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## ECONOMIC OUTLOOK

In this month's report, we are adding additional detail on the European market, including forecasts for the major European economies and a snapshot of the health of select end markets for electronics in Europe. In the last month, we've received useful feedback and are working to incorporate it. As I noted last month, we'd love to hear how you use this research and what else you would like to see from IPC. Please call or email me with your thoughts and feedback.

Economic calamities, like the one we are in the midst of, leave us feeling like time is moving both extremely quickly and painfully slowly. Likewise, while we continue to feel the acute pain of a significant negative economic shock, it is also true that the global economy is digging itself out in fits and starts.

Typically economic downturns tend to happen in one area of the globe, often through localized policy blunders and mishaps. While these economic downturns can and do spread to other parts of the globe, contagion isn't a given, and so some parts of the globe will continue to grow, albeit slowly, while some contract meaningfully during these economic recesses. But COVID-19 is unlike these previous events. The pandemic has very much been a shared event. In times of economic distress, correlations tend toward one, and that is especially the case in the current economic environment. But the recovery will not necessarily be a shared event, and will require astute policy decisions. Recessions are rarely as obvious as this one has been. And the recovery is not likely to be as clear or as uniform.

The course of economic growth over the next 6 to 12 months will depend heavily on the course of COVID-19 cases. So while economies across the globe have all felt the painful contraction caused by the pandemic, it is likely that growth rates across the globe will diverge in the coming year.

The rise of COVID-19 cases over the last 45 days in the United States is a headwind for growth there. Consumer sentiment stepped back in July, likely

a result of rising COVID-19 cases, many states delaying their plans to reopen their respective economies and, in some cases, re-implementing more restrictive stay-at-home orders. Uncertainty regarding continued economic relief policies has also clouded the outlook. But states didn't retreat fully to where the United States was in March and April, and in the most recent weeks, incoming data suggests the rate of new COVID-19 cases is slowing, which should help both consumer and business confidence in the coming month.

In all of this, the electronics industry in the United States, Europe and Asia has been performing well. It feels somewhat boorish (and biased) to suggest any sector of the economy is doing well in the midst of one of the worst recessions in history, but in fact, the electronics industry is holding up extremely well. This is especially the case on a relative basis. Consider the following in the U.S.: manufacturing employment in the United States has seen steady gains over the last three months but is still 64 percent below where it was pre-pandemic. Electronics manufacturing employment is roughly flat from where it started the year. New orders for electronics products are up 1 percent from last year, while new orders for durable goods remain nearly 11 percent below where it was a year ago. Manufacturing production is off 7.5 percent from a year ago. A rough gauge of electronics production (information processing and related equipment) is up 3 percent. North American PBC shipments are up 16.9% over the last year.

The story is very similar in Europe. Manufacturing output is down roughly 12 percent from a year ago, which is up from the -30 percent crater it was in April. Electronics production on the other hand is up 7.1 percent.

Another positive story for the electronics industry is that end markets for electronics are also improving. The auto industry was decimated at the onset of COVID-19 but has since recovered significantly ground. In the United States, production is actually up over last year, after being down 99 percent. Last year, the auto industry assembled roughly 880,000 new vehicles a month. In April 2020, the industry assembled roughly 6,000. July data shows roughly 974,000 new vehicles were assembled. The downturn and subsequent recovery has been more pronounced for the auto industry than for other sectors but the narrative is similar. European end markets are also recovering. Given Europe's handling of COVID-19 and the reduced number of new cases they are currently reporting might suggest an accelerated recovery there for the end markets for electronics.

While the initial recovery has been swift, it hasn't been complete in most cases. It will take some time to again achieve pre-pandemic levels. For some segments of the economy, and for the economy itself, it will likely take a year or more to regain levels of output achieved at the start of the year. But the recovery feels intact for now — even with the headwinds and stuttered starts.

