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## The Drop in Oil Prices: Global and Local Ramifications

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March 2016

### **Economic Research Unit**

Credit Libanais Headquarters

Adlieh

Beirut, Lebanon

Tel +961.1.608000

Fax +96.1.608231

[research@cl.com.lb](mailto:research@cl.com.lb)

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### SYNOPSIS OF TERMS

<b>"API"</b>	American Petroleum Institute
<b>"bbl/day"</b>	Barrels per Day
<b>"BRIC"</b>	Brazil, Russia, India, and China
<b>"CAGR"</b>	Compounded Annual Growth Rate
<b>"CAS"</b>	Central Administration of Statistics
<b>"CPI"</b>	Consumer Price Index
<b>"EDL"</b>	Electricité du Liban
<b>"EIA"</b>	U.S. Energy Information Administration
<b>"FDI"</b>	Foreign Direct Investment
<b>"GCC"</b>	Gulf Cooperation Council
<b>"GDP"</b>	Gross Domestic Product
<b>"IEA"</b>	International Energy Agency
<b>"IMF"</b>	International Monetary Fund
<b>"LBP"</b>	Lebanese Pound
<b>"MENA"</b>	The Middle East and North Africa
<b>"MOF"</b>	The Lebanese Ministry of Finance
<b>"OECD"</b>	Organization for Economic Co-operation and Development
<b>"OAPEC"</b>	The Organization of Arab Petroleum Exporting Countries
<b>"OPEC"</b>	Organization of Petroleum Exporting Countries
<b>"ORP"</b>	The OPEC Reference Basket Price
<b>"S&amp;P"</b>	Standard and Poor's

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<b>“\$”</b>	The United States Dollar
<b>“UAE”</b>	The United Arab Emirates
<b>“USD”</b>	The United States Dollar
<b>“WCS”</b>	The Western Canadian Select
<b>“WTI”</b>	The West Texas Intermediate
<b>“YTD”</b>	Year to Date

# The Drop in Oil Prices: Global and Local Ramifications

## I. OVERVIEW ON THE OIL COMMODITY

Dubbed as the black gold, the oil commodity is perceived as an indispensable energy source fuelling electricity production, heating instruments, the chemical and petrochemical industry, and the vast majority of transport vehicles (cars, ships, airplanes, etc.) around the globe. Due to its vital performance, oil has been used as a political and economic weapon on several occasions, with the oil embargo imposed by Arab states during the year 1973 amidst the Arab-Israeli war causing ripple effects worldwide, quadrupling the price of the oil barrel and forcing western countries to adopt harsh oil rationing measures in an endeavour to cope with sharp drop in oil supply. Fluctuations in oil prices also reflect a picture about the global economy, having mixed effects on oil-importing and oil-exporting countries. Despite the intensive research that has been conducted worldwide on alternative energy sources (solar, wind, biomass, ethanol biofuels, geothermal, hydrogen, etc.), oil is still widely used around the globe for several reasons, namely the ease of transporting it (because of its liquid form), its high heating value (high energy density), the fact that it is easy to produce and refine, and finally being a constant source of energy unlike wind and solar power. The following tables draw a comparison between oil and other renewable and non-renewable energy resources currently in use:

Type of Energy	Crude Oil	Natural Gas	Nuclear Power	Coal
Advantages	<ul style="list-style-type: none"><li>• Easy to transport and use because of its liquid form</li><li>• High energy density</li><li>• Relatively inexpensive</li></ul>	<ul style="list-style-type: none"><li>• Less polluting than oil</li><li>• High energy density</li></ul>	<ul style="list-style-type: none"><li>• No atmospheric emissions</li><li>• Fuel can be recycled</li><li>• Low cost power</li></ul>	<ul style="list-style-type: none"><li>• Versatile</li><li>• Relatively inexpensive</li><li>• Can be used to produce ultra-clean fuel</li><li>• Ash can be used for concrete and roadways</li></ul>
Disadvantages	<ul style="list-style-type: none"><li>• Finite resources</li><li>• Oil drilling jeopardizes the environment</li><li>• Oil transportation can lead to oil spills</li><li>• Oil burning leads to carbon emissions</li></ul>	<ul style="list-style-type: none"><li>• Finite resources</li></ul>	<ul style="list-style-type: none"><li>• Risk of disaster (Chernobyl)</li><li>• Problem with handling waste</li></ul>	<ul style="list-style-type: none"><li>• Coal mining mars the landscape</li><li>• Reduced energy density</li><li>• Transport is difficult due to solid nature</li></ul>

Source: Credit Libanais Economic Research Unit

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Type of Energy	Source and Mechanism	Advantages	Disadvantages
<b>Solar</b>	Sunlight is captured in solar panels and converted into electricity.	Potentially infinite energy supply.	Manufacturing and implementation of solar panels can be costly.
<b>Wind</b>	Wind turbines turn wind energy into electricity	Potentially infinite energy supply.	Manufacturing and implementation of wind farms can be costly.
<b>Tidal</b>	The movement of tides drives turbines.	Ideal for islands. Potential to generate a lot of energy. Can also help prevent flooding.	Construction of barrage is very costly. Only a few locations are suitable. Can have a negative impact on wildlife. May reduce tidal flow and impede flow of sewage out to sea.
<b>Geothermal</b>	Steam stemming from the earth in volcanic regions can be used for heating or to power turbines creating electricity.	Potentially infinite energy supply.	Can be expensive to set up and only works in areas of volcanic activity. Geothermal and volcanic activity might calm down, leaving power stations redundant.
<b>Hydroelectric Power</b>	Energy harnessed from the movement of water through rivers, lakes and dams.	Creates water reserves as well as energy supplies.	Costly to build. Can cause the flooding of surrounding communities and landscapes.
<b>Biomass &amp; Wood</b>	Trees, decaying plants or animal waste can be burned to provide heat, or electricity	A cheap, sustainable, and readily available energy source	When burned, it gives off atmospheric pollutants, including greenhouse gases.

Source: Credit Libanais Economic Research Unit

### A. Main Oil Producers and Consumers

#### 1. Major Producers

Global production of petroleum and other liquids has been on a steady rise over the 2010-2014 period to reach 92.35 million barrels per day (bbl/day) during the year 2014, mainly in the light of the discovery of new techniques and technologies in the oil production field. More particularly, the United States (ranked third globally in daily oil production) increased its daily production from around 9.70 million bbl/day in 2009 to some 14.02 million bbl/day in 2014 (CAGR of 7.66%), leapfrogging Saudi Arabia and Russia in the process to become the largest oil producer, on the back of the shale revolution. It is worth noting, in this context, that the "shale revolution" is the fruit of advances in oil and natural gas production technology, representing a new combination of horizontal drilling and hydraulic fracturing techniques<sup>1</sup>. Iraq also managed to increase its production significantly over the covered period (CAGR of 7.00% over the 2010-2014 period) to reach 3.36 million bbl/day in the year 2014, as its oil sector continues to recover from the repercussion of decades of wars and sanctions. Iran, on the other hand, witnessed a severe drop in its oil production as of the year 2012, as international sanctions on its oil production kicked in. More particularly, Iran's oil production dwindled from 4.2 million bbl/day in the year 2010 to 3.37 million bbl/day in the year 2014, suffering as such a negative CAGR of 4.46%. However, the international community will start reducing said sanctions (with the ultimate goal of abolishing them) as of the first half of the year 2016, allowing as such Iran to produce some 0.8 million additional bbl/day<sup>2</sup>.

<sup>1</sup> Brown, Stephen, and Mine Yucel. "The Shale Gas and Tight Oil Boom: U.S. States' Economic Gains and Vulnerabilities." *Council on Foreign Relations*. Council on Foreign Relations, 1 Oct. 2013. Web. 11 Jan. 2016.

<sup>2</sup> Blas, Javier. "Iranian Oil Goes Back on the Market." *Bloomberg.com*. Bloomberg, 5 Nov. 2015. Web. 11 Jan. 2016.

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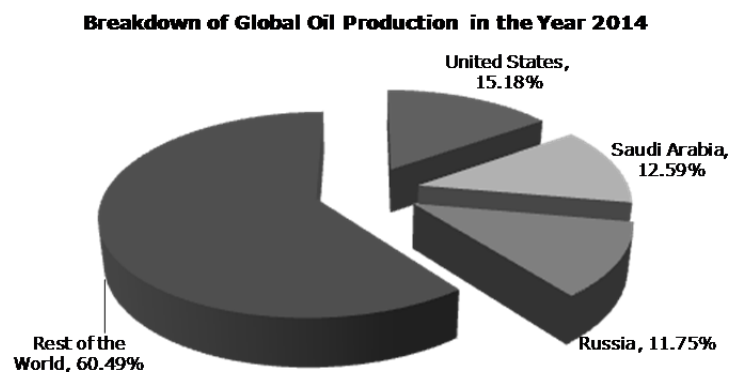
### Top 10 Producers of Total Petroleum and Other Liquids (000 Barrels per Day)

Country	2010	2011	2012	2013	2014	CAGR
United States	9,696	10,128	11,119	12,343	14,021	7.66%
Saudi Arabia	10,908	11,470	11,841	11,702	11,624	1.28%
Russia	10,279	10,402	10,589	10,758	10,847	1.08%
China	4,377	4,393	4,465	4,561	4,598	0.99%
Canada	3,442	3,597	3,856	4,073	4,383	4.95%
United Arab Emirates	2,815	3,216	3,401	3,444	3,474	4.30%
Iran <sup>1</sup>	4,243	4,215	3,520	3,194	3,377	-4.46%
Iraq	2,398	2,624	2,979	3,051	3,364	7.00%
Brazil	2,723	2,699	2,669	2,711	2,966	1.72%
Mexico	2,979	2,960	2,941	2,915	2,812	-1.15%
<b>Total (Global)</b>	<b>86,727</b>	<b>87,399</b>	<b>89,508</b>	<b>90,165</b>	<b>92,350</b>	<b>1.26%</b>

(1) Iran's production figures over this period were curbed by the sanctions imposed by the international community on its oil exports

Source: EIA, Credit Libanais Economic Research Unit

Altogether, and as depicted in the following chart, the top 3 world producers (the United States, Saudi Arabia and Russia) accounted for circa 40% of total oil production in the year 2014, in comparison with 35.61% in the year 2009.



## The Drop in Oil Prices: Global and Local Ramifications

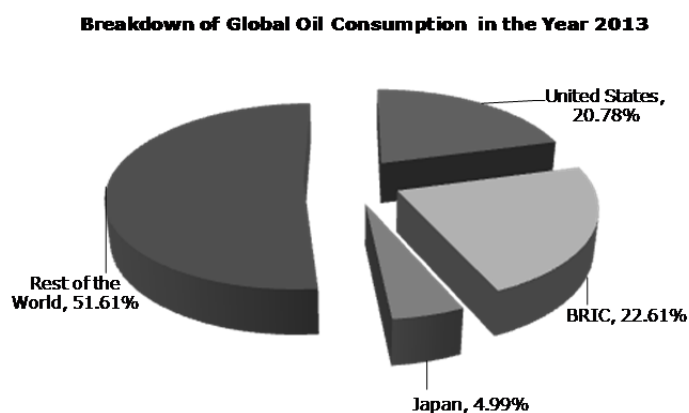
### 2. Major Consumers

Global oil consumption rose shyly over the 2010-2013 period, increasing from 88.21 million bbl/day in the year 2010 to 91.25 million bbl/day in the year 2013, registering as such a CAGR of 0.85% over the period. It is worth noting, in this perspective, that global oil production and consumption figures do not coincide, owing to the fact that governments resort to digging in their oil reserves or storing additional oil reserves, and this on the back of a variety of factors. An analysis of global oil consumption reveals that industrial behemoths U.S.A. and China are by far the largest two global consumers of oil, consuming 18.96 million bbl/day and 10.48 million bbl/day respectively, with China slowly closing the gap with the U.S. and registering the highest CAGR (4.06%) across the top 10 global oil consumers over the 2010-2013 period. It is also worth noting that BRIC (Brazil, Russia, India, and China) economies occupy four positions of the top 6 global oil consumers worldwide.

