The collapse of the price of oil and its consequences for Latin America

Laura Daicz
Gabriel Monlezun

CEI Centre for International Economy

Ministry of Foreign Affairs and Worship
Argentine Republic

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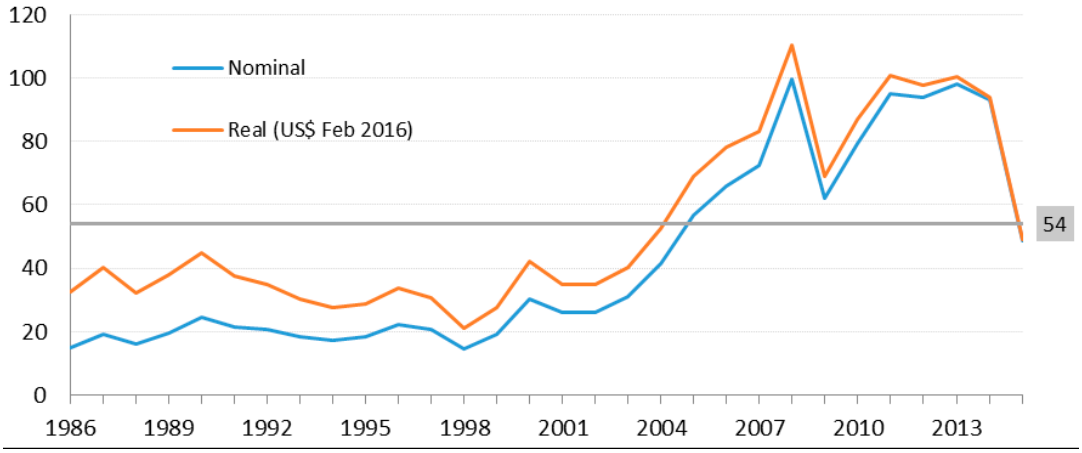
1. Introduction

The sustained decline in the price of oil –which has lasted for two years– is one of the main issues of concern and uncertainty in the current international scenario. After reaching a peak of US$ 105.79 in June 2014, the WTI[1] oil price fell steadily to stand below US$ 60 in December of that year. This downward trend continued throughout 2015, with fluctuations around an average price of US$ 49, and at the beginning of 2016 the value stood at less than US$ 40. There is no certainty about what the extent of the collapse will be or when the recovery stage will begin.

Graph 1. Annual average WTI oil price, in US$



Source: CEI based on the U.S. Energy Information Administration (EIA)

For the purposes of contextualizing this scenario, it may be concluded from Graph 1 that, in real terms, the value around which the price of oil fluctuated during 2015 is slightly lower than the simple average of the last thirty years. The high price of crude oil over the last decade –coupled with the growing demand for energy– has likely led to the emergence of new producers with higher costs, who today would be unable to hold production, due to this collapse in the price.

[1] The West Texas Intermediate (WTI) is a type of oil that is produced in western fields in Texas (US) and is used as a reference in the crude oil market.

Reviewing some features of the crude oil market and the transformations it has undergone over the last years can help to understand the current outlook and its implications.

2. Main forms of oil reserves and extraction

The crude oil extraction method is determined by the form in which oil lies below the surface. The best known form is that of liquid oil wells, which are accessed via land drilling, which can be either continental or maritime. But oil can also be found inside a sedimentary rock called shale. This rock lacks the permeability needed for the extraction of oil with conventional methods; this is why it is necessary to resort to a different type of process. The technique used in this case is hydraulic fracturing, commonly known as fracking, which consists in a high-pressure injection of water and other agents that helps oil flow to the surface.

All in all, the main forms of oil extraction –in relation to the type of reserve– can be grouped into three categories: i) oil well drilling on land; ii) underwater drilling platform (also known as offshore); and iii) fracking for shale oil.

As previously mentioned, drilling methods on land and on sea platforms are based on the same type of extraction: in both cases, oil in liquid state is obtained from an open pit through soil drilling. However, in the case of sea drilling, certain conditions have to be met in order to extract oil from deep-water reserves. The main drawback of these operations is to have to deal with variable conditions at sea, since floating platforms are exposed to be swept away and destroyed by storms. While traditional extraction began hundreds of years ago, underwater exploration was developed in the middle of the last century and is considered a result of the growing demand for energy, which encouraged the search for new methods.

