

# How oil did stop supplying power to the economy

---

Michał Tuszyński

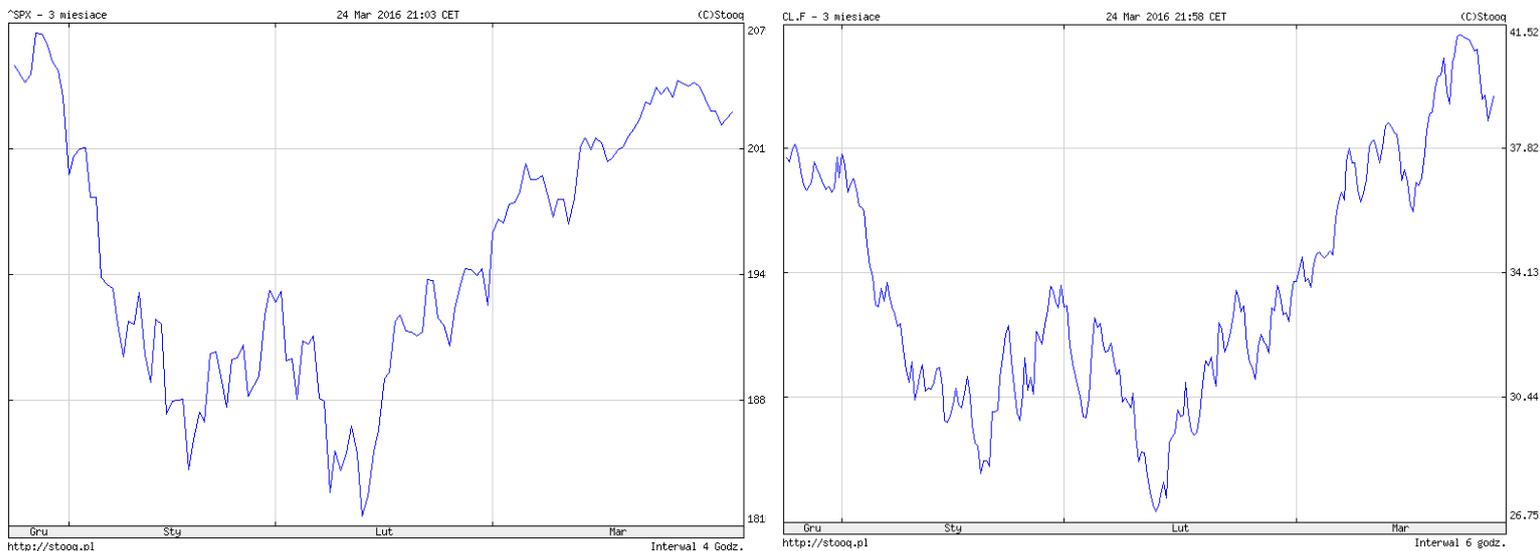
## **Summary:**

- In recent times it is noted that oil prices are highly positively correlated with price changes in the stock market.
- This behavior of oil prices and the stock is difficult to explain on the basis of classical economics.
- Such a situation may be the result of unprecedented in the earlier years accommodative monetary policy of major central banks of the world, fixing main interest rates at levels close to (or even lower) than zero percent.

All those who have studied economics, or who are even a little familiar with the principles of this subject knows, that "*Ex nihilo nihil fit*" - nothing comes from nothing. Admittedly, the recent moves of central banks, which create money out of nothing, seem to contradict this principle, but let's get back to the point.

Company, to produce any product, needs a given set of input materials. These are the raw materials from which something is either created (eg. metals, plastics), or something is powered - these are the energy resources. Acquiring such a basket of raw materials is the cost for companies active in enriching its products with added value. The lower price of commodities is, the lower cost of obtaining them for the operator is. On the whole, the chain of the cause and effect should easily translate into an increase in an aggregate global demand due to the simple reason of the negative correlation existing between the price of the goods and the demand for it. In recent years, the revenues of oil exporters plummeted, along with the reduction of the nominal oil prices of approx. 65%, though, because these countries had been generating only approx. 12% of the world's GDP, increased income for net oil importers (Japan, China Europe and the US still) should easily offset the losses on the other hand, making this game positive-summed. So how is it possible that in spite of the depreciation of oil, the IMF recently revised its forecasts of global growth ... down?

It turns out that, paradoxically - in the last few months, the stock market was correlated with the price of oil ... positively. In other words, increasing cost of acquiring energy ... led to increased aggregate capitalization of listed companies.