Top 10 Consumers of Total Petroleum and Other Liquids (000 Barrels per Day)						
Country	2010	2011	2012	2013	2014	CAGR (2010-2013)
United States	19,180	18,882	18,490	18,961	19,035	-0.29%
China	8,938	9,504	10,175	10,480	N.A	4.06%
Japan	4,429	4,439	4,697	4,557	4,350	0.71%
India	3,305	3,461	3,618	3,660	N.A	2.58%
Russia	3,135	3,422	3,445	3,493	N.A	2.74%
Brazil	2,699	2,777	2,923	3,003	N.A	2.70%
Saudi Arabia	2,580	2,761	2,882	2,961	N.A	3.50%
Germany	2,467	2,392	2,389	2,435	2,396	-0.33%
Canada	2,326	2,357	2,403	2,374	2,395	0.51%
Korea, South	2,269	2,259	2,322	2,328	2,340	0.64%
<b>Total (Global)</b>	<b>88,214</b>	<b>89,126</b>	<b>90,391</b>	<b>91,251</b>	<b>N.A</b>	<b>0.85%</b>

Source: EIA, Credit Libanais Economic Research Unit

As depicted by the below graph, the U.S.A, Japan, and BRIC economies accounted for nearly half of the global oil consumption in the year 2013.





## The Drop in Oil Prices: Global and Local Ramifications

### B. Main Oil Exporters and Importers

#### 1. Major Exporters

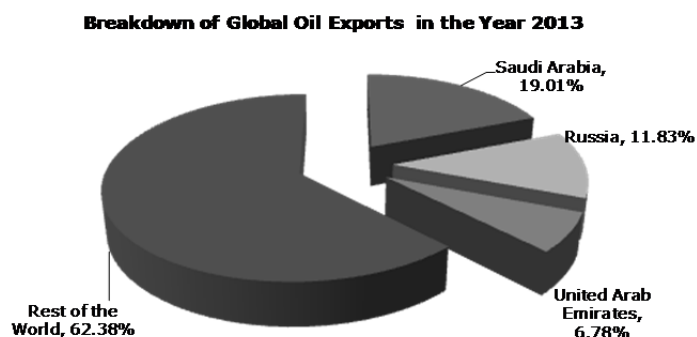
Oil exports remained relatively stable over the 2009-2013 period, standing at 39.83 million bbl/day in the year 2013. Saudi Arabia, the world's second largest oil producer, is by far the largest oil exporter globally, a position it has held since the year 1990, and this on the back of its relatively low consumption needs. The world's largest oil producer being the United States, on the other hand, does not even make the list of the top 10 exporters, as its production is mainly geared towards its local consumption and shoring up its reserves. It is also worth noting that the below list mainly comprises developing countries where industrial consumption of oil is relatively low. Finally, it is worth highlighting that Iran is expected to become one of the largest 10 exporters of oil once the aforementioned sanctions are lifted, bearing in mind that it used to export some 2.54 million bbl/day prior to the sanctions being imposed on its oil exports back in 2012.

**Top 10 Exporters of Total Petroleum and Other Liquids (000 Barrels per Day)**

Country	2009	2010	2011	2012	2013	CAGR
Saudi Arabia	6,268	6,644	7,218	7,557	7,571	3.85%
Russia	4,967	4,977	4,786	4,757	4,710	-1.06%
United Arab Emirates	1,953	2,103	2,457	2,445	2,701	6.70%
Iraq	1,906	1,890	2,166	2,423	2,390	4.63%
Nigeria	2,160	2,464	2,377	2,368	2,193	0.30%
Kuwait	1,348	1,430	1,816	2,070	2,058	8.83%
Canada	1,486	1,441	1,675	1,746	2,018	6.31%
Venezuela	1,608	1,562	1,553	1,725	1,937	3.79%
Angola	1,770	1,683	1,543	1,663	1,669	-1.16%
Mexico	1,312	1,460	1,421	1,333	1,271	-0.63%
<b>Total (Global)</b>	<b>40,200</b>	<b>41,032</b>	<b>40,444</b>	<b>41,107</b>	<b>39,830</b>	<b>-0.18%</b>

Source: OPEC, Credit Libanais Economic Research Unit

The top three oil exporters, namely Saudi Arabia, Russia, and the U.A.E., accounted for nearly 37% of the global oil exports activity during the year 2013. This is further highlighted by the below chart:



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### OPEC

The Organization of Petroleum Exporting Countries (OPEC) was established in Baghdad during the month of September 1960 and is currently headquartered in Vienna, Austria. OPEC currently (January 2016) comprises 13 members, namely its five founding members (Saudi Arabia, Iraq, Iran, Kuwait, and Venezuela) in addition to Algeria, Angola, Ecuador, Indonesia, Libya, Nigeria, Qatar, and the United Arab Emirates. OPEC was initially formed in order to establish a state control over oil resources, at a time when the oil industry was dominated by a cartel of multinational companies named the seven sisters, and which comprised back then Anglo-Persian Oil Company (now BP); Gulf Oil, Standard Oil of California (now Chevron); Texaco (later merged with Chevron); Royal Dutch Shell; Standard Oil of New Jersey (Esso/Exxon) and Standard Oil Company of New York (Socony)<sup>3</sup>. OPEC currently controls circa 40% of global oil exports and are host to some 73% of the world's proven oil reserves. This is further depicted in the following table:

Country	Membership Years	Oil Production (000 bbl/day)	Proven Reserves (000 bbl)
Algeria	1969–	1,721	12,200,000
Angola	2007–	1,756	9,060,000
Ecuador	1973–1992, 2007–	556	8,240,000
Indonesia	1962–2008, 2016–	917	3,740,000
Iran	1960	3,377	157,300,000
Iraq	1960	3,364	140,300,000
Kuwait	1960	2,767	104,000,000
Libya	1962–	516	48,470,000
Nigeria	1971–	2,428	37,140,000
Qatar	1961–	2,055	25,240,000
Saudi Arabia	1960	11,624	268,350,000
United Arab Emirates	1967–	3,474	97,800,000
Venezuela	1960	2,685	297,740,000
<b>OPEC Total</b>		<b>37,240</b>	<b>1,209,580,000</b>
<b>World Total</b>		<b>92,362</b>	<b>1,655,560,000</b>
<b>OPEC Share</b>		<b>40.00%</b>	<b>73.00%</b>

Source: EIA, OPEC, Wikipedia, Credit Libanais Economic Research Unit

## 2. Major Importers

The top half of the major importers table is almost similar to the top half of the major consumers table with the exception of Russia, which mainly satisfies its consumption via its domestic production. It is also worth noting that the United States has been gradually reducing its reliance on oil imports amid an increased local production in the light of the shale boom. In details, U.S. oil production in the year 2014 stood at its highest level since the early 1970s, with the U.S. managing to lower its oil imports from 60% of its supply needs in the year 2004 to just 27% in the year 2014<sup>4</sup>. The bottom half of the major importers table is mainly occupied by industrial European countries with poor natural resources.

<sup>3</sup> "OPEC." Wikipedia. Wikimedia Foundation, 13 Jan. 2016. Web. 13 Jan. 2016.

<sup>4</sup> "America's Shale Boom Reduced Oil Prices and U.S. Oil Imports - IER." IER. 19 Feb. 2015. Web. 13 Jan. 2016.

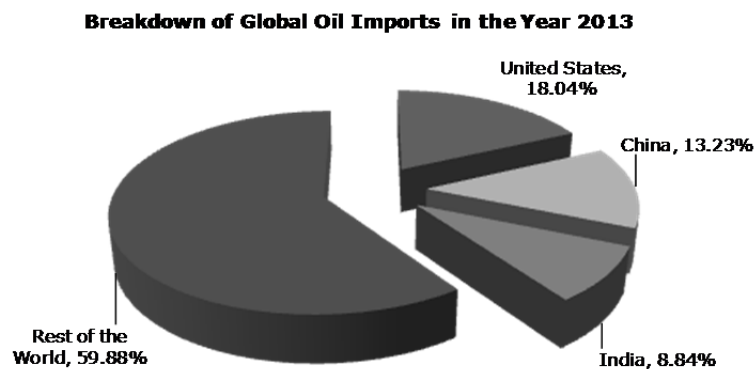
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### Top 10 Importers of Total Petroleum and Other Liquids (000 Barrels per Day)

Country	2009	2010	2011	2012	2013	CAGR
United States	9,631	9,734	8,914	8,492	7,713	-4.34%
China	4,112	4,806	5,074	5,424	5,658	6.59%
India	3,216	3,158	3,360	3,559	3,782	3.30%
Japan	3,416	3,441	3,558	3,458	3,408	-0.05%
South Korea	2,324	2,378	2,521	2,555	2,450	1.06%
Germany	1,979	1,883	1,827	1,882	1,825	-1.61%
Italy	1,541	1,585	1,453	1,381	1,179	-5.21%
Spain	1,056	1,059	1,054	1,183	1,168	2.04%
France	1,442	1,295	1,294	1,143	1,110	-5.10%
United Kingdom	1,060	964	1,009	1,081	1,011	-0.94%
<b>Total (Global)</b>	<b>43,372</b>	<b>44,075</b>	<b>43,658</b>	<b>44,176</b>	<b>42,759</b>	<b>-0.28%</b>

Source: OPEC, Credit Libanais Economic Research Unit

The United States, China, and India accounted for a combined share of circa 40% of global oil imports in the year 2013.



### II. OIL PRICE FLUCTUATIONS

#### A. What Defines Oil Prices

##### 1. Main Factors

As is the case with most assets and commodities, the price of oil is generally determined according to demand and supply dynamics. Demand for oil is mainly dependent upon the various countries' oil consumption needs (including the need for oil in industrial production, electricity production, the transportation of merchandise, personal transportation, etc.) and macroeconomic conditions. A country's oil consumption needs can, however, be considered as somewhat stable on the short run given the inability to easily replace the machinery and equipment that function on oil and related products.

On the other hand, oil supply relies on a wide set of factors, namely the quantities of oil present on the territories of an oil-producing country, the location of the oil to be extracted, the availability of the required technologies for oil extraction and production, the cost of oil extraction and production (including the cost of investment in new machinery and technologies, the cost of operating such machinery, maintenance expenses, etc.), the legal and tax framework regulating oil extraction and production, and the nature and quality of the extracted oil, which is assessed according to its grade. Said grade is usually calculated according to the gravity (or density) of the extracted oil, also known as American Petroleum Institute (API) gravity, which consists of a measurement of the level of heaviness or lightness of a petroleum liquid compared to water, in addition to the heaviness of its sulfur content (from "sweet" (i.e. low levels of sulfur) to "sour" (i.e. high levels of sulfur)). This explains the existence of various oil prices at a time according to the nature and quality of extracted oil and all of the aforementioned supply-related factors. It is worth highlighting, in this context, that oil supply is also largely entwined with geopolitical and security events and conditions, noting that instabilities within oil-producing countries can disrupt oil supply and consequently swell oil prices. Similarly, many oil-exporting countries have historically halted their oil supply to specific countries during periods of bickering, inflating as such the price of oil. In parallel, both oil supply and demand can be affected by weather conditions and by the fluctuations witnessed on other markets such as the currency exchange market, equity market, and other commodities' markets, only to name a few.<sup>5</sup>

##### 2. Benchmarking

Given the existence of different prices for oil as previously mentioned, many oil-producing countries have resorted to benchmarking in an endeavor to provide interested investors with a reference price for selling or purchasing crude oil.

For instance, the Organization of Petroleum Exporting Countries (OPEC) has been calculating the OPEC Reference Basket Price (ORP) since the year 2005, which consists of the weighted average of prices of a selected set of petroleum blends from OPEC member countries. As of January

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<sup>5</sup> - The U.S. Energy Information Administration (EIA), Energy & Financial Markets, "What Drives Crude Oil Prices?"  
- The Telegraph, "How the price of oil is set - video explainer", by Oliver Duggan, video by James Armstrong, October 16, 2015

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2016, these petroleum blends include: Saharan Blend (Algeria), Girassol (Angola), Oriente (Ecuador), Minas (Indonesia), Iran Heavy (Islamic Republic of Iran), Basra Light (Iraq), Kuwait Export (Kuwait), Es Sider (Libya), Bonny Light (Nigeria), Qatar Marine (Qatar), Arab Light (Saudi Arabia), Murban (UAE), and Merey (Venezuela).<sup>6</sup>

In a similar context, the West Texas Intermediate (WTI) is a grade of crude oil extracted in the United States that is commonly used to benchmark the prices of light and sweet oil (in other words, oil of a light density and low levels of sulfur).

Another reference for the prices of light sweet oil is the Brent Crude or Brent Blend (which is, however, less light and sweet than the WTI), consisting of a set of crude oil blends from 15 different oil fields located in the North Sea. Brent Crude is most commonly used across Europe.

