CECIMO Statistical Toolbox

September 2016

cecimo

European Association of the Machine Tool Industries

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Introduction

The world's trade has been showing weak growth signals for the fourth consecutive year. The average annual growth rate is around 3 percent since 2012, which is half than before the crisis, and the World Trade Organisation has recently cut its forecast by more than a third from 2.8% to 1.7%. The ratio of world trade growth to GDP growth is currently below 1.5, and the OECD expects it to go down to 0.8 in 2016. In other words, global trade growth will probably represent 80 percent of the expected world GDP increase this year. The real GDP is forecasted to grow below 3% this year and 3,3% in 2017. As a result of this GDP growth gradual expected recovery, a moderate acceleration of international trade triggered by the expansion of the global economy can be reasonably expected, even if some economic institutions worldwide have revised their forecasts down.

The international trade's present weakness cannot be considered as a purely business-cycle related phenomenon, many reasons are behind this trend, including systemic ones. Even if these factors are not fully known, it is noteworthy to mention some of them: the shift of the Chinese economy towards a consumer-led one, the dismantling/unravelling of some global value chains, the recent protectionism uptick with rise of nontariff barriers, the low growth of global investment, and the political environment as a whole. As far as the latter is concerned, it is important to note the increasing tendency of division between pro and anti-globalisation politicians and voters, it is not a new tendency but it has become an important factor for political parties and electors. Last but not least, on the 28 September, the OPEC decided to cut oil supply, the first time since 2008, with the subsequent short-term upward reaction of price. After oil prices falling from 114 USD in June 2014 to less than 30 USD in 2016, and even if prices lost steam after the initial jump of 7%, the upward pressure on oil prices of potential further OPEC decision of decreasing output would affect global trade as well, especially that which involves longer distances.

In this context, monetary stimulus measures and further competitiveness reforms are essential to sustain growth. The crucial role of innovation in the coming years becomes even greater, to mitigate the consequences of the slowdown in world trade growth, in support of strengthening competitiveness, productivity and, eventually, standards of living.

The inflation remains low in many countries, and central banks will continue struggling to minimize the risk of deflation and the so-called deflation trap characterised by persistent disinflation. It is important to highlight the risk of upward fiscal pressure due to the increase in real interest rate governments would face (debt deflation). Nevertheless, in the last quarter of 2016, prices are expected to rise and the annual inflation rates to reach levels around 1.5% in the EU and Euro zone, 2.2% in the United States and 3% in China.

Regarding the 'Brexit', on one hand, the pound depreciated around 10% in the three weeks following the outcome of the referendum last 23 June, and has since then depreciated an additional 2.5%. On the other hand, despite the better-than-expected economic performance in the United Kingdom's vote's aftermath, stronger economic impacts are expected once the process begin to unfold. The formal Brexit negotiations, assuming it takes place, are not expected to be triggered before 2017, increasingly likely early next year, by end of March 2017 according to the British PM Theresa May. In any case, it is clear that the reduction of uncertainty, even in a modest and gradual manner, would be economically welcomed, notably in Europe.

1. Data specific to the European machine tool market

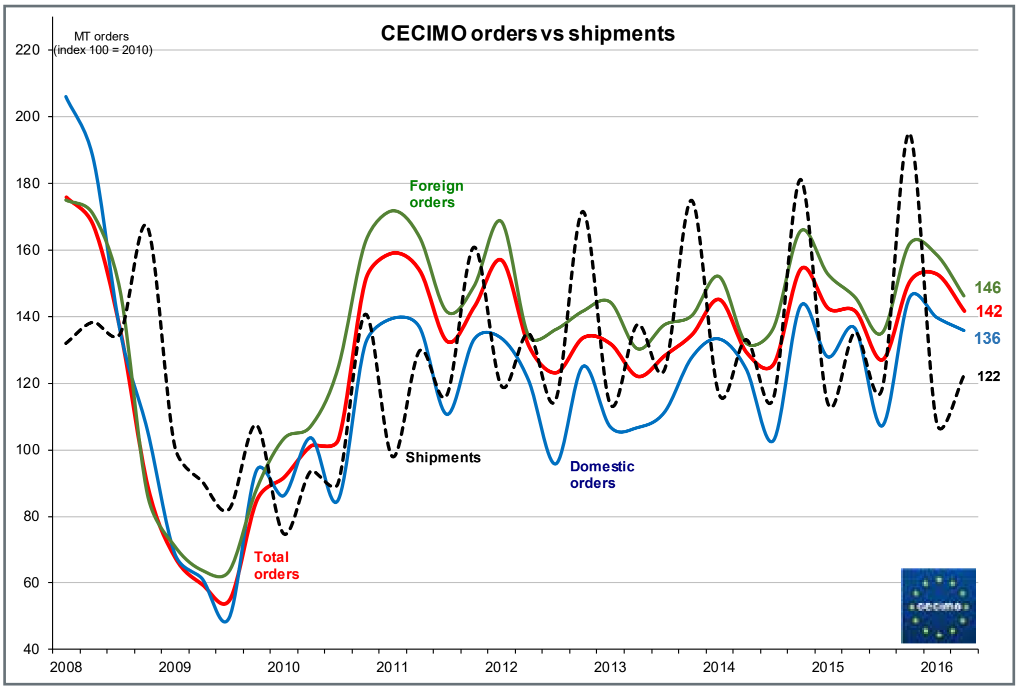
1.1 CECIMO8 orders ⓘ

In the second quarter of 2016, the CECIMO8 total orders' seasonally adjusted index suffered a slight quarterly decrease of 2%, a smoother downward movement than in previous years with the exception of 2015. In year-to-year comparison, CECIMO production increased 2%.

Domestic orders are doing better than foreign ones: while national purchases remained stable, the orders from abroad declined 3% but are still at 1% higher level than one year ago. This fact, again, shows that the European economy is performing relatively well this year within the global context.

Among CECIMO countries, machine tool orders are increasing in Czech Republic, Germany and Spain. On the negative side, the Italian MT output fell of -11%, which is still a 2,5% increase compared to 2015.

On the international sphere, the Japanese MT production has reached its lowest level since the beginning of 2013, suffering from a relatively weak domestic demand. The U.S. orders remains more or less stable, showing the best second quarter trend since 2011 but still far from output levels of that year.



1.2 Peter Meier's forecast

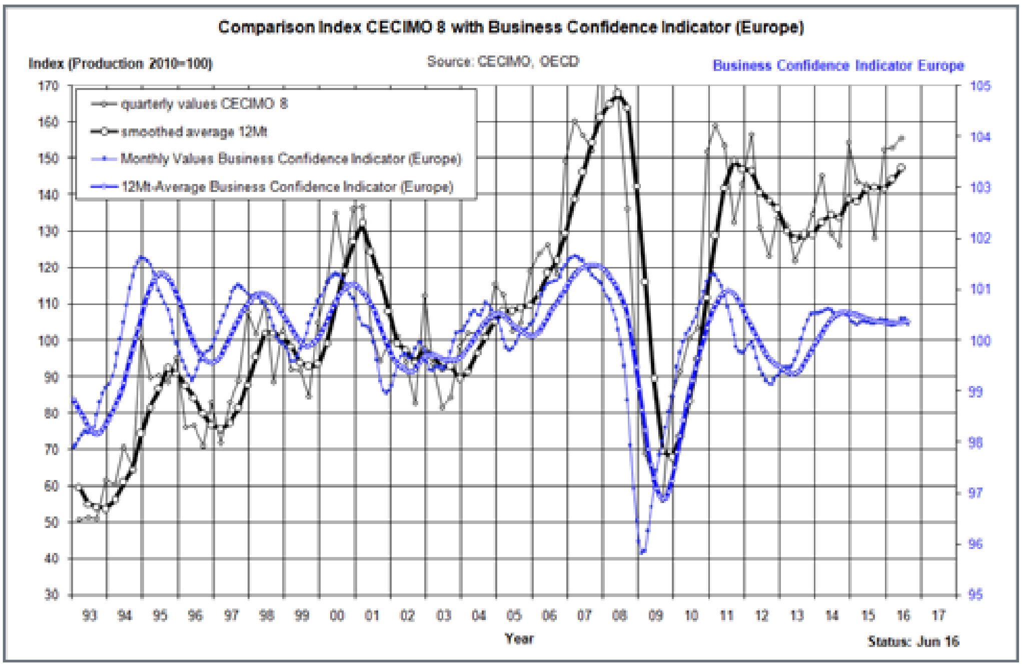
Overall situation:
In contrast to the fears of various economists (the OECD suspended the publication of its leading indicators temporarily), the European mainland's industry responds in a relaxed manner to the Brexit-vote of the British. Two reasons mainly led to this fact: First there is, besides the increased uncertainty, currently no direct impact of the Brits' EU withdrawal. Secondly, we are in a stable economic situation: global indicators are rising again. In Europe, the consumption of private households has increased significantly in recent months and business confidence has risen. However, industrial production is recovering only very slowly. The

industry's sceptical attitude is reflected in relatively low inventory levels and a restrained willingness to invest. But stocks are about to grow as the economy picks up. Different subcontractors already enjoy an increased demand.

