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Oil: the Good, the Bad and the Ugly

Special
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- **The recent plunge in oil prices will be a net plus for the global economy through higher purchasing power and lower inflation. This is because most countries are oil consumers rather than producers**
- **The pain will be felt by sharply major net oil producers and for some countries this may cause serious problems**
- **We still expect the global economy to gain more than the losers will lose. However, we are cautious since there remains a risk that (i) defaulting oil producers might lead to contagion or that (ii) oil prices spike**

Overall, we gain

Oil prices have declined sharply since July last year, from USD 112/bbl in June 2014 to USD 61/bbl in late February 2015. In another Special, we contemplated the possible reasons for this decline and concluded that the fall is mainly driven by supply side factors, while financial trading exacerbates price movements. In this Special, we will look at what the macro effects might be of these lower oil prices. For the global economy, these lower oil prices are good news, given that they are mainly a result of a supply shock rather than reflecting weaker global demand.

The basic case that lower oil prices are overall good news is simple. The world consumes about 91 million barrels of oil per day (based on BP figures, 2013). The average price of oil between January and June 2014 was USD 109/bbl while it is currently at 61 USD/bbl. A quick and dirty calculation shows that this decline saves worldwide consumers about 1.5 trillion USD per year[1]. This cost saving is effectively a monetary or fiscal stimulus. It is also a transfer of income from producers to consumers, which is good news since consumers tend to consume windfalls more than producers (the marginal propensity to consume tends to be higher for consumers than for producers). Part of this effect may be reduced though because of 'balance sheet' effects (i.e. consumers might use the extra income to pay off debt rather than consume more). Thus, the overall effect on world GDP growth is difficult to estimate. That is why we do not estimate this effect right now. But the IMF has estimated that the oil price shock will lead to an increase in GDP growth of about 0.3% to 0.7% in 2015.

In short, the net consumers of oil will gain, while producers will lose. Based on this measure alone, the US, China, Japan and India appear the biggest winners, while Saudi Arabia, Russia, Iraq and the UAE appear the biggest losers (Table 1). However, as always, reality is less clear cut.

Namely, next to being an oil consumer or producer, the effect of oil price shocks depends very much on a country's share of oil in (*i*) its overall economy and (*ii*) its import/export basket. In addition, for consumers it matters (*iii*) how energy intensive consumption is, while for producers it matters (*iv*) which share oil represents of the government revenue, (*v*) which oil price the government needs to balance its budget (the fiscal break-even oil price) and (*vi*) how much foreign reserves a country has in order to pay for imports and/or service its foreign currency debt. Some of these effects might cancel out and other effects (for example currency effects) play a role for some countries while less for others. Moreover, oil price changes have opposing effects on different variables and the balance might be overall negligible for many countries. We do not focus on such countries. Instead, we focus on the countries that are (seemingly) set up to either clearly benefit or clearly lose from low oil prices, at least in the near future. To keep things simple for now, we also do not consider second round effects such as the entrenchment of lower oil prices in, for example, inflation expectations.

Table 1: Production is more concentrated than consumption

Top 20 Net Oil Producers	bbl/d (000s)	% of total	Cumulative
Saudi Arabia	8,451	18%	18%
Russian Federation	7,475	16%	35%
Iraq	3,141	7%	42%
United Arab Emirates	2,874	6%	48%
Kuwait	2,632	6%	54%
Nigeria	2,322	5%	59%
Venezuela	1,846	4%	63%
Angola	1,801	4%	67%
Qatar	1,728	4%	70%
Norway	1,597	3%	74%
Canada	1,564	3%	77%
Iran	1,556	3%	81%
Kazakhstan	1,499	3%	84%
Algeria	1,189	3%	86%
Libya	988	2%	89%
Oman	942	2%	91%
Mexico	855	2%	92%
Azerbaijan	776	2%	94%
Colombia	707	2%	96%
Equatorial Guinea	311	1%	96%
Other	1,654	4%	100%
Total	**45,905**		