Costs between the two alternatives vary considerably, along with the competitive capacity of the different producers. The traditional method is the least expensive one because drilling is done on land. Sea drilling and fracking are more expensive, since they require greater investment in technology and materials, both to handle the sea conditions, and to carry out the process of hydraulic fracturing of sedimentary rocks that are found at a greater depth.

The selection of one method over the other relates to the features of the territory and its natural resources. While the traditional land well abounds in the Persian Gulf countries, the sea well is more important in countries such as the United Kingdom and Brazil, among others.

The United States has a range of resources, but in the last decade it has expanded its production based on the significant predominance of fracking. Argentina is also rich in this kind of resources, with the long-awaited exploitation of the Vaca Muerta fields.

These features represent a big difference in terms of production costs of the different economies, a key factor to understand how each will weather the storm currently affecting the market.

Starting from the main world producers, the Persian Gulf countries have natural resources that allow them to obtain the lowest costs in the market (less than US$ 10), whereas the United States, along with other countries, requires greater investment in technology which increases production costs. It is estimated that extraction in the United States costs US$ 40 on average.

In turn, Latin America has vast natural resources, allowing the region to play important role in the international oil market. Venezuela heads the ranking of countries with the largest proven reserves of oil[2] in 2014 at world level; while Brazil, Mexico and Ecuador are among the first 20 of the same list (Table 1). The region's main producers are Mexico, Brazil, and Venezuela, followed by Colombia, Argentina and Ecuador.

In terms of competitiveness, Venezuela is the most efficient producer in Latin America –and seventh in the world– with a cost of US$ 23.5 per barrel; followed by Mexico (US$ 29), Colombia (US$ 35.3) and Ecuador[3] (US$ 39). In turn, Brazil tripled its production in the last five years, and ranks as the main producer in the region (Graph 2), but at a cost of US$ 48 per barrel, representing one of the highest values paid by the main world producers. This is because, like in the United Kingdom, most of its fields are underwater.

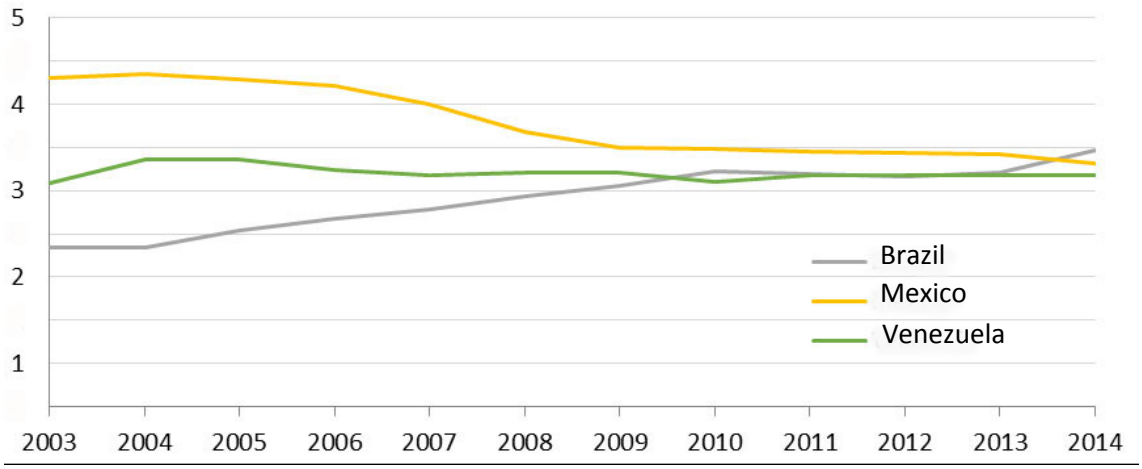
[2] Proven hydrocarbon reserves are those reserves which have been discovered and whose development and extraction are economically viable, given the current technology and techniques.
[3] According to statements by the President of Ecuador