If not for the tickers<sup>1</sup> in the upper left corners of the above charts, figuring out which one shows the price movements of one of the major US stock index, and which one the valuation of a WTI barrel, would be a tough nut to crack. For those, who are unfamiliar with stock tickers, let me explain, that the chart on the left shows changes in the S&P500<sup>2</sup> index (^spx ticker), and the right chart the price of a barrel of crude West Texas Intermediate (cl.f ticker).

Not only that, the correlation coefficient between oil and the equities is positive during the period of the last 9 months (from July 2015 to March 2016) but it has also doubled in comparison to the period of August '14 - July '15 [Chart 1].

<sup>1</sup> A **ticker symbol** is an arrangement of characters (usually letters) representing a particular security listed on an exchange or otherwise traded publicly.

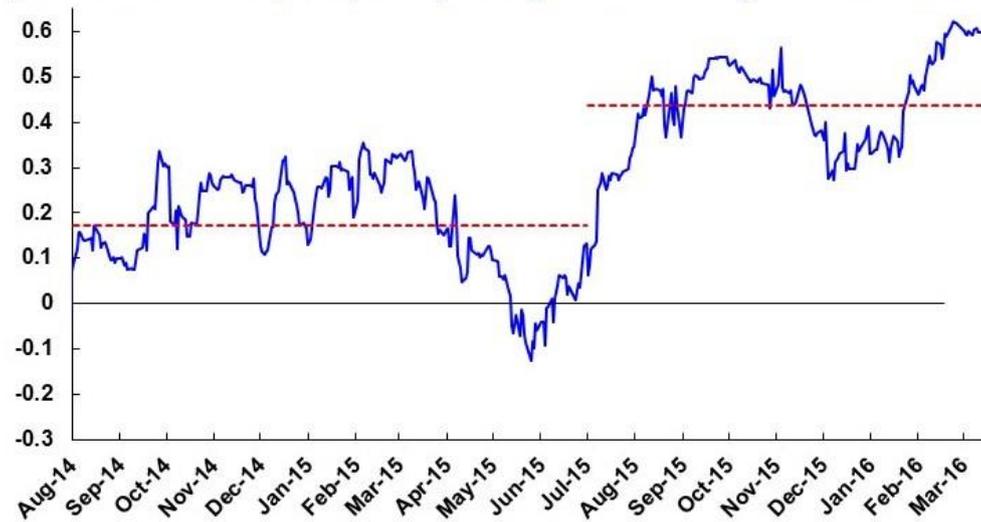
<sup>2</sup> **S&P500** is an American stock market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ.

### Chart 1

#### Equities and Oil: Moving in Lockstep

Over the past six months, there has been a striking positive correlation between stock and oil prices.

(Stock market and oil prices, 60 days rolling windows of daily return correlation<sup>1</sup>)



Source: Datastream.

<sup>1</sup> Correlation between WTI oil price and MSCI USA return.

Note: Horizontal red lines indicate the average correlation for the corresponding periods.

So how to enlighten this situation? Pretty eye-catching explanation comes from IMF's pundits. They have linked persisting low oil prices with current and expected inflation, which in turn are pulling down the interest rates.

