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November Industrial Production

Economic assessment revised upwards reflecting favorable production performance

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Summary

- The November indices of industrial production recorded growth of +0.6% m/m, while shipments grew by +2.4% and inventory declined by -1.0%. The METI production forecast survey sees December performance up by +3.4% m/m, and January 2018 down by -4.5%.
- Industrial production has recently maintained growth due to expanding exports accompanying recovery of the global economy. The government's economic assessment has been revised upwards from "picking up movement" to "picking up".
- The scale of the global market is expanding for semiconductor manufacturing equipment, the leader in growth for the general-purpose, production and business oriented machinery industry. Global demand for semiconductors used in IoT and installed in automobiles is especially strong. Market scale is expected to grow in 2018 by +7.5% y/y to a total of \$60.1 billion. While the growth rate is expected to slow somewhat in comparison to 2017 (when it was +35.6% or \$55.9 billion), favorable performance is expected to be maintained on into the future.
- Production is expected to experience moderate growth in February 2018 and beyond. As for capital goods, exports are expected to lead the economy and expand centering on semiconductor manufacturing equipment due to the recovery in the global economy. However, caution is required regarding overseas demand due to possible downside risk. If US interest rates undergo a rapid rise in association with the Fed's exit strategy, this could bring downward pressure on the US economy, while at the same time encouraging capital outflows from the emerging nations.

Industrial Production (m/m %; SA basis)
Chart 1

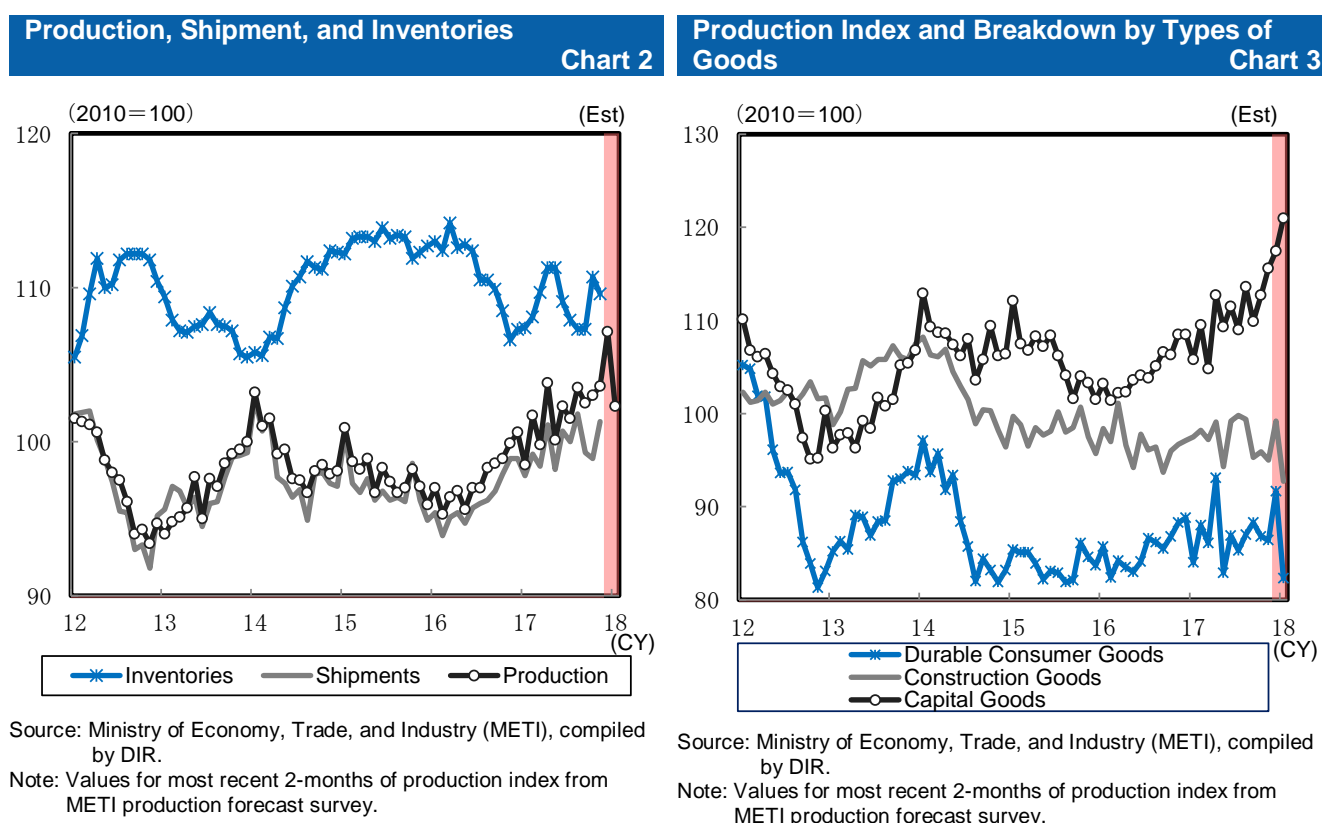
	2017										
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Industrial Production	3.2	-1.9	4.0	-3.6	2.2	-0.8	2.0	-1.0	0.5	0.6	
Market consensus (Bloomberg)										0.5	
DIR estimate										0.4	
Shipments	1.4	-0.8	2.7	-2.9	2.5	-0.7	1.8	-2.5	-0.4	2.4	
Inventories	0.7	1.5	1.5	0.0	-2.0	-1.1	-0.6	0.0	3.2	-1.0	
Inventory ratio	-0.3	0.2	2.9	-1.9	-1.9	2.6	-4.1	1.6	3.5	-2.9	

