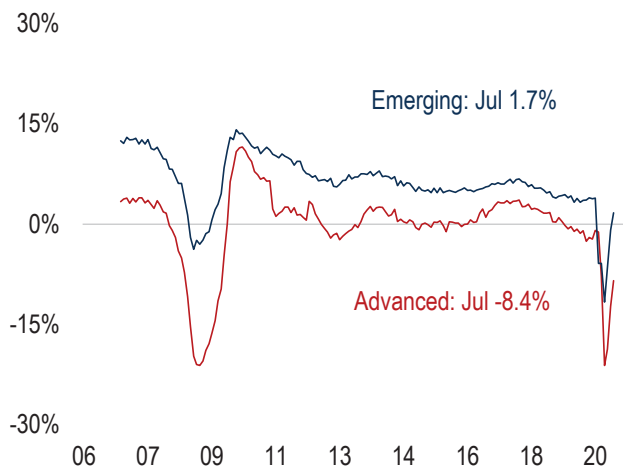
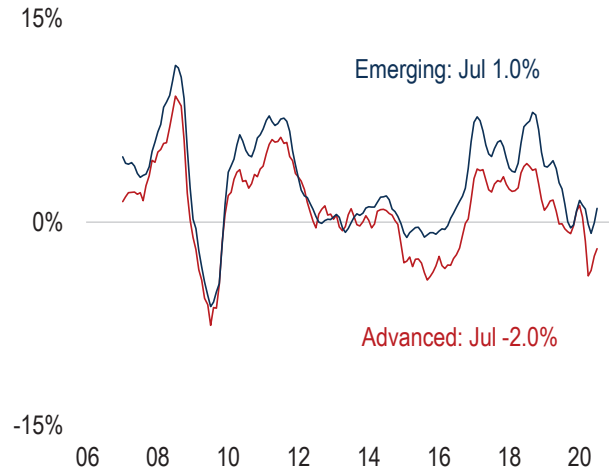


September 2020

F1: Manufacturing by region
Year-over-year (%)



F2: PPI manufacturing by region
Year-over-year (%)



Key takeaways

As we expected, world manufacturing expanded for the third consecutive month in July (+3.5% MoM), though still down 4% below its year-ago level. The expansion stemmed from a recovery in productive capacity (F3), fueled by a resumption in hours worked. Cyclical conditions picked up, but the output gap remained in negative territory (-4.5%; see F4). Despite considerable slack, rising commodity prices lifted worldwide producer prices 9% annualized, the highest monthly inflation rate since spring 2019. Rising PPI inflation is a key factor behind our expectations of stronger consumer prices 12M out.

Preliminary data reveals a 98% chance that global manufacturing output continued to recover in August. The most likely outcome is a 0.9% gain (MoM), which would push production to about 3% below its August 2019 level. Looking further ahead, high frequency indicators suggest the global recovery has weakened this month, in part because CN manufacturing (25% of global output) has now normalized. The weakening pace of growth in September strengthens our belief that global GDP will experience a 'check mark' recovery.

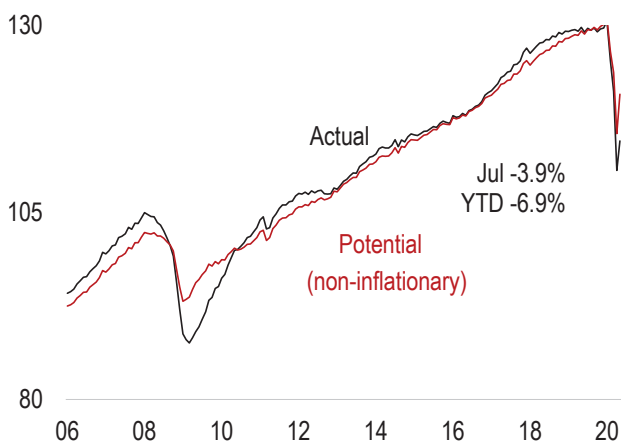
Global manufacturing ¹ 2010=100, SA	July		June		7 months	
	2020 (p)	% chg yoy	2020 (r)	% chg yoy	2020	% chg yoy
World output	124.5	-3.9%	120.1	-7.0%	120.4	-6.9%
Advanced	99.9	-8.4%	95.5	-12.2%	98.4	-10.0%
Emerging	175.4	1.7%	169.7	-0.9%	165.0	-3.6%
Packaged Goods ²	114.0	0.0%	112.7	-1.5%	112.4	-1.7%
Potential output ³	130.4	0.7%	126.6	-1.7%	124.9	-3.0%
Output gap (%)	-4.5%	-	-5.1%	-	-3.6%	-
PPI manufacturing ⁴	113.4	-0.9%	112.6	-1.6%	113.1	-0.9%
Advanced	106.4	-2.0%	105.7	-2.5%	106.6	-1.7%
Emerging	128.2	1.0%	127.1	0.0%	127.0	0.5%
Raw material prices ⁵	74.8	-7.2%	71.5	-10.0%	71.3	-11.5%

