Impact of lower oil price on the European Chemical Industry

Executive summary

Oil prices have seen a rapid drop over the past six months with the price per barrel sinking to its lowest point since 2009. From its peak in June 2014 (average 112 US$) to this year's low in January 2015 (average 48 US$) the oil price fell by 57%. The price of naphtha, the main feedstock for the European petrochemical industry, has similarly declined from a high in June 2014 of nearly $953/tonne to $396/tonne in January 2015.

The lower energy and feedstock prices overall have the following effects:

- Low oil prices increase overall demand for chemicals via positive impact on growth in net oil importing countries.
- European gas and naphtha prices – which are partially linked to crude oil prices – follow the oil price and lead to lower energy and feedstock prices in Europe. This is a further positive impact for the European economy.
- However, the positive impact of the oil price drop is less pronounced in euro than in US-dollar, and net oil exporting countries – among them major trade partners of the European industry – are negatively impacted.
- Lower raw material prices for the European chemical industry could temporarily increase margins particularly in energy- and feedstock-intensive base chemicals. However this does not offset the current weak demand due to the overall macroeconomic situation.
- Although the lower oil price reduces the spread between European and US raw material prices (European naphtha vs. US shale gas), the US industry still stays highly competitive vs. Europe.

On its own, the recent fall of oil prices may thus give a short-term relief, but does not address the structural competitiveness gap faced by European manufacturing industries.

Introduction

The chemical industry is a capital intensive industry. Without a stable and supportive business environment (comparable regulatory burden with other regions, competitive access to energy and feedstocks, strong market demand etc.) limited investment will be dedicated to Europe as opposed to other more competitive regions. This would limit further growth and also opportunities to invest in the latest and more effective technologies and thus address key global issues e.g., climate change, air quality and water quality, resource efficiency etc.

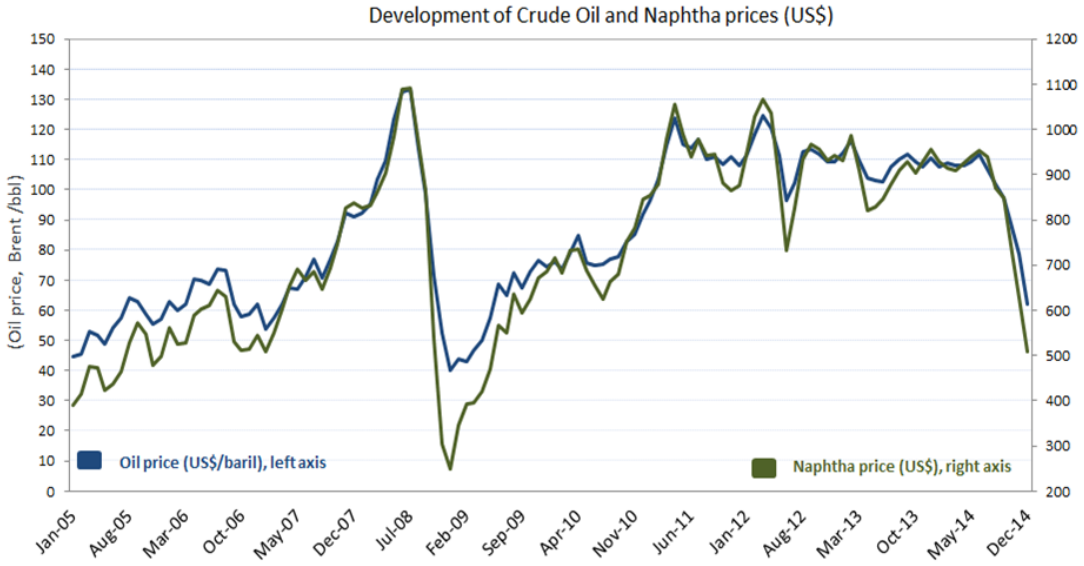
A recent study by Oxford Economics[1] confirms that the sector's competitiveness is increasingly under pressure from other regions in the world. Continued low economic growth in Europe, comparatively high energy and feedstock costs as well as a very complex regulatory environment have significantly reduced the attractiveness of Europe as a place for investments.