Table 1. Proven oil reserves in 2014

#	Country	Billion barrels
1	Venezuela	298.4
2	Saudi Arabia	268.3
3	Canada	172.5
4	Iran	157.8
5	Iraq	144.2
6	Kuwait	104.0
7	Russia	103.2
8	United Arab Emirates	97.8
9	Libya	48.4
10	Nigeria	37.1
11	United States	36.6
12	Kazakhstan	30.0
13	Qatar	25.2
14	China	24.6
15	Brazil	15.3
16	Algeria	12.2
17	Mexico	9.8
18	Angola	9.0
19	Ecuador	8.8
20	Azerbaijan	7.0

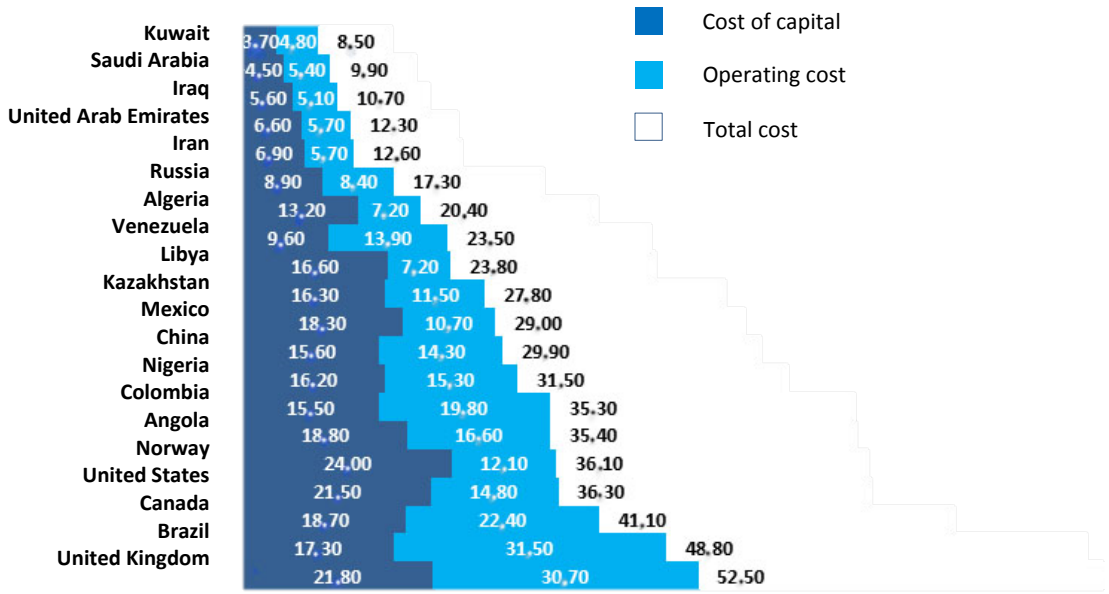
Source: CEI based on CIA (estimated data as of 1 January 2015)

Graph 2. Main producers in Latin America, in millions of barrels per day



Source: CEI based on the U.S. Energy Information Administration (EIA)

Graph 3. Costs of main producers, in US$



Source: CEI based on CNN Money

3. The causes of the collapse in prices

The fall in prices, which began in August 2014 and brought the price of a barrel from its peak of over US$ 100 down to a floor below US$ 30 in the beginning of 2016, may be the result of the simultaneous combination of a rise in the supply and a decrease in the demand for crude oil. The main factors at play in the increase of the offer would be: i) Iran's return to the oil market; ii) Saudi Arabia's aggressive strategy; and iii) the increase in production of other countries, such as the United States. In turn, the fall in demand is closely linked to the slowdown in global growth, particularly in China –the drop in production, also reduces energy demand.

3.1. Iran and its return to the market

In January 2016, the U.S. and the EU reached an agreement to lift sanctions on Iran, which prevented the Asian country from exporting oil and gas to those countries. The restriction had been imposed as punishment to the possible military intentions of its nuclear programs.

