BUILD ELECTRONICS BETTER

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ECONOMIC OUTLOOK

The current economic outlook is unsettled. While the economic recovery remains intact, it is losing momentum and downside risks are rising. The economic rebound continues in the face of rising numbers of COVID-19 cases in the United States and Europe that could stymie the recovery not only in these respective markets but also in China and elsewhere in the world.

In the United States, much of the data we watch closely improved in the last month but at a decreasing rate. Employment, for example, recorded 661,000 new jobs with upward revisions to prior months of another 145,000. In a normal year, a monthly gain of 661,000 would be phenomenal. In fact, it's the fourth best monthly gain in history, only outpaced by the prior three months. But those 661,000 new jobs come in the shadow of losing 22.2 million jobs. And they come following several months of faster recovery. The U.S. labor market has added back about half of the jobs lost in March and April. Moreover, labor force participation declined in September as some job seekers abandoned their searches. And as the pandemic has pushed schools virtually, some caretakers have likely been forced to put off work for now while they care for young children.

The U.S. manufacturing sector continues to rebound slowly. Manufacturing sentiment remains positive, though it did slip slightly in the past month. Jobs gains in September were relatively good. However, industrial production took a step back during the month, which could be a headwind for job growth and output in the coming months. Some areas of manufacturing are doing very well after steep declines due to COVID-19's early impact. The auto industry is one of the notable standouts. Auto industry output has recovered to pre-pandemic levels, but the labor force remains about 20 percent below those levels. A similar pattern will likely emerge in other sectors of the economy, as output will recover to pre-pandemic levels well before jobs do.

In the United States, the electronics industry continues to hold up better than just about anyone else. Industry employment is flat with last year, a phenomenal feat given the alternative. Output across a number of sectors is up over last year and above pre-pandemic levels. But here too it appears momentum is slowing. Early spikes in demand are waning as emergency demand for medical equipment settles and the early "bidding for capacity" we saw dissipates. There appears to be less demand for quick-turn work as well. This will make the overall electronics industry more dependent on the recovery of downstream industries in the months to come. While auto industry output has recovered to pre-pandemic levels, industries like aerospace have a much longer recovery path.

Europe's recovery is also looking more challenged. The most recent data for industrial production showed a sharp slowdown in August. The European Union's industrial production rose 0.7 percent month-on-month in August and is up 7.2 percent year-over-year. Germany recorded an 11.2 percent decline in production, while France reported a decline of 7.3 percent. Capital goods like machinery and vehicles are down 13.2 percent year-over-year, while durable consumer goods are up 4.3 percent year-over-year. Europe also saw a marked slowdown in the electronic industry, deviating from what we've been seeing in the United States. Some of the manufacturing slowdown in August was related to summer shutdowns, and factory orders continue to hold up well, but the slowdown in production underpins the difficult road ahead.

In Europe, countries are tightening COVID-19–related restrictions as cases shoot up. Belgium closed restaurants and bars for four weeks and instituted a curfew. Ireland closed non-essential stores and asked citizens to follow stay-at-home orders. Other countries throughout Europe are imposing additional restrictions. The European Council approved a €87.4 billion grant to provide financial support to 16 Member States as part of the SURE pandemic relief program. Disbursement will come in the coming weeks and likely help countries extend short-time work programs that will help keep unemployment rates from rising.

China reported third quarter GDP of 4.9 percent, a shade lighter than anticipated. The country continues to be weighed down by domestic consumption, with retail sales down 7.2 percent through the first nine months of the year, compared to 2019. GDP grew just 2.7 percent sequentially in the third quarter, significantly slower than the 11.7 percent bounce in the second quarter. China's trade statistics look solid with September exports growing 9.9 percent over last year and imports growing by 13.2 percent. But the electronics industry saw some weakness in the month. We estimate electronics ODM revenue declined around 11.2 percent from last year. Some of this decline might be related to timing of major consumer product launches. Apple's newest iPhone, for example, was delayed about a month, so we'll be watching October numbers closely to see if this decline reverses itself or proves more problematic.

Both Europe and the United States are struggling to maintain momentum following early months of recovery. And rising rates of infection and further COVID-19–related restrictions will curtail growth. There's a 25 percent probability of a worst-case scenario materializing: a large COVID-19 outbreak could cause economies to shutter again, though not as severely as they did in spring 2020. However, this would still result in a sharp contraction in economic activity in the first half of 2021 and would push out a recovery to pre-pandemic levels to beyond 2022.

-7.2%

U.S. job openings have rebounded and are now just 7.2 percent below pre-pandemic levels. It took five years for job openings to recover after the last two recessions.

1.9%

Non-defense capital goods, excluding aircraft, rose 1.9 percent and is now above pre-pandemic levels.

0.4%

Auto production declined 4 percent in the month but is up 0.4 percent from a year ago. Non-auto manufacturing is down 6.5 percent.