For the last two years, the US household consumption developed in a somewhat restrained way. Industrial production has been falling since 2015, but reached the bottom only in recent months. The business confidence has been developing very positively since the beginning of the year, so one can hope for a positive economic momentum in the second half. However, the demand for capital goods is expected to stagnate or even decline until the presidential election. Currently, new passenger car registrations are declining.

Asia shows a mixed picture: household consumption heads for a new peak, driven by China. At the same time, the consumption in Japan decreases. Due to rising labour costs, exports from China recede, which also influences investment negatively. For example, the demand for machine tools declined significantly in China, which directly affected Japanese machine tool exports. On the other hand, the demand for German or Swiss machine tools could, up to now, hold on a comparatively high level.

All in all, it is assumed that in the second half of 2016 positive economic stimuli will show up, mainly in Europe. As a result, the demand for capital goods is expected to increase next year. The various incidents in recent months, such as terrorist attacks, the attempted coup in Turkey or the presidential campaign in the United States, however, have left their mark on recent indicators. The expected recovery in 2017 will probably be somewhat more moderate than previously predicted.



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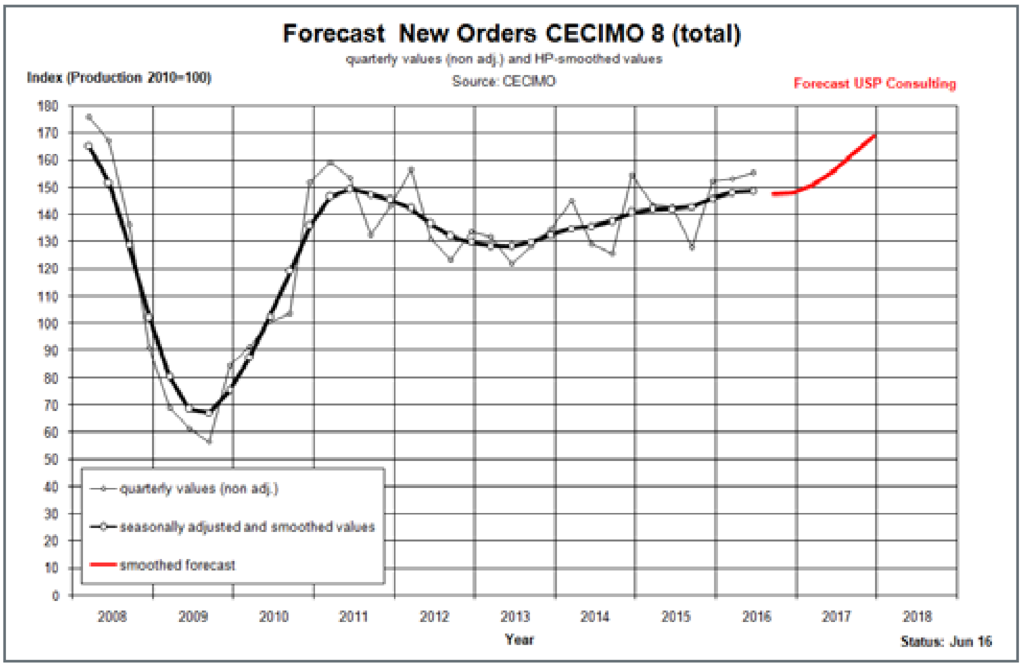
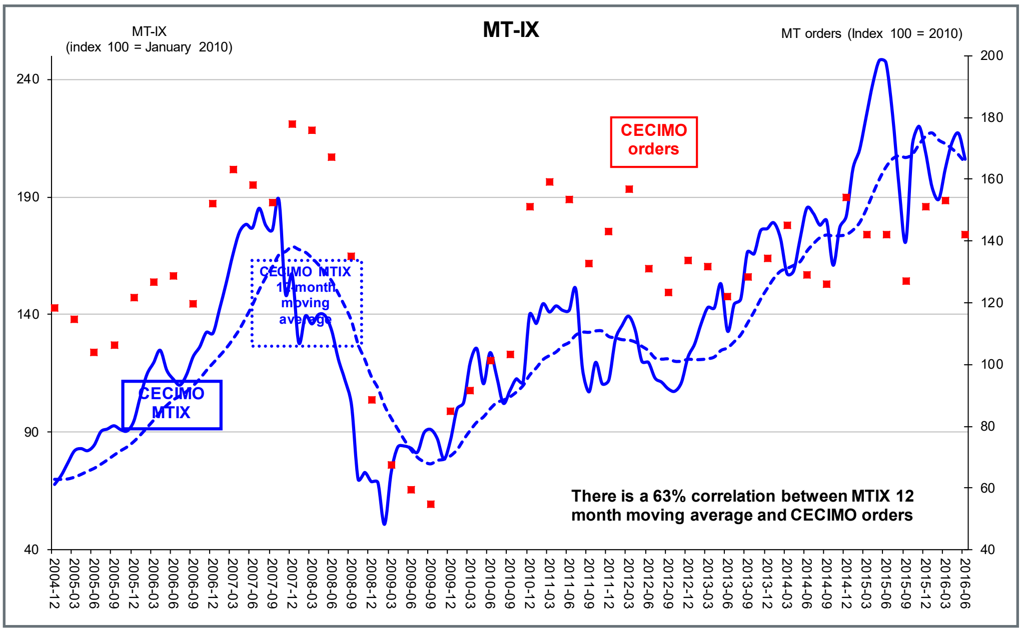


1.3 MT-IX ⓘ

Over the last months, the machine tool companies' market value increased and reached pre-crisis levels. The MT-IX index jumped almost 7% compared to previous quarter' value, gaining 14 points and posting at 220 points.

The machine tool companies' market value increased during the summer throughout the globe, especially in Brazil and Korea. Only Taiwan booked a slight decrease, and the market capitalisation of companies in the United States was stable.



1.4 CECIMO trade

The unfavourable situation for international trade applies to the machine tools sector as well. Both imports and exports have decreased and reported yearly falls of 3% and 6% respectively. Africa, which represent a residual percentage of CECIMO machine tools global trade, is the only region escaping this trend with 9% increase of imports from CECIMO countries and 52% of exports. Russia, that accounted for 6% of CECIMO exports in the first quarter of 2015, represented half of it one year later, and its MT exports to CECIMO countries fell by 30%. Furthermore, exports from CECIMO countries to China, which represent two thirds of CECIMO market in Asia, dropped 3% on quarterly basis and 29% on yearly basis.