MANUFACTURING - GLOBAL TRACKER

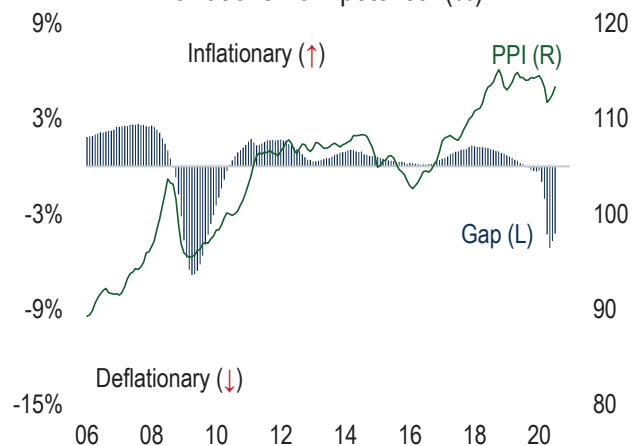
Manufacturing, regional detail 2010=100, SA	July		June		7 months	
	2020 (p)	% chg yoy	2020 (r)	% chg yoy	2020	% chg yoy
North America	104.6	-7.0%	100.5	-10.9%	102.8	-8.9%
Canada	-	-	100.7	-12.5%	100.5	-13.3%
United States	104.5	-6.9%	100.5	-10.8%	103.0	-8.6%
Latin America	97.8	-6.8%	90.1	-14.3%	91.4	-12.9%
Brazil	81.7	-3.3%	74.6	-12.8%	76.1	-10.7%
Mexico	112.6	-9.5%	101.4	-18.2%	104.8	-15.4%
Western Europe	99.1	-9.1%	95.0	-12.9%	95.9	-12.7%
France	96.3	-8.4%	92.1	-12.1%	89.6	-15.3%
Germany	99.3	-11.8%	96.7	-14.3%	98.2	-14.0%
Italy	91.9	-7.4%	84.5	-14.7%	81.5	-17.9%
Spain	96.5	-6.9%	88.5	-14.9%	87.7	-15.3%
United Kingdom	94.7	-9.4%	89.0	-14.6%	91.9	-12.9%
Eastern Europe	135.6	-3.4%	128.6	-8.2%	130.0	-7.9%
Poland	154.1	0.2%	144.2	-4.9%	143.7	-6.6%
Russia	128.8	-3.4%	124.6	-7.9%	130.1	-2.6%
Asia	154.8	-0.7%	149.8	-3.0%	148.2	-4.1%
China	221.5	5.1%	217.5	3.6%	208.6	0.0%
India	119.0	-11.1%	108.6	-16.0%	103.3	-21.3%
Japan	85.6	-14.8%	78.8	-20.9%	88.1	-12.7%
South Korea	113.9	-2.5%	111.8	-2.0%	113.7	-0.1%
Turkey	175.1	4.7%	161.2	1.2%	157.4	-4.7%

Manufacturing, political aggregates 2010=100, SA	July		June		7 months	
	2020 (p)	% chg yoy	2020 (r)	% chg yoy	2020	% chg yoy
Eurozone (EU19)	102.1	-7.9%	97.5	-12.2%	97.7	-12.7%
NAFTA	105.2	-7.1%	100.6	-11.5%	103.0	-9.4%

F3: Global manufacturing
2010=100, SA



F4: Manufacturing output gap
Deviations from potential (%)

