MARKET INSIGHT
INLAND NAVIGATION IN EUROPE

PUBLISHED IN
FALL 2017
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01
ECONOMIC CONTEXT
ECONOMIC CONTEXT IN EUROPE

QUARTERLY GDP GROWTH RATE AND OUTLOOK FOR THE EUROZONE (%)

Source: OECD – Economic Outlook January 2017 and June 2017

- Real GDP growth in Q4 2016 and in the first half of 2017 was higher than was expected in the January 2017 Outlook. For the second half of 2017, the OECD forecasts an average quarterly growth rate of 1.9 % for the Eurozone, and 1.7 % for the entire year 2018.

- In Germany, economic growth is supported by low unemployment and rising private consumption, and is therefore higher than in the Eurozone on average. However, in many other European countries, high levels of unemployment and weak real wage growth are constraining domestic demand.
World trade has improved substantially since the second half of 2016, benefitting from rising commodity prices and the pick-up of demand in emerging market countries. This has led to an increase in exports of manufactured goods from EU countries to Extra-EU emerging markets economies.

Intra-EU-trade is also on an increasing path (1.2 % higher in Q1 2017 than in Q1 2016), albeit less dynamic than trade between the EU on the one hand, and the rest of the world on the other hand (3.2 % higher in Q1 2017 than in Q1 2016).
Global trade and industrial production strengthened continuously in 2016 and 2017.

However, having almost recovered from the low water period in autumn 2015, the IWT sector was again hit by a low water period in late 2016 and at the beginning of 2017.

This low water effect was further aggravated by a second effect: ice periods on rivers and canals in Q1 2017, both in Western and in Eastern Europe, hindered vessel movements over a certain stretch of time. Inland shipping transport activity suffered from both of these effects.
INCREASE OF INDUSTRIAL PRODUCTION IN EU BY 1.9% IN Q1 2017 VS Q1 2016
ECONOMIC SITUATION OF INLAND NAVIGATION-RELATED SECTORS

Mineral oil products segment

REFINERY OUTPUT IN THE EU AND CRUDE OIL PRICE

Source: Eurostat (Refinery output) and Federal Reserve Bank of St. Louis (Oil price)

• Since spring 2016, oil prices have been fluctuating in a range of 50-55 US-$ per barrel. Although OPEC-backed production cuts are providing some support, the increase in output from US shale producers is acting as a drag on prices.

• The low oil price level enabled sufficiently high profit margins in the refinery sector, which explains the level of refinery output in the 2nd half of 2016 and in the 1st half of 2017.

• Oil prices are expected to remain within a range of 50-60 US-$ per barrel also in 2018 (source: EU Commission / European Economic Forecast).
• Overall in line with oil price movements, fuel costs in inland shipping increased modestly in Q1 2017; they were 12 % higher than in Q1 2016, but still 12 % lower than in Q1 2015.

**DEVELOPMENT OF FUEL PRICES IN THE IWT SECTOR** (€ / 100 L)

*Source: CBRB*

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**Steel industry segment**

• The German steel production increased by 1.8 % in Q1 2017 compared to Q1 2016, and by 1.5 % in Q2 2017 compared to Q2 2016.

• The German Steel Federation assesses the economic situation of the German steel industry as rather positive, as demand from the main steel-using sectors is picking up. This concerns especially the demand from the construction sector. However, risks remain, due to the high pressure coming from the rising steel production capacities worldwide.

• Looking at the steel industry in the Danube area, there was a strong increase in Austria, both in Q1 2017 (+5.8 %) and in Q2 2017 (+11.7 %).\(^1\)

\(^1\) *Source: World Steel Association*
Construction sector segment

EVOLUTION OF BUILDING PERMITS FOR RESIDENTIAL HOMES IN THE EU (INDEX 2010=100)

Source: Eurostat

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• The transport of sand, gravel and other building materials on inland waterways is promoted by rising and accelerating construction investments in 2017 and 2018.

• The investment climate in the housing sector is currently very positive, both on the demand side (rising household income, low mortgage rates) and on the supply side (rising price level attracting more investment).

**Agricultural products segment**

• The exceptionally bad harvest results in Western Europe in 2016 were still weighing on the transport of agricultural products during Q1 2017. But new harvest figures from the first half of 2017 show a recovery.

• According to statistics from the French ministry for agriculture (Agreste), the French grain harvest in 2017 is 23 % higher than in 2016 and 3 % above the average of the period 2012-2016.

