The Importance of China as Global Chemicals Market, as Measured by the Chemical Quotient (CQ)

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In the past 10 years, we have gradually learned to get used to China´s economic rise. In some way, we are no longer as surprised by it as we should. I realized this recently when looking at old forecasts. For example, a Deutsche Bank research report published in October 2005 gives China´s global chemical market share as 8%, and continues with a forecast (which at that time was seen as rather bullish) of this share rising to 13% in 2015, growing by 10% each year. As we know, in 2013 the Chinese share of the global chemical market already reached 33%, and annual growth in the period from 2004 to 2013 was not 10% but 23%.

Of course, during this period, not only the Chinese chemical market but also Chinese GDP has grown substantially. It is therefore interesting to look at the relative importance that the Chinese chemical industry has compared to the rest of the world. I would like to introduce a new measure to facilitate such a comparison – the Chemical Quotient (CQ). This CQ compares the global share a country has for its chemical market with its share of GDP:

CQ = (global chemical market share)/ (share of global GDP)

Thus a CQ value above 1 means the chemical market of a country has a higher importance than its share of GDP would suggest. Similarly, a CQ value below 1 means the chemical market of a country is below its expected value based on share of global GDP of a country.

So what are the CQ values for selected countries? Take a look at Fig. 1.

Clearly, Fig. 1 shows that there are three distinct types of countries.

China, South Korea and the Rest of Asia (which excludes not only these two countries but also Japan and India) have a much higher contribution to the global chemical market than to global GDP. This means that these countries should be of disproportionate interest to chemical companies. There are different reasons for the high CQ value. South Korea has a disproportionate share of petrochemical companies which export worldwide, though with a strong focus on China. China itself is still the global production hub, and as for most production processes chemicals are needed, this is reflected in the CQ. The high value for the rest of Asia is probably a result of the inclusion of the Middle East in this group – these major oil exporters increasingly also have strong local petrochemical industries.

The second group of countries includes most of the developed world such as Japan, US and Europe. These countries do have a substantial share of the global chemical market, but in contrast to China, it is not much different from their share of global GDP. Presumably these countries import a huge amount of chemicals in the form of finished goods from China (which reduces the size of their chemical market) but also export high-end chemicals and products worldwide, which increases their chemical market. These two effects more or less compensate each other.

The third group includes India and the rest of the world (this is mostly Africa). The chemical market share of these countries is far smaller than their GDP share would predict. These countries thus

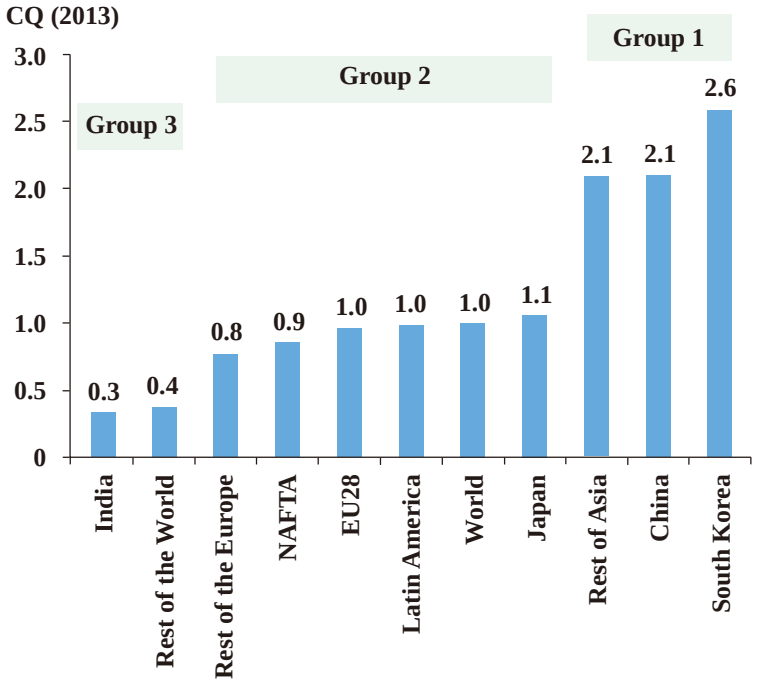

Fig. 1: Chemical Quotient (2013) for different countries/regions. For explanation of country groups see text. Sources: World Bank (GDP share), CEFIC (chemical market share), MCC. The data on which this calculation is based is shown in Tab. 1.