**3.4%**

**Manufacturing output continued to improve in July, rising 3.4 percent.**

**963K**

**Initial unemployment claims fell below 1 million for the first time since March.**

**177K**

**There were 177,000 open durable manufacturing jobs in June, down from 299,000 last year.**

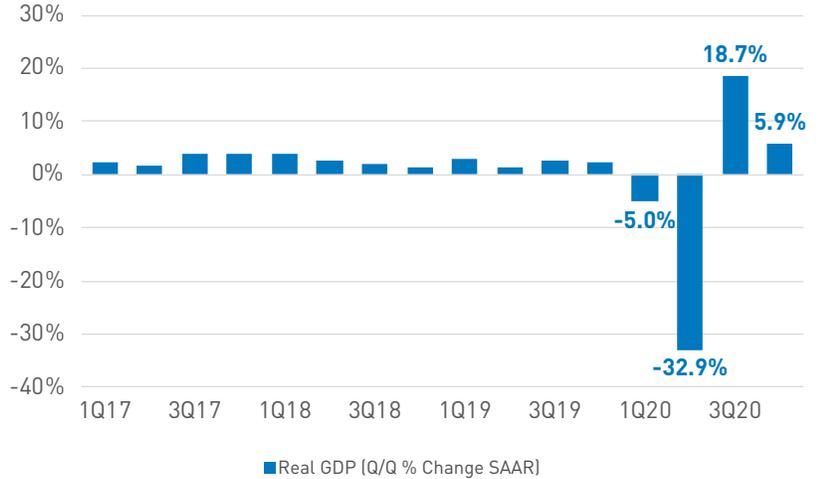
**1%**

**New orders for electronics products are up 1% from last year. Overall durable goods orders are down 10.7%.**

# U.S. OUTLOOK

## ECONOMIC GROWTH

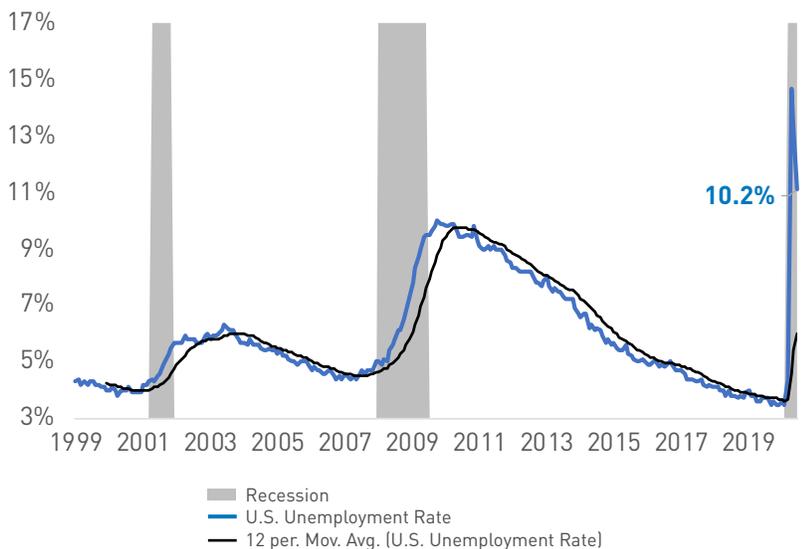
As expected, the economy cratered in the second quarter, falling 32.9 percent. This is the worst quarterly decline by far. The prior record was a decline of 10 percent in 1958 (also during a pandemic). The economy is down 9.5 percent from a year ago. Consumer spending was dismal (down 34.6 percent annualized), but there was broad weakness. Declines in residential construction (down 38.7 percent annualized) and business fixed investment (down 27 percent annualized) both contributed to the downturn. But this was all largely expected and now in the rear-view mirror. The third quarter will bring the strongest growth recorded in more than 40 years. However, we are still a full year away from a complete recovery and longer for certain sectors of the economy.



	2020 ECONOMIC GROWTH (GDP % Change)	2021 ECONOMIC GROWTH (GDP % Change)	2020 EXCHANGE RATE (v. USD)	2021 EXCHANGE RATE (v. USD)
UNITED STATES	-6.1%	4%	N/A	N/A
CANADA	-6.8%	5.1%	1.41	1.36
MEXICO	-7.2%	2.3%	22.90	21.75
EURO AREA	-7.6%	5.3%	1.10	1.15

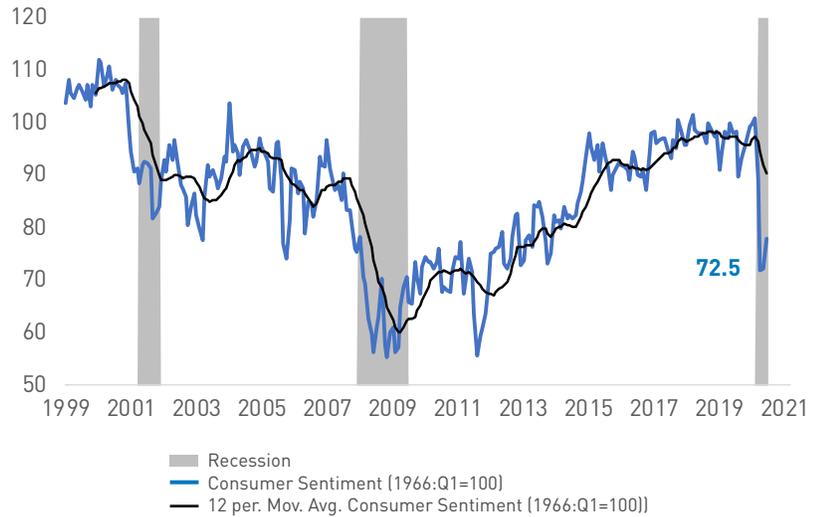
## EMPLOYMENT

July brought a third consecutive month of employment gains. While these gains were less than the prior two months, it pushes the recovery forward. Nonfarm payrolls rose 1.76 million jobs, and the unemployment rate dropped from 11.1 percent in June to 10.2 percent in July. Unemployment remains high but continues to move in the right direction. The economy has now added 9.3 million jobs in the last three months, regaining about 42 percent of the jobs lost. Job gains were strongest in service areas hard hit by the downturn. Manufacturing added 26,000 jobs and has now regained 45 percent of the jobs lost, but some parts of manufacturing shed jobs during the month. The auto industry, which experienced a steep decline in the immediate aftermath of the pandemic, added 39,000 jobs in the month and has now recovered 80 percent of the jobs lost.