Top 20 Net Oil Consumers	bbl/d (000s)	% of total	Cumulative
US	8,884	19%	19%
China	6,577	14%	34%
Japan	4,551	10%	44%
India	2,832	6%	50%
South Korea	2,460	5%	55%
Germany	2,382	5%	60%
France	1,683	4%	64%
Singapore	1,259	3%	67%
Spain	1,200	3%	69%
Italy	1,192	3%	72%
Taiwan	977	2%	74%
Netherlands	898	2%	76%
Brazil	858	2%	78%
Thailand	752	2%	80%
Indonesia	740	2%	81%
Turkey	714	2%	83%
Belgium	654	1%	84%
United Kingdom	637	1%	86%
Australia	610	1%	87%
South Africa	570	1%	88%
Other	5,474	12%	100%
Total	**45,905**		

Source: BP

The Good: oil consumers

The world economy is likely to be a net gainer of lower oil prices because most countries are oil consumers rather than producers. In fact, less than a fifth of all the countries in the world are net producers of oil (33 according to BP figures). Moreover, the size of the net consumers is much bigger than the size of the net producers. For example, the biggest net oil consumer (the United States) is also the world's biggest economy, representing more than 20% of world GDP, while the biggest net producer (Saudi Arabia) is only 1% of world GDP.

Oil consumers gain through several channels. Namely, through their current account, purchasing power and inflation. Current accounts generally improve because the price of the imported oil goes down (all else the same), purchasing power increases since a part of the consumption basket becomes cheaper, which also translates to lower inflation. Inflation also decreases since prices of intermediate inputs made from oil or oil derivatives decrease, thus also decreasing the prices of many final products.

Whether the gain is large or negligible depends on many factors. However, a decent proxy to gauge the size of this gain is to look at how big oil is as part of (*i*) the economy, of (*ii*) imports and (*iii*) of the average consumption basket. Data is much more widely available for the first two variables, but to get a sense of the effect on inflation, one could look at the share of agriculture in a country's economy. Because, between manufacturing, services and agriculture, the latter is most energy intensive[2]. Moreover, in countries where

agriculture is a large part of the economy, this energy is provided by oil more often than other energy sources.

In addition, agricultural economies tend to be developing countries. Developing countries (on average) tend to have a higher weight of energy in their consumption basket than developed countries. Thus, agricultural economies are likely to see the largest drop in inflation through lower oil prices.

We have combined all three variables to make an overall ranking of which oil consumers might be the largest gainers of lower oil prices (Table A1 in the Appendix). Based on these measures alone, it seems that some of the main winners are Pakistan, India, Greece, Indonesia and Belarus, but also for example Thailand and South Africa. These are countries for which oil is a major part of imports (39% for Greece), for which oil consumption is a large part of GDP (10% for Belarus), for which agriculture is a major part of GDP (18% for India), or all three (for example Pakistan and Thailand). Also, the strong gainers are mostly developing countries/emerging markets while the moderate gainers are mostly developed countries.

However, in many developing countries, fuel and energy prices are subsidized by the government. In Indonesia, for example, energy subsidies constitute 20% of total government expenditure. In countries with a similar situation, a large part of the gain from lower oil prices might go to government rather than to consumers as these governments have to spend less on fuel/energy subsidies. On the flipside, the oil drop gives these governments a chance to reduce these subsidies without the consumer feeling much pain.

Please note that our ranking is very rough and gives an indication of which countries might gain most, rather than the final answer. For this, country specific characteristics matter too much. The Netherlands, for example, exports much of the oil it imports. In addition, although the Netherlands is a net oil consumer, it is a net gas producer and gas prices have also declined by 36% from USD 4.6 mmBTU in June 2014 to USD 3 mmBTU in January 2015. Overall, these factors reduce the benefits of lower oil prices for the Netherlands. The same will also hold for other countries with similar characteristics, for example Singapore. Singapore imports a lot of crude oil (30% of import), but it exports refined oil (25% of export). Thus, although Singapore is high in our ranking, the effect of lower oil prices on its economy will be limited on balance.