[1] http://www.cefic.org/Documents/PolicyCentre/Competitiveness/Oxford-Study-2014.pdf

Basically, the competitiveness of Europe, and its potential for economic growth, depends on safeguarding industries' access to competitive, reliable energy supplies. The recent fall in crude oil and naphtha prices therefore appears to be a push and is leading, with gas prices partially linked to those of oil, to lower energy and feedstock prices in the EU.

However, the recent drop in oil prices may be short lived and it certainly does not address the fundamental competitiveness issues of the European chemical industry. These structural problems are not resolved by temporary reductions of energy prices but only by improving the framework conditions to do business and creating a favourable environment for innovation and investment.

Decline in oil price reflects both weaker demand and stronger supply

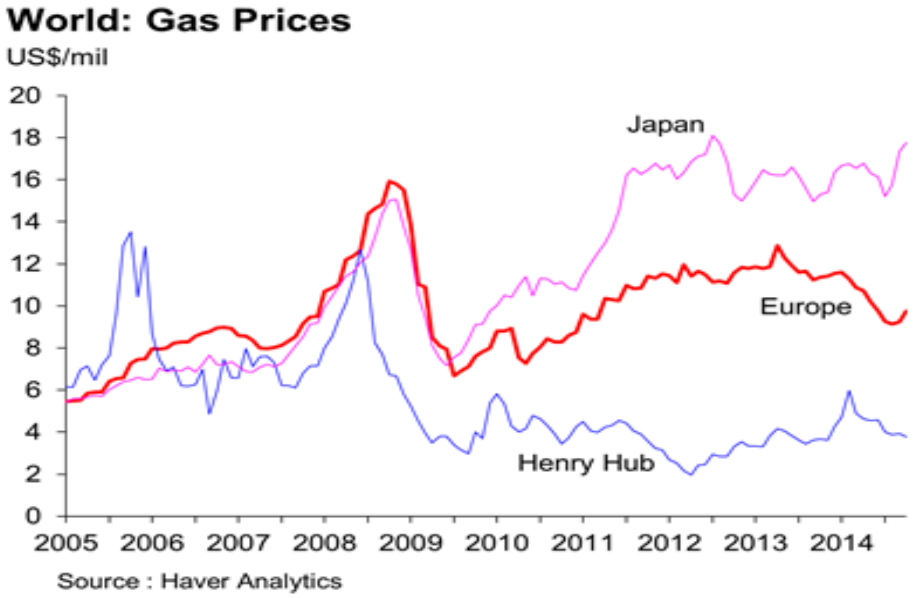


Source: INSEE (Institut national de la statistique et des études économiques, Paris) and Cefic analysis

Oil prices have seen a rapid drop over the past six months with the price per barrel sinking to its lowest point since 2009. The oil market balance has changed fundamentally from an under-supplied to a well-supplied market. Much of the past decade was characterized by significant growth of oil demand, particularly in emerging economies such as China. On the supply side, a number of oil producing countries such as Iraq, Libya and Iran experienced production declines due to conflicts and political sanctions. Therefore, oil production could not, to a great extent, keep up with demand and prices soared.

As a consequence, high prices encouraged further exploration, e.g. in Canada and USA, for unconventional oil. This led to an unexpected strong supply growth in 2014, reinforced by additional supply from Iraq and Libya. At the same time, demand for oil in places like Europe (because of a long lasting economic slowdown and a strong deployment of non-fossil renewable sources), China (due to a shift from heavy to lighter industries and services) and the US (because of a shift from oil to gas in the transport and energy production field) began to slow down.