Source: Ministry of Economy, Trade, and Industry; Bloomberg; compiled by DIR.

Economic assessment revised upwards

The November indices of industrial production recorded growth of +0.6% m/m, while shipments grew by +2.4% and inventory declined by -1.0%. The METI production forecast survey sees December performance up by +3.4% m/m, and January 2018 down by -4.5%.

Industrial production has recently maintained growth due to expanding exports accompanying recovery of the global economy. The government's economic assessment has been revised upwards from "picking up movement" to "picking up".



Ten out of fifteen industries register growth

As for production index performance by industry in November, contribution to growth was especially notable for general-purpose, production and business oriented machinery, and electronic parts and devices, which helped push up overall production results. Semiconductor related industries such as semiconductor manufacturing equipment and MOS type semiconductor integrated circuits especially contributed to growth.

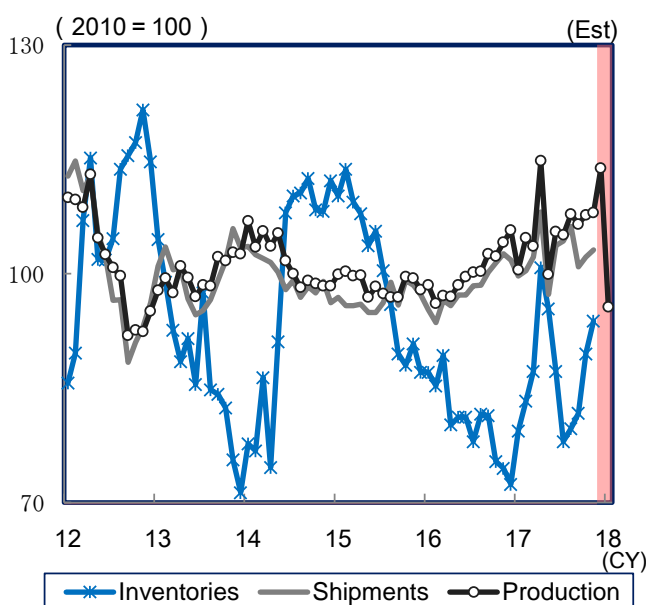
Meanwhile, the production index for transport equipment won modest growth of +0.3% m/m. One of Japan's major automobile manufacturers halted production and shipments at its domestic factories in November, but other manufacturers increased production, hence decline in domestic automobile production was limited.