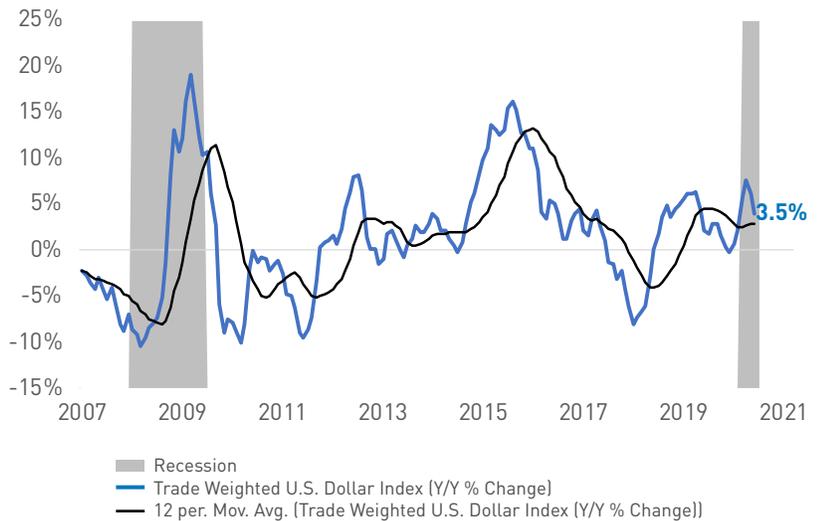
## SENTIMENT

Consumer sentiment declined in July, as COVID-19 cases spiked in much of the country. The sentiment index declined 5.6 points to 72.5, giving back most of the gains from June. Consumers also expressed less optimism in an economic recovery. The five-year economic outlook has declined 18 points since April. On the flipside, consumers are feeling more optimistic about buying conditions (+21 points since April) as low interest rates fuel home and vehicle purchases. Fiscal stimulus in the form of CARES Act payments and other pandemic relief payments might have also helped. Uncertainty about the trajectory of COVID-19 and further economic relief packages is weighing on sentiment. A resolution to both of these should improve consumer confidence.



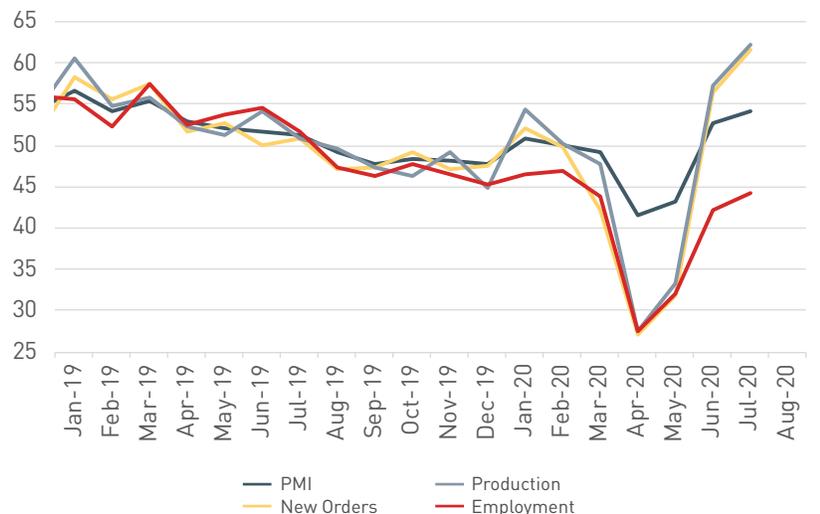
## TRADE-WEIGHTED U.S. DOLLAR INDEX

The trade-weighted dollar index decreased in July, falling 0.8 percent. The dollar is now 1.8 percent below March 2020 but 3.5 percent higher than a year ago. The dollar is likely to continue to trend lower. The dollar faces several headwinds. It will continue to be weighted down by very accommodative monetary policy from the Federal Reserve. There is also a building risk that the dollar's dominance gives way (eventually) to the euro. Europe appears to have managed the COVID-19 pandemic more effectively and might enjoy a stronger rebound, though it still lacks a sufficiently robust bond market.



## MANUFACTURER'S SENTIMENT (PMI)

The manufacturing sector reported another month of expansion for July, moving the PMI to levels not seen since spring 2019. The July PMI came in at 54.2. The new orders component shot up to 61.5, the highest level since fall 2018, and the Production Index moved to 62.1 — both firmly in expansion territory. Manufacturers are remaining cautious about employment, with the reading of 44.3 suggesting companies are still shedding jobs. As already noted, some manufacturing sectors did cut jobs during the month of July.



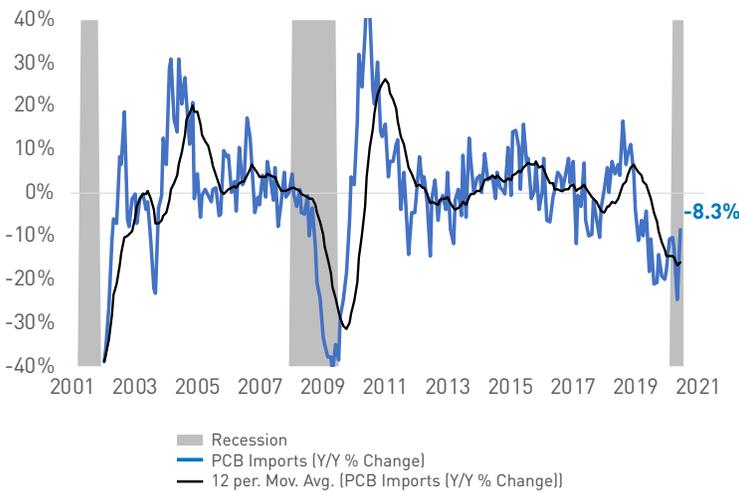
# U.S. PCB DEMAND & INDUSTRY EMPLOYMENT

## PCB INDUSTRY

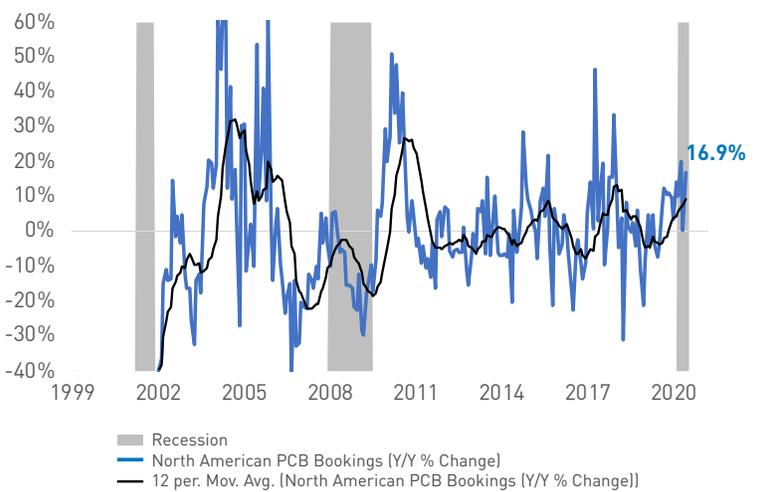
PCB imports were mostly flat in June, rising 0.3 percent from May. Imports are down about 8 percent from last year. PCB imports had been down nearly 25 percent in May. June is the first month without double-digit year-over-year declines in PCB imports since May 2019. Our sense is that the decline in PCB imports has been a structural phenomenon, but recent cyclical weakness has added to that decline.