CECIMO exports and imports per zones - 2015Q3

EXPORTS

Zone	2016Q1	2015Q1	2016Q1/ 2015Q1	Share 2016Q1	Share 2015Q1
I. ASIA	965 696	996 550	-3%	25%	24%
II. AMERICAS	653 225	651 541	0%	17%	16%
III. EUROPE	1 992 044	2 094 621	-5%	51%	50%
CECIMO	1 573 551	1 672 494	-6%	40%	40%
non CECIMO	418 493	422 127	-1%	11%	10%
IV. Russia + CIS	122 855	237 905	-48%	3%	6%
V. AFRICA	71 485	65 697	9%	2%	2%
VI. OTHERS	193 105	198 219	-3%	5%	5%
TOTAL EXPORTS	3 926 926	4 178 836	-6%		

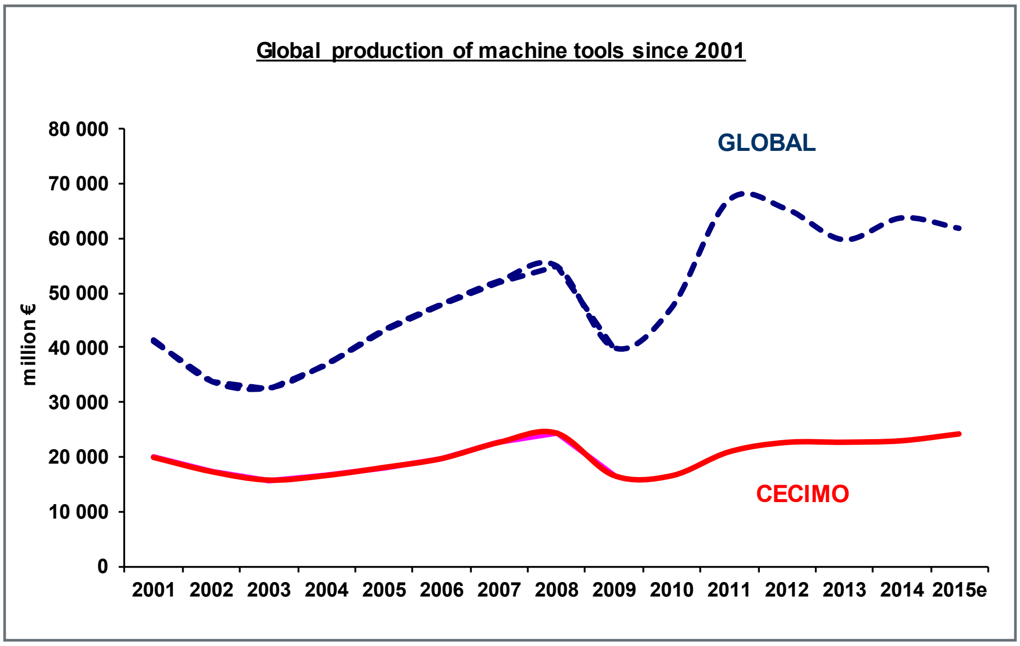
IMPORTS

Zone	2016Q1	2015Q1	2016Q1/ 2015Q1	Share 2016Q1	Share 2015Q1
I. ASIA	647 783	674 555	-4%	30%	30%
II. AMERICAS	99 754	107 711	-7%	5%	5%
III. EUROPE	1 419 324	1 452 143	-2%	65%	64%
CECIMO	1 362 504	1 388 391	-2%	62%	62%
non CECIMO	56 820	63 752	-11%	3%	3%
IV. Russia + CIS	1 973	2 792	-29%	0%	0%
V. AFRICA	1 103	726	52%	0%	0%
VI. OTHERS	14 300	14 229	1%	1%	1%
TOTAL IMPORTS	2 183 134	2 251 430	-3%		

1.5 CECIMO production

Based on the results of the statistical forms collected before the CECIMO General Assembly in Fuschl-am-See on 21 June, the confirmed production of the 15 CECIMO member countries increased more than 5% to 24.3 billion euros in 2015. Despite the declining global machine tool market, the European machine tool industry has been able to keep its competitive position. The low euro rates are making European machines cheaper on foreign markets while domestic consumption and some previously postponed investments drive local machine tool sales. This, combined with the declining output in the global context, leads to think that CECIMO production will keep growing its market share and suggest that its MT output will remain above 24 billion euro in the near future. Still, the increasing uncertainty and geopolitical tensions keeps the industry from having a highly positive future outlook.

Germany, which together with Italy and Switzerland accounts for more than three quarters of CECIMO machine tool output, is, by far, the biggest CECIMO MT producing country with 46.2 percent of its total production last year. Italy and Switzerland represent respectively 19.3 and 12.0%, followed by Spain (3.9%), Austria (3.5%) and the UK (3.4%). So far, no significant changes in these percentages are expected for 2016.



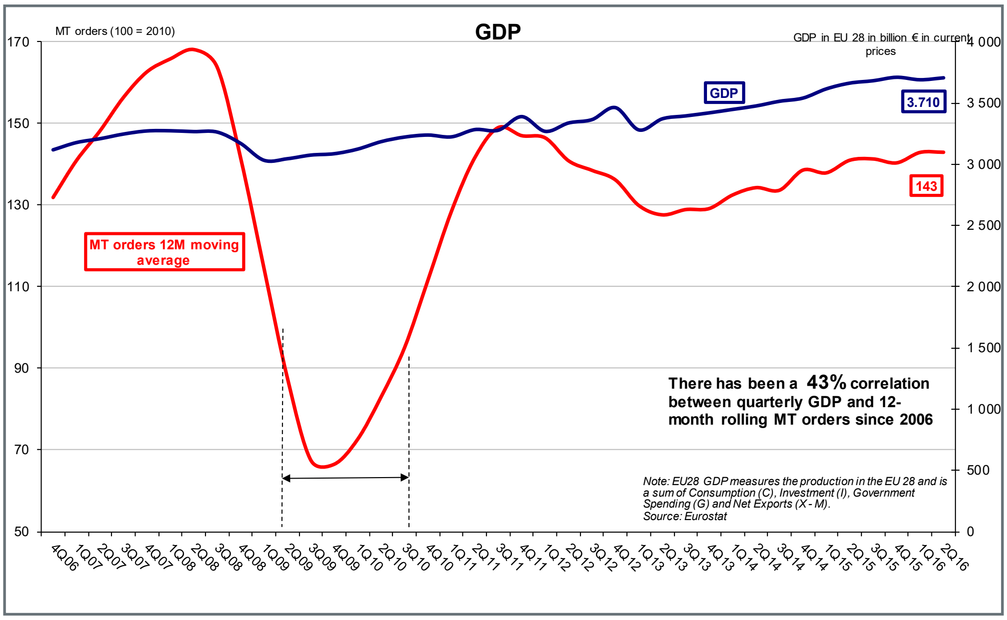
	2015e		2015/2014
	% share	Mio. €	Mio. €
CECIMO	39%	24 263	5%
China (offic.)	26,5%	16 840	-9%
Japan	19,3%	12 283	5%
S. Korea	5,7%	3 626	-15%
USA	5,5%	3 505	-15%
Taiwan	4,8%	3 071	-16%
India	1,1%	691	2%
Canada	0,6%	404	-4%
Russia	0,6%	370	9%
Thailand	0,6%	363	-10%
Singapore	0,5%	342	-11%
Poland	0,3%	207	0%
Others	1,5%	956	-40%
TOTAL	100%	61 699	-3%

2. Macroeconomic data in relation with machine tool orders

2.1 GDP

According to the latest estimation published by Eurostat, the seasonally adjusted nominal gross domestic product in the EU and the Euro area rose by 0.4% and 5.6% respectively in the second quarter of 2016 compared to the previous one. In the first quarter of 2016, the GDP grew by 0.6% in the Euro area and by 0.5% in the EU28. The real GDP in the Euro area increased by 0.3% quarter on quarter, at a slightly smaller rate than the 0.5% in the first quarter. The spring 2016 forecast carried out by the European Commission reveals its estimations of above 3% real GDP growth in Ireland, Poland, Romania, Latvia, Lithuania, Luxembourg, Malta and Slovakia. Finland, Italy, Belgium, Cyprus and Austria are not expected to increase their domestic output more than 1.5% compared with 2015. As a result, the overall EU real GDP will rise 1.7-2.2% this year, compared to the 3% US rate, an increase in China close to 7%, 1.4% Japanese growth and 4% world GDP rise.