• For Hungary, an important agricultural producing country in the Danube region, projected harvest results of 2017 are lower than those of the previous year (-16 %).²

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² *Source: EU 28 - 2017 Production Forecast - EU Cereals Balance sheet 2016/17 and forecast 2017/18*
02
FREIGHT TRAFFIC ON INLAND WATERWAYS & IN PORTS
TRANSPORT PERFORMANCE IN EUROPE

TRANSPORT PERFORMANCE IN IWT ON THE NATIONAL TERRITORY OF EACH COUNTRY IN EUROPE - COMPARISON BETWEEN Q1 2016 AND Q1 2017 (Q1 2017 TRANSPORT PERFORMANCE IN MILLION TKM)

Source: National Statistics Offices, Eurostat, CCNR
During Q1 2017, goods transport in Rhine countries accounted for 87% of the goods transported through inland waterways in Europe, whereas goods transport in Danube countries represented 13%.

The Rhine was also affected by low flow periods, but to a lesser extent than the Danube. In Q1 2017, 45.5 million tonnes of goods were transported on the traditional Rhine, representing a decrease of 6.2% compared to Q1 2016, but an increase of 7.4% versus Q4 2016. Transport performance fell by 11.7% compared to Q1 2016, but was 9.4% higher than in Q4 2016.

Danube navigation suffered heavily from low water levels and ice in winter 2017. This effect was especially strong at the middle and upper Danube.³

³ See: Reuters (10.1.2017), Hungary, Bulgaria ban shipping on Danube as river freezes over
TRANSPORT PERFORMANCE IN MAIN IWT EUROPEAN COUNTRIES

INLAND SHIPPING TRANSPORT PERFORMANCE IN MAIN EUROPEAN IWT COUNTRIES (QUARTERLY DATA – MIO TKM)

Source: Eurostat and National Statistics Offices

Germany  Netherlands  Romania  Belgium
France  Bulgaria  Austria  Hungary

2015 Q1  2015 Q2  2015 Q3  2015 Q4  2016 Q1  2016 Q2  2016 Q3  2016 Q4  2017 Q1
• Traffic in the Rhine countries Germany and Netherlands was marked by the low water period on the Rhine, starting in September 2016 and lasting until February 2017; a very high level of transport in March 2017 helped to lift the total traffic in Q1 2017 above the level of Q4 2016; but it was not sufficient to reach the goods transport performance of Q1 2016.

• Belgium was the only European country where transport performance in Q1 2017 was higher than one year before. Several positive trends in Belgium explain this, especially the booming container traffic, and the upward trend for inland shipping in important river ports and seaports.4

• In the middle Danube countries, river transport in Q1 2017 was strongly reduced due to both low water levels and ice periods. For most of the middle Danube countries, transport performance was around 1/3 lower compared to Q1 2016 (Hungary: -35 %, Slovakia: -36 %, Croatia: -33 %).

• At the upper Danube (Austria), river transport was affected even more, with a loss of 44 % compared to Q1 2016. Danube shipping in Austria was cut off from its westward trading direction: Shipping on the Main-Danube Canal, as the westward link between Austria and the Rhine, was suspended for more than three weeks due to ice.5

• The lower Danube countries Romania and Bulgaria suffered relatively less from ice and low water conditions in Q1 2017, which is also confirmed by the results of the Romanian ports traffic in Galati and Constanza.

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4 According to information from the Port of Brussels, inland shipping traffic increased by almost 10 % in the first half year 2017 compared to one year earlier.

5 See the information about the suspension of shipping from the German Inland Waterway Administration/Office Nürnberg: Press releases from January 23rd, 2017 and from February 14th, 2017.
DRY BULK, LIQUID BULK & CONTAINER TRANSPORT

RATE OF CHANGE IN INLAND SHIPPING TRANSPORT PERFORMANCE IN MAJOR IWT COUNTRIES (Q1 2017 VS Q1 2016 - %)

Source: Eurostat and National Statistics Offices
• Looking at the transport performance evolution per type of cargo, it can be seen that container transport in the Netherlands and Belgium increased, reflecting the robust upward trend of container traffic in these two countries.

• The goods transport volume decrease in Germany is greater than in the Netherlands because the German part of the Rhine was more impacted by low water conditions than the lower Rhine region in the Netherlands.