January results see major decline for transport equipment

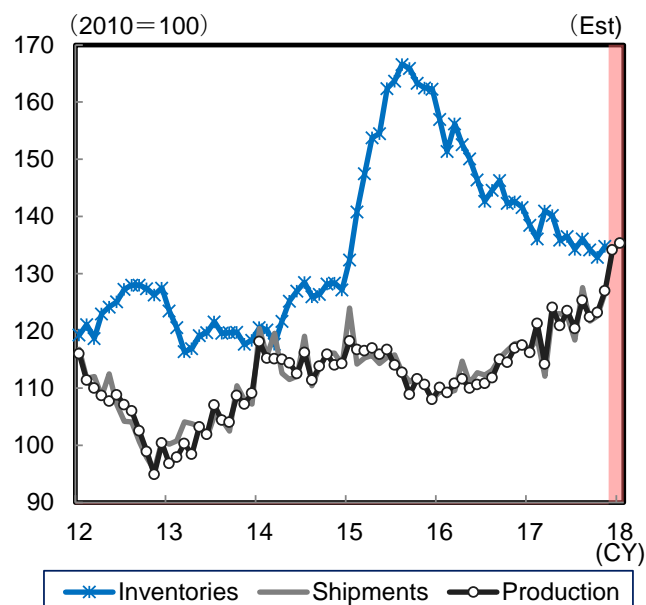
The METI production forecast survey sees December performance up by +3.4% m/m, and January 2018 performance down by -4.5%. Meanwhile, METI’s estimated forecast value for the December Indices of Industrial Production indicates growth of +1.8% (mode value).

Looking at the production forecast survey by industry, we see that production plans for the transport equipment industry show December performance up by +5.4% and January 2018 down by -16.0%. A reactionary decline in response to December performance is expected in January 2018 causing a major decline in production. This is also expected to have a negative impact on the overall forecast. On the other hand, general-purpose, production and business oriented machinery expects maintain favorable performance with December up by +5.6% and January 2018 up at +0.9%. However, this industry tends to experience downturns in production after initial plans have been announced; hence figures should be taken with a certain grain of salt.

Production, Shipments, and Inventory (Left: Transport Equipment, Right: General-Purpose, Production and Business Oriented Machinery) Chart 4



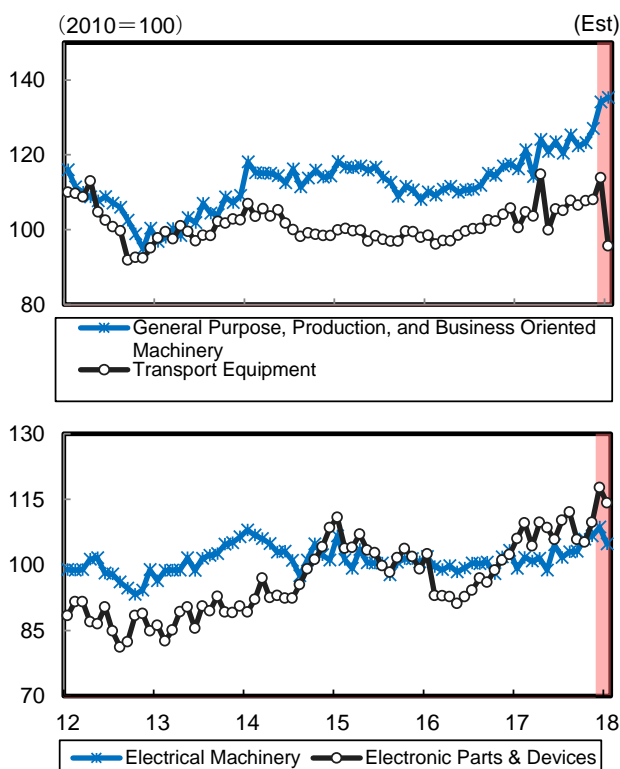
Source: Ministry of Economy, Trade, and Industry, compiled by DIR.
 Note: Values for most recent 2-months of production index from METI production forecast survey.



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 Note: Values for most recent 2-months of production index from METI production forecast survey.

Production Indices (Assembly)