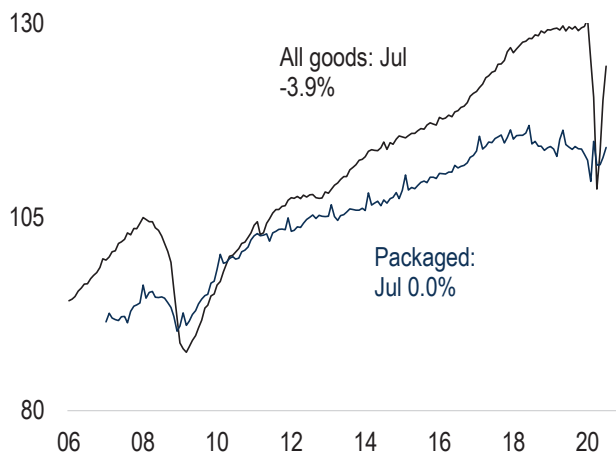


MANUFACTURING - GLOBAL TRACKER

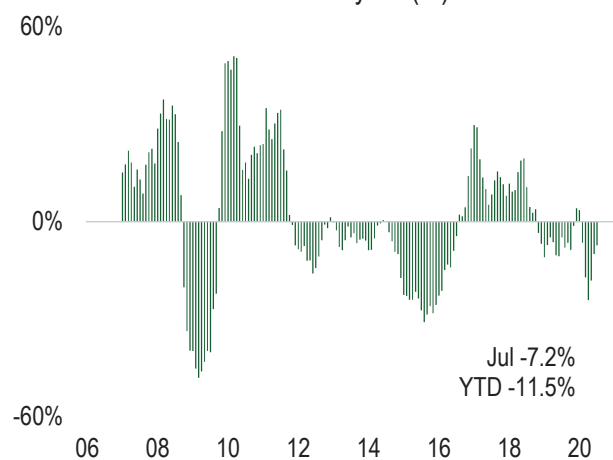
PPI manufacturing, regional detail 2010=100	July		June		7 months	
	2020 (p)	% chg yoy	2020 (r)	% chg yoy	2020	% chg yoy
North America	110.2	-2.4%	108.9	-3.3%	109.7	-2.7%
Canada	114.6	-2.3%	113.8	-3.3%	114.8	-2.8%
United States	109.8	-2.4%	108.5	-3.4%	109.3	-2.7%
Latin America	171.8	7.8%	168.1	5.9%	165.2	5.4%
Brazil	187.7	9.9%	182.3	7.2%	177.4	6.5%
Mexico	161.8	6.2%	159.3	4.8%	157.8	4.3%
Western Europe	107.3	-2.0%	107.0	-2.1%	107.7	-1.3%
France	103.1	-2.1%	102.9	-2.1%	103.4	-1.8%
Germany	107.7	-0.9%	107.6	-0.9%	108.1	-0.2%
Italy	106.0	-1.6%	105.9	-1.6%	106.4	-1.1%
Spain	106.4	-2.9%	105.6	-3.5%	106.9	-2.3%
United Kingdom	113.2	-2.5%	112.8	-2.3%	113.5	-0.9%
Eastern Europe	140.3	-1.0%	138.9	-2.1%	139.4	-1.3%
Poland	110.1	-1.3%	109.9	-1.4%	110.5	-1.0%
Russia	183.1	-1.6%	180.1	-3.5%	180.7	-2.3%
Asia	109.2	-0.8%	108.7	-1.5%	109.3	-0.6%
China	100.1	-2.4%	99.7	-3.0%	100.6	-2.0%
India	128.7	0.5%	128.7	0.1%	128.7	0.3%
Japan	100.3	-0.7%	99.9	-1.3%	100.8	-0.4%
South Korea	95.2	-3.1%	94.9	-3.7%	95.7	-2.7%
Turkey	295.7	7.9%	292.8	6.0%	286.8	7.1%

PPI manufacturing, political aggregates 2010=100	July		June		7 months	
	2020 (p)	% chg yoy	2020 (r)	% chg yoy	2020	% chg yoy
Eurozone (EU19)	105.4	-2.2%	105.2	-2.3%	106.0	-1.6%
NAFTA	114.0	-1.6%	112.6	-2.6%	113.3	-2.0%

F5: Manufacturing by product type
2010=100, SA



F6: Raw material price index
Year-over-year (%)



Notes:

- ¹ Monthly sample represents ~93% of global manufacturing production. Split by region, the index accounts for 100% of manufacturing activity in advanced economies and 84% of output in emerging markets. For countries that have not reported the latest month, the last two columns present year-to-date results.
- ² We proxy packaged goods with shipments of corrugated fibre boxes. Corrugated boxes are primarily used to store and transport non-durable goods (mainly FMCGs), facing limited competition from other substrates. In most countries, box shipments are a coincident indicator of non-durable goods manufacturing.
- ³ We define potential output as the maximum level of production the manufacturing sector can sustain without incurring inflationary pressures. While a measure of productive capacity, it should not be interpreted as a physical ceiling on manufacturing output. Demand shocks can cause production to deviate temporarily from this steady state level, creating an output gap. Both potential output and the output gap are Kalman filter estimates of a multivariate state-space model in which global manufacturing is benchmarked against a Phillips curve equation for producer price inflation. The inflation rate consistent with a closed output gap and no unexpected changes in commodity prices is currently estimated at ~1.7%.
- ⁴ The global producer price index captures the transaction price of goods sold by manufacturers to all consumers. For most countries in the sample, the reported indices consider both domestic and international transactions. Manufacturing PPIs can sometimes include prices paid by producers for intermediate goods. Reported prices generally exclude VAT and transportation charges and include discounts and rebates. Aggregation is based on a fixed base Laspeyres formula using manufacturing value added as weights.
- ⁵ The raw materials price index is a weighted average of energy and non-energy commodities used in manufacturing production. Non-energy commodities include both industrial and agricultural commodities, such as metals and unprocessed food and beverages. The index excludes precious metals. Commodity weights are based on cost shares for intermediate inputs in manufacturing, constructed from input-output tables for the world's largest economies.

Definitions:

Data measures physical production of manufactured goods. The sector coverage corresponds to category C of the International Standard Industrial Classification (ISIC Rev. 4). That is, the production indices capture aggregate supply of consumer, intermediate and investment goods but exclude mining, utilities and construction. All production series are seasonally and calendar adjusted.

Source:

Numera Analytics calculations based on publicly available information; current month for regional aggregates is nowcasted.