• New container connections are being established. The port of Ghent, for example, reported a 20% increase in inland shipping container traffic in Q1 2017. New container lines are being put in place between Ghent and Lille, Rotterdam, Zeeland Seaports and Antwerp. Also in the port of Brussels, new connections between Brussels and Antwerp, for example for refrigerated containers carrying fruits, are increasing container traffic.⁵

• For Romania, the decrease is explained by harsh winter conditions, in the months of January and February, which led to an interruption in inland shipping over a certain period of time.

⁵ See: Port of Ghent (2017), Best quarter ever for port of Ghent (Press note, 5 April 2017), and: Port of Brussels (2017), 1er semestre 2017 - importante progression du transport de marchandises par la voie d’eau au port de Bruxelles (25 August 2017)
WATERSIDE TRANSPORT IN EUROPEAN PORTS

TRANSSHIPMENT VOLUME IN Q1 2017, TRANSSHIPMENT VOLUME IN Q1 2016 AND RATE OF CHANGE BETWEEN BOTH

Source: Destatis, ports mentioned

- positive rate of change in global traffic between Q1 2016 and Q1 2017
- negative rate of change in global traffic between Q1 2016 and Q1 2017
Total inland shipping traffic in the biggest Rhine ports fell by 6 % in Q1 2017 – the same rate of change which is observed for the transport volumes on the traditional Rhine.

- Most of the Rhine ports registered losses in Q1 2017, with the exception of Mannheim. The strong growth in Manheim and the sharp decrease in Ludwigshafen are in fact related: an accident in the port of Ludwigshafen in autumn 2016 resulted in traffic being shifted between the two neighbouring ports.

- In the Port of Paris, the result was still heavily influenced by the consequences of the bad harvest 2016 in France. Without this effect, the quarterly year-on-year rate would have been positive. Positive signal: building materials, the most important product segment, continued their positive trend with an increase of 2 %.

- Danube ports traffic was heavily impacted by an ice period in January and February 2017. The strong decrease is explained by the fact that some Danube ports were frozen and closed, so that cargo could not be loaded or unloaded anymore, even if vessels were freed from ice.⁷

⁷ See: Total Croatia News (23.1.2017), Ice causes major losses for Croatia’s River Shipping Company
CONTAINER TRANSPORT IN EUROPEAN PORTS

IWT CONTAINER TRAFFIC IN EUROPEAN INLAND PORTS IN Q1 2016 AND Q1 2017 (1000 TEU)

Source: Destatis, Port autonome de Strasbourg, Swiss Rhine ports
MARITIME CONTAINER TRAFFIC IN EUROPEAN SEAPORTS IN Q1 2016 AND Q1 2017 (IN MIO TEU)

Source: Port of Rotterdam, Port of Antwerp, Port of Hamburg

- The biggest European seaport, the port of Rotterdam, had a 9% increase in TEU volumes; one main reason being growth enhancing effects from the new Maasvlakte 2 terminal.
- But a large part of this growth comes from feeder traffic, and has therefore no impact on the hinterland traffic by rail, IWT or road. Feeder traffic concerns the intra-continental maritime trade between main seaports and smaller seaports in Europe.
- The container traffic results in major Rhine ports showed strong variations. For the ports of Duisburg and Mannheim, growth was present, while Basel, Germersheim, Strasbourg, Neuss and Cologne saw a decrease.
- In the port of Paris, container traffic by IWT increased by 6.2% in Q1 2017, and continues its upward trend. Container traffic by rail traffic grew weaker (+0.8%), and container traffic by road stronger (+8.8%).
03 OPERATING CONDITIONS
TURNOVER DEVELOPMENT IN EUROPE

TURNOVER DEVELOPMENT IN THE NETHERLANDS \((2010=100)\) - RHINE COUNTRY MAINLY WITH GOODS TRANSPORT ACTIVITY

*Source: CBS*

- RHINE COUNTRY MAINLY WITH GOODS TRANSPORT ACTIVITY

TURNOVER DEVELOPMENT IN HUNGARY \((2010=100)\) - DANUBE COUNTRY MAINLY WITH GOODS TRANSPORT ACTIVITY

*Source: Eurostat*

Note: Quarterly data about turnover in IWT are at present only available for very few countries, due to statistical limitations. EUROSTAT presents data for the NACE sector H50 (Water transport) which covers maritime and IWT transport together. Based on this dataset, it is possible to identify turnover in IWT only for countries with practically no activity in maritime shipping (Austria, Hungary). For the Netherlands, turnover data on a quarterly basis are provided by the national statistical office (CBS).
• In a quarterly year-on-year comparison, inland shipping turnover in the Netherlands increased by around 6% in Q1 2017. Turnover was supported by very high freight rates, due to the low water period in January 2017.