Other widely renowned benchmarks for oil pricing include the Edmonton Par (light and sweet crude oil), Western Canadian Select (WCS) (heavy and high TAN (acidic) crude oil), Dubai Crude (light and sour crude oil, and main Asian benchmark), and Urals Oil (a blend of heavy and sour oil from the Russian Urals and the Volga regions and light oil from Western Siberia), only to name a few.<sup>7</sup>

### **B. Historical Evolution of International Oil Prices**

Going down the history lane, several shocks seem to have stained the world's oil canvas, with the first shock having reportedly occurred in the early 1860s, and more specifically between the years 1862 and 1864 amid the eruption of the U.S. Civil War. The prices of oil, among other commodities, had skyrocketed throughout that era, further aggravated by the halting of supplies of turpentine from the South region of the United States and the implementation of a new tax on alcohol.

A roller-coaster journey followed suit, with many developments marking the oil industry's timeline, including the introduction of new oil-consuming machinery and equipment, the invention of new technologies for the extraction and production of oil, and many mutations in demand and supply dynamics, among others.

More notable events, however, were witnessed across the world in the 1950s, namely the freezing of oil prices between the years 1950 and 1953 under the umbrella of the Korean War, the implementation of international sanctions on Iran (which included the boycott of Iranian oil) in the year 1951, strikes organized by the labor force of the U.S. oil refinery between 1952 and 1953, and armed conflicts in Egypt spurred by the nationalization of the Suez Canal in 1956, blocking the canal, which was also accompanied by the disruption of the Iraq Petroleum

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<sup>6</sup> The Organization of the Petroleum Exporting Countries (OPEC), OPEC Basket Price

<sup>7</sup> - The U.S. Energy Information Administration (EIA), Today in Energy, "Benchmarks play an important role in pricing crude oil", October 28, 2014

- The Oxford Institute for Energy Studies, "Oil Markets in Transition and the Dubai Crude Oil Benchmark", October 2014

- Top Oil News, Oil Prices, "Urals Oil Price"

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Company's pipeline pumping stations, leading to a significant contraction in oil production from the Middle East region during that particular year.

Despite the occurrence of various shocks across history, the 1973 oil crisis was labeled as "*the first oil shock*", erupting in October 1973 and lasting until March 1974, during which the then-members of the Organization of Arab Petroleum Exporting Countries (OAPEC) declared an oil embargo against a set of countries that were deemed as supportive to Israel, of which the United States, Canada, the United Kingdom, Japan, and the Netherlands, in light of the Yom Kippur War. Said embargo had led to a more-than-threelfold rally in the real price of a barrel of oil and to sizeable economic woes in many nations across the globe for the near-term.

A couple of years later, the Iranian Revolution of 1979 fostered what was denominated as "*the second oil shock*", with massive strikes and protests shaking the Iranian territories, the Shah of Iran fleeing the country, and Sheikh Ayatollah Khomeini taking power. Consequently, oil production in Iran sank substantially, swelling oil prices and prompting the Kingdom of Saudi Arabia and other OECD members to spur their production in an endeavor to compensate for the drop in Iranian oil production. Tensions between Iran and Iraq emerged shortly after, resulting in another round of oil supply disruptions and oil price increase between 1980 and 1981.

The following period saw a downward correction in oil prices on the back of the dwindling international oil consumption levels throughout the 1980s as a response to the aforementioned oil shocks. As a result, the Kingdom of Saudi Arabia strived to fuel oil prices back up by intentionally reducing a sizeable chunk of its oil production to no avail, prompting them to drop their efforts and boost back their production levels. This further accentuated the contraction in oil prices during the concerned period.

The downturn in oil prices was interrupted in the year 1990 amid Iraq's invasion of Kuwait, dragging both countries' oil production levels down and inflating once again oil prices.

The 1990s were marked by a rapid technological progress around the world, a remarkable shift across societies from agriculture-oriented to modern industry-oriented, and the flourishing of many economies such as Eastern Asian nations, the thing which translated into a rally in global oil consumption and demand. This continued to lift international oil prices during that particular period, briefly interrupted by the economic and financial hurdle suffered by some Eastern Asian countries in late 1997 and 1998, before recovering shortly after.

The positive correction in oil prices was extended throughout the 2000s, peaking in June/July 2008 (above \$133 per barrel) before plunging in late 2008 (i.e. around \$41.44 per barrel in December 2008) amid the outbreak of the global financial crisis. Oil prices regained their gradual upturn in the aftermath of the crisis to hover between \$90 and \$120 a barrel during the 2010 - mid-2014 period. In fact, arctic blasts triggered oil supply shocks in North America and Europe in the year 2010, leading to an increase in oil prices. Said increase was further accentuated by the emergence of political unrest in Egypt in late 2010, followed by the growing turbulences in Libya, Yemen, and Bahrain in the year 2011. The wave of political and security instabilities across the MENA region during the subsequent years continued to add pressure on international oil prices, which surpassed the \$100 per barrel mark on several occasions by mid-2014.

## The Drop in Oil Prices: Global and Local Ramifications

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Ever since mid-2014, the world has been facing a contraction in oil prices, an issue which is tackled in details later in this paper.<sup>8</sup>

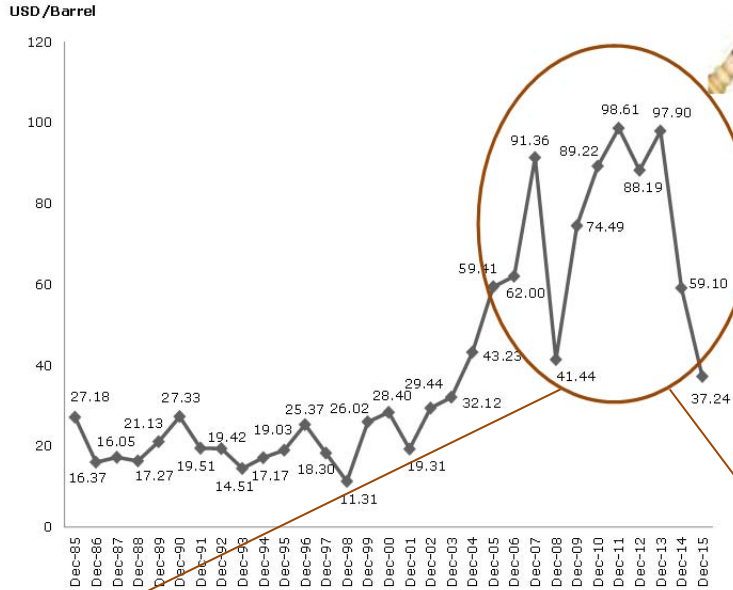
The following charts depict the historical evolution of international oil prices during the 1985-2015 era based on the West Texas Intermediate (WTI):

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<sup>8</sup> - National Bureau of Economic Research, NBER Working Paper Series, "*Historical Oil Shocks*", by James D. Hamilton, February 2011  
- Resources for the Future (RFF), "*Reflections on the Oil Shock of 40 Years Ago*", by Joel Darmstadter, April 11, 2014

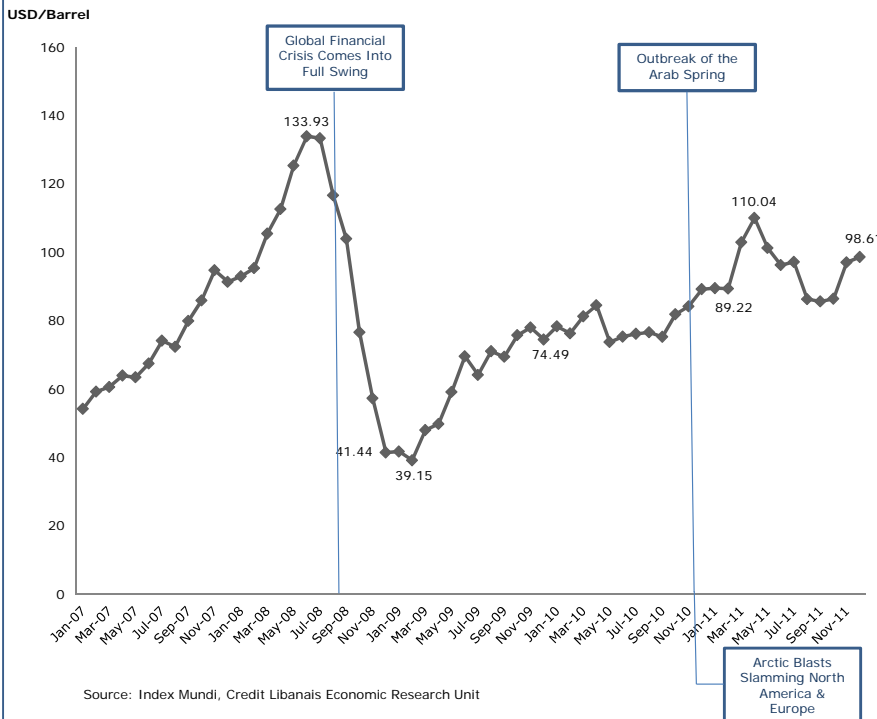
# The Drop in Oil Prices: Global and Local Ramifications

Historical Evolution of the WTI - End of Year Prices



Source: Index Mundi, Credit Libanais Economic Research Unit

Evolution of the WTI in the 2007-2011 Period



Source: Index Mundi, Credit Libanais Economic Research Unit



## The Drop in Oil Prices: Global and Local Ramifications

### III. COUNTRIES MOST AFFECTED BY OIL SHOCKS

#### A. Balance of Trade

The impact of oil shocks (whether positive or negative) on countries' economies is mainly a function of their dependence on oil, the thing which is highlighted by the relative contribution of the oil commodity to their import/export bill and economic activity, rather than their absolute exports/imports of oil. In this context, countries are usually classified into five categories based on their dependence on fuel exports namely:

- **Monoculture exporters** (Share of fuel exports > 90% of total exports): Algeria, Azerbaijan, Iraq, Kuwait, Libya, Sudan and Venezuela;
- **Very high dependence** (between 80% & 90%): Nigeria, Oman, Qatar and Saudi Arabia;
- **High dependence** (between 60% & 80%): Bahrain, Colombia, Kazakhstan, Norway, Russia and the United Arab Emirates (U.A.E.);
- **Moderate dependence** (between 40 & 60 percent): Ecuador;
- **Limited dependence** (below 40 percent): Canada, Egypt and Paraguay.

Fuel Exports as a % of Merchandize Exports (Top 25 Countries)				
Country Name	2012	2013	2014	2013 Oil Dependency Category
Iraq	99.73	99.79	N.A.	
Venezuela	98.76	97.67	N.A.	
Algeria	97.14	96.72	95.90	
Brunei	95.75	96.53	92.54	
Kuwait	N.A.	94.22	N.A.	
Azerbaijan	93.42	92.99	92.64	
Qatar	N.A.	88.68	87.81	
Nigeria	84.04	87.62	N.A.	
Saudi Arabia	88.45	87.42	N.A.	
Oman	83.55	82.54	83.53	
Kazakhstan	70.56	76.25	77.81	
Yemen, Rep.	89.48	75.94	N.A.	
Congo, Rep.	78.90	75.71	N.A.	
Russian Federation	70.93	71.25	N.A.	
Colombia	69.64	69.43	N.A.	
Norway	70.00	67.44	64.45	
Bolivia	55.01	57.25	57.82	
Ecuador	57.89	57.02	53.10	
Ghana	52.69	43.11	N.A.	
Malta	45.18	42.48	43.06	
Mongolia	N.A.	41.67	27.87	
Greece	39.01	39.90	38.50	
Mozambique	27.81	33.46	30.04	
Kiribati	N.A.	32.46	N.A.	
Belarus	37.64	32.13	33.54	

Source: World Bank, Credit Libanais Economic Research Unit

## The Drop in Oil Prices: Global and Local Ramifications

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As depicted by the above table, several Arab countries (Iraq, Algeria, Kuwait, Qatar, Saudi Arabia and Oman) that lie above the high dependence category have witnessed their balance of trade suffer major setbacks on the back of the recent plunge in oil prices (see section titled “Repercussions of the Drop in Oil Prices”). Other non-Arab countries joining this list include Venezuela, Brunei, Azerbaijan and Nigeria.

On the other hand, and as depicted by the below chart, India, Malta and Tanzania, among others, will benefit on the balance of trade front from drops in the price of oil given that they are oil importing countries. It is worth noting, however, that Lebanon, although not included in the following list, suffers from a high fuel imports bill (representing some 25.00% of total merchandize imports) and will accordingly benefit from negative oil shocks.