More broadly, lower prices might be a risk rather than an impulse for countries in an already low inflationary environment because they increase the risk of deflation. For the Netherlands specifically, we have recently argued that lower oil prices have already led to deflation. Such deflation might pose a problem for the Eurozone and Japan if it becomes entrenched in expectations.

The Bad: oil producers

While the gain of lower oil prices is spread out, the pain will be concentrated. This is already the case for Russia, Venezuela and Nigeria. But Iraq, Libya, Kuwait and several smaller African countries will also face considerable risks (Table A2). In Iraq, for example, oil represents more than half of GDP, more than 90% of government income and virtually all of exports. Saudi Arabia is of course also feeling the sting since it is the world's largest oil producer (Table 1) and relies heavily on oil to fund government expenditure as well as to provide foreign currency. However, Saudi Arabia can withstand lower oil prices longer than its Gulf Cooperation Council (GCC) neighbors since it has large (foreign currency) reserves (97% of GDP, Table A2). In addition, since the costs of extracting oil are lower in Saudi Arabia than for most oil producers, it can gain market share as the more expensive oil producers (for example shale oil from the United States) are priced out of the market. In this sense, the situation in Kuwait and Oman is more worrisome since oil extraction costs there are higher.

In terms of government revenue, oil producers are vulnerable because they have been increasingly relying on higher oil prices for the past decade (Figure 1). For example, the GCC countries needed an oil price of 33

USD/bbl to balance their budget (i.e. that government revenue equals expenditure) in 2006, while this is expected to be almost three times as much (USD 94 bbl) in 2015. Figure 1 also shows that oil exporting countries have shown sharp increases their fiscal break-even oil price during periods of economic downturn. The steep increases in 2008/2009 signify that the governments of these countries 'bought off' civil unrest by increasing government expenditure (for example by increasing government wages) when the economy was in distress. Going forward however, these countries rely on high oil prices to avoid civil unrest, which has now become increasingly difficult.

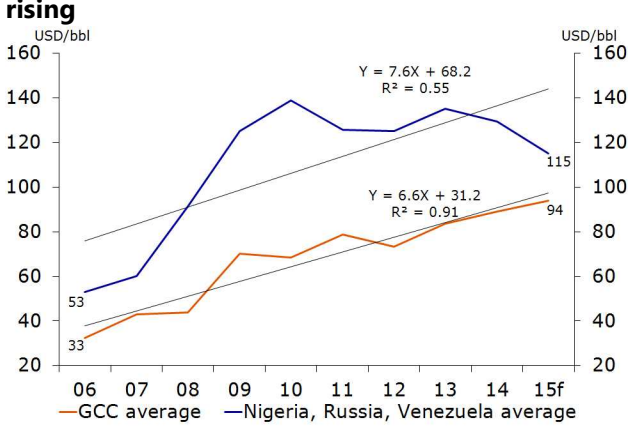
In addition, some oil producing governments rely on oil for more than 90% of their income (for example Iraq, Venezuela and Libya). Effectively, the recent drop in oil prices has cut government revenue of these countries in half, which is very likely to lead to widening budget deficits and via that also to higher inflation. Some of these countries will have difficulties to keep their deficits from widening because they have limited ability to raise non-oil revenue as well as reduce costs. The GCC countries, for example, cannot easily raise taxes since they need low taxes to attract foreign investments, business activity and skilled workers. On the expenditure side, they take very good care of the incumbent population by providing high paying government jobs. Reducing either these jobs or pay might spark civil unrest.

Russia does not rank very high based on the measures we use, although it is a clear loser. This is again because of country specific characteristics. In the case of Russia, lower oil prices exacerbate already existing risks to the economy due to the problems with Ukraine and the subsequent sanctions, which also limit inflow of foreign reserves. In addition, Russia is one of the world's largest economies, representing almost 3% of the world GDP. To some extent, fear of a Russian default reflects fears of contagion effects (systemic risk). Such contagion effects are (at first sight) less severe for African countries. However, contagion effects may still arise if China's growth decreases sharply since China is a major trade partner of and investor in Africa.