On 27 November 2014, OPEC, which supplies around 40 per cent of the world's oil, announced it would maintain its output target at 30 million barrels a day, although many of its members, such as Venezuela, Iran and Iraq, need high prices to balance their budgets. Similarly, the world's largest oil producer, Saudi Arabia, also needs a high price ($97.5/bbl. 2014, according to IMF projections[2]) to balance its budget. Nevertheless, Saudi Arabia was not inclined to lower production as this could lead to an erosion of their market share. This situation of current and foreseeable oversupply has accelerated the fall of the oil price, supported by influences from financial markets.[3] European gas prices – which are partially linked to crude – follow the oil price and lead also to lower energy prices in Europe



The halving of crude oil prices in recent months - linked to a more "liquid" naphtha market - originated from lower US demand and a change in the EU refinery mix. This offers European petrochemical producers a potential stimulus, especially as they rely much more on petroleum-based naphtha for feedstock than their American counterparts. As a result of the drop, the ratio of international oil prices to US gas prices – a key indicator of the relative costs of petrochemical production – is now approaching its long run average, suggesting Europe is regaining competitiveness, at least in the short term. However, the gas-to-oil ratio is still too high to relocate investments flows in petrochemicals to Europe.

Low oil prices have a positive impact on demand but this is dampened by weak baseline growth, currency effects, and negative impact on trade with oil exporting countries

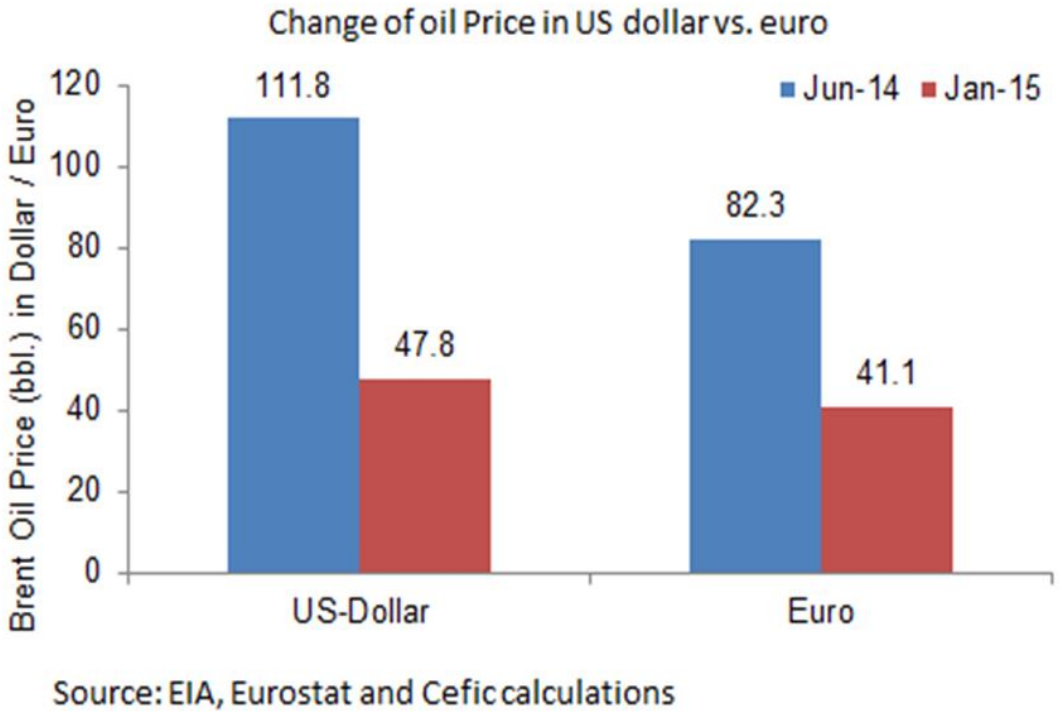
Conventional wisdom suggests that lower oil prices should, in the short-term, increase the purchasing power of consumers and generate additional demand for EU chemical products. According to econometric analysis, the impact of lower oil prices on demand is significant: a permanent fall of oil

[2] IMF (2014) Regional Economic Outlook Middle East and Central Asia Oct. 14 p. 100, download: http://www.imf.org/external/pubs/ft/reo/2014/mcd/eng/mreo0514.htm (Feb. 12, 2015)
[3] https://www.bis.org/statistics/gli/glibox_feb15.htm

prices by 10 % could have a positive effect on GDP of approximately 0.1 % pts. for Western European economies.[4]

However, it is important to highlight that the economic environment in which consumers are operating today is characterised by a very low level of both interest rates and inflation. The benefit from lower oil prices on GDP is therefore more limited compared to situations where interest and inflation rates are relatively high. Monetary policy has no room to reduce interest rates further. With a continued economic slump in Europe, high unemployment (particularly in the Eurozone), wage freezes and low inflation, consumers who are being accustomed to see prices falling could end up spending less.