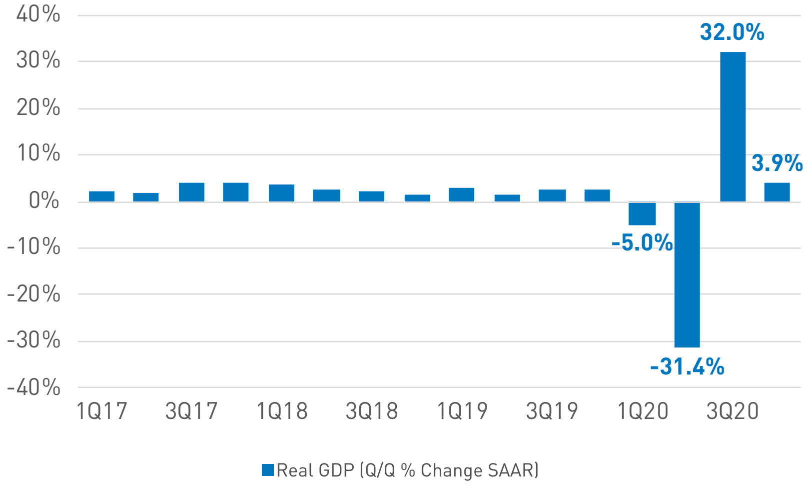
6.1%

The goods economy continues to hold up well. U.S. spending on goods in July was up 6.1 percent from February, while spending on services is down 9.3 percent.

U.S. OUTLOOK

ECONOMIC GROWTH

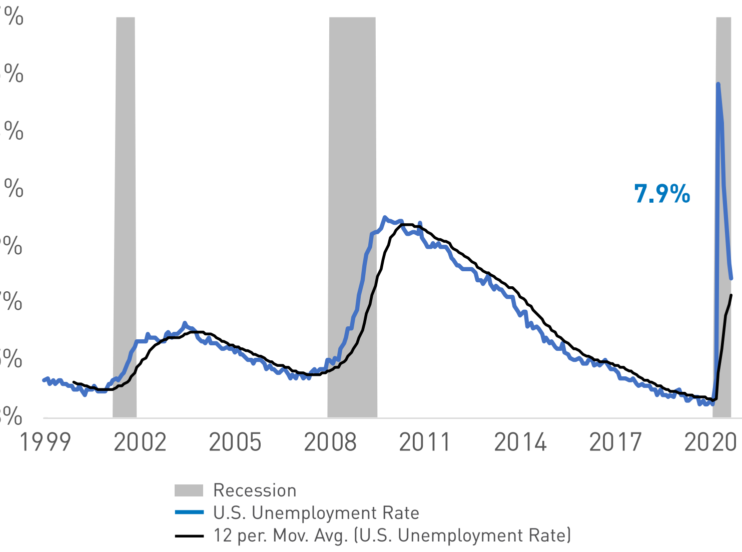
The third and final revision to economic growth in the second quarter was little changed. The economy fell by 31.4 percent (annualized). The prior record was a decline of 10 percent in 1958 (also during a pandemic). The economy is down 8.5 percent from a year ago. Expectations for Q3 growth have improved. The latest estimate from the Federal Reserve Bank of Atlanta's GPDNow forecast is 35 percent — the strongest growth recorded in more than 40 years. This in turn has brought up expectations for the full year. 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	-4.0%	3.9%	N/A	N/A
CANADA	-6.0%	5.1%	1.34	1.33
MEXICO	-9.8%	3.3%	21.88	21.48
EURO AREA	-7.6%	5.3%	1.19	1.22

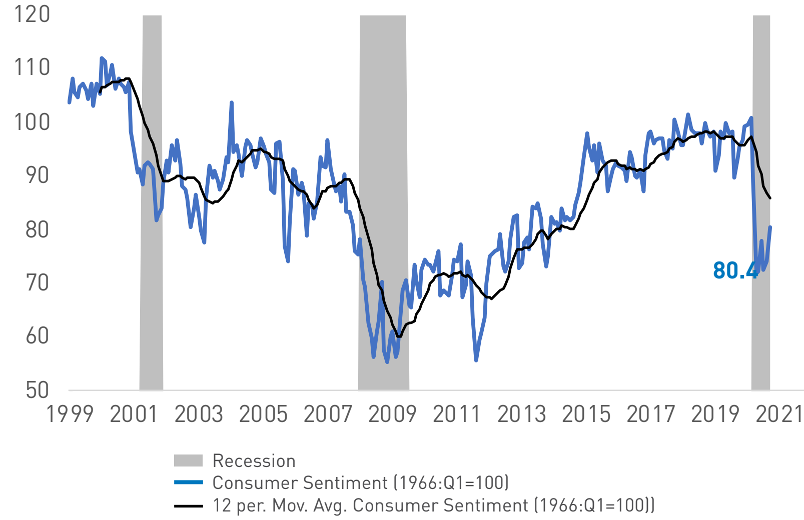
EMPLOYMENT

September brought a fifth consecutive month of employment gains, but job gains were less than half what they had been in the prior month. Nonfarm payrolls added 661,000 jobs (though revisions to the prior two months did add another 145,000 new jobs). Over the last five months, the economy has added back 11.417 million jobs, which is a bit more than half of the 22.16 million jobs lost in March and April. The unemployment rate fell from 8.4 percent in August to 7.9 percent in September, but some of the decline in the unemployment rate came because labor force participation rates fell in September as job seekers left the labor market.