North American PCB bookings increased 33 percent in June. This is the largest month-over-month increase since 2016. North American PCB shipments are up nearly 17 percent over last year. May shipments were up just 0.9 percent over last year, so June returns us to a trend in place since the pandemic began, with North American PCB bookings up double digits over last year.

### PCB Imports (Y/Y % Change)



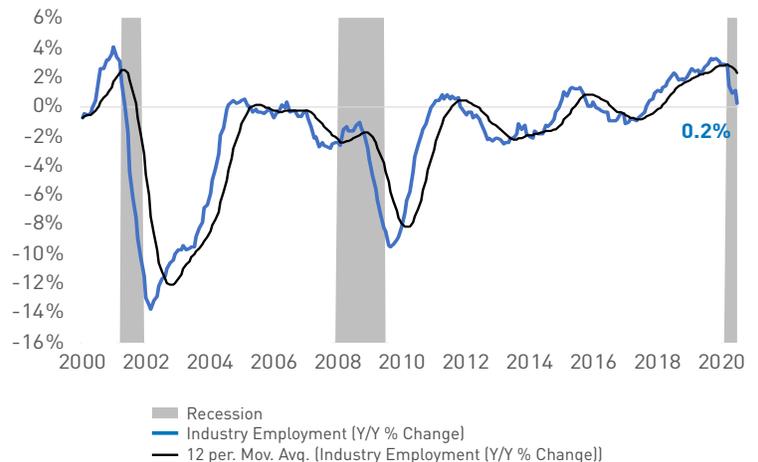
### North American PCB Bookings (Y/Y % Change)



## INDUSTRY EMPLOYMENT

The electronics industry shed jobs in July, while the broader economy was returning employees to work. Industry employment fell by roughly 5,000 jobs (not seasonally adjusted and 10,900 with seasonal adjustment). Despite the decline in July, industry employment is roughly flat (+0.2 percent) over last year, a phenomenal feat given the decline most sectors of the economy have experienced.

### Industry Employment (Y/Y % Change)



# U.S. END MARKETS FOR ELECTRONICS

Industrial production rose 3 percent in July, adding to gains in the prior two months. Industrial production is down roughly 8.4 percent from pre-pandemic levels. Manufacturing production rose 3.4 percent in July and is down 7.8 percent from pre-COVID-19 levels.



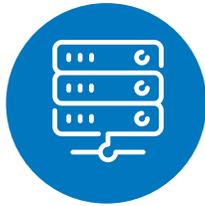
## AUTOMOTIVE PRODUCTS

Autos was one of the hardest hit manufacturing sectors but has since seen a strong recovery. Output grew 27.9 percent in July and is now above pre-pandemic levels by nearly 1 percent.



## TRANSIT EQUIPMENT

Like autos, transit equipment enjoyed a strong July, increasing 24.1 percent from the prior month. Transit equipment remains down 19.3 percent from prior to the pandemic and is down 33.6 percent from last year.



## INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment was roughly flat, increasing just 0.4 percent. The segment is down 2.1 percent from prior to the pandemic but remains up 3 percent over last year.



## INDUSTRIAL & OTHER EQUIPMENT

The industrial segment increased 1.9 percent during July but remains down 12.7 percent from prior to the pandemic. This segment will likely face headwinds with municipalities facing funding shortfalls and businesses curtailing investment until they have greater clarity.



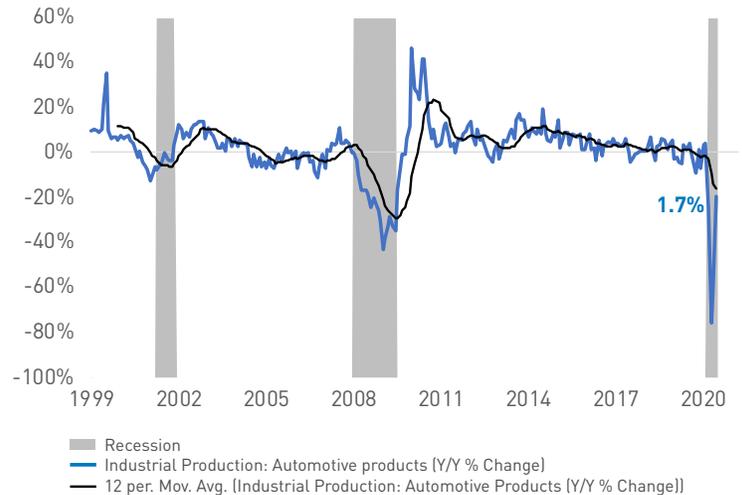
## DEFENSE & SPACE EQUIPMENT

The defense and space equipment segment rose 2.5 percent last month but is down 4.3 percent from pre-pandemic levels.