In theory, the weaker euro is also boosting competitiveness and growth as European export goods are now becoming cheaper for foreign buyers. However, this is partly offset by the associated increase in the cost of imported raw materials. Since oil prices are quoted in US dollars, the recent fall of the euro implies that the decrease of the oil price is less marked in euro terms (see graph). We would therefore expect that the impact of the weak euro on oil import prices has an offsetting effect particularly on oil-intensive industries – like the chemical industry.



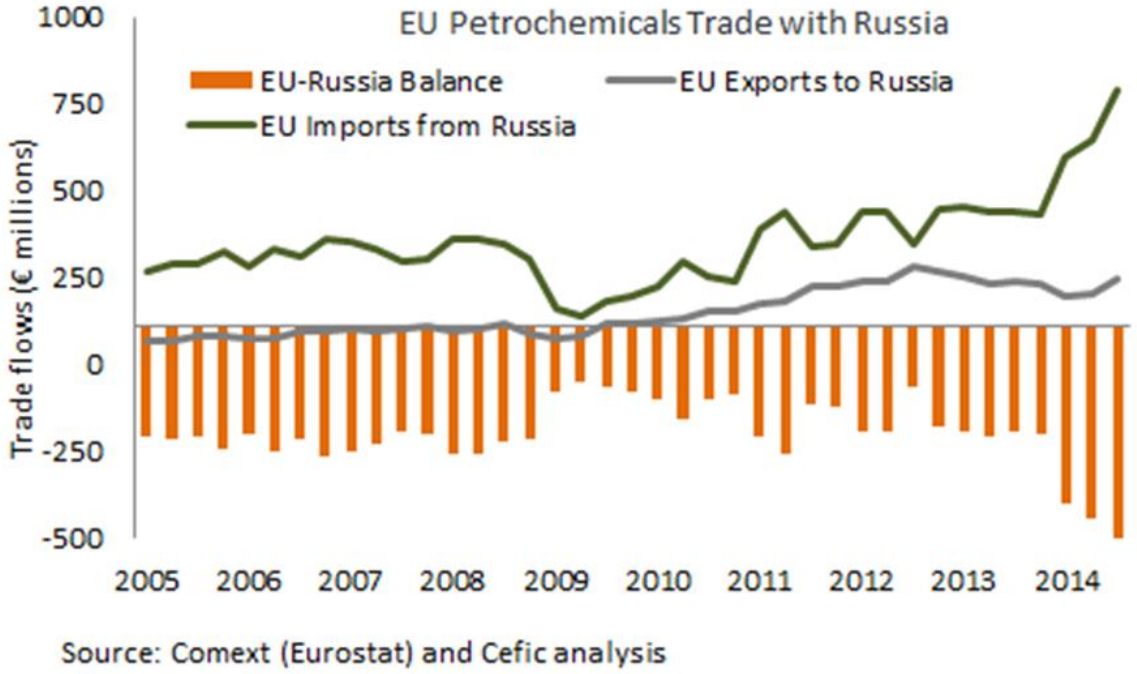
Source: EIA, Eurostat and Cefic calculations

This assessment is supported by quantitative research: in a report carried out by Oxford Economics on behalf of Cefic one conclusion drawn was that the exchange rate is an important driver of sector competitiveness, but that current prospects for a weakening of the euro are not large enough to have a significant quantitative impact. The study shows that a 10% currency depreciation would increase the European chemical market share by less than ½ percentage point. Thus, chemical manufacturers should not rely on a weaker currency to boost sector competitiveness.

[4] German Council of Economic Advisers (Sachverständigenrat zur Begutachtung der Gesamtwirtschaftlichen Entwicklung), Annual Report 2011/2, p. 30. This study analyses the negative impact of increasing oil prices. The statement above assumes symmetric effects of decreasing prices.