• The turnover result for other modes of transport in the Netherlands in Q1 2017 was: Maritime shipping (+6%), Road transport (+8%), Rail transport (+4%), total transport sector (+5%).

• Hungary is a (middle) Danube country where goods transport has a high share in IWT turnover (almost 3/4). On the Danube, low water levels and ice had very negative impacts on goods transport in Q1 2017. Inland navigation companies registered strong losses in turnover, which amounted to a 33% decrease in Hungary.

• Austria did not experience the same drop in turnover, even if transport volumes decreased more than in Hungary. The reason is that goods transport has only a share of 1/3 in Austrian turnover, so that turnover results are mainly dominated by passenger shipping - whose activity is in general very low in the winter quarter.
The average transport prices in goods transport in the Netherlands in Q1 2017 were much higher than in Q1 2016, and well above the level of Q4 2016. The reason was the low water period in January, which pushed prices and turnover upwards for a short period of time.

Due to the low water period in January, the vessels’ loading degrees were reduced, and less cargo could be transported.
On the Danube, freight rates in Q1 2017 were 3 % higher than in Q4 2016. According to the Danube Commission, this increase was due to a change in the supply-demand relationship. Many vessels were immobilised due to ice periods, so that the available supply was lower than usual and, as a consequence, the freight rates higher. Freight rates in Q1 2017 were more than 40 % higher than one year previously.
• Freight rates in Tanker shipping on the Rhine were, in Q1 2017, on average 1.3 % lower than in Q4 2016, but 66 % higher than in Q1 2016; the reason was the low water period in January 2017, which had greatly reduced loading degrees of vessels (see figure), and which had not occurred the previous year.

MAXIMUM LOADING DEGREES AT KAUB/MIDDLE RHINE FOR VESSELS WITH A DRAUGHT OF 2.5 AND 3 METRES, COMPARED WITH FREIGHT RATES INDEX*

Source: CCNR and PJK International. * Freight rates in tanker shipping
FOCUS ON AGRICULTURAL PRODUCTS TRANSPORT

- Agricultural products are a traditional market segment in inland shipping, but one with a positive long term trend outlook. In this sector, inland shipping is used for transporting grain and other harvest products to agribusiness companies and to seaports.

- A positive driver for this segment is the increasing role of biomass in the energy sector, for the generation of electricity and heat. Besides, agricultural products are also used for the production of biofuel, and inland shipping is a preferred mode of transport for delivering the raw materials.9

- In Western Europe, the four most important maritime ports for agricultural products are the ports of Rotterdam, Hamburg, Rouen, and Amsterdam with a total volume of agricultural products transshipped in 2016 ranging from 10 million tonnes in Rotterdam to 6 million tonnes in Amsterdam. From Rouen, around 7 to 8 million tons of grain are exported each year, mostly to North Africa, Asia, and America. Around 1/4 of these volumes arrive in the port of Rouen per inland vessel.

- In Eastern Europe, the port of Constanza plays a similar role. Agricultural products arrive per inland vessel from the Middle Danube region, and the grain is exported to destinations in Southern Europe, Northern Africa, and Asia.

- Agricultural products constitute a high share of total transport in the Danube area, reaching more than 40% in Bulgaria, 38% in Romania, and 36% in Croatia. Important western European countries for agricultural products are Luxemburg (47%) and France (28%), where grain is transported especially on the Rhine, Moselle, Seine, and canals in Northern France.

9 An important example is the production of bioethanol at the river Meuse near Liege, and the increasing demand for agricultural products delivered by inland shipping. (Navigation, Ports & Intermodalité, Article « Port de Liège - Le retour de la croissance » of March 8th 2017.)
SHARE OF AGRICULTURAL PRODUCTS WITHIN THE TOTAL INLAND SHIPPING TRANSPORT PERFORMANCE (% BASED ON TKM)

Source: Eurostat
FORECAST MODEL AND RESULTS

TRANSPORT PERFORMANCE OF AGRICULTURAL PRODUCTS ON THE TRADITIONAL RHINE AND FORECAST MODEL (IN 1 000 TKM)

Source: CCNR
• Transport of agricultural products on the Rhine is positively correlated with the agricultural production in France and Germany and the water levels on the Rhine.

• The transport of agricultural products in Western Europe is expected to increase in 2017 and 2018, due to a recovery of harvest volumes compared to the very weak harvest season 2016.