Tab. 1 GDP share, global chemical market share and chemical quotient for different countries/regions. Sources are as for Fig. 1.

	Chemical Market Share	GDP Share	CQ
India	2.3%	6.6%	0.35
Rest of the World	1.4%	3.7%	0.38
Rest of Europe	3.3%	4.2%	0.78
NAFTA	16.7%	19.4%	0.86
EU28	16.7%	17.5%	0.95
Latin America	4.6%	4.6%	0.99
World	100.0%	100.0%	1.00
Japan	4.8%	4.5%	1.06
Rest of Asia	12.9%	6.2%	2.09
China	33.2%	15.8%	2.11
South Korea	4.2%	1.6%	2.58

are big net importers of chemicals either as raw materials or as finished goods. These imports may either come from the first group (e.g., China exporting textiles to Africa) or the second group (e.g., the US exporting medicine to India).

It is interesting to note that based on these observations and only looking at the net result, China does not take its disproportionally high chemical market share from the developed countries (as these have a high share at the high end of the chemical market) but rather from the least developed ones, which presumably have their relative strengths in agriculture, production of basic raw materials and highly labor intensive industries.

The CQ also confirms the strong importance of China for the global chemical industry. Of course, China merits a high degree of attention for chemical companies by virtue of its high share of global GDP alone. However, the high CQ shows that the importance actually goes above this as China´s chemical market is about twice as big as expected when merely looking at the country GDP share. ■

BP: China Remained the World's Largest Energy Consumer, Producer and Net Importer

Global primary energy consumption decelerated sharply in 2014, even though global economic growth was similar to 2013, citing a report by BP released this June.

Despite consumption and production growth slowing from recent historical averages, China still dominates world energy, remaining the world's largest energy consumer, producer and net importer, BP said in the report.

China's energy consumption grew by 2.6% in 2014. This was less than half the ten-year average growth rate of 6.6% and the slowest annual rate of growth since 1998.

China remained the world's largest energy consumer and accounted for 23% of global energy consumption and 61% of net global energy growth. Among the fossil fuels, consumption growth was led by natural gas (+8.6%), followed by oil (+3.3%) and then coal (+0.1%). All was significantly below their ten-year averages.

China's energy mix continues to evolve. While coal remains the dominant fuel, accounting for 66% of China's energy consumption, this was the lowest share on record and down from recent highs of 74% in the mid-2000s.

Energy intensity (the amount of energy required per unit of economic output) decreased by 4.5% – the biggest decline since 2008.

China's energy production grew by just 0.2% in 2014, well below the ten-year average of 5.9%. The weak growth was due to coal which fell by 2.6%, compared to the ten-year average of +5.3%. This was the first fall in coal production in China since 1998. Production in all other fossil fuels grew: natural gas by 7.7% and oil by 0.7%. Among non-fossil fuels hydro grew the fastest (+15.7%). Hydro now makes up nearly one fifth (19%) of China's electricity.

Renewables grew 15.1% over the year. Chinese renewables now account for 16.7% of the global total, up from 1.2% just ten years ago. Nuclear power grew 13.2%, more than doubling production over the last seven years.

China's net oil imports increased by 8.4% to 7.0 Mb/d, the highest in its history. China passed the US as the world's largest oil importer.

China's CO_2 emissions grew by just 0.9% over the year. This was well below the ten-year average of 9% and just above the 2014 global growth rate of 0.5%. ■