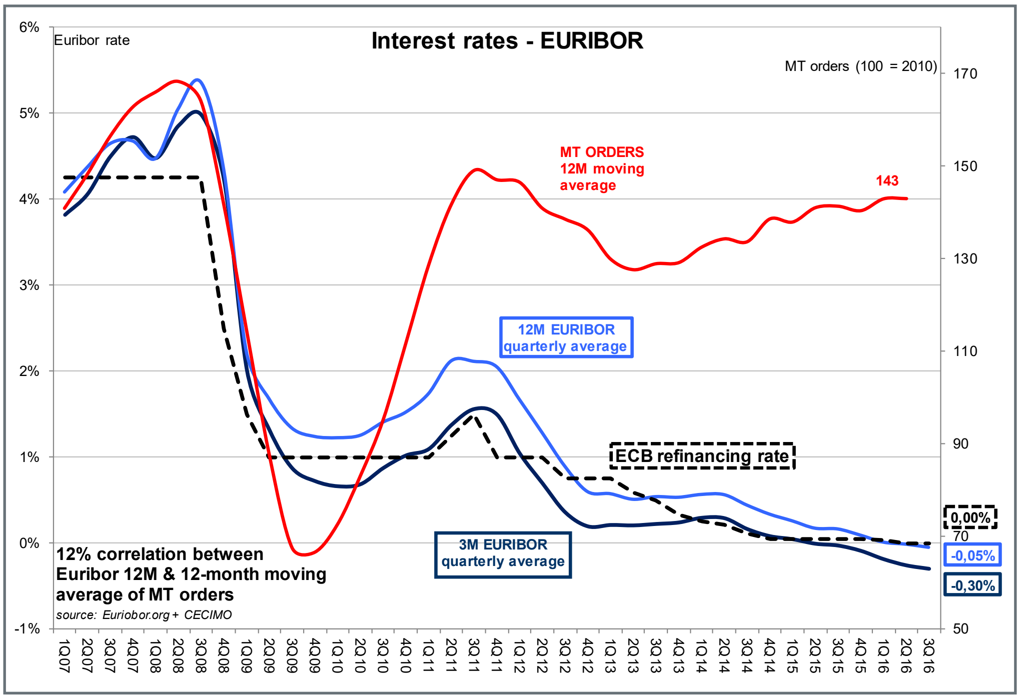
During the second quarter of 2016, according to data released by the US Department of Commerce in late September, the GDP in the United States expanded at 1.4% annual rate, better than previously thought, and above the 1.2% in August and 1.1% in July. Consumer spending remained robust, and exports and corporate investments exceeded expectations. US economy recorded 1% growth in the first half of 2016.



2.2 Interest rates – EURIBOR ⓘ

Interest rates remain at very low levels. The average 3-month and 12-month Euribor recorded respectively -0.30% and -0.05% in the third quarter of 2016, with just minor changes during the last 3 months. The refinancing rate of the European Central Bank has been maintained at 0% since last March, and the ECB interest rates on the marginal lending facility and the deposit facility will be maintained unchanged at 0.25% and -0.40% respectively. The ECB reaffirmed its commitment to the monthly asset purchases of €80 billion until the path of inflation gets closer to its inflation aim, at least until March next year.

According to Eurostat, inflation in the Euro area in August was the same than in July, 0.2%, while the inflation in the EU28 was 0.3%, compared to 0.2% rate in July. Year-on-year, EU inflation is forecasted to trend upward in the second half of 2016, recording 1.5% up from 0.1% in 2015. The increasing price level reflects mostly higher fuels for transport and heating oil & gas price inflation. The only EU country in risk to overtake the 2% annual interest rate is Belgium, where the inflationary trend is not ebbing. In the US, annual consumer price index went up 1.1 percent in August 2016, higher than 0.8 percent in July.



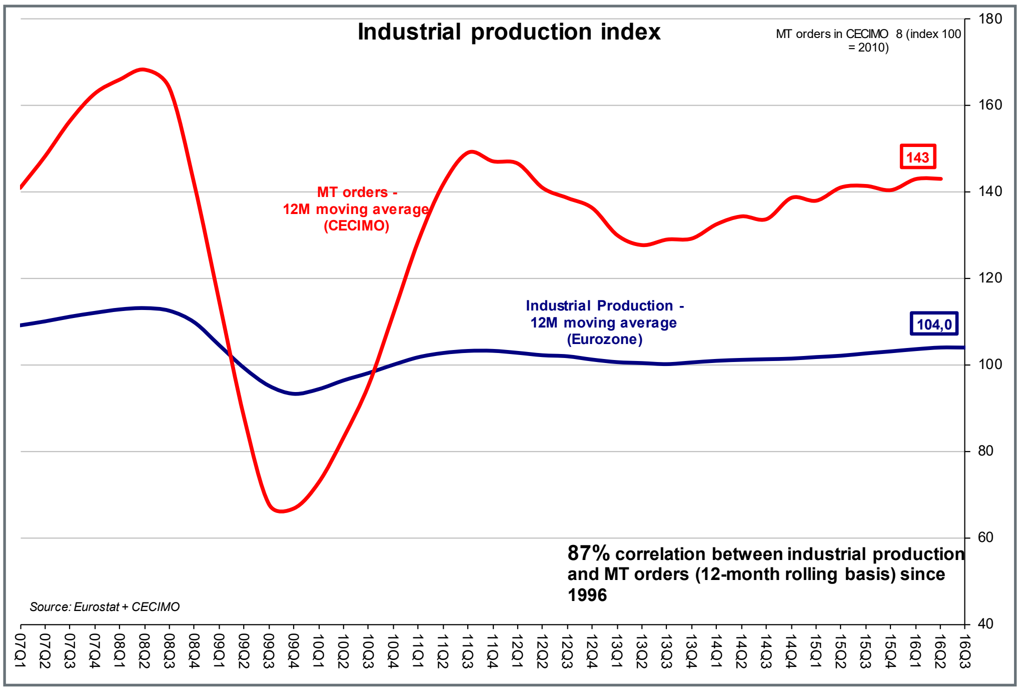
2.3 Industrial production index ⓘ

In July 2016 compared with June 2016, the seasonally adjusted industrial production excluding construction fell by 1.1% in the euro area (EA19) and by almost 1% in the EU28, according to estimates from the statistical office of the European Union. In June 2016, industrial production rose by 0.9% in the EA19 while going up 0.7% in the EU28. In July 2016 compared with July 2015, industrial production decreased by 0.5% in the EA19 and by 0.1% in the EU28.

Please find below the reasons underpinning the monthly decrease of industrial production disaggregated by activity:

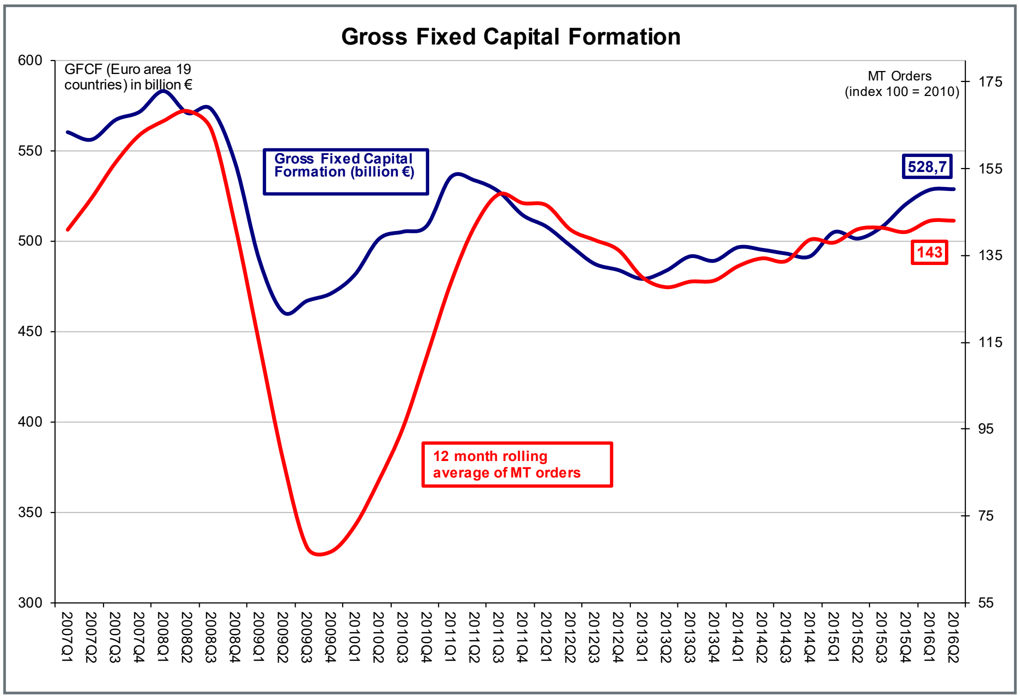
Production	EA19		EU28	
	July 2016	June 2016	July 2016	June 2016
Total industry	-1.1%	0.8%	-1.0%	0.8%
Capital goods	-1.7%	1.6%	-2.1%	1.5%
Energy	-1.4%	-0.5%	-0.2%	-0.5%
Durable consumer goods	-0.7%	1.2%	-0.6%	1.0%
Non-durable consumer goods	0.0%	1.0%	0.2%	0.4%
Intermediate goods	-0.5%	-0.3%	-0.4%	-0.2%