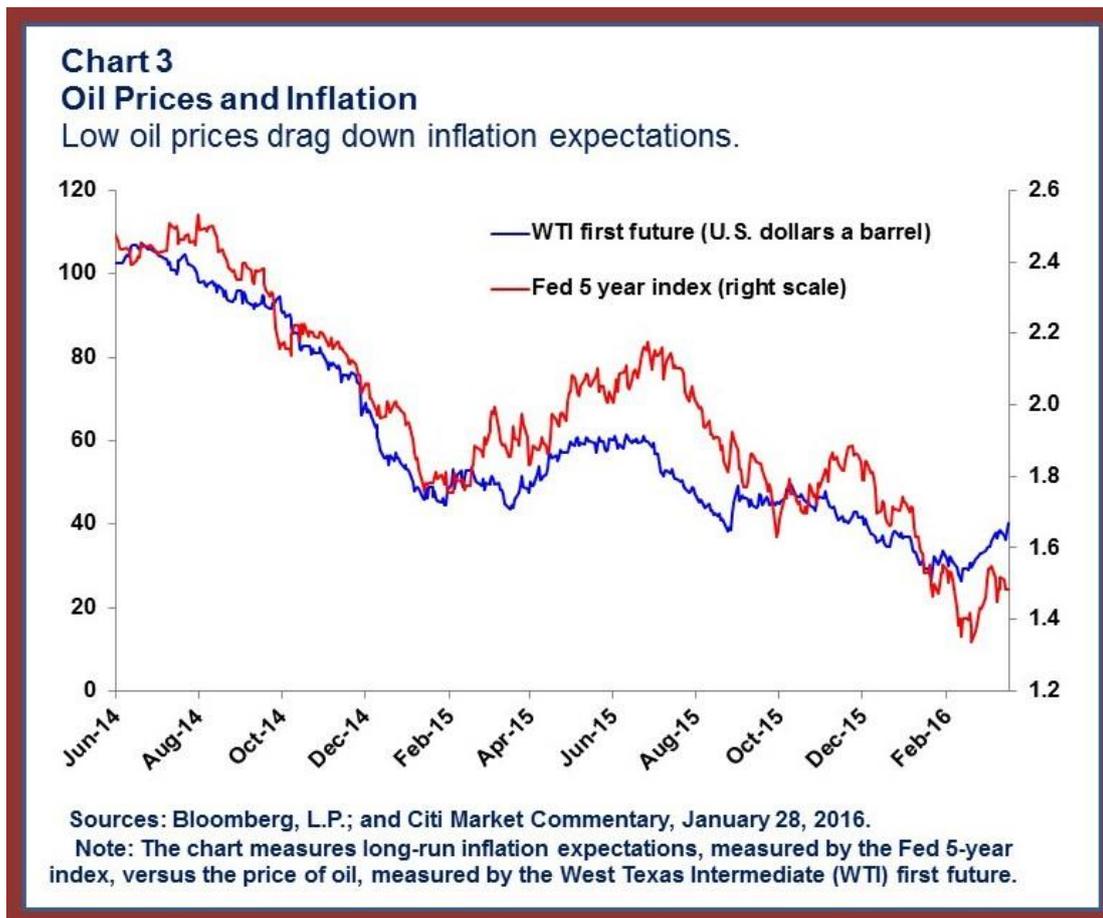
Continued history lies behind the policy of major central banks of the world, the Fed, the ECB and the Bank of Japan. Since the first just've postponed next rate hike, and halved its rate hike expectations to two from four for this year, and the second reduced the value of its reference rates to zero, it means that basically they no longer have a lot of ammunition left in the arsenal of their monetary policies. Well, unless they decide to push its rates negative - as did a third of the listed banks [Bank of Japan].

Nevertheless, from classical economics' point of view, where the cost of money determined by interest rate, usually does not fall below zero, a decrease in current and expected inflation, due to lower production costs raises the real interest rate, reducing demand and inhibiting the growth of production and employment. In other words, if for the real interest rate stands  $r_r$  for a nominal interest rate  $r_i$  and for the inflation rate  $i$  the formula on the real interest rate will be as follows:

$$r_r = r_i - i$$

Therefore, if the **value of expected inflation is falling** ↘ and **nominal interest rates** remain unchanged →, the **real interest rate increases** ↗ .

The graph below shows the situation in which falling oil prices are pulling down the inflation expectations. This whole process actually takes place, and it is in the largest economy in the world measured by *goodwill* [the **chart 3**].



To fully understand the link between oil, inflationary pressures and interest rates, we need to introduce only one more notion of economic development. It is called **the income effect**.

The income effect can be seen as a change in the demand of a good or service, induced by a change in the consumers' discretionary income.

For instance: a fall in oil prices increases the purchasing power of the net importers of this commodity. Indeed, the impact of this effect on the economy, could positively affect the

acceleration of aggregate demand, if not for the fact that net importers of oil are already in the environment of extremely low interest rates. In such a milieu, the decline in oil prices, can move the real interest rate in the direction of minimizing the positive side effect of income. In the responsibility of the economists, however, remains assessment of what kind of game we are dealing with, and for how far the positive side of income effect may be offsetted by a modern monetary policy.

So far, empirical data confirms the positive correlation between the price of oil and the equities, contrary to the logic of classical economics, in which *ceteris paribus* energy cost incurred by the company increases with the price of oil, reducing therefore profits and consequently lowering the valuation of their shares on the stock exchange. The impact of such a behavior on the market, may have interest rates of the major central banks of the world, set at extremely low levels.

Michał Tuszyński