The overall positive impact of lower oil prices on the global economy is further dampened by negative impacts on net oil exporting countries. Russia, as a major exporter of crude oil, petroleum products and natural gas, is a prominent example. The downward oil price trend is generating less income for the Russian budget and, together with the impact of the economic sanctions, is placing a significant squeeze on their economy: this is tied with a decline in the exchange rate between the ruble and the euro. A likely direct knock-on effect will be that Russian demand for EU chemicals products is reduced since industry and consumers have to pay more for EU chemical products in their market. On the other hand, chemical exports from Russia into the EU become more competitive. Indirect effects play a role as well as Russia is importing less from chemical customer industries. The automotive industry is a telling example here.

The direct impact is substantial and can be easily illustrated: as shown in the chart below, EU petrochemicals imports from Russia increased by 61% during the first ten months of 2014 compared to the same period of 2013. EU exports registered a decrease of 9% during the same period. The EU trade deficit with Russia more than doubled, from €0.7 billion in 2013 to €1.6 billion in 2014 (Jan-Oct, year-on-year).



Source: Comext (Eurostat) and Cefic analysis

Energy and feedstock intensive segments of the chemical industry benefit from lower oil prices

The chemical industry is one of the most energy intensive of all manufacturing sectors: in the EU, it accounts for 20% of industrial energy consumption, well above its 7% share of manufacturing output. For certain subsectors at the beginning of the industry supply chain, like petrochemicals, basic inorganics, and polymers, energy and feedstock costs are significantly larger than in specialty chemicals and consumer chemicals.

Output from the EU chemical industry covers three broad product areas: base chemicals, specialty chemicals and consumer chemicals. The largest base chemicals segment – petrochemicals – accounts for just over one-quarter of the total, and the closely-related polymers segment accounts for about a fifth. Specialty chemicals (which consist primarily of paints, inks and dyes and other related industrial chemicals) also account for about one-quarter of production. The smallest segments are basic inorganics (fertilizers, industrial gases, etc.) at 14% and consumer chemicals at 12%.

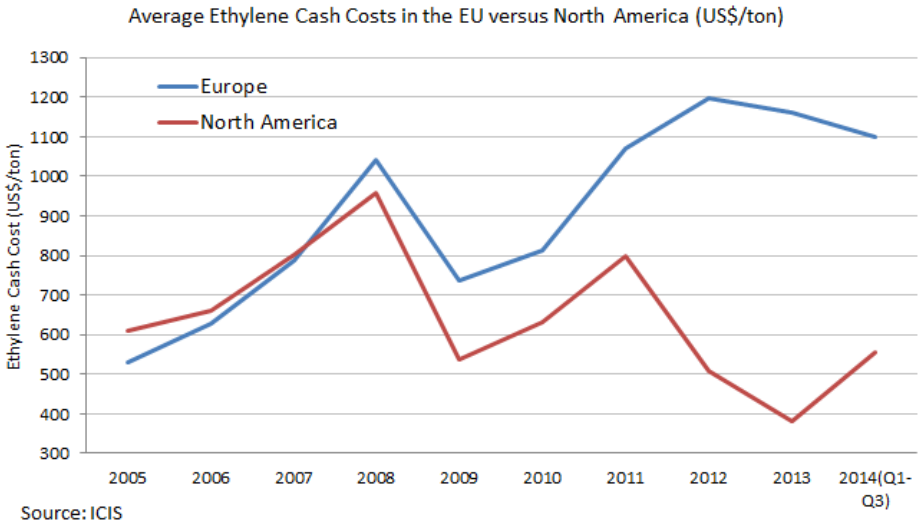
Feedstock and energy consumption account for as much as 85% of total operating costs in the petrochemicals sector, both as a feedstock and as a source of energy for crackers. Downstream sectors use less energy in the production process, but feel the impact of lower energy prices via the petrochemicals on which they depend for intermediate inputs.

The lower oil price is especially bringing relief to petrochemicals, polymers and inorganic segments of the industry; the decrease is less relevant for consumer and specialty chemicals segments.