Among EU Member States for which data are available, the largest decreases in industrial production were registered in Slovakia (-15.9%), the Czech Republic (-9.7%) and the Netherlands (-5.8%), and the highest increases in Estonia (+4.5%), Ireland (+3.7%) and Denmark (+2.3%). In the US, industrial production dropped 0.4% in August after rising 0.6% in July.



2.4 Gross Fixed Capital Formation ⓘ

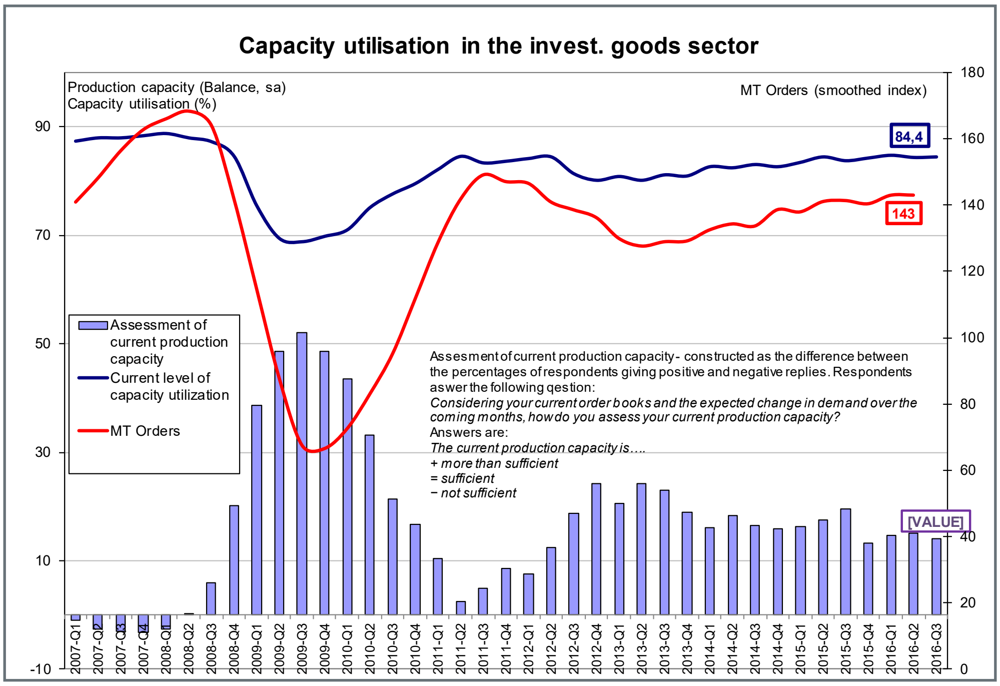
The Gross Fixed Capital Formation (GFCF), formerly known as Gross Domestic Fixed Investment, reveals that investments in fixed assets remains under the targeted levels which would be consistent with sustainable growth, but it is already reaching the 2011 rates though. Furthermore, there are some goods prospects for the near future. For instance, it is well known that these investments are highly correlated with the economic sentiment. This confidence, measured by the Economic Sentiment Indicator (ESI) published by the European Commission in September 2016, is 1.4 and 1.8 points greater in the EU and the EA respectively after three months of negative or very modest developments.



2.5 Capacity utilisation in the investment goods sector ⓘ

In the EU, the capacity utilization in the third quarter of 2016 was 84.4%, 0,1 points higher than the previous quarter and 0,3 lower the first quarter of the year. The correlation between the evolution of level of capacity utilization and machine tools orders is over 40%. In the EU19, the capacity utilization in the third quarter rose to 81.6%.

In the US, capacity utilization was 75.5% in August, 0,4 points lower than in July. No changes in comparison with June.



2.6 Bank lending survey ⓘ

The net easing in credit standards continues to support the recovery of loan growth to companies in the euro area. In the second quarter of 2016, banks of the EU19 reported a net easing of credit standards for loans to enterprises (net percentage of reporting banks at -7%, compared with -6% in the previous quarter), in line with the trend of historical data gathered from mid-2014.

Banks continue to narrowing margins on average loans to enterprises, while the ones on riskier loans remained unchanged.

Regarding the demand for loans coming from enterprises, it continued to increase at similar rate than in the previous quarter (16-17%), and banks expect it to rise further in the next quarter of this year.

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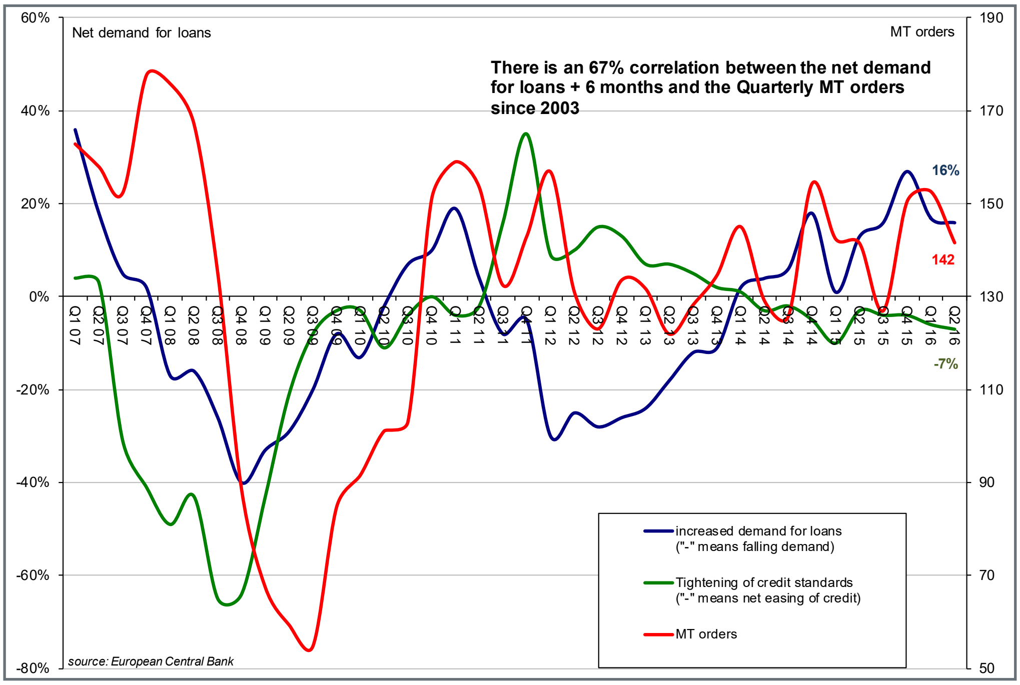
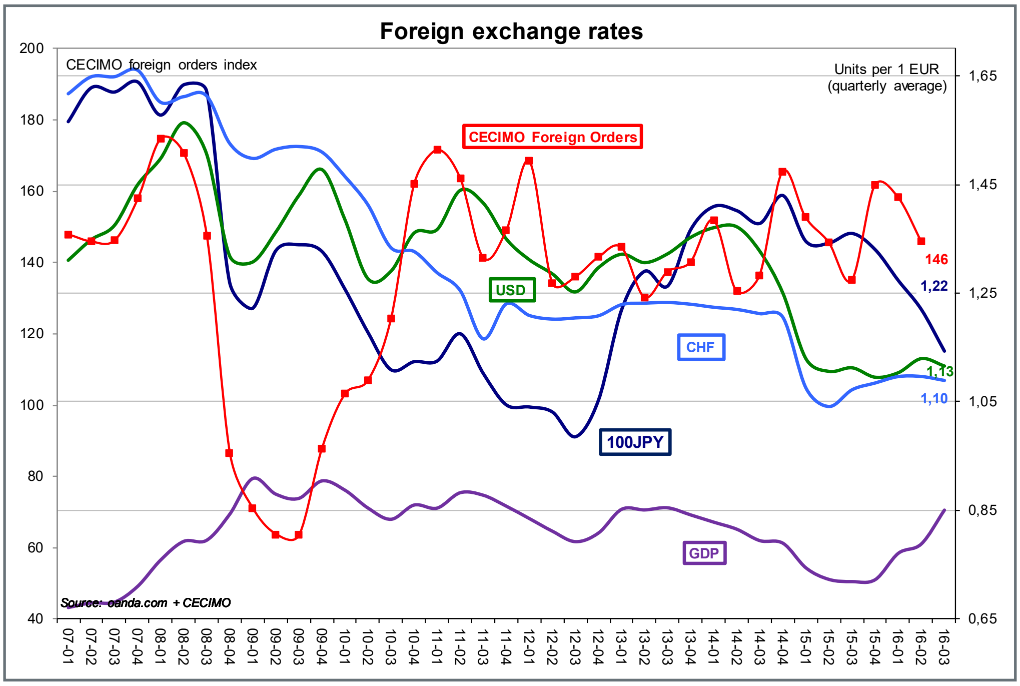