### Fuel Imports as a % of Merchandize Imports (Top 10 Countries)

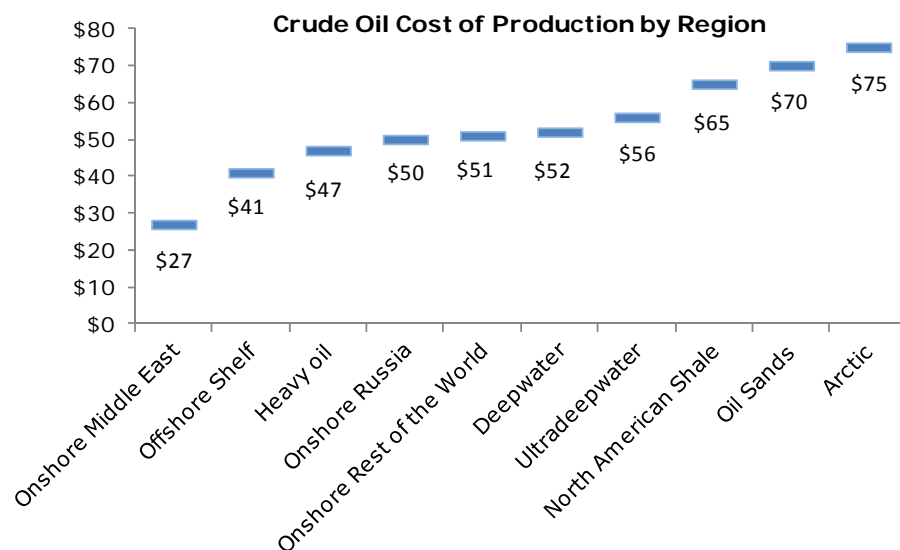
Country Name	2012	2013	2014
India	42.55	43.01	41.32
Malta	45.49	39.45	40.34
Tanzania	32.63	38.74	N.A.
Greece	37.61	37.30	34.37
Jamaica	36.28	36.37	33.20
Pakistan	36.56	35.14	31.30
Korea, Rep.	35.58	34.60	N.A.
Japan	34.11	33.82	31.90
Palau	35.89	33.05	N.A.
Guyana	26.48	31.97	30.80

Source: World Bank, Credit Libanais Economic Research Unit

## The Drop in Oil Prices: Global and Local Ramifications

### B. Economic Activity

Apart from their sizeable impact on import/export activity, oil shocks (whether positive or negative) can play a major role in shaping economic growth. A major indicator to gauge the impact of oil shocks on economic activity is the oil rent to GDP ratio. Oil rents are defined as the difference between the value of crude oil production at world prices and total costs of production. Oil rents vary by country depending on the costs incurred in the production process, with GCC countries enjoying large oil rents due to the fact that their oil is onshore and easy and cheap to produce, enjoying as such the lowest accounting breakeven prices. This is further depicted by the below chart:



















































Source: Rystad Energy, Morgan Stanley Commodity Research Estimates

In order for us to assess any potential impact of fluctuations in oil prices on Gross Domestic Product (GDP) dynamics, we will analyze the contribution to gross domestic product and accordingly we can highlight four main groups of oil producers:

- Countries with highest dependence on oil rents (> 30% of GDP): These include mainly Arab countries such as Kuwait, Libya, Saudi Arabia, Iraq and Oman.
- Countries with high dependence on oil rents (share of oil rents in GDP varying between 20% and 30%): This category is also mainly dominated by Arab countries such as Algeria, Qatar, U.A.E., in addition to Kazakhstan and Venezuela.
- Countries with moderate dependence (share of oil rents in GDP varying between 10% and 20% of GDP): This group includes large oil producers such as Russia and Nigeria who have an adequately diversified economy with a significant contribution of the non-oil sector.
- Countries with low dependence (share of oil rents less than 10% of GDP): This group includes countries such as Norway.

## The Drop in Oil Prices: Global and Local Ramifications

This is further highlighted by the following table:

Country Name	Oil Rents as a % of GDP			2013 Oil Rent to GDP Category	Legend	Category
	2011	2012	2013			
Kuwait	58.58	57.68	57.47			Highest Dependence
Congo, Rep.	65.60	62.96	56.83			High Dependence
Libya	45.75	56.61	44.19			High Dependence
Saudi Arabia	48.07	45.84	43.60			High Dependence
Iraq	48.24	45.15	42.88			High Dependence
Oman	40.08	36.10	34.55			High Dependence
South Sudan	N.A.	9.56	25.79			Moderate Dependence
Kazakhstan	30.40	27.17	23.76			Moderate Dependence
Venezuela, RB	29.92	23.81	23.62			Moderate Dependence
Brunei	28.68	27.75	23.56			Moderate Dependence
Qatar	29.92	26.01	23.39			Moderate Dependence
Chad	30.68	27.01	23.25			Moderate Dependence
Iran, Islamic Rep.	25.06	22.05	22.82			Moderate Dependence
United Arab Emirates	25.08	24.15	21.63			Moderate Dependence
Algeria	25.29	24.20	21.62			Moderate Dependence
Bahrain	21.18	17.91	17.07			Limited Dependence
Ecuador	19.66	17.50	16.19			Limited Dependence
Turkmenistan	22.78	18.93	16.06			Limited Dependence
Trinidad and Tobago	18.51	15.73	14.09			Limited Dependence
Russian Federation	16.10	14.87	13.74			Limited Dependence
Nigeria	19.12	16.50	13.61			Limited Dependence
Yemen, Rep.	22.51	16.75	11.13			Limited Dependence
Norway	10.80	9.44	8.34			Limited Dependence
Suriname	11.27	9.62	8.22			Limited Dependence

Source: World Bank, Credit Libanais Economic Research Unit

As outlined in the above table, most of oil-producing Arab countries (Kuwait, Libya, K.S.A., Iraq, Oman and Qatar) are likely to witness a sharp slowdown in economic activity as result of a downturn in oil prices, whereas the effect on other large international producers such as Russia, Nigeria and Canada (oil rents not exceeding 4% of GDP) will be mitigated due to the more diversified nature of their economies.

## The Drop in Oil Prices: Global and Local Ramifications

### C. Public Finances

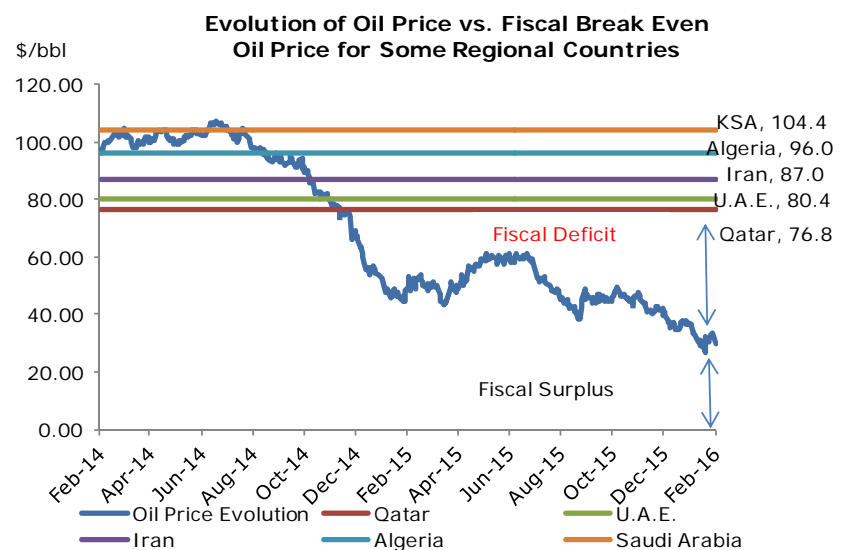
A final indicator that we would like to assess in this section is the impact of oil prices on fiscal balances. In details, oil revenues constitute a significant chunk of total budget revenues for most oil producing/exporting countries. It is worth noting, in this perspective, that government revenues from oil are usually threefold namely:

- A government share (usually standing at around 50%-60%) of net profits generated by oil production. This figure would be severely affected by any oil shocks since net profits are directly related to the price of oil.
- Royalty fees ranging between 5% and 12% on total oil production revenues. Needless to say that this figure will also be significantly affected by oil shocks.
- Corporate taxes levied on oil producing companies.

The following section depicts that GCC oil producers require high oil prices to achieve a fiscal breakeven. This is largely attributed to the fact that GCC governments have few revenue sources, bearing in mind that most of them are practically tax free (no corporate taxes, no income taxes, no Value Added Tax, etc.). More particularly, all countries with a fiscal breakeven oil price above the current price per oil barrel would be currently suffering from fiscal deficits, whereas countries that have a fiscal breakeven oil price which is below the current oil price (mainly oil exporting countries with little reliance on oil revenues) would be enjoying fiscal surpluses.

Country	Fiscal Breakeven Oil Price
Bahrain	\$138.1
Nigeria	\$122.7
Ecuador	\$120.0
Venezuela	\$117.5
Oman	\$110.0
Russia	\$105.2
Saudi Arabia	\$104.4
Algeria	\$96.0
Angola	\$90.0
Iran	\$87.0
Iraq	\$81.0
U.A.E.	\$80.8
Kuwait	\$78.4
Qatar	\$76.8

Source: Deutsche Bank, Credit Libanais Economic Research Unit



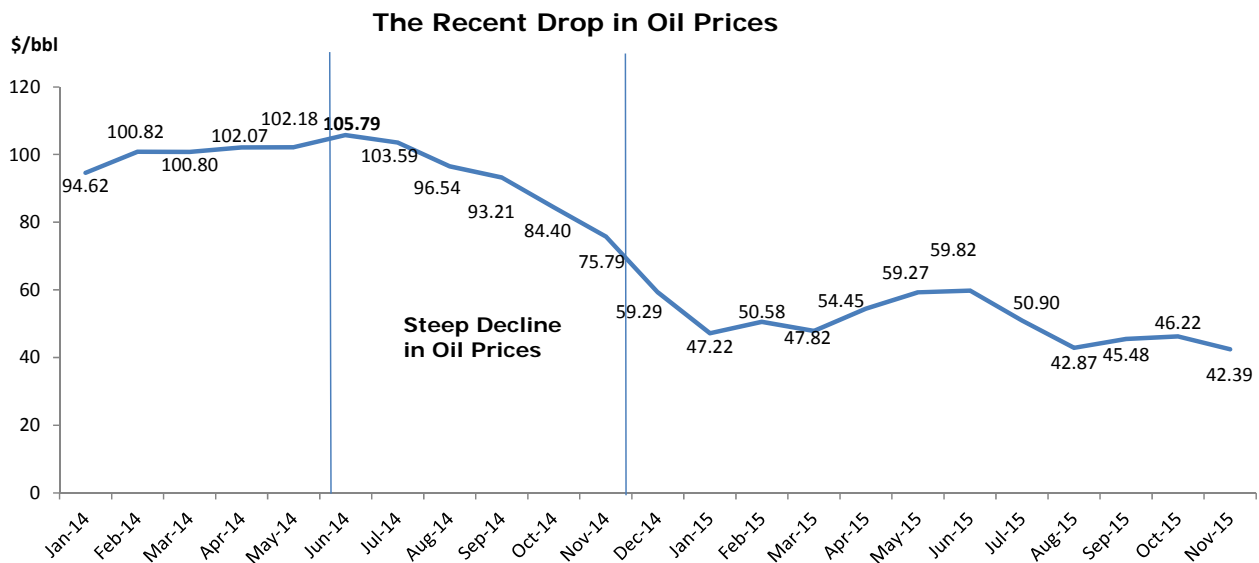
Source: Deutsche Bank Estimates, Credit Libanais Economic Research Unit

As far as oil importing countries are concerned, fiscal savings will be mainly indirect. Accordingly, the countries that will benefit the most on the budgetary front from drops in oil prices will be countries that provide fuel subsidies to their citizens and companies, as well as countries which publicly run electricity companies (such as Lebanon for instance).

# The Drop in Oil Prices: Global and Local Ramifications

## IV. THE LATEST DROP IN OIL PRICES

The recent drop in oil prices witnessed during the last couple of years was an extension to the non-consecutive episodes of oil price plunges during the last three decades. Oil prices started declining in June 2014, exiting the four-year period of stable prices and registering a steep drop (-43.96%) during the second half of the year from \$105.79 per barrel in June to \$59.29 per barrel in December. Oil prices maintained their downward spiral during the year 2015, yet at a slower pace than that of H2-2014. Currently (February 5, 2016), Brent crude oil prices stand at \$34.06 per barrel, around 68% lower than the H1-2014 figure and 43% lower than December 2014's figure.