SENTIMENT

Consumer sentiment moved higher in September as individuals felt more optimistic about both the current situation and the next six months. The sentiment index increased to 80.4 from 74.1. Through the first few weeks of October, consumer expectations about the next six months continued to improve while feelings about the current environment have diminished somewhat. A number of factors will continue to weigh on current expectations, including rising COVID-19 rates, weak labor market dynamics and evidence of slowing economic activity.

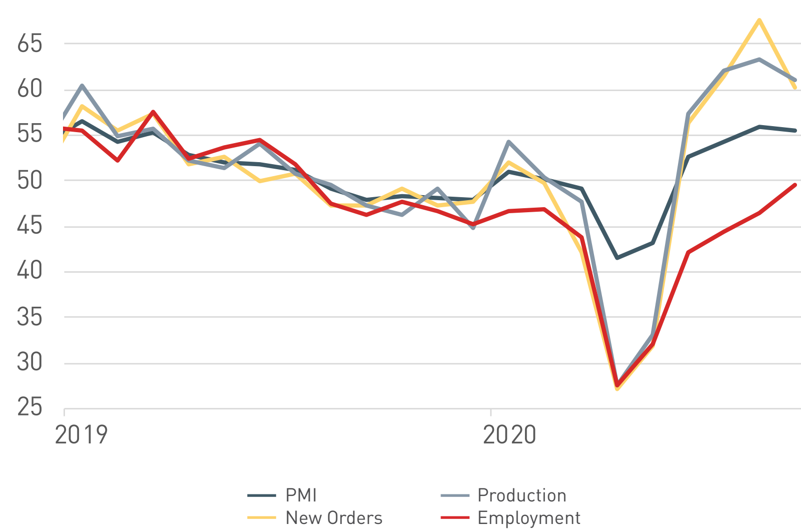


TRADE-WEIGHTED U.S. DOLLAR INDEX

The trade-weighted dollar index decreased in September, falling 0.5 percent. The dollar index is down 0.6 percent from a year ago, the biggest year-over-year decline since May 2018. The dollar's value is weighed down by many of the factors we've been discussing in recent months: the Federal Reserve's very accommodative monetary policy driving low rates and its new policy framework that could keep inflation above target for an extended period of time. There is also a building risk that the dollar's dominance gives way to other currencies like the euro, and the dollar/euro exchange rate is near a two-year low.

MANUFACTURERS' SENTIMENT (PMI)

The manufacturing sector continues to expand for the fifth consecutive month. However, the data suggests growth is less widely felt. The PMI slipped from 56 in August to 55.4 in September. The New Orders component fell from 67.6 to 60.2 and the production index fell from 63.3 to 61. On the surface, none of these declines are alarming because they are all well in expansion territory. One positive note from the most recent data: employment, which has been signaling contraction since August 2019, fell just below the expansion territory.

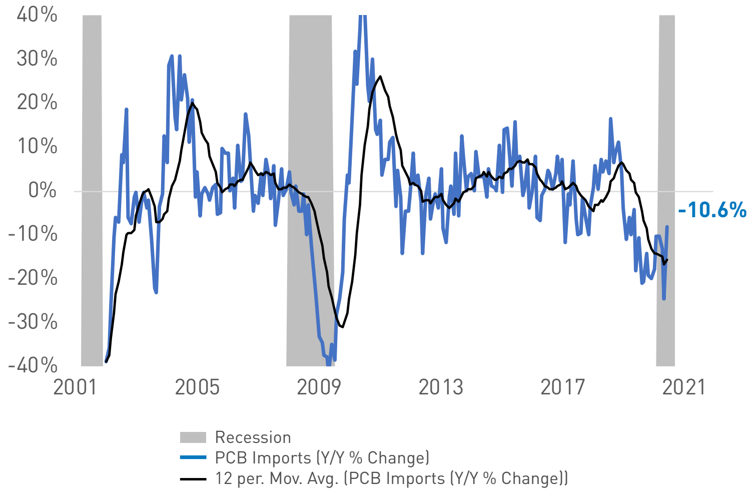


U.S. PCB DEMAND & INDUSTRY EMPLOYMENT

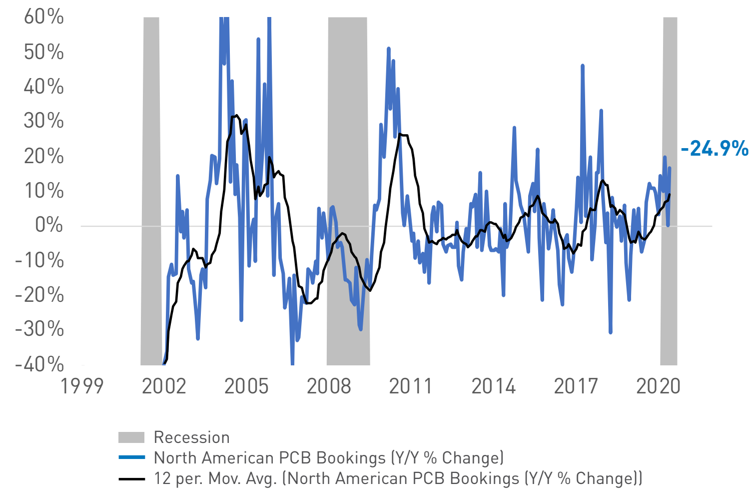
PCB INDUSTRY

Electronics production is showing signs of slowing, following several strong months in the immediate aftermath of the pandemic. PCB imports fell 5.3 percent in August, after rising 6.7 percent in July, and they are down 10.6 percent over the last year. North American PCB bookings were down 1.6 percent over the last month and down 24.9 percent over the last year. PCB shipments were down 1 percent for the month (2.5 percent year-over-year). PCB orders can be lumpy, but some of this weakness likely extends beyond that. Early strength in North American orders and shipments were driven by spikes in demand for medical equipment and the buying of capacity, and these forces have subsided somewhat.