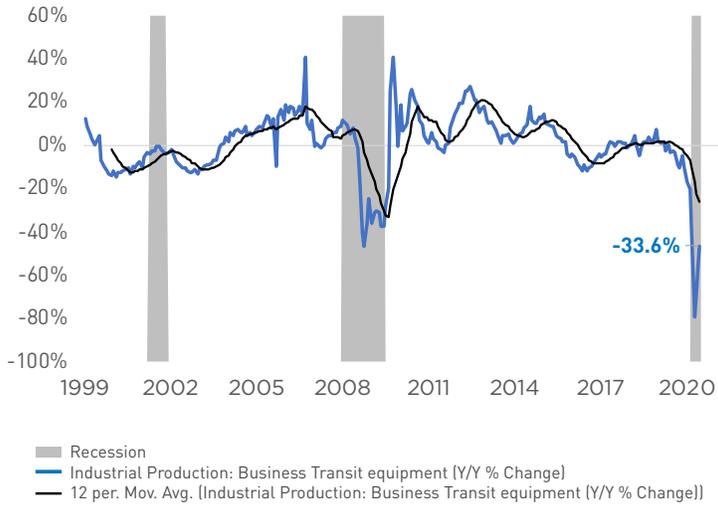
## Manufacturing



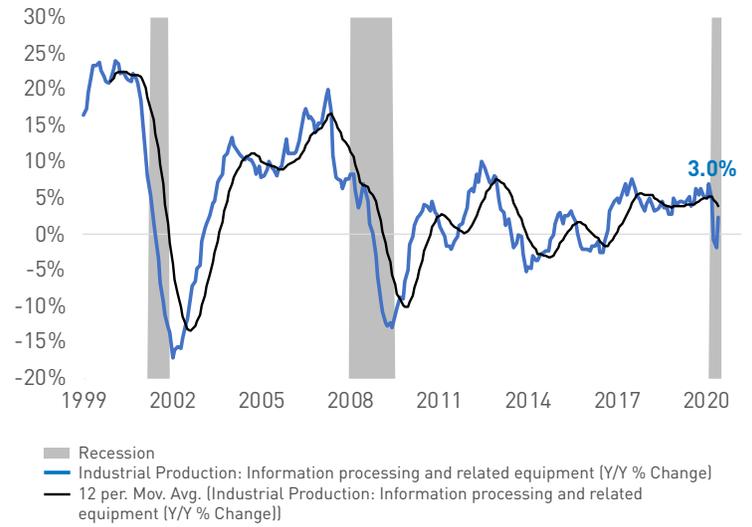
## Automotive Products



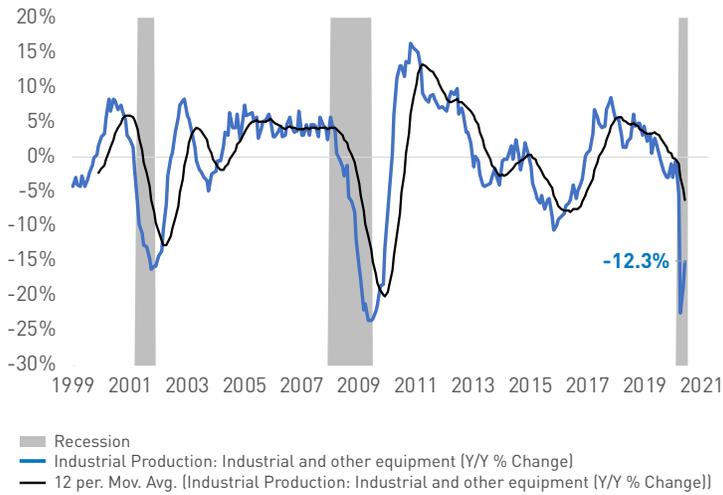
### Business Transit Equipment (Y/Y % Change)



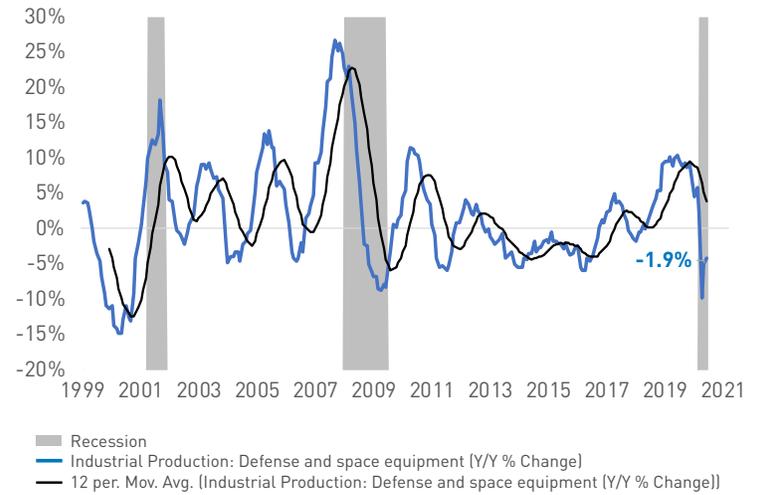
### Information Processing and Related Equipment (Y/Y % Change)



### Industrial & Other Equipment (Y/Y % Change)



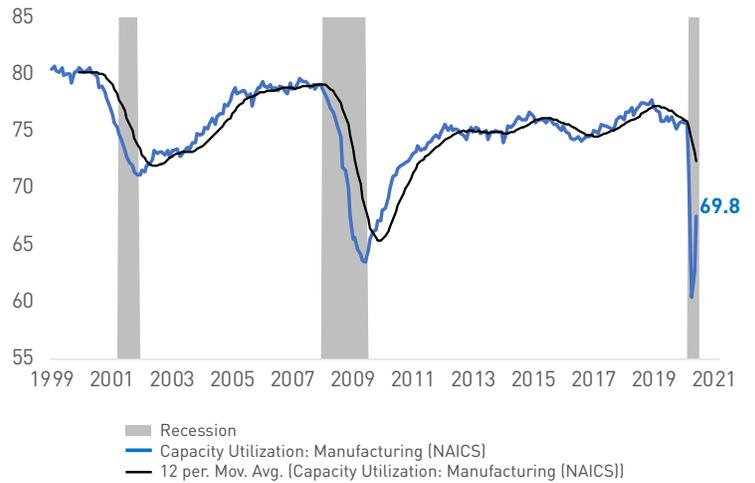
### Defense & Space Equipment (Y/Y % Change)