Iran holds the world's fourth-largest proven oil reserves, with a total of 157,800 million barrels. Its current production, after the lifting of sanctions, is 3.4 million barrels per day (mb/d). This new market player plans to export 600,000 barrels per day to Europe, which increases the

oversupply of crude oil and exerts a downward pressure on prices.

3.2. Saudi Arabia and its competition strategy

Saudi Arabia is the main member of OPEC[4] and a crucial actor when it comes to managing crude oil prices. It is currently the second largest world producer with a market share of 11.9 mb/d[5].

In 1982, Saudi Arabia adopted a policy, along with other OPEC members, to reduce production as a strategy to offset the fall in prices. Some of its competitors (OPEC members and non-members) profited from this situation to raise their production quota and take advantage of the rising prices.

Thirty years later, the approach is different. The strategy now is to keep high levels of supply aimed at excluding those producers with less competitive production costs, such as the American shale oil producers. This way, Saudi Arabia and other countries in the region have significantly increased oil extraction, thus deepening the phenomenon of oversupply. In the long run, this strategy could lead to the elimination of competitors, with the corresponding reduction of total production and subsequent price stabilization.

Currently, the average production cost of Saudi Arabian wells is US$ 9.90, while many OPEC members need a price of US$ 100 or more per barrel to maintain the fiscal balance in their economies.

This time, Saudi Arabia refuses to help its weaker members. As the owner of the world's second largest proven reserve (268,300 million barrels) it could withstand the fall in prices until the market becomes favourable.

The prospect of cooperation between Iran and Saudi Arabia is difficult since both countries are enemies on grounds of religion (Shiites and Sunnis, respectively) and on grounds of geopolitics, as they support different sides in the current conflicts in Syria and Yemen.

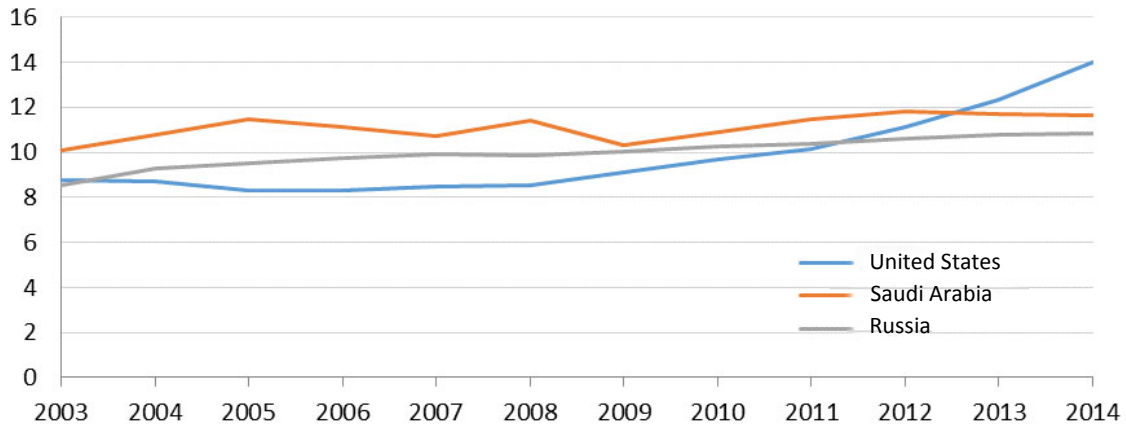
[4] OPEC members: Venezuela, Saudi Arabia, United Arab Emirates (Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah and Umm al-Quwain), Qatar, Nigeria, Libya, Kuwait, Iraq, Iran, Indonesia, Ecuador, Angola, Algeria.
[5] http://money.cnn.com/interactive/news/economy/worlds-biggest-oil-producers/

3.3. The United States: the new leader in global production

Due to the fracking method, the United States became the world's main producer of crude oil in 2014 with a production of 12.7 mb/d and it held its position in 2015 when it reached a quota of 13.7 mb/d, after displacing Saudi Arabia and Russia (Graph 4).

Since 1975, the country had banned exports of crude oil to meet domestic demand and cope with the volatility of prices and interruptions of supply by Persian Gulf countries. In December 2015, this prohibition was lifted, in view of the increase in production and oversupply in the domestic market.