2.7 Foreign exchange rates

The eurozone common currency depreciated against most major currencies and, to a larger extent, against currencies of developing economies and commodity-exporting countries such as the Brazilian real, the Indian rupee, the South Korean won and the Japanese yen.

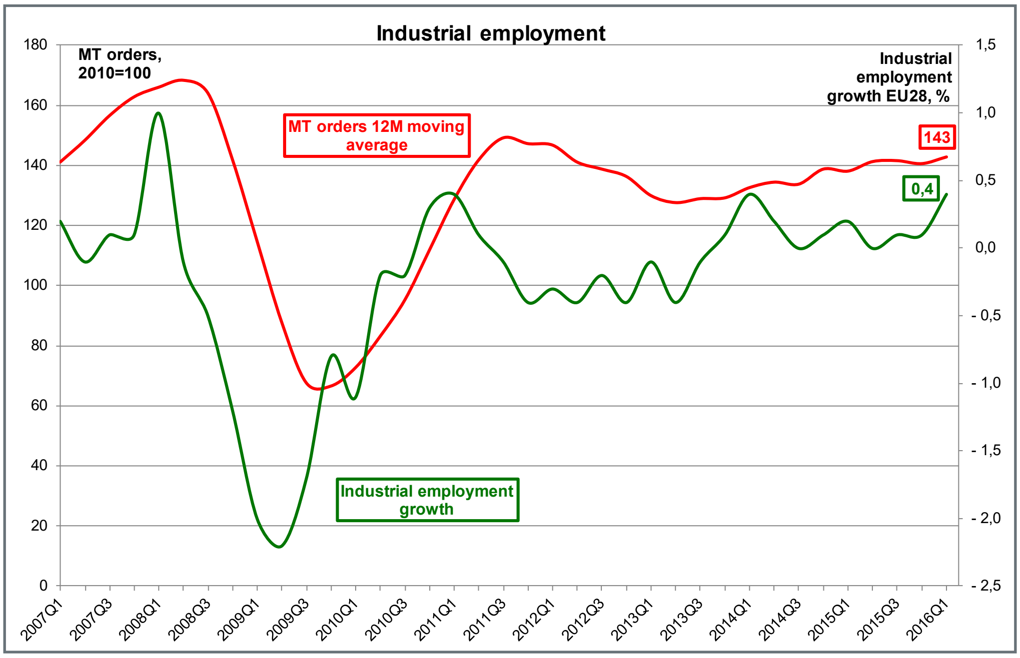
The most significant exception to the Euro depreciation trend was the Pound sterling. The depreciation of the EUR against the GBP by 11,5% since June (9,3% in effective terms) and by 13,2% since 23 June is largely due to the uncertainty following the outcome of the UK referendum. The real effective exchange rate EUR/GBP depreciated by 9.3% since June.

In effective terms, the euro has remained virtually unchanged in foreign exchange markets.



2.8 Industrial employment

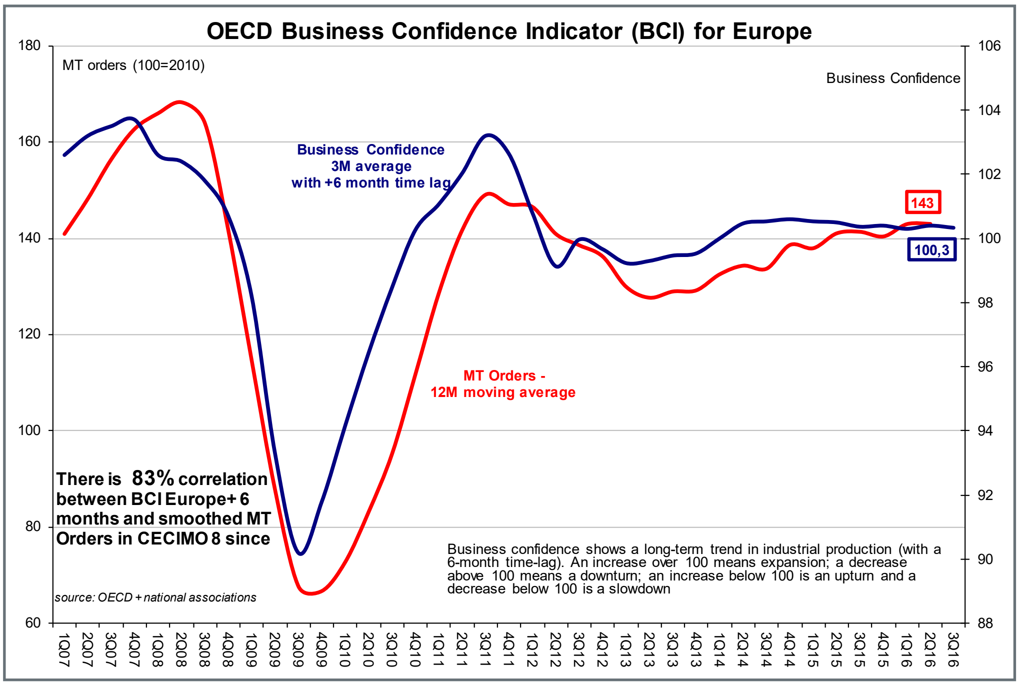
Industrial employment growth picked up in the first quarter of 2016, reaching a similar rate than in the first quarter of 2014. More importantly, the Euro area increased its level of employment at 0,3%, the highest rate since the beginning of 2008. The correlation between machine tool orders and the industrial employment is slightly higher than 51% in the EU and 56% in the Eurozone.



2.9 OECD Business Confidence Indicator for Europe

Business confidence indicators (BCIs) show an outlook for relatively firming growth in the OECD area.,

In Europe, the BCI points to a stable growth momentum. In the euro area, BCIs keep pointing to firming growth.



Among other developed countries, the United States' BCIs indicates a stable growth momentum and in Canada, the CLI indicates growth picking up.

Among major emerging economies, the BCIs for China, Brazil and Russia confirm that upturn is gathering strength. BCIs continue to point to firming growth in India.

