as the largest oil importer, has explored alternatives to dollar-based pricing. Notwithstanding the strength and stability of the Chinese yuan, currently the most viable alternative to the dollar following the European Union's economic slowdown, China’s endeavors have not substantially disrupted the established system. Similarly, Russia’s attempt to price oil in its local currency which garnered considerable attention amidst the Ukraine war represented one of the more impactful efforts to date. However, this initiative failed to secure support from oil-producing nations, as the world remained focused on recovering from the repercussions of the COVID-19 crisis and addressing pre-existing political and economic challenges within the global system.

Furthermore, the absence of any initiative from Arab oil-producing countries to utilize oil as leverage against Western powers whether through threats of supply reductions or a temporary transition to an alternative pricing system has solidified the continuity of the petrodollar system. Even in the context of mass atrocities in Gaza, no attempts have been made to replicate the 1973 oil embargo strategy.This suggests that the prospect of replacing the dollar in oil pricing, even in the long term, remains limited.

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