Graph 4. Main oil producers, in millions of barrels per day



Source: CEI based on the U.S. Energy Information Administration (EIA)

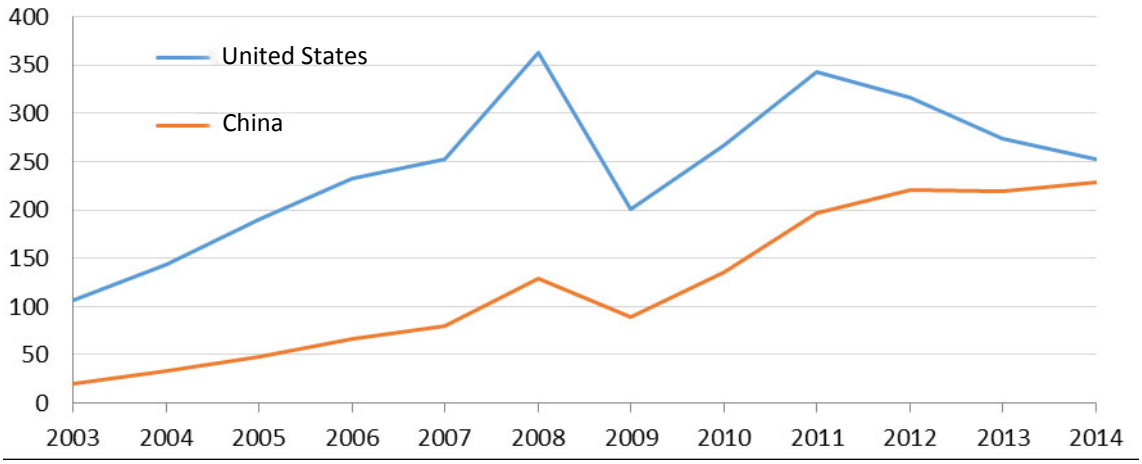
3.4. China and the slowdown in demand

The growth of the Chinese economy in the last decades has led the country to increase its demand for energy and become one of the main buyers in the international oil market (Graph 5). However, its relevance in this sector is not only based on its own demand for oil. China also works as a driver of crude oil demand at world level. This is because those countries from which it imports require energy for the production of oil to meet China's demand.

However, the boom in the Chinese economy appears to be slowing its pace. In 2015, it recorded the lowest growth in the last 25 years, when GDP grew by only 6.5% year-on-year. The slowdown in growth of the Chinese economy is another issue of concern for the world's

economies, and the oil market is no stranger. The weakness of global growth, linked to the fall in China's demand, contributes to price volatility in the crude oil market, with fears of a possible reduction in global demand.

Graph 5. Oil imports in the U.S. and China, in US$ billion



Source: CEI based on COMTRADE

4. Consequences for the different economic players

The first factor to consider when analysing the impact of this phenomenon in the different countries is the role each one has in the international oil market. Naturally, the exporting countries will be affected by the reduction in the selling price, whereas the importing countries can benefit from the reduction in purchase costs. In those countries which are both exporting and importing, there will be a two-sided effect: on the one hand producers are hit, but on the other, consumers can be benefited.

This is the case of the United States. Consumers enjoy lower prices on their purchases of fuel and energy for heating, at the same time as airlines and different industrial sectors save millions of dollars on production costs. In contrast, energy companies undergo serious financial difficulties, which can affect the large banks financing them.

The fracking industry fails to be profitable at current prices. Costs range between US$ 40 and US$ 60 depending on the well, although some sectors can have higher costs. This situation brings about bankruptcies, layoffs and spending cuts in the oil industry. Some producers have stated that they can continue producing for some time (at a loss) until the price falls to US$ 25

per barrel. As a reflection of this problem, the shares of British Petroleum, Total and Chevron fell 15% in the last six months. Besides, there is uncertainty about the future of hundreds of smaller companies.