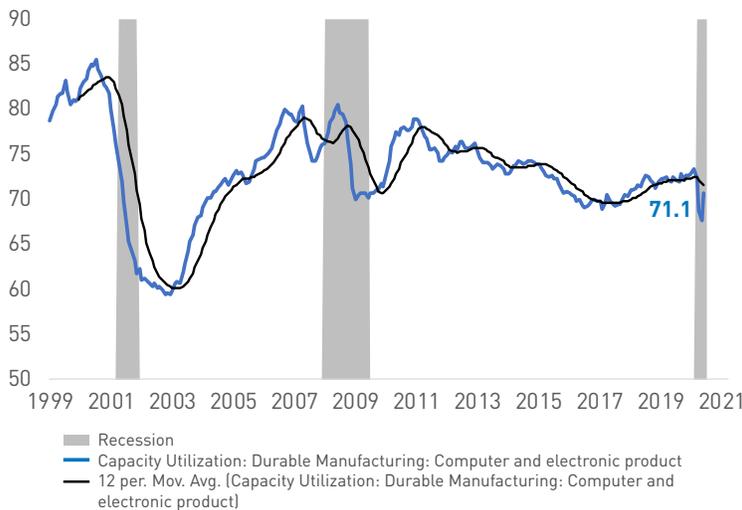
# MANUFACTURING CAPACITY UTILIZATION

Capacity utilization has bounced back from the lows of April and May, but it has yet to regain pre-pandemic levels. Manufacturing capacity utilization increased to 69.8 percent in July. This is now 7.8 percent below pre-pandemic levels. Computer and electronics products capacity utilization is down about 3.3 percent; electrical equipment, appliance and components capacity utilization is down 12.8 percent; motor vehicles and parts capacity utilization is down 0.5 percent (it was down 24 percent last month); and aerospace and miscellaneous transportation equipment is down 12.2 percent.

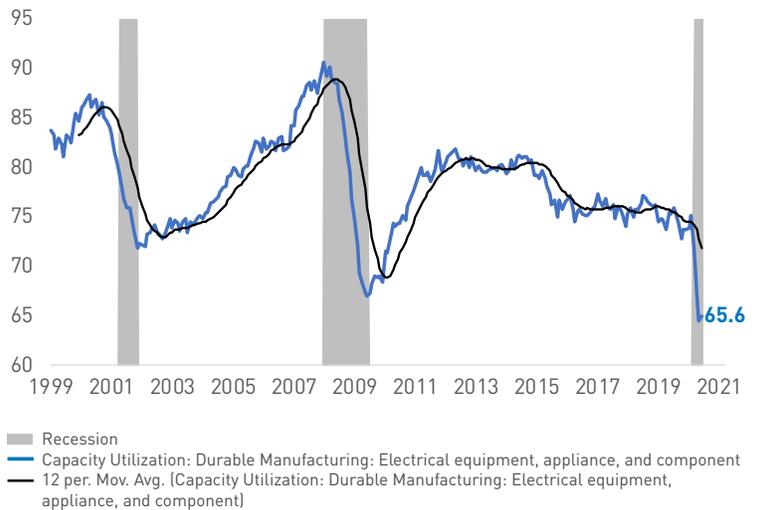
## Manufacturing (NAICS)



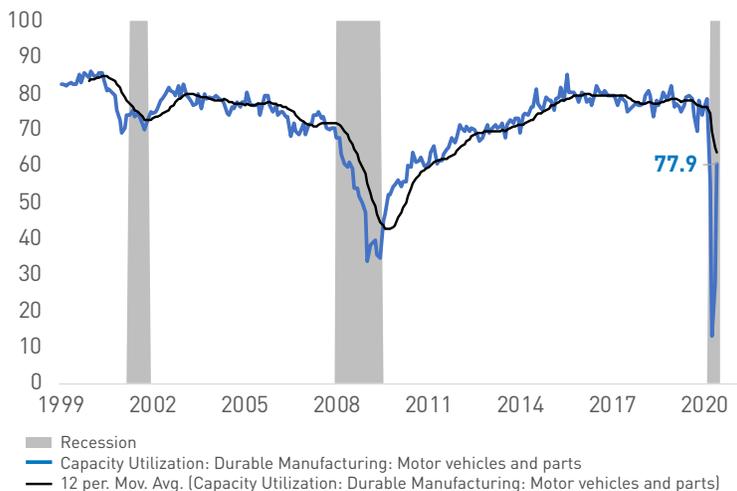
## Computer and Electronic Product



## Electrical Equipment, Appliance, & Component



## Motor Vehicles and Parts



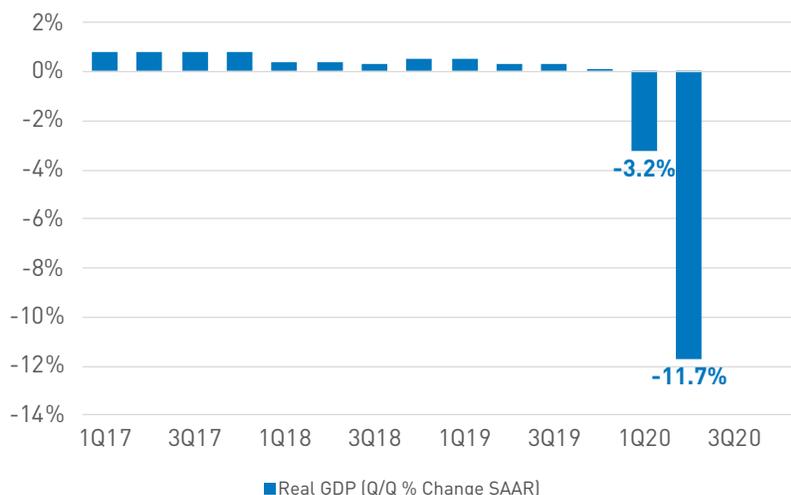
## Aerospace & Miscellaneous Transportation Equipment