2.10 European Commission Economic Sentiment Indicator

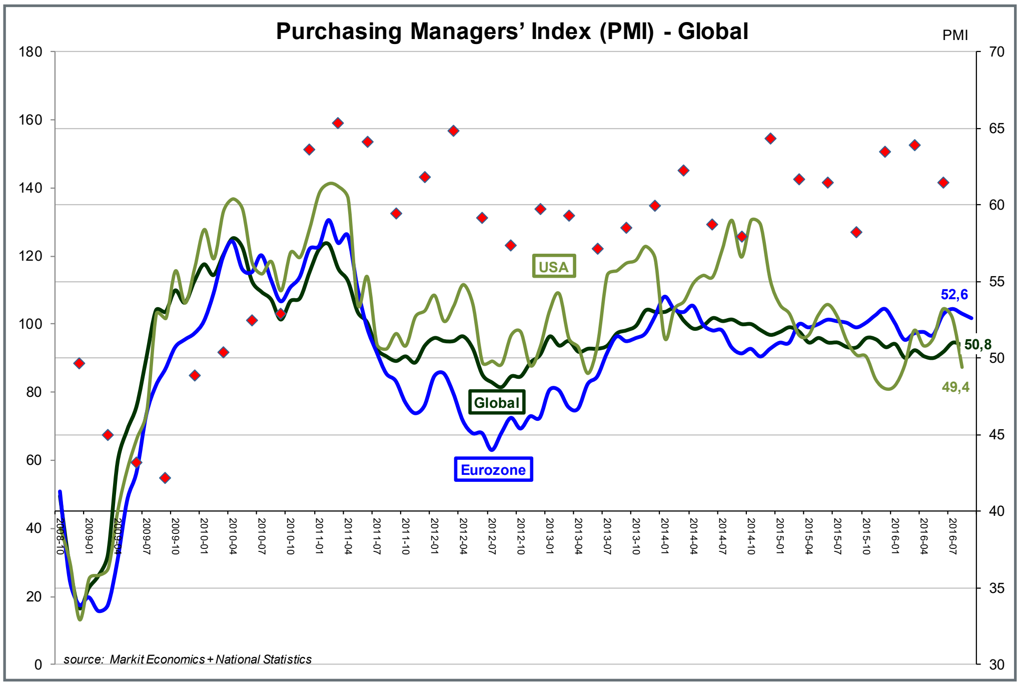
After three months of stagnation or negative growth, the latest Economic Sentiment Indicator (ESI) published by the European Commission in September 2016 shows strength and confidence going up 1.4 points to 104.9 in the EA19 and 1.8 points to 105.6 in the EU. The major increases were registered in the largest economies in the Eurozone: +1.7 in the Netherlands, +1.6 in Germany, +0.9 in France, +0.5 in Spain and +0.4 in Italy. The underlying factors driving the index up have been the increases in industry and construction confidence, as well as stronger retail trade.

2.11 Purchasing Managers' Index

The global manufacturing activity remained stuck in a rut in July, after marginally increasing from May's 50.0 to 50.4 in June, and lost momentum in August, with lower rates for production, new orders and new export business, which lead to job growth deceleration. It has reached its weakest level since March.

In the EA19, the Purchasing Managers' Index (PMI) posted 51.7 in August, the lowest level over the last 3 months, and down further from June's year-to-date high. Production dropped to a three-month low, orders inflows rise was very weak, recording an 18-month low. Companies reported slower increases in new business from domestic and export sources. Imbalances between countries are clear. On the positive side, Germany and the Netherlands registered firm expansions. On the negative side, France suffered from deepest fall in new orders for four months. The situation is worst for Italy, who has registered the lowest orders inflow in 19 months, and its output almost stood still. Greece is stagnating and both Spain and Ireland are enduring their worst growth spells since mid-2013.

"*Eurozone manufacturers reported a wavering performance in August, with signs that growth could slow further in coming months. The rate of expansion dipped to a three-month low but is at least holding up in the face of the uncertainty caused by the UK's vote to leave the EU. The survey indicates that factory production is growing at a steady though unexciting annual rate of just under 2%. There is some suggestion of a Brexit impact, however, and growth may wane further in September after new orders growth slipped to a one-and-a-half-year low. Anecdotal evidence suggests that the strengthening of the euro and reduced sales to the UK were partly to blame for the order book slowdown*", commented Markit.



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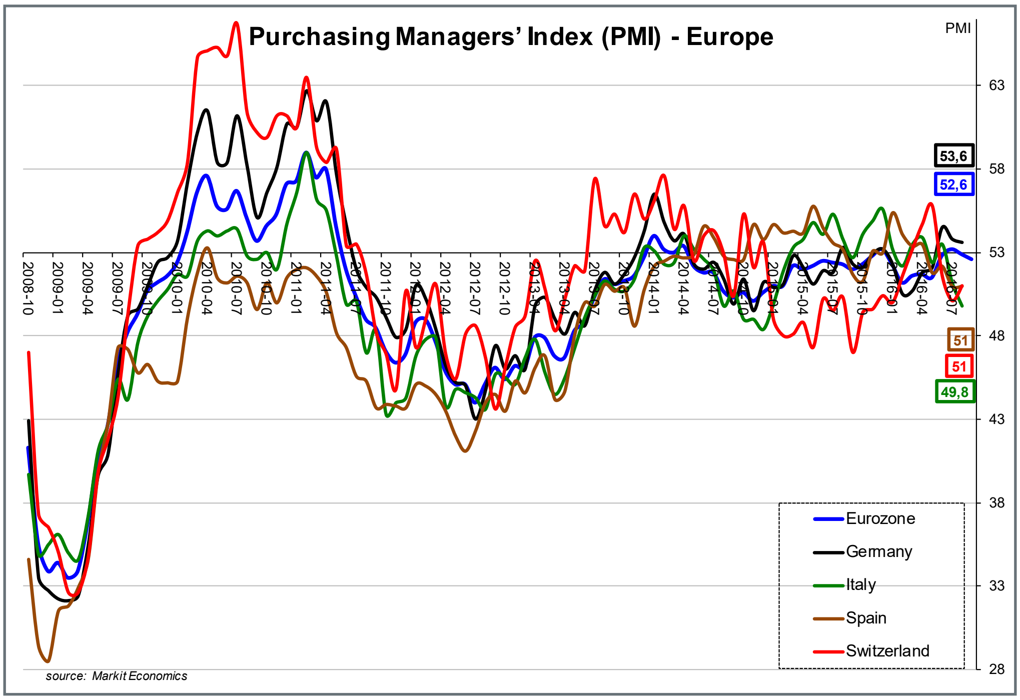
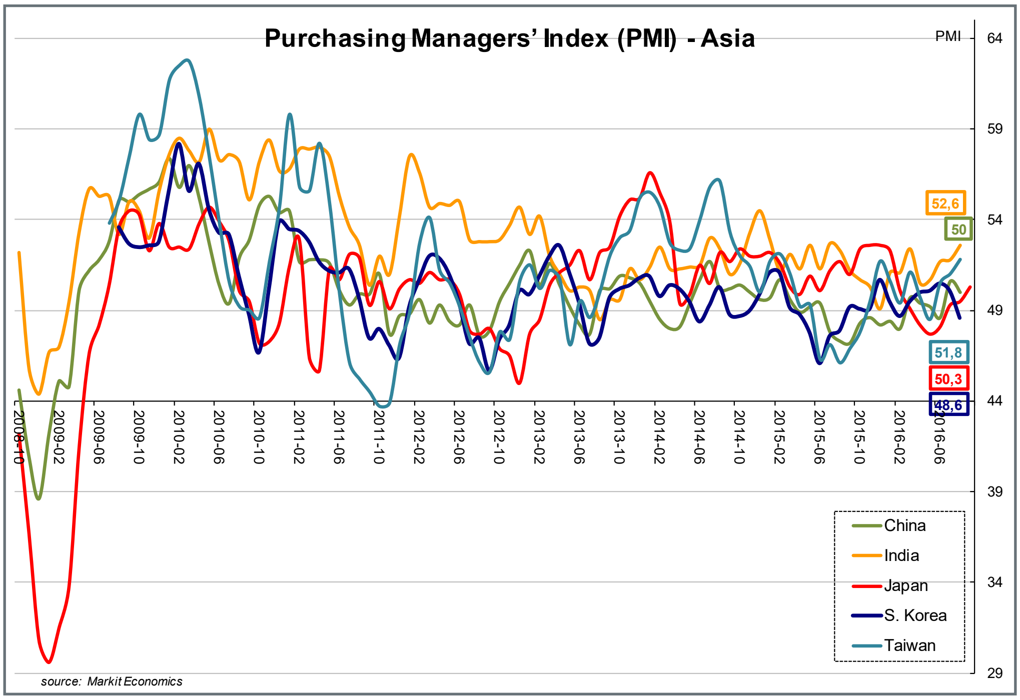

Purchasing Managers' Index (PMI) - Europe
PMI
63
58
53
48
43
38
33
28
53,6
52,6
51
51
49,8
Eurozone
Germany
Italy
Spain
Switzerland
source: Markit Economics


Purchasing Managers' Index (PMI) - Asia
PMI
64
59
54
49
44
39
34
29
52,6
50
51,8
50,3
48,6
China
India
Japan
S. Korea
Taiwan
source: Markit Economics

Glossary ⓘ

1.1 CECIMO8 orders

This section presents the “new orders received index” showing the development of the machine tool demand as an indication of future production. An order is defined as the value of the contract linking a producer and a third party in respect of the provision by the producer of goods and services.