The Ugly: effects on clean energy

Unfortunately, the environment is likely also a loser of lower oil prices. Because cheaper oil makes its cleaner substitutes relatively more expensive. Financial markets have already incorporated this substitution effect. For example, the Wilder Hill New Energy Global Innovation Index (an index that tracks the shares of 105 clean energy companies) has declined by 16% from USD 209 just before the oil plunge in June to 2014 to USD 176 in January 2015. The longer term consequence here is that clean energy projects get cancelled for the same reason oil companies are cancelling major oil projects: they are no longer profitable. This will especially be the case for long term clean energy projects that require large investments, which is unfortunate since these are the projects we need most for a society that runs on sustainable energy.

Figure 1: Fiscal break-even oil price steadily rising



Source: Deutsche Bank, IMF, Rabobank Calculations

Outlook and other considerations

As we mentioned before, there are a lot of important variables that determine the actual effect on economies of oil price shocks. Unfortunately, we cannot discuss all these variables. But we do mention two important ones. Namely exchange rates and central bank policy. Both are closely related to inflation.

Lower oil prices reduce inflationary pressures on oil importing countries and via lower inflation cause their currencies to appreciate (or depreciate less) against major currencies like USD and EUR because it reduces the real value of the currency. The opposite is true for oil exporters. Moreover, for some exporters, the currency decline might be sharper if they have little foreign currency reserves and cannot cut down on (necessary) imports. This has happened in for example Nigeria and Russia where the currency has taken a strong hit because oil supplies less foreign currency while the demand for imports remains relatively stable. Depreciating currencies cause inflation via imports but are not necessarily bad news. In the case of Russia, they partially mitigate the loss of income to the government (since the decline in the Ruble partially offsets the decline in the USD oil price). However, countries with depreciating currencies and a large amount of foreign currency debt could run into severe trouble.

The effect on monetary policy is also through inflation. Namely, central banks in oil importing countries are more likely to cut interest rates rather than raise them. This is especially the case in countries where inflation is below or close to the central bank target inflation rate. A good example here is India, which recently cut its benchmark rate due to inflation dropping from above to below its target inflation rate of max 6%. But in countries that were initially coping with high inflation or upward inflationary pressure, the drop in oil prices may also relieve some pressure to hike rates.

Let us finish with a precautionary note. The recent news on low oil prices has largely overlooked an important risk going forward. Namely, what will happen if oil prices spike? Most parties, do not think this is likely. Olivier Blanchard (Director of Research at the IMF) for example recently mentioned lower oil prices to be “quite persistent”. However, like many financial variables, oil prices are notoriously difficult to predict. If they increase sharply, clean energy is back in the race. However, it will also mean the Good will get Ugly...

Appendix

Table A1: Heat map importers

Country	Oil Consumption to GDP	Oil Import to Total Import	Agriculture to GDP
Pakistan	7.6%	36.0%	25.1%
India	5.7%	32.1%	17.9%
Singapore	17.6%	29.8%	0.0%
Greece	4.6%	39.0%	3.6%
Indonesia	2.9%	23.0%	14.2%
Thailand	7.0%	19.8%	12.2%
Belarus	9.6%	20.8%	7.4%
Netherlands	3.9%	30.0%	2.8%
Lithuania	4.7%	25.9%	3.7%
Philippines	4.0%	19.2%	10.7%
South Korea	6.6%	24.4%	2.4%
South Africa	6.2%	24.9%	2.3%
Bulgaria	5.9%	19.2%	5.4%
Vietnam	0.2%	11.7%	18.0%
Bangladesh	3.5%	9.4%	15.1%
Egypt	0.3%	13.0%	14.5%
Taiwan	6.8%	19.0%	1.7%
Japan	3.4%	22.2%	1.2%
China	2.5%	14.5%	9.7%
Chile	5.0%	18.1%	3.5%
Uzbekistan	0.6%	7.1%	18.6%
Ukraine	5.3%	8.5%	12.4%
Belgium	4.7%	20.4%	0.8%
Malaysia	0.4%	15.9%	9.3%
Finland	2.6%	19.7%	2.7%
Spain	3.4%	18.3%	3.2%
Peru	2.1%	15.5%	7.1%
New Zealand	3.1%	16.9%	3.8%
Romania	2.1%	9.4%	12.4%
Israel	2.9%	18.0%	2.4%
Portugal	3.8%	15.0%	2.6%
Brazil	0.8%	14.5%	5.8%
Australia	1.5%	15.2%	3.7%
United States	1.8%	16.2%	1.6%
Turkey	3.2%	6.6%	8.2%
Poland	3.7%	10.5%	3.7%
Italy	2.1%	13.4%	2.3%
France	2.3%	12.8%	1.7%
Sweden	2.0%	12.9%	1.8%
China Hong Kong	5.2%	0.7%	9.1%
Slovakia	2.9%	7.8%	3.7%
Ireland	2.3%	10.1%	1.7%
Hungary	3.6%	7.5%	3.0%
Germany	2.4%	9.7%	0.9%
Czech Republic	3.3%	6.4%	2.6%
United Kingdom	0.9%	10.6%	0.6%
Austria	2.3%	7.8%	1.5%
Switzerland	1.4%	3.6%	0.8%