# EUROPEAN OUTLOOK

## ECONOMIC GROWTH

Euro zone GDP fell by 12.1 percent in the second quarter, the lowest on record dating back to 1995. Spain recorded the biggest drop among Member States, falling 18.5 percent. Lithuania recorded the lowest decline (-5.1 percent). Germany, the largest economy in the bloc, saw a 10.1 percent contraction. At the same time, the euro zone's trade surplus increased significantly in June. Imports fell 12.2 percent, outpacing a 10 percent decline in exports. The EU reduced trade with Britain, which left the EU on January 31, the most. Exports to Britain are down 21.5 percent for the first six months, while imports are down 17.5 percent.

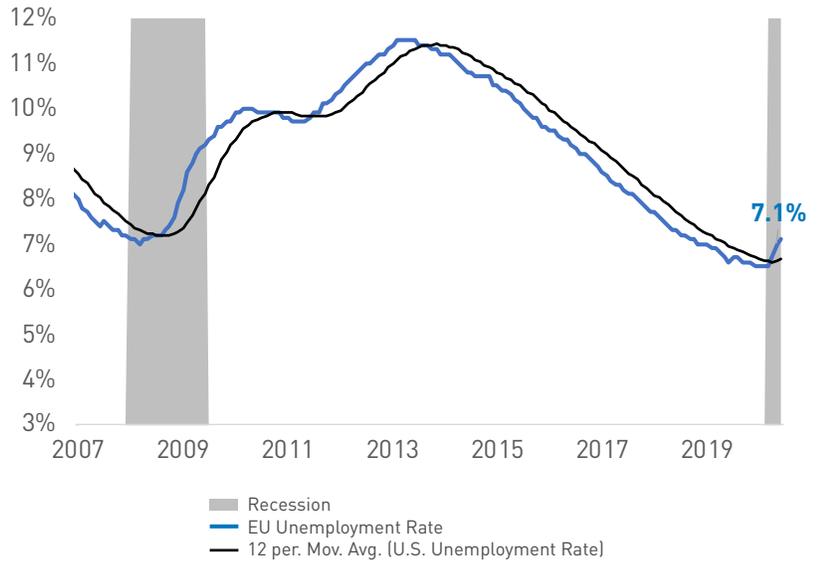


	Q/Q PERCENTAGE CHANGE				Y/Y PERCENTAGE CHANGE			
	2019Q3	2019Q4	2020Q1	2020Q2	2019Q3	2019Q4	2020Q1	2020Q2
<b>EURO AREA</b>	0.3%	0%	-6.3%	-12.1%	1.4%	1%	-3.1%	-15%
<b>EU (27)</b>	0.3%	0.1%	-3.2%	-11.9%	1.6%	1.2%	-2.5%	-14.4%
<b>GERMANY</b>	0.3%	0%	-2%	-10.1%	0.8%	0.4%	-2.2%	-11.7%
<b>FRANCE</b>	0.2%	-0.2%	-5.9%	-13.8%	1.6%	0.8%	-5.7%	-19%
<b>ITALY</b>	0%	-0.2%	-5.4%	-12.4%	0.5%	0.1%	-5.5%	-17.3%
<b>SPAIN</b>	0.4%	0.4%	-5.2%	-18.5%	1.9%	1.8%	-1%	-22.1%

	2020 ECONOMIC GROWTH (GDP % CHANGE)	2021 ECONOMIC GROWTH (GDP % CHANGE)
<b>EURO AREA</b>	-7.9%	5.5%
<b>GERMANY</b>	-5.9%	-4.8%
<b>FRANCE</b>	-9.9%	-6.8%

## EMPLOYMENT

The euro zone recorded its steepest employment drop on record, shedding 2.8 percent of all jobs during the second quarter. Unemployment in the euro zone has increased from a low of 7.1 percent in February to 7.8 percent in June. Short-time work policies implemented in the euro zone have kept unemployment from running higher. In Germany, roughly 15 percent of workers are on short-time work schemes, and in Italy, the number is close to 30 percent. The end of such programs could drive unemployment rates higher in the second half of the year. France has already extended its policies to 2022.



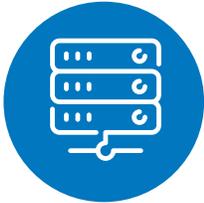
## MANUFACTURER'S SENTIMENT (PMI)

The euro zone's PMI reached 51.8 in July, suggesting the manufacturing sector is expanding for the first time since January 2019. Strength in new orders suggests further output gains are possible in August. Similar to the United States, manufacturers are reporting that employment continues to contract despite expanding new order and production. Europe has begun rolling back its stay-at-home orders and reopening its economies, which is likely driving some of the increased demand manufacturers are reporting.



# E.U. END MARKETS FOR ELECTRONICS

Manufacturing output increased 9.9 percent in June but remains down 12.2 percent from last year and is down roughly the same amount from just prior to the pandemic hitting Europe. Similar to the United States, the electronics industry has held up well in Europe, even in the face of one of the worst economic recessions to hit Europe.



## COMPUTER, ELECTRONIC & OPTICAL PRODUCTS

The electronics industry, which includes categories like components, loaded boards, computers, communications equipment and consumer electronics, increased 4.4 percent in June and is up 7.1 percent from last year.