• According to information from the French Ministry of Agriculture, the 2017 grain harvest results in France are expected to be 23% higher than in 2016.

• The forecast takes into account a 22% growth of the agricultural production in France until the end of 2018, while the production level in Germany is assumed to remain at the level of 2016. Within the estimated forecast model, the agricultural production in France has a stronger influence on the transport demand than the production level in Germany.
The RWI/ISL Container throughput index is based on data from 81 world container ports covering 60% of worldwide container handling.

This index is an early indicator for world trade and maritime container shipping.

Recent index data point to an increasing container traffic and world trade in 2017 which should also trigger an increase in IWT container traffic in 2017.
### TRENDS IN DEMAND FOR TRANSPORT IN 2018 IN RHINE COUNTRIES

Source: CCNR analysis based on macroeconomic and sectorial data

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<th>Main driver(s)</th>
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- The only two differences with previous Market Insight reports concern agricultural products and the steel segment; information about the positive harvest results in 2017 in France point to a recovery compared to the bad harvest of 2016. In the Danube region, however, harvest results for 2017 will probably be weaker than in 2016.
• For the steel segment, data about production evolution in Germany and Austria are positive, which should also lead to a slight increase in transport.

• The consumption of coal is declining further. In Germany, the use of coal went down by 6.7 % in the first half year 2017. Hereby, coal in the energy sector decreased by 9 %, and coal in the steel industry decreased only slightly. The present trends are supposed to continue. The outlook for coal remains on a decreasing trend.

• The upward movement in the building industry is continuing, as new figures confirm, and the transport of sands, stones & building materials will be promoted further by this development.

• The world trade indicator (RWI/ISL index) followed an increasing curve in recent months highlighting a growth in maritime container traffic. This lays the basis for a continuation of further growth for container transport on inland waterways.

• Oil prices weakened slightly in the first half of 2017. Prices are expected to remain within a range of 50-60 US-$ per barrel also in 2018. Transport demand is expected to remain stable in 2018, with a positive short term trend offsetting a negative long term trend.

• It is expected that chemical production will remain stable overall in 2018, or grow only very modestly. Therefore, the outlook for chemical transport is stable as well, with the possibility of a slight increase.
GLOSSARY

**BN**: Billion

**DANUBE COUNTRIES**: Austria, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovakia

**EU**: European Union

**EUROPE**: European inland navigation in this report includes two countries not belonging to European Union, Switzerland and Serbia

**FREIGHT RATE**: Price at which a cargo is delivered from one point to another

**GDP**: Gross Domestic Product

**IWT**: Inland Waterways Transport

**LOADING DEGREE**: percentage of maximum vessel loading

**MIO**: Million

**OECD**: Organisation for Economic Co-operation and Development

**PP**: Percentage point

**Q1**: First Quarter

**RHINE COUNTRIES**: Belgium, France, Germany, Luxemburg, Netherlands, Switzerland

**RWI/ISL CONTAINER THROUGHPUT INDEX**: Index of worldwide container throughput in ports

**TKM**: Tonne-Kilometer (unit for transport performance which represents volume of goods transported multiplied by transport distance)

**TURNOVER**: Sales volume net of sales taxes

**WTI**: West Texas Intermediate (grade of crude oil used as benchmark in oil pricing)
## NATIONAL STATISTICS OFFICES

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METHODOLOGY

Freight traffic on inland waterways and in ports

Europe as defined in chapter 2 is taking into account all European countries providing quarterly data on inland waterway transport. All these countries are listed on the Transport Performance in Europe map (page with map in chapter 2).

When discrepancies on total transport performance are observed between Eurostat and National Statistics data, the information is notified to Eurostat and National Statistics Office data is taken into account.

When available, NST product classification is used in order to split transport performance on following transport segments: dry cargo, liquid cargo, containers.

When available, general cargo is included in dry cargo.

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This notice does not constitute a formal commitment on the part of those organisations referred to in the report.
The Market Insight of European inland navigation
is a common project of the CCNR and the European Commission

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IN PARTNERSHIP WITH
Danube Commission
Moselle Commission
Sava Commission
EBU
ESO
IVR

DESIGN BY PRESS-AGRUM
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www.press-agrum.com

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Imprint: Novembre 2017
Published by the Central Commission for the Navigation of the Rhine
2, place de la République 67082 STRASBOURG cedex – www.ccr-zkr.org
ISSN : 2519-1101