Producers in this sector are not the only ones affected. Officials of the Federal Reserve of the United States (Fed) have also shown signs of concern for the sustained low price of oil, which pushes down the overall price index of the economy. It is important to note that one of the goals of the monetary policy carried out by this body is reaching a 2% inflation rate. Whereas other objectives such as improving the job market and reaching sustained growth are recording a positive trend, the price to the consumer fails to reach the objective and the situation of the oil market might be playing an important role in this regard.

Some researchers argue that the transfer of income from oil-exporting to oil-importing economies could have a negative impact on the global product. It is expected that the reduction of income in exporting economies translates into a reduction in both domestic consumption and demand on the world market, with the consequent slowdown in activity. In contrast, the increase of income that oil-importing economies obtain from the reduction of prices could lead to an increase in consumption, thus offsetting the reduction occurred in the exporting countries. However, it is believed that higher savings for consumers in predominantly importing countries will not necessarily increase consumption; they are more likely to remain as savings. Carl Weinberg explains this analysis in simple terms: “Halving the weekly income of an oil field worker in Nigeria –earning near-subsistence wages– will likely affect more significantly their consumption than reducing the monthly car fuel bill of a dentist in Belgium by the equivalent amount.” It could take years for the savings generated in importing economies to be destined to consumption.

In turn, even though it is evident that oil-producing and exporting countries will be hit hardest, their particular features in terms of forms of production and market position will impact differently in each of them. The main factors to consider are: the cost of production, the capacity to increase their sales and the level of dependence of the economy on oil revenues.

Although it is unclear when the crisis will end and how deep it will be, it can be predicted that countries like Saudi Arabia and Iran stand with an advantage. It is evident that profits fall for all the players, but higher-cost producers may feel forced to leave the market, while those who

manage to survive can obtain larger quotas of the market.

In relation to Latin America, as in the rest of the world, consequences will be different for producers and importers. The main exporters in the region are Venezuela, Mexico and Colombia, where the crisis already produced economic and social consequences. In contrast, mainly importing countries, like Chile, Panama and Uruguay, can benefit from the reduction in the price of their purchases.

In turn, Venezuela is the most affected country in the region, because while its production cost is among the lowest (about US$ 23.5 per barrel), the level of dependence of its economy on oil revenues is high, which places it at a disadvantage compared to other countries in which the oil activity is only a part of a more diversified economy.

Other economies in the region with a high dependence on oil revenues are Ecuador and Trinidad and Tobago, but in those countries the consequences are not as far-reaching as in Venezuela, where scarcity has already brought about social and political conflicts.

In the case of Argentina, the effects on the domestic market are mitigated by a government policy that subsidizes local producers through the purchase of their product at a higher price than that of the international market. For example, the barrel of Medanito (light, higher quality oil) is paid US$ 67 while the barrel of Escalante (heavy, lower quality oil) is paid US$ 55. Thus, those producers that supply the domestic market are covered by prices that double international prices. This helps mitigate the losses resulting from exports, to which almost 15% of the production is allocated, and whose sale price does not cover internal costs. However, this is not enough to prevent several oil companies in Argentina (including national oil company YPF) from starting to cut spending and reduce production in the provinces of Neuquén, Tierra del Fuego and Chubut.

The Argentine government committed itself to ensuring a local minimum price of US$ 67 in 2016, which, at current international prices, is equal to a subsidy of US$ 25 per barrel and would mean a subsidy of US$ 5,000 million to oil companies over the year 2016. This estimated amount results from multiplying the quantity of barrels destined for the Argentine domestic market by the subsidy per barrel agreed by the government. According to the latest

figures published by Instituto Argentino del Petróleo y del Gas (SIPG)[6], in 2014 our country produced 100 million barrels, imported 2 million barrels (worth US$ 318 million) and exported 15 million barrels (worth US$ 1.6 billion), which represents a domestic consumption of around 20 million barrels. Those 20 million barrels multiplied by the subsidy of US$ 25 per barrel equals the total amount of subsidy previously mentioned.