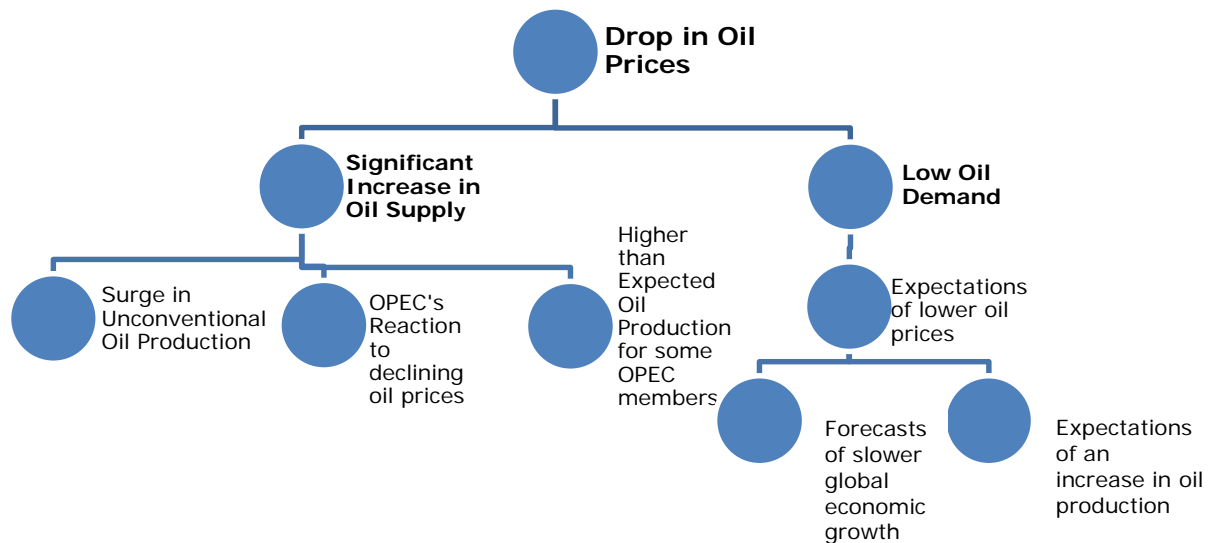


Source: EIA, Credit Libanais Research Unit

### A. Triggers Behind the Recent Drop

The year 2014 was marked by several events lifting oil supply to higher grounds and hindering oil demand, triggering a steep drop in oil prices. It is worth noting, however, that the significant increase in oil supply was the main reason behind the drop in oil prices since the year 2014.

## Triggers Behind the Drop in Oil Prices



### 1. Significant increase in Oil Supply

#### ➤ Increase of Unconventional Oil Production

Global oil markets witnessed a significant rise in supply in 2014 amid the increase in oil production, mostly unconventional oil which is extracted from synthetic oil, oil sands and shale formations, resulting in a downward correction in oil price levels. In fact, oil extraction in the United States stemming from unconventional sources of oil production increased significantly in the year 2014. According to EIA statistics, nearly half of the U.S. crude oil production (around 4.2 million barrels per day -49%-) is being produced from tight oil resources<sup>9</sup>. In addition, Canada came in fifth in terms of crude oil production in 2014, focusing primarily on synthetic crude oil produced from the oil sands of Alberta (i.e. unconventional oil), according to the EIA.

#### ➤ OPEC's Reaction to Declining Oil Prices

By deciding in its meeting held on November 27 2014 in Vienna to maintain oil production at the previous level of 30 million bbl/day, which was agreed upon on December 2011, the cartel of the international oil market, OPEC, did not put an end to the sharp downturn in oil prices. Hence, instead of focusing on lifting oil prices higher by cutting production, OPEC resorted to maintaining the level of production unchanged in an endeavor to gain a higher market share.

#### ➤ Higher than expected Oil Production for some OPEC Members

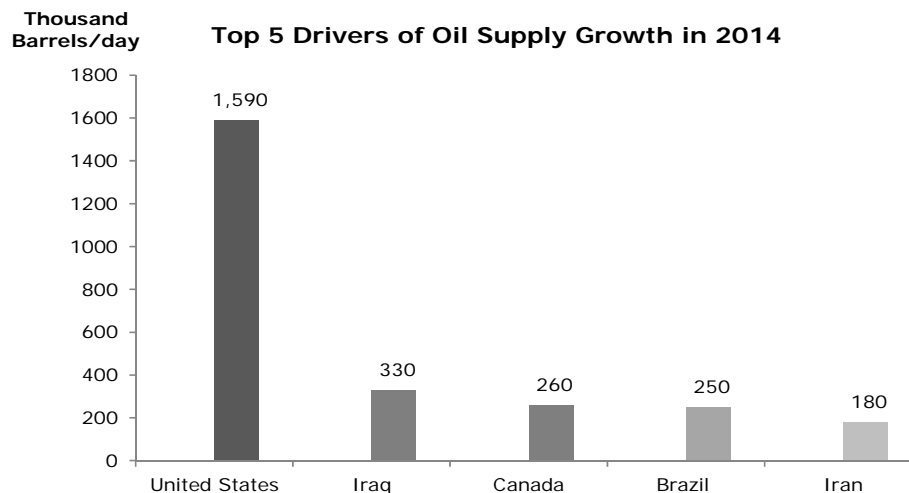
Unfavorable conditions surrounding some OPEC country members did not prevent them from keeping their oil production levels unaffected on the long-run. In fact, the Islamic State of Iraq and Syria (ISIS) attacks in Iraq in 2014 have hampered the country's oil production during July and August but the country managed to increase its oil production again by around 600 thousand

<sup>9</sup> Energy Information Administration (EIA), Annual Energy Outlook 2015

## The Drop in Oil Prices: Global and Local Ramifications

bbl/day from August to December, registering an all-time high of crude oil production in December (3.75 million bbl/day)<sup>10</sup>. Similarly, Libya was able to increase its production during the third quarter of 2014 by 0.5 million bbl/day despite the ongoing internal conflicts in the country<sup>11</sup>.

The main driver of oil supply growth for the year 2014 was the United States, which managed to produce around 1,590 thousand barrels per day, followed by Iraq (330 thousand barrels/day), Canada (260 thousand barrels/day), Brazil (250 thousand barrels/day), and Iran (180 thousand barrels/day).



Source: EIA, Credit Libanais Research Unit

### 2. Low Oil Demand

Global oil demand registered a shy 1.07% annual increase from 90.24 million bbl/day in 2013 to 91.21 million bbl/day in 2014. This comes as a result of the weakening oil demand in countries across Europe and the Pacific Asia regions which suffered oil demand contractions of 1.39% and 2.28% respectively.<sup>12</sup> The weakening demand for oil in these regions was driven by investors' expectations of lower oil prices in the future amid the forecasts of an increase in oil production and/or a slower global economic growth.

#### B. Repercussions of the Recent Drop

According to a World Bank report, a 45% supply-driven oil price drop (the average expected drop for the 2014-2015 period) is expected to cause a 0.7% to 0.8% increase in World GDP in the medium-term. The report also commented that since the oil commodity is a raw material used in the production process in various sectors, a plunge in its price induces a drop in the

<sup>10</sup> Energy Information Administration (EIA), Annual Energy Outlook 2015

<sup>11</sup> World Bank, "The Great Plunge in Oil Prices: Causes, Consequences and Policy Responses", March 2015

<sup>12</sup> OPEC, Monthly Oil Market Report, 16 March 2015



## The Drop in Oil Prices: Global and Local Ramifications

prices of various inputs, especially energy costs. Lower energy costs benefit various sectors, namely the transportation, petrochemicals and agriculture sectors. Suppliers can pass on lower production costs to consumers, the thing which increases real income, spurs spending and lifts global demand higher<sup>13</sup>.

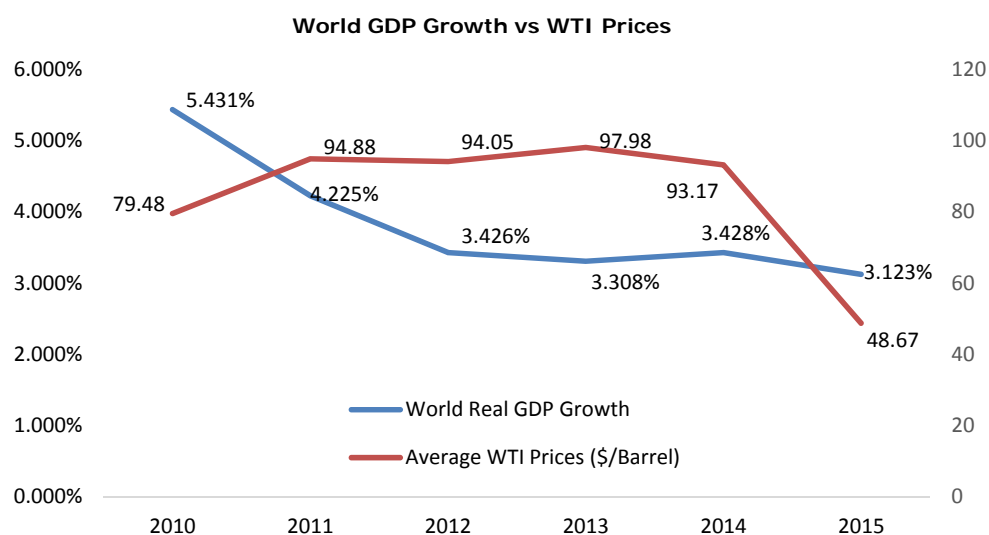
In addition, the drop in oil prices increases the wealth of oil-importing countries, which boosts again global demand given the higher propensity of oil-importing countries to consume compared to oil-exporting countries<sup>14</sup>.

The drop in oil prices initiated in 2014 benefited oil-importing countries, which witnessed an increase in fiscal and current account balances at the expense of slowing the activity of oil-exporting countries, especially those that rely heavily on oil revenues.

The following analysis portrays the evolution in the World's real GDP growth rates against the many episodes of fluctuations in the average WTI prices over the 2010-2015 period:

	2010	2011	2012	2013	2014	2015
<b>World Real GDP Growth</b>	5.431%	4.225%	3.426%	3.308%	3.428%	3.123%
<b>Average WTI Prices (\$/Barrel)</b>	79.48	94.88	94.05	97.98	93.17	48.67

Source: IMF, EIA



### 1. Oil-Exporting Countries

The drop in oil prices backfired on the fiscal and current account balances of oil-exporting countries. However, the impact of said drop varies from one country to another depending on government revenues' oil reliance. It is noticeable that the Gulf Cooperation Council countries have the largest dependence on oil given that around 80% of GCC government revenues emanate from oil operations. It is followed by the Sub-Saharan African countries (more than 72%), the Commonwealth of Independent States (more than 51%) and Latin American countries (33%).

<sup>13</sup> World Bank, "The Great Plunge in Oil Prices: Causes, Consequences and Policy Responses", March 2015

<sup>14</sup> World Bank, "The Great Plunge in Oil Prices: Causes, Consequences and Policy Responses", March 2015

## The Drop in Oil Prices: Global and Local Ramifications

### Government Revenues Dependence on Oil

Commonwealth of Independent States	> 51%
Sub-Saharan African Countries	>72%
Gulf Cooperation Council Countries	79.6% (on average)
Latin American Countries	33%

Source: Moody's Investors Service, Credit Libanais Economic Research Unit

Major Oil-Exporting Countries	Fiscal Balance (% of GDP)			Current Account Balance (% of GDP)		
	2013	2014(E)	2015(E)	2013	2014(E)	2015(E)
Norway	11.04	8.84	6.01	10.03	9.43	6.97
Canada	-2.71	-1.64	-1.66	-2.97	-2.10	-2.91
UK	-5.74	-5.67	-4.25	-4.48	-5.90	-4.74
Mexico	-3.74	-4.59	-4.00	-2.42	-1.94	-2.40
Russia	-1.28	-1.18	-5.68	1.64	3.20	5.01
Nigeria	-2.31	-1.96	-3.85	3.64	0.21	-1.80
Venezuela	-14.46	-14.96	-24.36	2.44	5.28	-3.01
	Arab Countries					
Saudi Arabia	5.79	-3.44	-21.57	18.20	10.31	-3.54
Kuwait	34.01	26.30	1.34	41.21	31.01	9.28
Oman	3.24	-1.54	-17.67	6.64	1.98	-16.88
Bahrain	-4.31	-5.75	-14.21	7.78	3.32	-4.77
Qatar	20.67	14.72	4.46	30.92	26.10	5.04
UAE	10.43	4.98	-5.47	18.44	13.68	2.88

Source: IMF, Credit Libanais Economic Research Unit

The majority of oil-exporting countries witnessed a setback in their fiscal balances and current account balances during the 2013-2015 period consequent to the drop in oil prices. For example, the fiscal balance of Saudi Arabia, one of the largest exporters of the oil commodity, witnessed a shift from a surplus of 5.79% of GDP in 2013 to an estimated deficit of 21.57% of GDP in 2015, with its current account surplus dropping from 18.20% of GDP in 2013 to an estimated 10.31% of GDP in 2014 before plunging to a deficit of 3.54% of GDP estimated for 2015.