PCB Imports (Y/Y % Change)



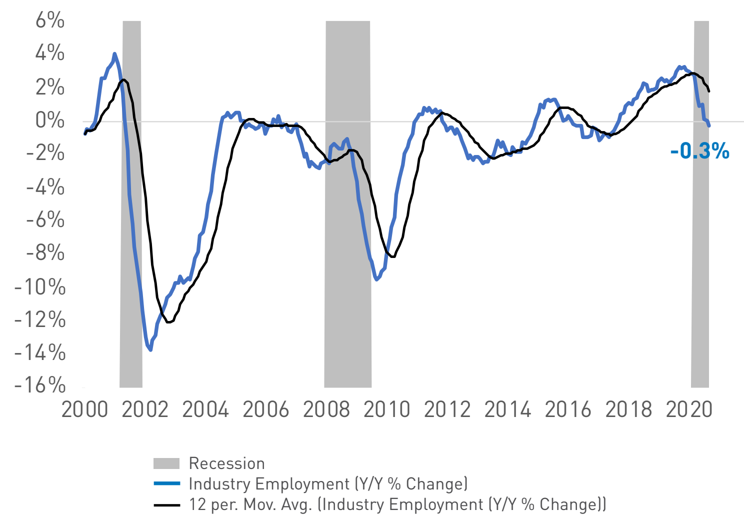
North American PCB Bookings (Y/Y % Change)



INDUSTRY EMPLOYMENT

The electronics industry added 1,500 jobs in September, after shedding 1,000 jobs in August and 9,500 jobs in July. The industry continues to weather the COVID-19 storm remarkably well. The industry has lost 40,800 jobs across April and May — roughly 2.7 percent of total industry employment. Industry employment has added back about 3,000 jobs and is down about 0.3 percent over the last year.

Industry Employment (Y/Y % Change)



U.S. END MARKETS FOR ELECTRONICS

Industrial production declined 0.6 percent in September, ending several consecutive months of growth. Manufacturing declined 0.3 percent in September but was up 0.3 percent including revisions to prior months. Production of high-tech equipment increased 0.8 percent in September and is up 5.8 percent from last year.

AUTOMOTIVE PRODUCTS

Auto production fell 4 percent in September, after declining 4.7 percent in August. But production is up 3.6 percent from last year.

TRANSIT EQUIPMENT

Transit equipment production increased 2.6 percent in September. The sector remains down 23.6 percent from last year and 10.7 percent from pre-pandemic levels.

INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment sector declined 5.7 percent in September after increasing a revised 2.7 percent in August. This segment is up 1.1 percent from last year and is down up 2.3 percent from pre-pandemic levels.

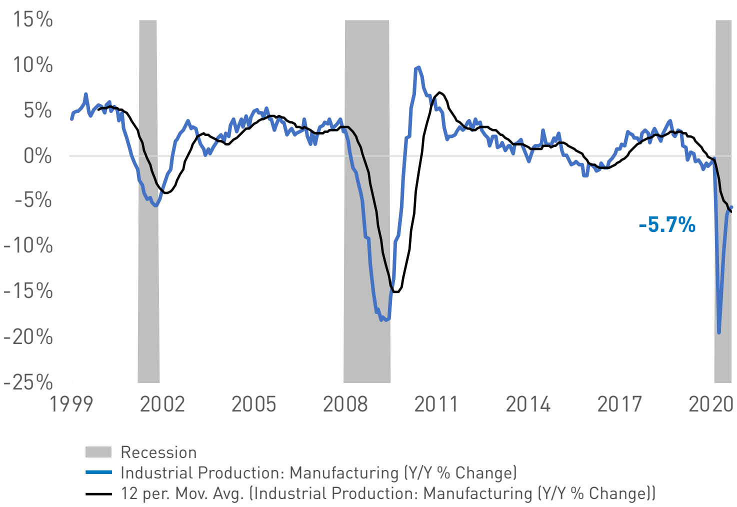
INDUSTRIAL & OTHER EQUIPMENT

The industrial segment was roughly flat in September, declining 0.1 percent in the month. The sector is down 11 percent from last year and 11.1 percent from pre-pandemic levels. This segment will likely face headwinds with municipalities facing funding shortfalls and businesses curtailing investment until they have greater clarity.