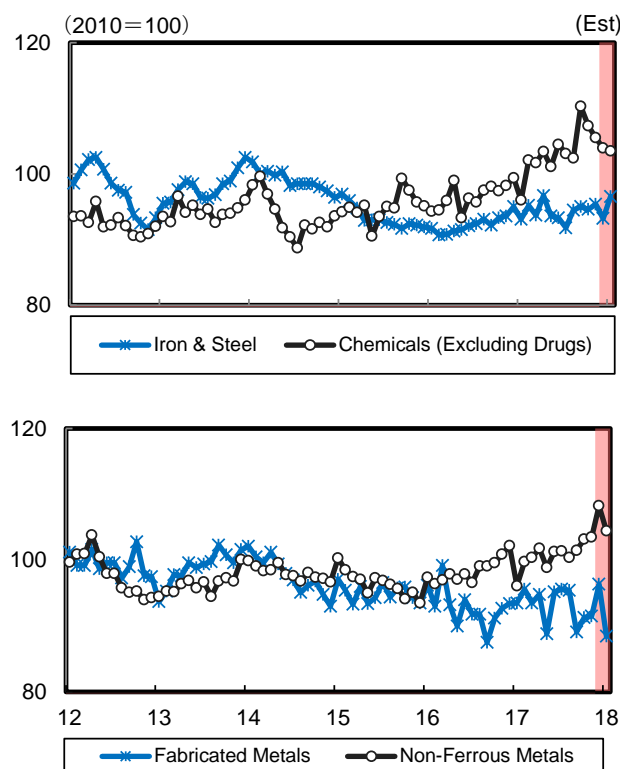
Chart 5



Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Figures for most recent two months of the production index are from the METI production forecast survey.

Production Indices (Materials)

Chart 6



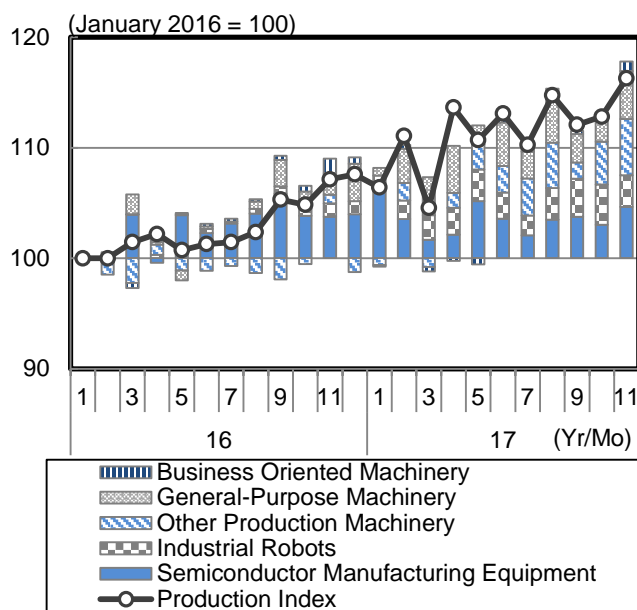
Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Figures for most recent two months of the production index are from the METI production forecast survey.

Semiconductor manufacturing equipment leading growth, seen maintaining favorable performance in 2018

The growth trend in production since 2016 is being led largely by growth for the general-purpose, production and business oriented machinery industry. Looking at the industry's production index in terms of contribution by component, we see that semiconductor manufacturing equipment and industrial robots are providing a major lift for overall performance.

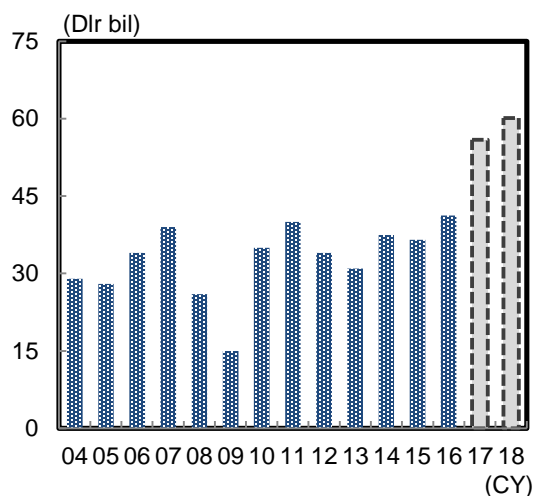
The scale of the global market is expanding for semiconductor manufacturing equipment, the leader in growth for the general-purpose, production and business oriented machinery industry. Global demand for semiconductors used in IoT and installed in automobiles is especially strong. Total expenditure on semiconductor manufacturing equipment during the year 2017 is expected to grow by +35.6% y/y to a total of \$55.9 billion. Meanwhile, domestic manufacturers of semiconductor manufacturing equipment are in the process of revising their 2017 performance outlooks upwards. This is considered to be a reflection of how active investment in semiconductor manufacturers was during that year. Market scale is expected to grow in 2018 by +7.5% y/y to a total of \$60.1 billion. While the growth rate is expected to slow somewhat in comparison to 2017, favorable performance is expected to be maintained on into the future. Manufacturers in China are expected to be leaders in investment in the future, and this should bring overall performance up.

General-Purpose, Production and Business Oriented Machinery Production Index and Contribution by Component
Chart 7



Source: Ministry of Economy, Trade and Industry; compiled by DIR.