In this context, the international rating agency Moody's Investors Service commented in its report released on October 19, 2015 on the declining growth in GCC countries witnessed by the 11% drop in the aggregate nominal hydrocarbon GDP during the 2012-2014 period as a result of the recent plunge in oil prices. It also added that the aggregate fiscal surplus contracted to 4% of regional GDP down from 14% with the combined current account surplus dropping to 14% of GDP down from 25%. In addition, the agency quoted the International Monetary Fund which estimated the loss in oil revenues for the GCC countries at around \$300 billion.

Furthermore, the drop in oil prices coupled with the expectations of an extended downturn in prices have prompted the international rating agency Standard & Poor's to downwardly revise its ratings for some GCC countries. For instance, S&P lowered on February 17, 2016 the long and short-term foreign and local currency credit ratings of the Kingdom of Saudi Arabia from A+ /A-1

## The Drop in Oil Prices: Global and Local Ramifications

to A-/A-2 and those of Bahrain from BBB-/A-3 to BB/B. Moreover, Moody's Investors Service, in its report titled: "Key Drivers of Rating Actions on 18 Issuers to Assess Impact of Sharp Fall in Oil Prices" and dated March 4, 2016, lowered the ratings of four countries, namely Azerbaijan (from Baa3 to Ba1), Bahrain (from Baa3 to Ba1), Republic of the Congo (from Ba3 to B1) and Oman (from A1 to A3) as a result of the steep drop in oil prices and placed them on review for further downgrade. In addition, 12 other countries were placed on review for downgrade, namely Abu Dhabi (Aa2), Kuwait (Aa2), Russia (Ba1), Qatar (Aa2), Angola (Ba2), UAE (Aa2), among others and the rating outlook of Venezuela was changed from "Stable" to "Negative".

### 2. Oil-Importing Countries

Most oil-importing countries witnessed an improvement in their current account and fiscal balances during the 2013-2015 period amid the drop in oil prices. For instance, Japan's current account surplus increased from 0.83% of GDP in 2013 to an estimate of 3.02% of GDP in 2015 with its fiscal deficit easing from 8.52% of GDP in 2013 to an estimated 5.93% of GDP in 2015. Similarly, Italy witnessed a contraction in its fiscal deficit from 2.95% of GDP in 2013 to an estimate of 2.69% in 2015 and an improvement in its current account surplus from 0.93% of GDP in 2013 to 2.03% estimated for 2015.

As far as Lebanon is concerned, however, the impact of the drop in oil prices had a mixed effect on public finances and current account balance. More specifically, the current account balance saw an improvement in its deficit from 26.75% of GDP in 2013 to 21.01% estimated for 2015, as per IMF figures. The correction in oil prices, nonetheless, did not reflect positively on the budget deficit which, paradoxically, widened from 8.69% of GDP in 2013 to an estimated 9.96% in 2015.

Major Oil-Importing Countries	Fiscal Balance (% of GDP)			Current Account Balance (% of GDP)		
	2013	2014(E)	2015(E)	2013	2014(E)	2015(E)
United States	-4.70	-4.11	-3.84	-2.26	2.25	-2.56
Australia	-2.81	-2.81	-2.43	-3.44	-3.03	-4.02
Germany	0.13	0.31	0.51	6.37	7.39	8.49
Singapore	5.53	3.29	1.15	17.89	19.09	20.82
France	-4.08	-3.98	-3.78	-0.81	-0.93	-0.22
China	-1.10	-1.16	-1.92	1.56	2.12	3.06
Japan	-8.52	-7.30	-5.93	0.83	0.53	3.02
Thailand	0.36	-0.85	-1.15	-0.92	3.31	6.21
South Africa	-4.07	-3.78	-4.08	-5.77	-5.44	-4.32
Italy	-2.95	-3.04	-2.69	0.93	1.91	2.03
Spain	-6.79	-5.80	-4.43	1.44	0.80	0.87
India	-7.64	-7.00	-7.20	-1.73	-1.34	-1.39
Morocco	-5.16	-4.94	-4.26	-7.92	-5.48	-2.35
Jordan	-11.45	-9.98	-3.01	-10.27	-6.83	-7.38
Senegal	-5.49	-4.92	-4.72	-10.36	-8.78	-6.07
<b>Lebanon</b>	<b>-8.69</b>	<b>-5.98</b>	<b>-9.96</b>	<b>-26.75</b>	<b>-24.88</b>	<b>-21.01</b>

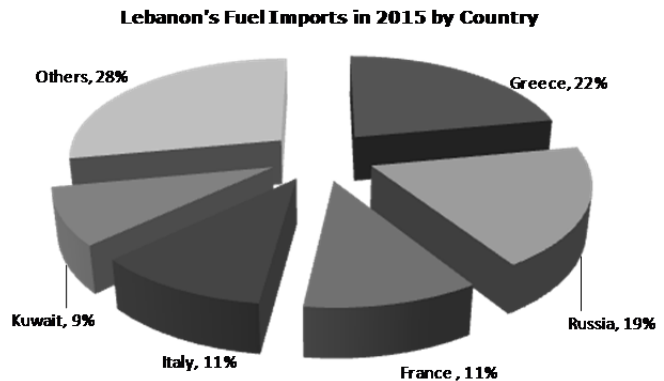
Source: IMF, Credit Libanais Economic Research Unit

# The Drop in Oil Prices: Global and Local Ramifications

## V. LEBANON

### A. Structure of the Economy & Oil Dependence

Located at the heart of the Middle East, Lebanon is an oil importing nation, purchasing fuels from a number of countries namely Greece (22%), Russia (19%), France (11%), Italy (11%) and Kuwait (9%). It is worth highlighting, in this perspective, that these imports consist mainly of distilled fuel products, and hence the list includes some non-oil-rich countries.



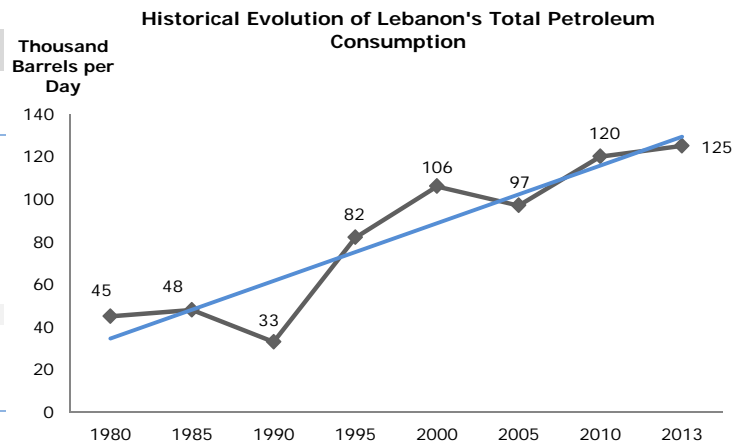
*Source: Lebanese Customs, Credit Libanais Economic Research Unit*

In figures, Lebanon's petroleum consumption aggregated to 125 thousand barrels per day in the year 2013, ranking as such 72<sup>nd</sup> in the world among 213 surveyed countries, preceded by Hungary (129 thousand barrels per day) and followed by the Dominican Republic (115 thousand barrels per day).

Lebanon's oil consumption has been steadily increasing since the year 1980, mimicking the trend in prices despite few episodes of decline, as depicted in the chart below:

Total Petroleum Consumption in Selected Countries Across the Globe in 2013		
	Total Petroleum Consumption (thousand barrels per day)	Global Rank
United States	18,961	1
China	10,480	2
Japan	4,557	3
India	3,660	4
Russia	3,493	5
Jordan	134	68
Yemen	134	68
Hungary	129	69
<b>Lebanon</b>	<b>125</b>	<b>70</b>
Dominican Republic	115	71
Angola	112	72
Bangladesh	109	73
Tunisia	86	81

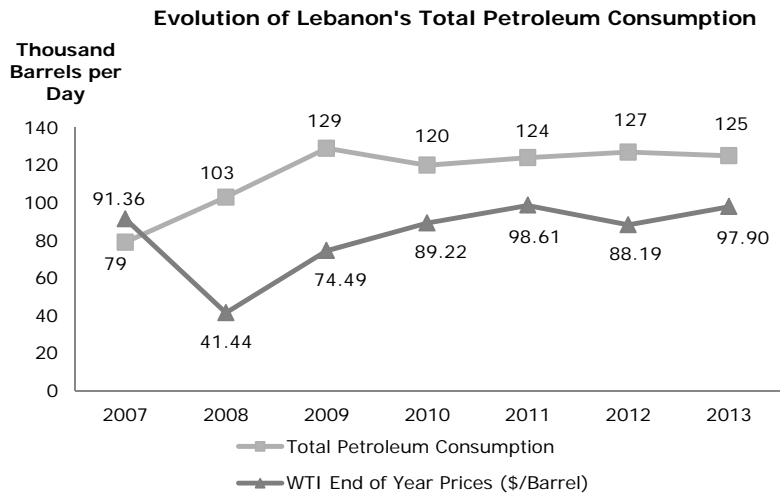
*Source: EIA, Credit Libanais Economic Research Unit*



*Source: EIA, Credit Libanais Economic Research Unit*

## The Drop in Oil Prices: Global and Local Ramifications

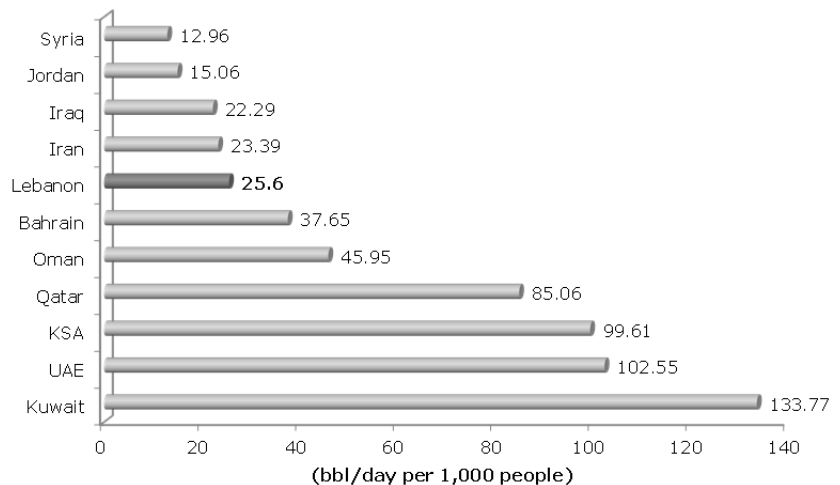
More recently, oil consumption in Lebanon increased from 79 thousand barrels per day in 2007 to 103 thousand barrels per day in 2008, peaking at 129 thousand barrels per day in the year 2009. Oil consumption remained somewhat steady over the 2010-2013 period as sketched in the chart below:<sup>15</sup>



Source: EIA, Credit Libanais Economic Research Unit

Lebanon came in 67<sup>th</sup> in the world and 7<sup>th</sup> in the Middle East & North Africa (MENA) region in 2013 in terms of relative oil consumption, which stood at 25.6 barrels per day per one thousand inhabitants.<sup>16</sup>

### Oil Consumption per Capita in Selected MENA Countries in the Year 2013



Source: IndexMundi, Credit Libanais Economic Research Unit

From another standpoint, figures released by Lebanon's Central Administration of Statistics reveal that the country had been importing between 6.69 million tons and 9.99 million tons of oil products and derivatives during the 2010 – 2014 period, the bulk of which consisting of unleaded