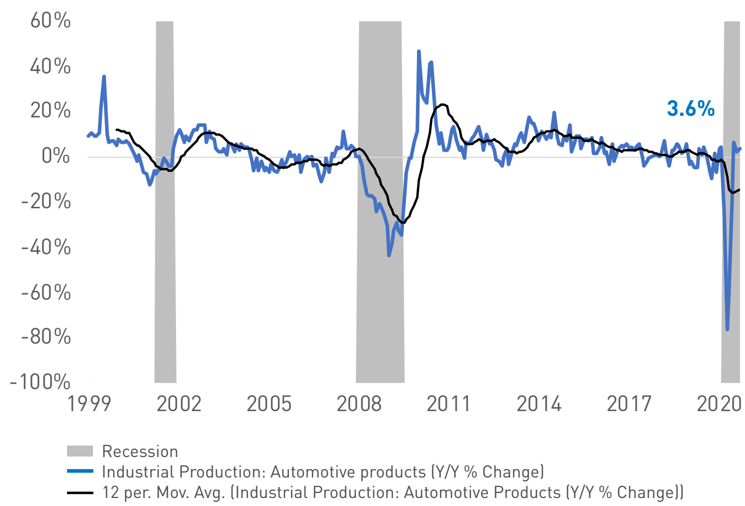
DEFENSE & SPACE EQUIPMENT

The defense and space equipment segment increased 2.1 percent in September and is down about 1.8 percent from last year and 3.1 percent from pre-pandemic levels.

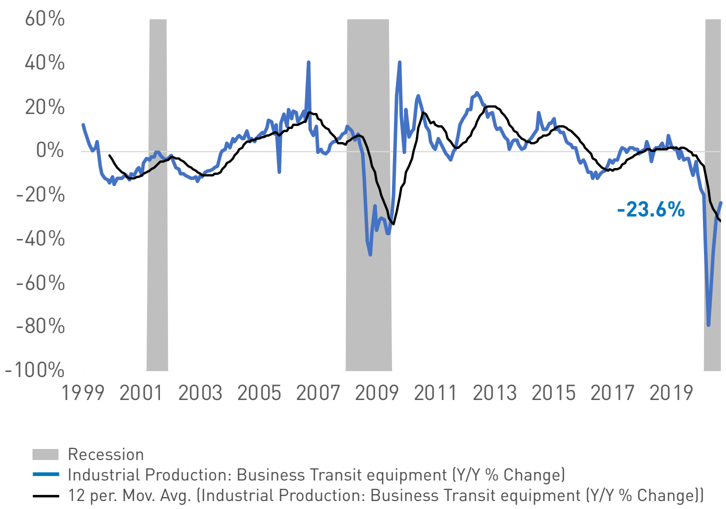
Manufacturing



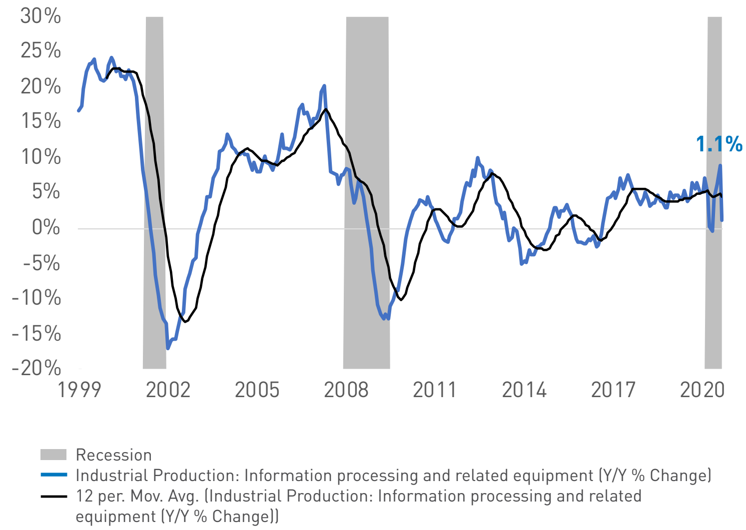
Automotive Products



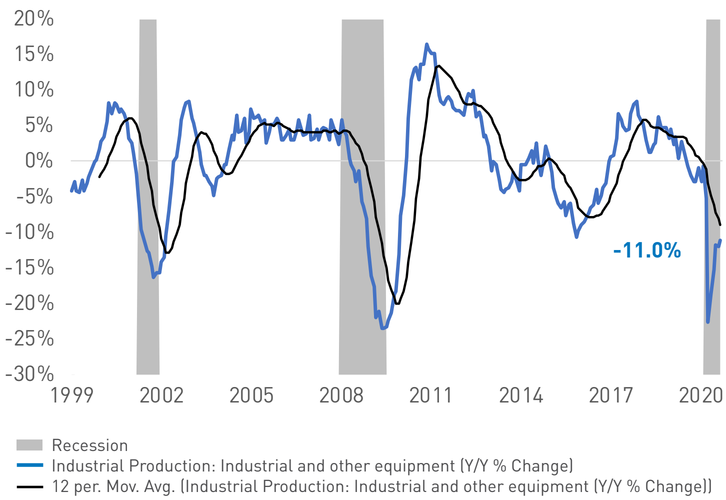
Business Transit Equipment (Y/Y % Change)