The CECIMO8 orders index combines the relevant indexes of Austria, the Czech Republic, France, Germany, Italy, Spain, Switzerland and the United Kingdom. The weights of the different indexes correspond to the countries shares in total production of the eight countries in 2010. The new orders received are split according to the origin of the order, based on the change of ownership. This identification is the basis for domestic and foreign new orders. The origin is determined by the residency of the third party that has made the order.

1.3 MT-IX

MTIX is an index based on the capitalization of 23 leading, publicly listed machine tool producing companies. The capitalization of the companies included is weighted by the share of machine tool turnover in total revenues. The total capitalization calculated in that way is weighted then by and estimated share of the European companies in the world total output in 2010.

2.2 Interest rates - Euribor

Euribor® (Euro Interbank Offered Rate) is the rate at which euro interbank term deposits are being offered by one prime bank to another within the EMU zone.
http://www.euribor-ebf.eu/

2.3 Industrial production index

The objective of the production index is to measure changes in the volume of output at close and regular intervals, normally monthly. It provides a measure of the volume trend in value added over a given reference period. The production index is a theoretical measure that must be approximated by practical measures. Value added at basic prices can be calculated from turnover (excluding VAT and other similar deductible taxes directly linked to turnover), plus capitalised production, plus other operating income plus or minus the changes in stocks, minus the purchases of goods and services, minus taxes on products which are linked to turnover but not deductible plus any subsidies on products received. The division of production in construction between building construction and civil engineering is based on the classification of types of construction (CC). Statistical population: Production: sections B, C, D of NACE (D353 excluded); Base period: Year 2010 = 100.
http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/is_esms.htm

2.4 Gross Fixed Capital Formation

The Gross Fixed Capital Formation (GFCF) consists of resident producers´ aquisitions, less disposals, of fixed tangible or intangible assets. This covers in particular machinery and equipment, vehicles, dwellings and other buildings. Source: Eurostat.

2.5 Capacity utilization in the investment goods sector

Population: Investment goods producers. Data covered: Assessment of current production capacity, measured as a balance (seasonally adjusted); Current level of capacity utilization, measured in % (seasonally adjusted). More than 38 000 industrial firms are surveyed every month, while the biannual investment survey includes over 44 000 units. Answers obtained from the surveys are aggregated in the form of "balances". Balances are constructed as the difference between the percentages of respondents giving positive and negative replies. The Commission calculates EU and euro-area aggregates on the basis of the national results and seasonally adjusts the balance series.
http://ec.europa.eu/economy_finance/db_indicators/surveys/documents/userguide_en.pdf

2.6 Bank lending survey

The bank lending survey is addressed to senior loan officers of a representative sample of euro area banks. Its main purpose is to enhance the understanding of bank lending behaviour in the euro area. The questions distinguish between three categories of loan: loans or credit lines to enterprises; loans to households for house purchase; and consumer credit and other lending to households. For all three categories, questions are posed on credit standards for approving loans; credit terms and conditions; and credit demand and the factors affecting it.
The responses to questions related to credit standards are analysed in this report by focusing on the difference ("net percentage") between the share of banks reporting that credit standards have been tightened and the share of banks reporting that they have been eased. A positive net percentage indicates that a larger proportion of banks have tightened credit standards ("net tightening"), whereas a negative net percentage indicates that a larger proportion of banks have eased credit standards ("net easing"). Likewise, the term "net demand" refers to the difference between the share of banks reporting an increase in loan demand and the share of banks reporting a decline. Net demand will therefore be positive if a larger proportion of banks have reported an increase in loan demand, whereas negative net demand indicates that a larger proportion of banks have reported a decline in loan demand.
http://www.ecb.eu/stats/money/surveys/lend/html/index.en.html

2.9 OECD Business Confidence Indicator (BCI) for Europe

The Composite leading indicators (CLI), which BCI is part of, comprises a set of component series selected from a wide range of key short-term economic indicators to ensure that the indicators will still be suitable when changes in economic structures occur in future. CLIs are calculated for 33 OECD countries (Iceland is not included), based on enterprises' assessment of production, orders and stocks, together with its current position and expectations for the near future.

These indexes are designed to anticipate turning points in economic activity relative to trend. While theory says that a turning point in the CLI signals a turning point in the reference series, such turning points, in reality, are determined by a complicated process. Turning points in the detrended reference series are usually found about 4 to 8 months in advance. Therefore, one often needs to wait for several periods to draw a more definite conclusion. A useful way to exploit the information in CLIs is to take their year-on-year growth rate.

The standardised BCIs represent only the manufacturing sector. BCI shows a long-term trend in industrial production (with a 6-month time-lag). An increase over 100 means expansion; a decrease above 100 means a downturn; an increase below 100 is an upturn and a decrease below 100 is a slowdown.
http://stats.oecd.org/mei/default.asp?lang=e&subject=5

2.10 European Commission Economic Sentiment Indicator

The Economic Sentiment Indicator (ESI) is a composite indicator made up of five sectoral confidence indicators with different weights: Industrial confidence indicator, Services confidence indicator, Consumer confidence indicator, Construction confidence indicator Retail trade confidence indicator. Confidence indicators are arithmetic means of seasonally adjusted balances of answers to a selection of questions closely related to the reference variable they are supposed to track (e.g. industrial production for the industrial confidence indicator). Surveys are defined within the Joint Harmonised EU Programme of Business and Consumer Surveys. The economic sentiment indicator (ESI) is calculated as an index with mean value of 100 and standard deviation of 10 over a fixed standardised sample period. Data are compiled according to the Statistical classification of economic activities in the European Community, (NACE Rev. 2). Source: DG ECFIN

2.11 Purchasing Managers' Index (PMI)

The Global Report on Manufacturing is compiled by Markit based on the results of surveys

covering 9,000 purchasing executives in 30 countries. Together these countries account for an estimated 86% of global manufacturing output. Questions are asked about real events and are not opinion based. Data are presented in the form of diffusion indices, where an index reading above 50.0 indicates an increase in the variable since the previous month and below 50.0 a decrease.
http://www.markiteconomics.com/Survey/Page.mvc/AboutPMIData

CREDITS

CECIMO
Statistical Toolbox

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Denmark: The Manufacturing Industry
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ffi.di.dk

Finland: Technology Industries of Finland
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cecimo is the European Association representing the common interests of the Machine Tool Industries globally and at EU level. We bring together 15 National Associations of machine tool builders, which represent approximately 1300 industrial enterprises in Europe (EU + EFTA + Turkey), over 80% of which are SMEs. CECIMO covers 98% of total Machine Tool production in Europe and about 36% worldwide. It accounts for almost 150,000 employees and a turnover of nearly €24 billion in 2016. Approximately 75% of CECIMO production is shipped abroad, whereas around half of it is exported outside Europe. CECIMO assumes a key role in determining the strategic direction of the European machine tool industry and promotes the development of the sector in the fields of economy, technology and science.