Scale of Global Market for Semiconductor Manufacturing Equipment
Chart 8



Source: SEMI; compiled by DIR.
 Note: Values for 2017-18 are estimates.

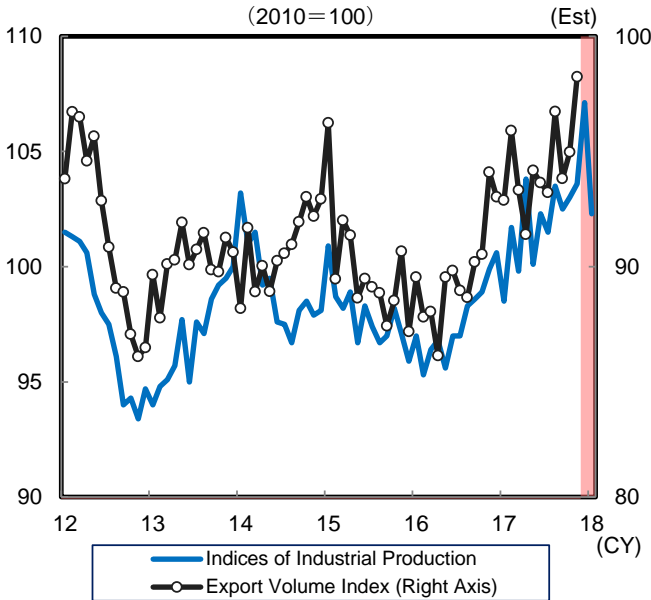
Moderate growth seen in future

Production is expected to experience moderate growth in February 2018 and beyond. As for capital goods, exports are expected to lead the economy and expand centering on semiconductor manufacturing equipment due to the recovery in the global economy. Meanwhile, on the domestic side, investment in maintenance & repair is promising for the current fiscal year. We suggest keeping a close eye on whether or not the growth trend in factory operating rates can be maintained.

However, caution is required regarding overseas demand due to possible downside risk. As of December 2017 the Fed has raised interest rates three times this year, and may do so again several times in 2018. If US interest rates undergo a rapid rise in association with the Fed’s exit strategy, this could bring downward pressure on the US economy, while at the same time encouraging capital outflows from the emerging nations. Meanwhile, the ECB has decided to begin reducing its

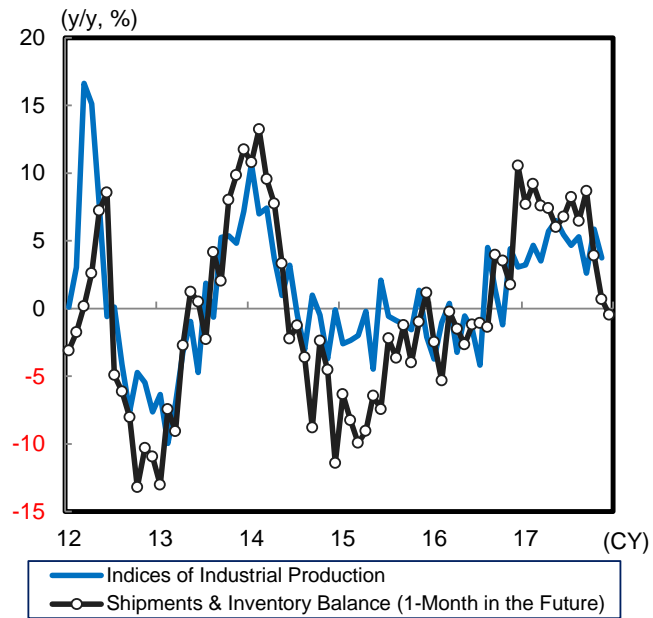
quantitative easing activities in January 2018, hence we advise caution regarding the possibility that this could bring downward pressure on the EU economy. While our main scenario sees a continuation of moderate growth for the global economy, if uncertainty regarding the future grows, it could lead to a slowdown in exports and risks bringing downward pressure on the Japanese economy.

Industrial Production & Export Volume Chart 9



Source: Ministry of Economy, Trade, and Industry, compiled by DIR.
 Note: Values for most recent 2-months of production index from METI production forecast survey.

Shipments, Inventory Balance & Production Chart 10



Source: Ministry of Economy, Trade, and Industry, compiled by DIR.