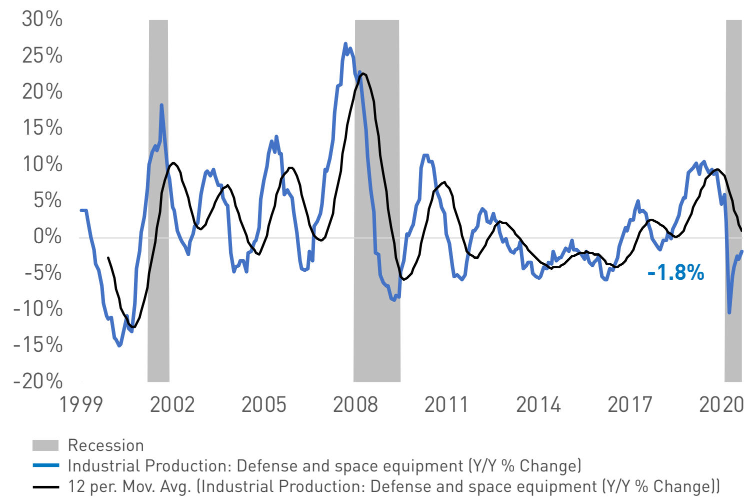
Information Processing & Related Equipment (Y/Y % Change)



Industrial & Other Equipment (Y/Y % Change)



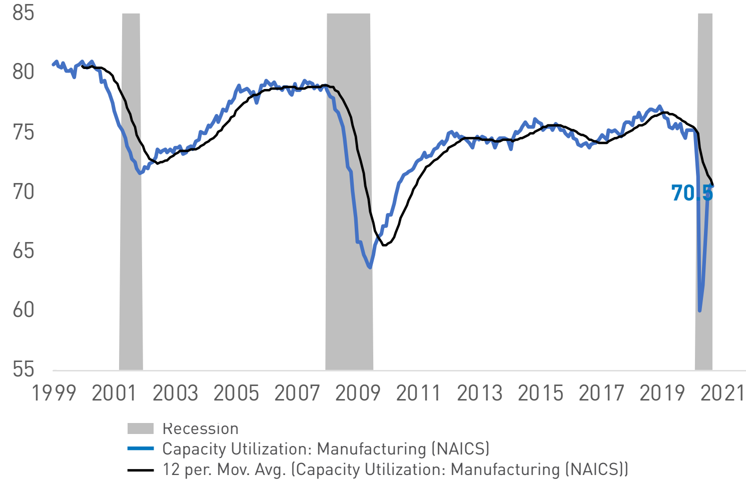
Defense & Space Equipment (Y/Y % Change)



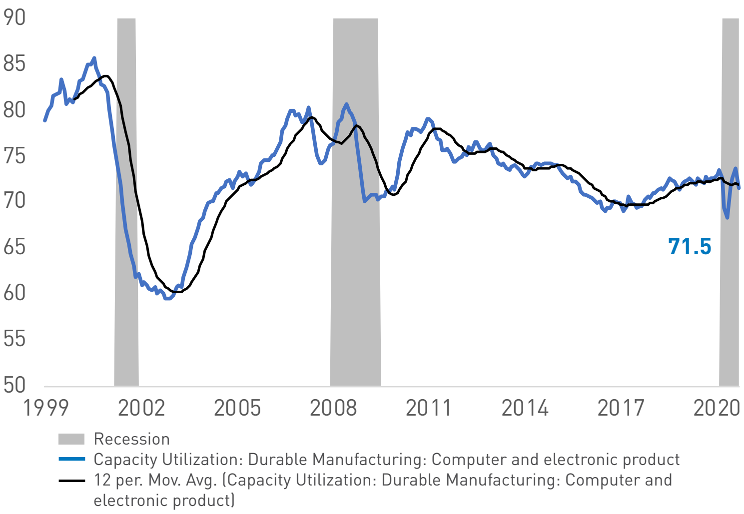
MANUFACTURING CAPACITY UTILIZATION

Capacity utilization slipped marginally in September. Manufacturing capacity utilization declined to 70.5 percent, roughly 93.8 percent of the February 2020 utilization rate. The operating rates for computer and electronic products fell to 71.5, while it was flat for electrical equipment, appliances and components. Operating rates fell for the auto sector, coinciding with a further step back in production. Aerospace and miscellaneous transportation equipment saw operating rates increase to 64.3, now 94.8 percent of the February 2020 figure.

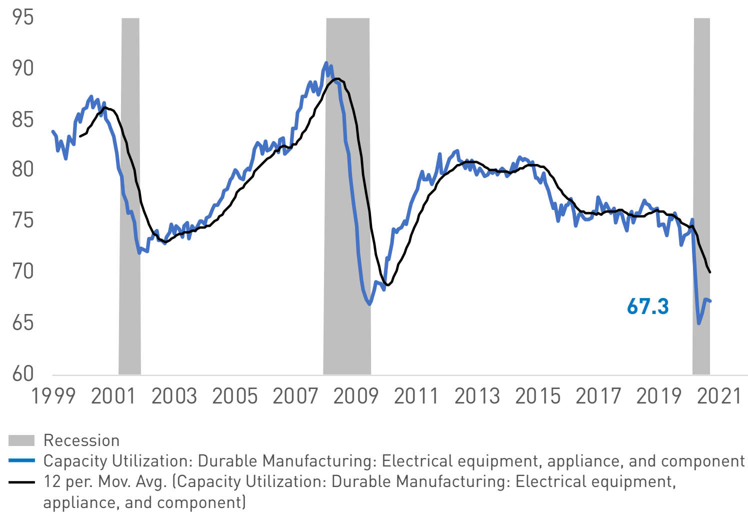
Manufacturing (NAICS)