<sup>15</sup> The U.S. Energy Information Administration *Beta* (EIA *Beta*), International Energy Data and Analysis

<sup>16</sup> IndexMundi, Country Comparison - Oil Consumption per Capita

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petrol 95 octane (19.27%), imported oil and fuel oil by the Ministry of Energy & Water for EDL (29.71% combined), and imported oil by the private sector (diesel oil) (19.84%). More recently, Lebanon has imported some 2,697,069 tons of oil products during the first four months of the year 2015, allocated as follows<sup>17</sup>:

Breakdown of Lebanon's Total Oil Imports (Tons)						
Oil Product	2010	2011	2012	2013	2014	Apr-2015
Liquid Gas	117,975	266,242	183,815	178,256	247,293	97,678
Unleaded Petrol 98 Octane	250,027	246,747	207,876	205,858	253,874	85,772
Unleaded Petrol 95 Octane	1,067,351	1,555,771	1,326,203	1,162,708	1,465,776	519,592
Kerosene for Aircraft	230,950	209,847	207,337	232,687	229,101	51,691
Imported Oil by the Private Sector (Diesel Oil)	3,490,380	498,386	752,170	1,147,230	1,453,881	535,139
Imported Oil by the Ministry of Energy & Water for EDL	1,524,288	1,291,126	1,302,223	1,585,249	1,223,928	396,561
Imported Oil by the Ministry of Energy & Water for the Local Market	858,112	636,486	3,152,069	467,883	532,028	259,430
Imported Fuel Oil by the Private Sector	199,724	160,586	123,896	111,556	170,669	56,344
Imported Fuel Oil by the Ministry of Energy & Water for EDL	1,283,360	1,186,775	893,712	1,020,765	1,316,685	404,737
Imported Fuel Oil by the Ministry of Energy & Water for the Local Market	-	-	120,277	-	-	-
Asphalt (Bitumen)	84,833	55,186	558,061	47,717	54,004	11,803
Gas-Oil - Refineries of Tripoli & Zahrani	887,891	636,513	861,563	525,661	483,187	278,322
<b>Total Oil Imports</b>	<b>9,994,891</b>	<b>6,743,665</b>	<b>9,689,202</b>	<b>6,685,570</b>	<b>7,430,426</b>	<b>2,697,069</b>

Source: CAS, Credit Libanais Economic Research Unit

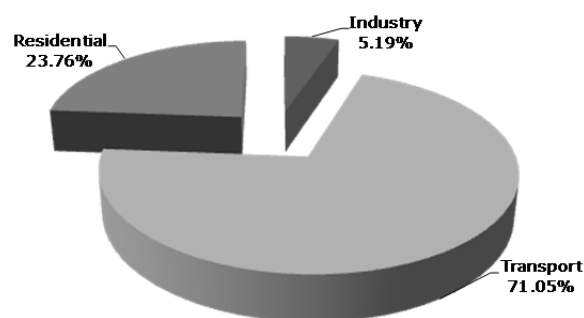
Oil import figures conveyed by the CAS differ from those published by the Lebanese Customs, which appear later in this document and form the basis of our analysis. This discrepancy owes to the fact that the two institutions include different elements of oil and oil derivatives in their calculation of total imports volumes.

As depicted by the table below, the transportation sector accounted for the bulk (71.05%) of Lebanon's fuel consumption during the year 2013, followed by the residential sector (23.76%) mainly for heating purposes) and the industrial sector (5.15%). It is worth noting that said figures only refer to final consumption, and accordingly do not include fuel used for electricity production and which stood at 3,950,000 tonnes in the year 2013.

Breakdown of Lebanon's Oil Consumption by Sector					
in 1,000 Tonnes	Liquified Petroleum Gases	Gas/Diesel	Motor Gasoline	Fuel Oil	Total
Industry				119	119
Transport		34	1,596		1,630
Residential	270	275			545

Source: IEA, Credit Libanais Economic Research Unit

Lebanon's Oil Consumption by Sector in 2013



Source: IEA, Credit Libanais Economic Research Unit

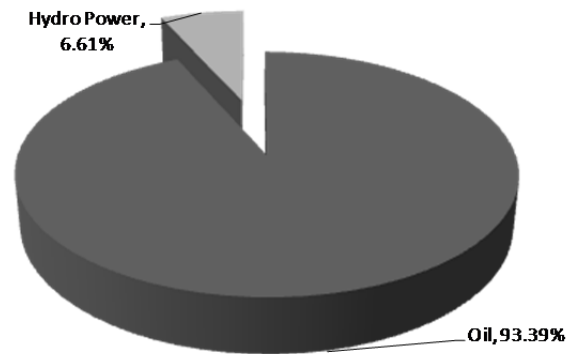
<sup>17</sup> The Central Administration of Statistics (CAS), "Statistical Year Book 2012", Part III- Industry and Energy

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In addition, the majority (93.39%) of Lebanon's electricity production is from oil and its derivatives whereas only a small fraction (6.61%) is generated by hydropower:

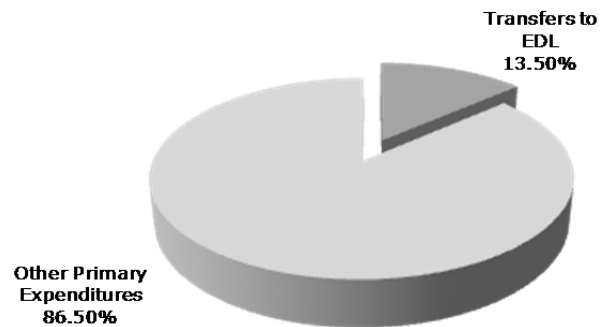
**Breakdown of Lebanon's Electricity Production in 2013**



Lebanon's total oil bill, which represents the cost of fuel oil and gas oil purchases by the government, reached \$888.37 million during the first nine months of 2015, with the share of Electricité Du Liban (EDL) alone standing at 3.5% (\$31.84 million). These figures compare to a total oil bill of \$1,491.46 million YTD September 2014, with this drop being partially explained by the recent correction in international oil prices.

It is worth noting, in this context, that transfers to EDL continue to be a drain on the country's public finances, representing about 13.50% of the government's total primary expenditures for that period. The bulk (98.05%) of the government's transfers to EDL was geared towards the purchase of fuel and gas.<sup>18</sup>

**Share of Transfers to EDL of Primary Expenditures up to September 2015**



Source: MOF, Credit Libanais Economic Research Unit

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<sup>18</sup> The Lebanese Ministry of Finance, "Treasury Transfers to Electricité Du Liban – A Monthly Snapshot", May 2015

## The Drop in Oil Prices: Global and Local Ramifications

### B. Implications of the Drop in Oil Prices

The drop in oil prices served as a double-edged sword for the Lebanese economy, buoying some economic indicators while depressing others as follows:

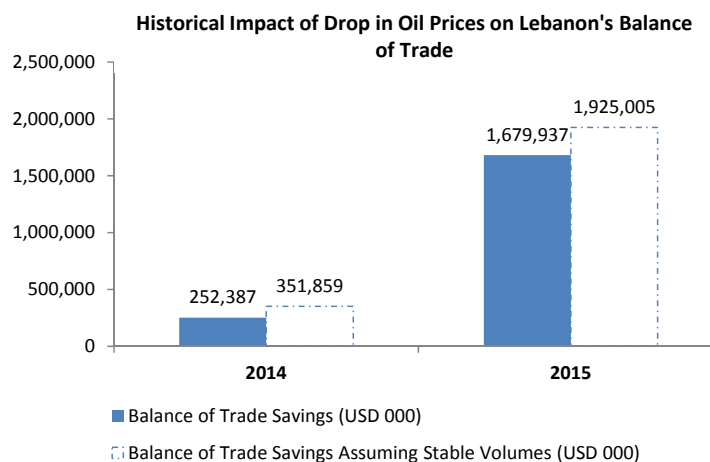
- **Reduced Twin Deficit:**
  - **Balance of Trade Perspective:**

On the **balance of trade** front, the drop in oil prices resulted in major savings on the imports side as Lebanon relies solely on oil imports to satisfy local demand. In figures, the value of oil imports dropped from circa \$5.00 billion in the year 2013 to around \$4.75 billion in the year 2014 and \$3.32 billion in the year 2015, resulting in respective balance of trade savings of \$0.25 billion and \$1.68 billion. These savings, however, factor in the increase in imported oil volumes during the years 2014 and 2015, which, if cancelling out the increasing propensity to consume as a result of the drop in oil prices since early 2014, would result in higher balance of trade savings of \$0.35 billion in 2014 and \$1.93 billion in 2015.

**Historical Impact of Drop in Oil Prices on Lebanon's Balance of Trade**

	2013	2014	2015
Oil Imports Volume (Tons)	5,555,754	5,674,661	5,998,597
Oil Imports Value (USD 000)	4,999,549	4,747,162	3,319,612
Balance of Trade Savings (USD 000)		252,387	1,679,937
Average Price per Oil Ton	\$899.89	\$836.55	\$553.40
Oil Imports Value Assuming 2013 Volume is Stable (USD 000)		4,647,690	3,074,544
Balance of Trade Savings Assuming Stable Volumes (USD 000)		351,859	1,925,005

Source: Lebanese Customs, Credit Libanais Economic Research Unit



Source: Lebanese Customs, Credit Libanais Economic Research Unit

In an endeavor to assess the future impact of oil price volatility on Lebanon's balance of trade, it is important to clarify that Lebanon's fuel imports are mainly divided into Electricité du Liban (EDL)-related fuel imports and non-EDL-related fuel imports. Due to the different characteristics of both types of demand, we will conduct a separate analysis and projections for each category. Lebanon's non-EDL fuel import volumes, as depicted by the table on the following page, exhibit a high negative correlation (-71.25%) with the price of the oil commodity. It is worth noting, in



## The Drop in Oil Prices: Global and Local Ramifications

this perspective, that the price of oil was probably the main determinant of the level of oil consumption over the covered period (2011-2015) given that the studied period did not witness any major fluctuations in economic activity.

Since economic activity is expected to remain shy during the years 2016 and 2017, local consumption will most likely be driven by the level of oil prices.

<b>Correlation between Volume of Non-EDL Fuel Imports and Oil Prices</b>					
	2011	2012	2013	2014	2015
Non-EDL Oil Fuel Imports in 000 Tons <sup>(1)</sup>	3,838	4,764	4,581	4,790	5,353
WTI Average Yearly Price per Barrel	\$94.88	\$94.05	\$97.98	\$93.17	\$48.67
Correlation					<b>-71.25%</b>

(1) Year 2015 Figure is extrapolated as of the month of November

Source: Ministry of Finance, EIA, Credit Libanais Economic Research Unit

Accordingly, the calculated price elasticity of oil demand in 2015, using the size of oil imports as a proxy for demand, stood at -0.25, a figure that came in line with long-term oil elasticity estimates of -0.2 and -0.3 provided by renowned international institutions. We then projected oil import levels and values for 2016 and 2017 by applying the calculated elasticity metric as follows:

<b>Projected Volume of Non-EDL Fuel Imports</b>			
	2015	2016 (P)	2017 (P)
Annual Change in Oil Demand	11.76%		
Annual Change in Oil Price	-47.76%		
Price Elasticity of Oil Demand	-0.25	-0.25	-0.25
WTI Average Yearly Price per Barrel	\$48.67	\$37.59	\$50.00
Projected Δ in Price		-22.77%	33.01%
Projected Δ in Oil Demand		5.60%	-8.13%

Source: Ministry of Finance, EIA, Credit Libanais Economic Research Unit

<b>Projected Value of Non-EDL Fuel Imports</b>			
Value Figures in Million	2015	2016 (P)	2017 (P)
Non-EDL Oil Fuel Imports Value <sup>(1)</sup>	\$2,816		
% Change in Volume of Imports		5.60%	-8.13%
% Change in Price		-22.77%	33.01%
Projected Value of Non-EDL Fuel Imports		\$2,296	\$2,806

(1) Year 2015 Figure is extrapolated as of the month of November

Source: Ministry of Finance, EIA, Credit Libanais Economic Research Unit

As far as EDL fuel imports are concerned, the volume of fuel imports has been declining over the past five years, as captured by the table below. This is mainly attributed to the decision to suspend electricity production at some Lebanese power plants following the arrival of the two Turkish power barges given the much higher fuel efficiency of the latter when compared to some domestic power plants. Another important reason explaining the drop in the volume of EDL-related fuel imports is the decision to lower the amounts transferred to Electricité du Liban to tame government expenditures and improve public finances.