High gain
Modest gain

Sources: BP, EIU, IMF, Unctad, Rabobank calculations

Table A2: Heat map exporters

Country	Oil Production to GDP	Oil Export to Total Export	Government Income from Oil	Foreign Reserves to GDP
Kuwait	58.4%	85.3%	84.7%	16.7%
Iraq	53.2%	98.6%	92.5%	33.2%
Equatorial Guinea	74.7%	68.2%	88.4%	22.7%
Angola	51.8%	98.8%	75.0%	24.4%
Venezuela	22.1%	78.6%	94.0%	1.7%
Azerbaijan	42.1%	92.8%	74.3%	19.6%
Chad	29.5%	99.0%	57.9%	8.8%
Oman	46.1%	55.8%	88.5%	19.7%
Nigeria	17.2%	88.4%	69.8%	8.9%
Gabon	48.4%	83.8%	45.0%	12.6%
Republic of Congo	37.6%	86.3%	75.0%	41.0%
Brunei	32.7%	45.5%	90.4%	21.1%
United Arab Emirates	25.8%	52.8%	80.1%	17.0%
Kazakhstan	25.7%	68.3%	46.7%	8.6%
Ecuador	14.1%	54.9%	55.0%	3.5%
Saudi Arabia	43.4%	82.7%	89.5%	96.9%
Yemen	14.6%	59.5%	53.6%	13.2%
Qatar	29.7%	41.5%	62.0%	20.5%
Russia	14.4%	54.3%	51.3%	22.4%
Iran	11.4%	53.6%	44.6%	21.1%
Sudan	7.2%	66.3%	9.0%	0.3%
Libya	58.9%	83.4%	95.7%	160.4%
Colombia	8.2%	55.2%	18.7%	11.3%
Norway	11.1%	36.1%	29.4%	11.2%
Trinidad & Tobago	11.8%	32.8%	51.5%	38.9%
Algeria	19.6%	60.9%	65.2%	93.3%
Mexico	3.3%	12.8%	33.2%	13.9%
Canada	3.9%	21.3%	n.a.	3.9%
Syria	5.4%	19.8%	n.a.	4.5%
Tunisia	5.0%	14.9%	n.a.	15.5%
Argentina	0.1%	3.5%	n.a.	4.5%
Denmark	0.2%	9.1%	n.a.	25.6%
Turkmenistan	14.3%	10.2%	n.a.	90.7%

High risk
Medium risk

Sources: BP, EIU, IMF, Unctad, Rabobank calculations

Footnotes

[1] Total world consumption of oil is about 30.7 bln barrels per year, which costs USD 3,346 bln per year if oil prices are 109 USD/bbl (the average price of Brent oil in 2013) and USD 1,873 bln per year if oil prices are 61 USD/bbl. Thus, the decline saves worldwide oil consumers about 1.5 trillion USD per year.

[2] Baffes (2013) for example estimates that agriculture is four to five times as energy intensive as manufacturing.

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