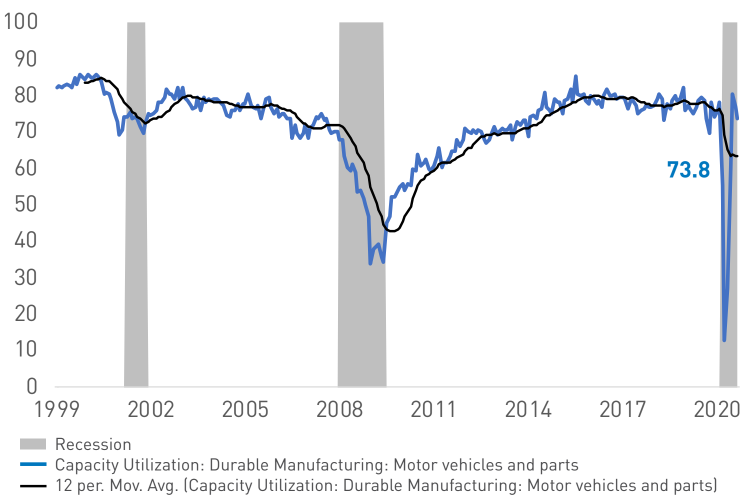
Computer & Electronic Product



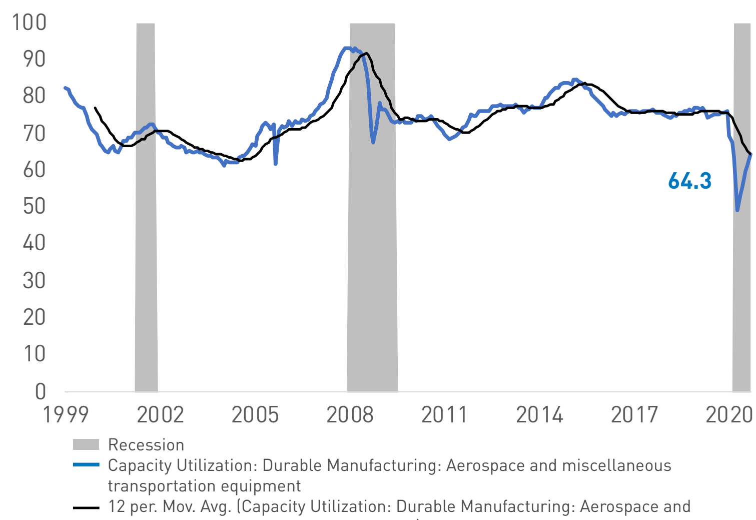
Electrical Equipment, Appliance, & Component



Motor Vehicles & Parts



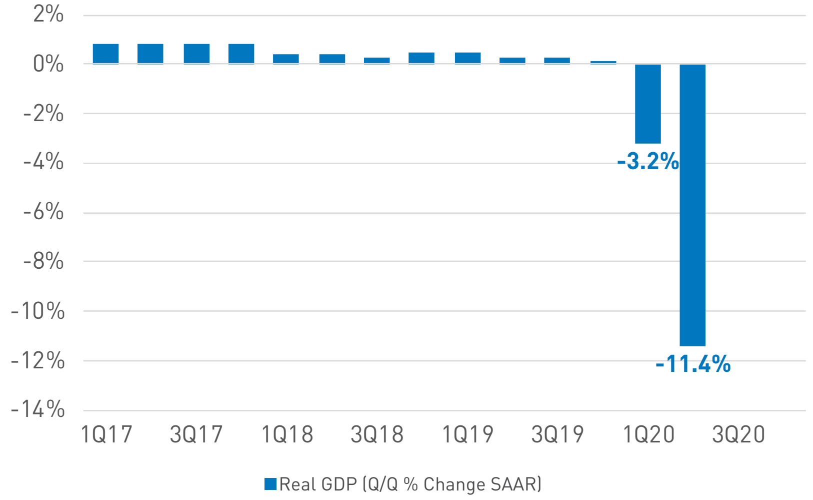
Aerospace & Miscellaneous Transportation Equipment



EUROPEAN OUTLOOK

ECONOMIC GROWTH

Euro areas GDP fell 11.8 percent in the second quarter, slightly better than the originally estimated 12.1 percent but still the lowest on record dating back to 1995. GDP is down 14.8 percent from last year in the euro area and 13.9 percent in the European Union. Spain recorded the biggest drop among member states, falling 17.8 percent, followed by Croatia (14.9 percent), Hungary (14.6 percent) and Greece (14 percent). Finland (-4.4 percent), Estonia (-5.6 percent) and Lithuania (-5.9 percent) saw the lowest declines in GDP. The United Kingdom fell 19.8 percent in Q2. Gross fixed capital formation decreased by 17 percent in the euro area, subtracting 3.8 percentage points from GDP growth.