## MOTOR VEHICLES

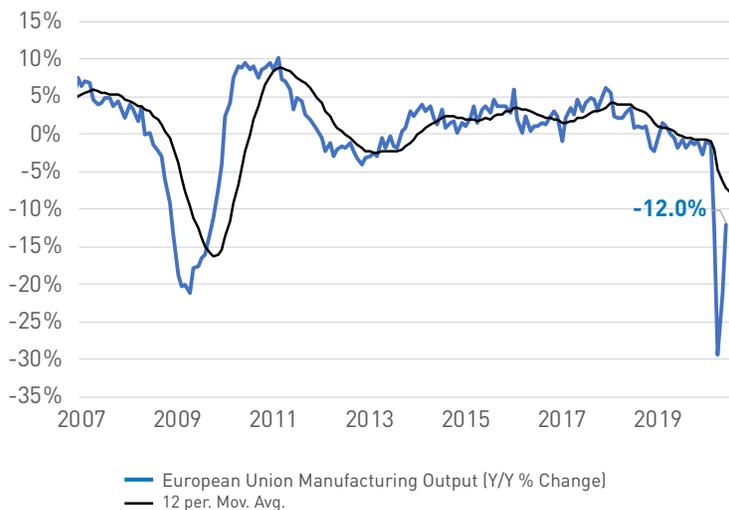
Motor vehicle manufacturing production increased 60.3 percent in Europe in June from the prior month. Production is still down some 28 percent from last year. If Europe follows the U.S. pattern, we might expect another month of strong growth when July data becomes available.



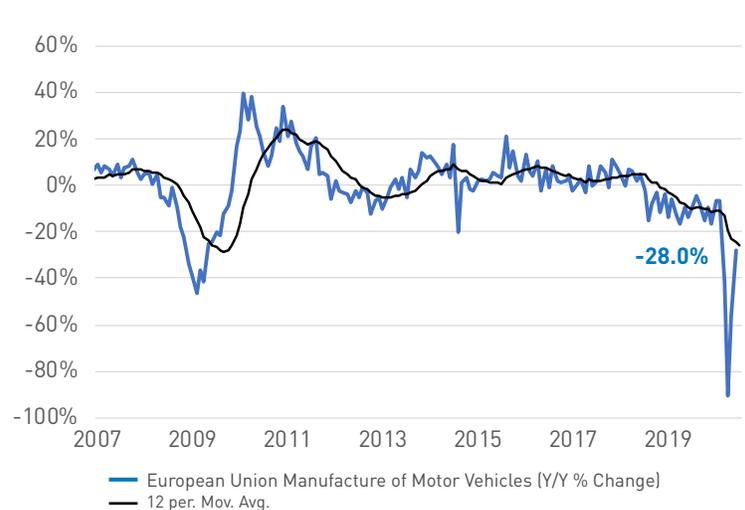
## AIR & SPACECRAFT & RELATED MACHINERY

The defense and space equipment segment rose 2.5 percent last month but is down 4.3 percent from pre-pandemic levels.

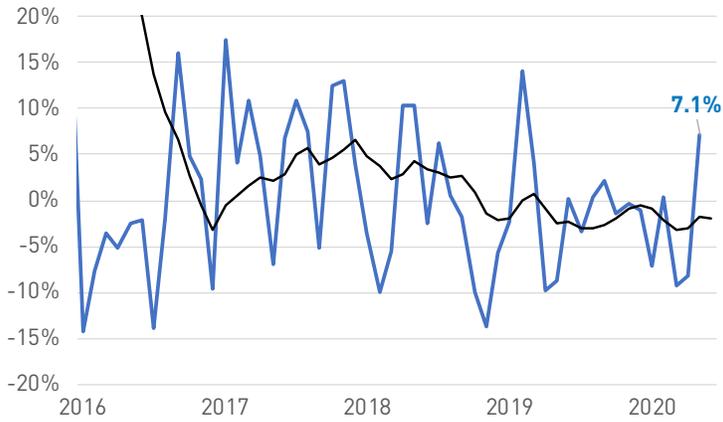
E.U. Manufacturing Output



E.U. Manufacture of Motor Vehicles

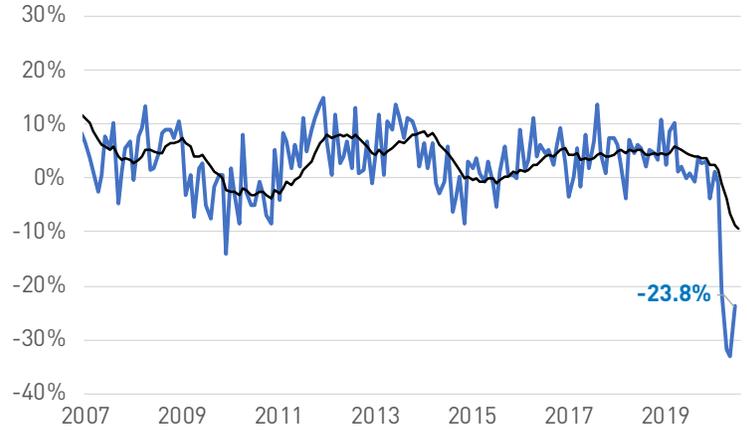


### E.U. Manufacture of computer, Electronic & Optical Products (Y/Y % Change)



— European Union Manufacture of computer, electronic and optical products (Y/Y % Change)  
 — 12 per. Mov. Avg.

### E.U. Manufacture of Air & Spacecraft & Related Machinery (Y/Y % Change)



— European Union Manufacture of air and spacecraft and related machinery (Y/Y % Change)  
 — 12 per. Mov. Avg.