<b>Historical Volume of EDL Fuel Imports</b>						
	2010	2010	2011	2012	2013	2014
EDL Oil Fuel Imports in 000 Tons	1,918	1,918	1,713	1,820	971	880

Source: Ministry of Finance, Credit Libanais Economic Research Unit

The two Turkish power barges are expected to keep supplying Lebanon in the short to medium

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term, and the government is likely to pursue its policy of trimming down transfers to EDL. Consequently, and in the absence of more recent EDL fuel imports statistics for 2015, the following analysis assumes that oil import volumes for 2016 and 2017 will be equivalent to the level reported in 2014. By applying the average price per barrel expected for 2016 and 2017 and published by the EIA, the projected value of EDL fuel imports will be \$336 million in the year 2016 and \$448 million in the year 2017, as outlined below:

<b>Projected Value of EDL Fuel Imports (\$ Million)</b>			
	<b>2014</b>	<b>2016 (P)</b>	<b>2017 (P)</b>
EDL Oil Fuel Imports in 000 Tons	880	880	880
Value of EDL Oil Fuel Imports (\$ Million)	834		
WTI Average Yearly Price per Barrel	\$93.17	\$ 37.59	\$ 50.00
% Change in Price		-59.65%	33.01%
<b>Projected Value of Fuel Imports (\$ Million)</b>		<b>336</b>	<b>448</b>

*Source: Ministry of Finance, EIA, Credit Libanais Economic Research Unit*

In total, and when benchmarked to the year 2014 (given the lack of more recent figures), the estimated annual savings in fuel imports will be \$2.11 billion in 2016 and \$1.49 billion in 2017 when applying EIA price forecasts for the concerned period and holding all other factors constant.

<b>Projected Balance of Trade Savings from Drop in Oil Price</b>					
	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2016 (P)</b>	<b>2017 (P)</b>
Value of EDL Fuel Imports (\$ Million)	1,594	940	834	336	448
Value of Non-EDL Fuel Imports (\$ Million)	4,299	4,060	3,913	2,296	2,806
Total Fuel Imports (\$ Million)	5,893	5,000	4,747	2,633	3,254
<b>Fuel Imports Savings Compared to the Year 2014 (\$ Million)</b>				<b>2,114</b>	<b>1,493</b>

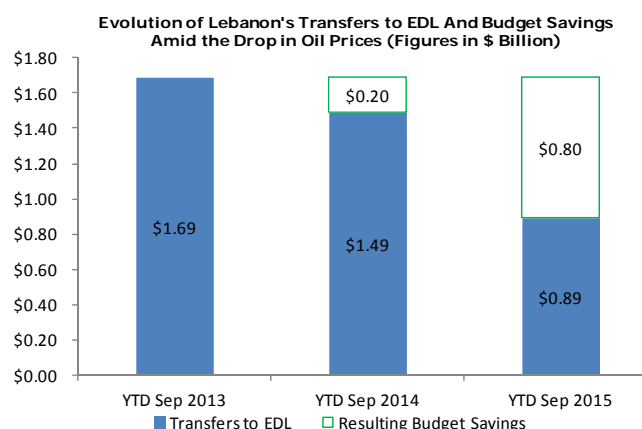
*Source: Ministry of Finance, EIA, Credit Libanais Economic Research Unit*

In a related note, the international rating agency S&P anticipated in its March 2016 rating affirmation for Lebanon that the country's current account deficit will remain sizeable in the upcoming years, yet will slightly drop to around 18.2% of GDP in 2016, from 19.8% in 2015 and 24.5% in 2014. The agency attributed its forecasts to the contraction in the country's imports bills in light of the drop in oil prices and the depreciation of the Euro currency's exchange rate against the U.S. Dollar.

- o **Fiscal Perspective:**

The sharp drop in oil prices translated into a contraction in transfers to EDL from \$1.69 billion up to September 2013 to \$1.49 billion and \$0.89 billion during that same period in the years 2014 and 2015 respectively. Assuming EDL fuel consumption volumes remained unchanged from the level of 2013, public finance savings are estimated at \$0.20 billion YTD September 2014 and \$0.80 billion YTD September 2015.

## The Drop in Oil Prices: Global and Local Ramifications



It is worth noting that Standard & Poor's commented in its March 5, 2016 rating affirmation for Lebanon that the drop in international oil prices helped reduce, to some extent, the value of the government's transfer to EDL to around 2% of GDP in 2015, down from 4% in 2014.

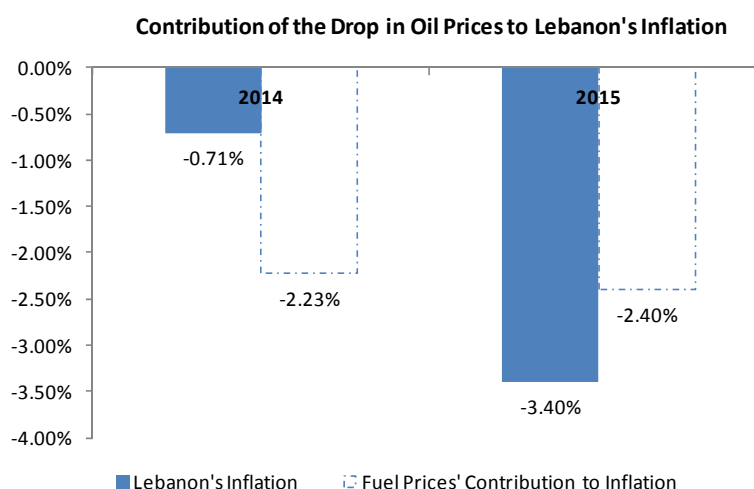
### ➤ Subdued inflationary environment:

Lebanon's inflation (percentage change in the Consumer Price Index) dropped from 1.10% in the year 2013 to -0.71% in the year 2014 and -3.40% in the year 2015. This contraction, however, can be attributed to a multitude of factors including the depreciation of the Euro currency against the USD to which the local currency is pegged and the drop in oil prices. In order to capture the sizeable drop in Lebanon's inflation associated with the plunge in oil prices, we analyzed the change in the fuel price index, a sub-index in Lebanon's consumer goods basket.

#### Contribution of the Drop in Oil Prices to Lebanon's Inflation

	2013	2014	2015
Lebanon's Inflation	1.10%	-0.71%	-3.40%
Δ Fuel Price Index		-22.01%	-23.72%
Fuel Prices Weight in the Consumer Basket		<b>10.13%</b>	<b>10.13%</b>
Δ Inflation Caused by Drop in Fuel Prices		-2.23%	-2.40%

Source: CAS, Credit Libanais Economic Research Unit



Source: CAS, Credit Libanais Economic Research Unit

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As outlined above, Lebanon's fuel price index fell dramatically by 22.01% and 23.72% in the years 2014 and 2015 on a respective basis. Consequently, the drop in the fuel price index translated into some parallel contractions of 2.23% and 2.40% in Lebanon's consumer goods basket during the year 2014 and 2015 respectively. It is worth noting that the change in fuel prices was not met by an equal change in the fuel price index over the 2014-2015 period as a result of the tariffs, taxes, and excises on fuel imports withheld by the government and fuel importers.

In an endeavor to assess the future impact of the projected drop in international fuel prices (based on figures published by the EIA) on Lebanon's inflationary environment for the years 2016 and 2017, assuming all other factors held constant (such as the Euro/USD exchange rate for instance), we adopted the same annual proportion of the change in the 2015 fuel price index as a function of change in the price of oil per barrel (i.e. 49.66%). The outcome of this methodology led us to project the change in the fuel price index being -11.31% in 2016 and 16.40% in 2017, and consequently estimate the change in the consumer price index (i.e. inflation) to be -1.15% in 2016 and 1.66% in 2017. This is further illustrated in the following section:

<b>Projected Impact of the Drop in Oil Prices on Lebanon's Inflation</b>				
	<b>2014</b>	<b>2015</b>	<b>2016 (P)</b>	<b>2017 (P)</b>
Fuel Price Weight in the Consumer Goods Basket			<b>10.13%</b>	
WTI Average Price per Oil Barrel (\$)	93.17	48.67		
EIA Average Price per Oil Barrel (\$)			37.59	50.00
% Change in Price per Oil Barrel		-47.76%	-22.77%	33.01%
% Change in the Fuel Price Index		-23.72%		
Ratio of Change in Fuel Price Index to Change in Price per Oil Barrel		49.66%		
Projected % Change in the Fuel Price Index			-11.31%	16.40%
Projected % Change in the Consumer Price Index			<b>-1.15%</b>	<b>1.66%</b>

Source: CAS, EIA, Credit Libanais Economic Research Unit

### ➤ **Lower Capital Inflows:**

Capital inflows, which include foreign direct investments (FDIs) and foreign remittances, are generally affected by a myriad of factors, making it nearly impossible to isolate the impact of oil price fluctuations. In parallel, FDIs are partly dictated by long-term management decisions, which normally overlook short-term oil price changes. Concurrently, remittances cannot directly feel the pinch of a contraction in oil prices given the time needed for GCC governments to implement the necessary corrective measures (such as reducing subsidies, imposing new taxes, etc.) and for companies to curb their costs (i.e. by reducing financial packages, slashing jobs, etc.). It is worth noting that remittance inflows to Lebanon include the amounts transferred to Syrian refugees on the Lebanese territories. In figures, and according to the Institute of International Finance, Lebanon's net private capital inflows are expected to drop to \$6.7 billion in 2015, down from \$7.1 billion in 2014 and \$7.9 billion in 2012.

### ➤ **Oil & Gas Reserves:**

Lebanon is considered today as a major oil importing country in the absence of any tangible

## The Drop in Oil Prices: Global and Local Ramifications

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progress towards extracting oil and gas to fulfill its local consumption needs. Hence, any fluctuation in oil prices cannot, at the time being, impact the Lebanese economy beyond what was studied in this research publication.

It is worth noting that new oil and gas reserves were discovered in the Eastern Mediterranean Basin in late 2009, with the Lebanese waters containing between 12 and 25 trillion cubic feet (TCF) of technically recoverable gas according to the estimates of the British oil company, Spectrum<sup>19</sup>. Beicip Franlab, concurrently, estimated Lebanon's oil reserves to range between 440 and 675 million barrels of oil<sup>20</sup>.

In this context, Lebanese authorities took serious measures throughout the following years to tap any potential oil and gas reserves in its Exclusive Economic Zone (EEZ). Said steps include the creation of the Lebanese Petroleum Administration (LPA), the passing of the offshore Petroleum Law and related regulations, and the launching of the bidding process for the offshore drilling. The pre-qualification process prior to embarking on the first offshore licensing round was successfully achieved in the year 2013. The bidding process was, however, postponed several times amid the local political bickering.

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<sup>19</sup> The figures initially issued by Spectrum are available on the Energy Information Administration's website, and were published by CMS Cameron McKenna law firm on September 26, 2011, and by The Daily Star on the 22<sup>nd</sup> of September 2012, and the 31<sup>st</sup> of January 2013, citing Mr. David Rowlands, CEO of Spectrum. Said figures are in line with the figures revealed in the May 2013 issue of Lebanon Opportunities magazine.

<sup>20</sup> These estimates were published by Bloomberg, on the 6<sup>th</sup> of February, 2013, by Clyde&Co LLP and Kabalan Law Firm in February 2013, and by Naharnet, on February 13, 2013.

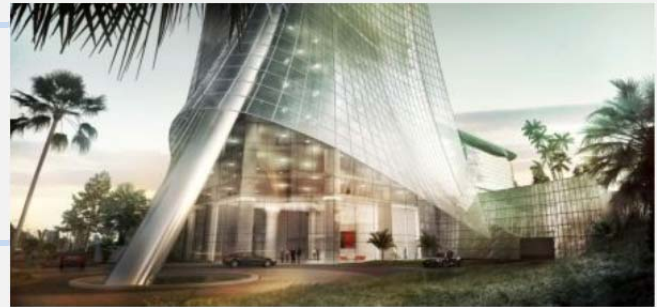
## CONTACTS

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### RESEARCH

Fadlo I. Choueiri, CFA	fchoueiri@cl.com.lb	961-1-608 000	EXT: 1280
Jad Abi Haidar	jabihaidar@cl.com.lb	961-1-608 000	EXT. 1283
Joelle Samaha	jsamaha@cl.com.lb	961-1-608 000	EXT. 1281
Joanna Gergi	joannagergi@cl.com.lb	961-1-608 000	EXT. 1284

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