In terms of investment, the sharp fall in the price of oil leads inevitably to a reduction of the amount invested in the sector, with consequences for both the active fields and the new projects (although the impact on the latter may possibly be higher). The high fixed cost that characterizes the oil industry (due to the stages of exploration and drilling) forces operative fields to keep producing, even at a price level which is insufficient to recover the initial investment. In this case, the convenience of continuing the production will be based on the comparison of the extraction cost of each new barrel with the current price, with a focus on the need to reduce variable costs. Many countries such as Colombia and Mexico have made notes of this, and are implementing cost reductions in order to continue production, and even withstand greater price reductions. Different is the case of the new investment projects that were planned in a context of prices that differed from the current one: the new market conditions can directly imply their suspension. According to a report published by Reuters, the value of the projects postponed at world level has reached a total of US$ 380 billion. Brazil is among the most affected countries, which, in the current scenario, could not maintain the level of investment of recent years that helped the country to significantly increase its production and thus become the main producer of the region. The predominance of underwater fields, as is the case of Presal, positions Brazil as one of the countries with the highest production costs, which could not be sustained with a barrel at US$ 30.

In Argentina, the country's main shale oil formation Vaca Muerta has lately regained prominence. Located at the Neuquén basin, it comprises an area of 30,000 km^2, nearly half of which is operated by YPF. This field has a great potential and has attracted the interest of international investors. It is estimated that in the area of Vaca Muerta, along with the reserves of the San Jorge basin in the north of the province of Santa Cruz and the Austral Magallanes basin, there are proven reserves which could be estimated at 27 billion barrels of oil, based on reports of the U.S. Energy Information Agency (EIA).

[6] The SIGP publishes the figures in m^3. To obtain the equivalent figure in barrels, values were divided by 0.16, which is the approximate ratio of 1 m^3 and 1 barrel of oil.

Despite the unfavourable prospects offered by the world oil market, last January YPF signed an agreement with US-based American Energy Partners to invest US$ 500 million in the exploration and development of oil and non-conventional gas over the next three years. YPF has also signed agreements with Chevron for the concession of Loma Campana, with YSur for Bajada de Añelo, with Petronas for La Amarga Chica, with Dow for El Orejano and with Wintershall for Bandurria Norte. These agreements totalled US$ 15 billion in investment over the last four years, and contributed to the exploitation growth which has been increasing at an annual rate of 1%.

However, there are concerns about the fact that the fields potential in Argentina may not be exploited to its full capacity. According to YPF's current CEO, Miguel Galuccio, oil wells at the Vaca Muerta shale formation are not profitable at the current value per barrel. It is estimated that the average cost in the province of Neuquén varies between US$ 80 and US$ 90. This value is much higher than the price obtained in the international market, and too close to the price of the domestic market, so earnings for YPF would be marginal.

5. Prospects for the oil market

In early February, Saudi Arabia, Venezuela, Qatar and Russia signed an agreement with the objective of stabilizing the international price of crude oil at the January 2016 level. To this aim, the signing nations agreed to freeze their respective productions at current levels, so as to set a limit to the offer increase that presses prices down. However, the agreement is based on a fragile consensus: Iran decided not to participate and expressed its intention to further increase its production in the coming months, prompting doubts over whether Saudi Arabia will respect it. Also, it is worth noting that, even though this policy may help to prevent further falls in prices, it would not be enough to bring prices to their previous values. Meanwhile, the main producers state that they will continue holding meetings in March to seek ways to curb the situation.

In accordance with the issues raised in the introduction, many analysts predict that in the next two years the price of oil will get close to its historical average value of around US$ 50 per barrel. Projections by EIA estimate a price average of US$ 34 for 2016 and US$ 46 for 2017, while the Credit Suisse Group bank refers to a price that will not exceed US$ 50 per barrel during the next two or three years. Moreover, it points out that the price of US$ 40 per barrel

could be convenient for Saudi Arabia, to the extent that it is low enough to keep out U.S. competitors, and high enough so as not to generate a fiscal imbalance in that country.

As the last years –during which the price was higher than its equilibrium value– gave rise to the emergence of a new generation of producers, it is likely that this new stabilization around the historical value may lead to the exit from the market of less efficient producers.

In conclusion, the current scenario can result in a new reconfiguration of the international crude oil market. While there are clues to predict who the major winners and losers might be, there is still great uncertainty about its reach.

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