Base chemicals: EU ethylene cash cost still significantly higher than in the US

Energy costs are the European industry's Achilles' heel, especially compared to the oil and gas-rich Middle East, and more recently to the United States, which is riding on a shale gas boom. Advantaged energy and feedstock prices are a clear enabler of competitiveness. The shale gas boom in the United States has greatly reduced energy and feedstock costs. A clear indicator of this situation is the cost of producing ethylene. Ethylene is the highest volume building block in the chemical industry globally.

It is the foundation in the production of plastics, detergents and coatings amongst many other materials. Making ethylene in Europe was three times more expensive than in the US in 2013 (due to the shale gas boom) or the Middle East. This is boosting profits abroad and attracting billions of dollars in investment, including from European chemical companies. The latest developments in oil prices have significantly reduced the EU costs vis-à-vis the USA. However, the EU-US gap in terms of cost is still a serious handicap for the base chemicals industry in Europe.



Long term outlook for the European chemical industry not positively impacted by oil price volatility

Traditionally, Europe has been a leader in chemicals production – as shown by a consistent export surplus which reached a record of 49 billion euro in 2013. The current state of play appears at first sight to be very positive for the European chemical industry.

However, due to stronger relative growth in other parts of the world and decreasing competitiveness, the EU's share of global sales decreased significantly over the period (from 32% in 1993 to 17% in 2013).The trend in growth differences is expected to continue: overall chemicals demand and production will grow faster in emerging regions while growth in post-recession Europe remains low, mainly due to mature markets and an ageing population.

But growth differences in export markets are not the major cause for Europe's decreasing market share. Using constant market share analysis of chemical exports, an Oxford Economics report[5], carried out on behalf of Cefic, indicates that the majority of the decrease in EU export market share observed over the past twenty years is due to declining competitiveness – as opposed to slow-growing destination markets. The erosion of export competitiveness is mostly attributable to petrochemicals and to a less dramatic degree to polymers.

In some sense, this is not surprising: petrochemicals accounted for one-third of total extra-EU chemical exports, a figure which rises to 50% if we include polymers. The drop in petrochemicals' global export share has been much more severe than the chemical sector as a whole: down to just over 20% from a peak of more than 40% in the early 2000s. The petrochemicals sector is also at the forefront of the chain and exposed much more to energy costs than the other chemicals sub-sectors.

The level of investments is another key indicator pointing to a loss of market attractiveness for production. In the EU we see declining levels of capital spending intensity (% of sales) compared with other regions. Capital intensity is both an indicator of loss of attractiveness as well as a driver of future competitiveness. EU capital spending intensity fell from 4.3% to 3.5% between 2003 and 2013.

A Cefic survey among major chemical companies revealed a shift of investment from the EU to countries outside the EU between 2008 and 2013. Data analysis showed that the share of domestic investment to total investment has moved down significantly by 10% points between 2008 and 2013, indicating that the EU business and economic environment is becoming less attractive for EU chemicals companies.

While chemical investment in Europe is lagging behind, there are more than 200 chemical investment projects that have been announced in the USA and totalling a cumulative investment of nearly $140 billion. Fully 60% of this is foreign direct investment. These investments began as far back as 2010 and are expected to continue through the next decade. These investments are on top of the $30 billion per year that the industry typically spends on capital investment.[6]

Temporarily lower oil prices will not change this longer term outlook and do not provide a firm perspective for investors. The main reason for the current oil price drop is strong supply growth, driven primarily by strong US production of unconventional shale oil and exacerbated by OPEC's refusal to cut production in support of prices - against the backdrop of a weak demand development. This situation is

[5] http://www.cefic.org/Documents/PolicyCentre/Competitiveness/Oxford-Study-2014.pdf

[6] Notes on shale gas, manufacturing and chemical industry", ACC, 27 January 2015

not stable and might change soon. While weak demand growth will probably persist, future oil supply growth will be dampened as oil producers are currently cutting investments. Additionally, OPEC might revise its course. While Saudi Arabia (the main force behind continuing high OPEC production) can cope with the adverse impact of low oil prices on export revenues, other members are finding it difficult to cope.

Thus, while existing European petrochemical producers may gain some market share in the near term, perceptions of the competitive situation have not changed and there is virtually no additional incentive for investment in new medium-term production capacity.