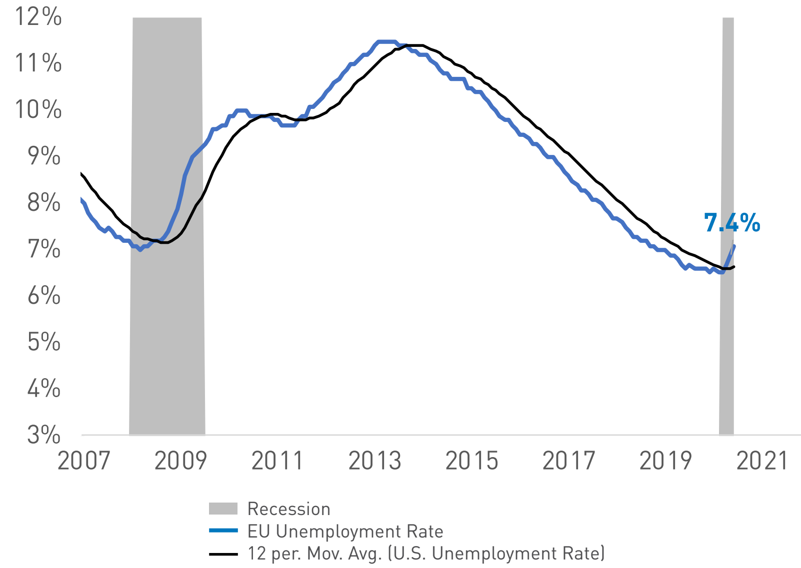


	Q/Q PERCENTAGE CHANGE				Y/Y PERCENTAGE CHANGE			
	2019Q3	2019Q4	2020Q1	2020Q2	2019Q3	2019Q4	2020Q1	2020Q2
EURO AREA	0.3%	0%	-3.7%	-11.8%	1.4%	1%	-3.3%	-14.8%
EU (27)	0.4%	0.1%	-3.3%	-11.4%	1.7%	1.2%	-2.7%	-13.9%
GERMANY	0.3%	0%	-3.7%	-11.8%	0.8%	0.4%	-2.2%	-11.3%
FRANCE	0.2%	-0.2%	-5.9%	-13.8%	1.6%	0.8%	-5.6%	-18.0%
ITALY	0%	-0.2%	-5.5%	-13%	0.5%	0.1%	-5.6%	-18%
SPAIN	0.4%	0.4%	-5.2%	-17.8%	1.8%	1.7%	-4.2%	-21.5%

	2020 ECONOMIC GROWTH (GDP % CHANGE)	2021 ECONOMIC GROWTH (GDP % CHANGE)
EURO AREA	-7.6%	5.3%
GERMANY	-5.5%	-4.5%
FRANCE	-9.9%	-6.7%

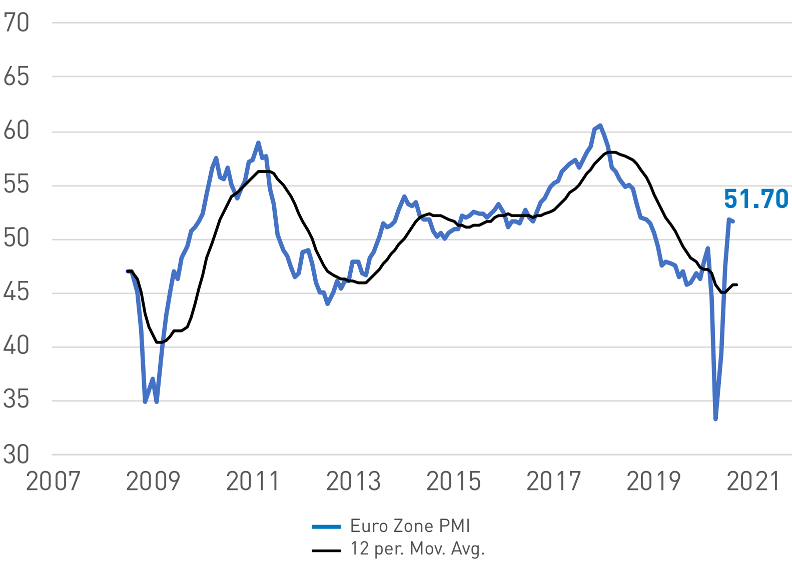
EMPLOYMENT

Little has changed with the European labor market over the last month. But unlike in the United States, unemployment continues to inch higher in Europe. The euro zone recorded its steepest employment drop on record, shedding 2.9 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 8.1 percent in August. Short-time work policies implemented in the euro zone have kept unemployment from running higher. The end of such programs will drive unemployment rates higher in the second half of the year. France has already extended its policies to 2022, and some companies have announced layoffs as signs of demand weaken.



MANUFACTURERS' SENTIMENT (PMI)

The euro zone's PMI increased from 51.7 in August to 53.7 in September. This marks the third consecutive month of expansion for the European manufacturing sector. Strength in Germany is helping the euro zone's PMI: Factory output in Germany, Europe's largest economy, is solid, and some buildup of backorders might help carry the manufacturing sector. Similar to the United States, the service sector continues to struggle, while the goods economy is recovering more quickly.



E.U. END MARKETS FOR ELECTRONICS

Manufacturing output in the European Union increased 0.6 percent in August, which is down 6.3 percent from last year and down roughly the same amount from just prior to the pandemic hitting Europe. Growth slowed significantly from the prior month.

COMPUTER, ELECTRONIC & OPTICAL PRODUCTS

The electronics industry, which includes categories such as components, loaded boards, computers, communications equipment and consumer electronics, decreased 9.5 percent in August, reversing several months of gains. Electronics output is down 8.9 percent from last year and 5.8 percent from the start of 2020.

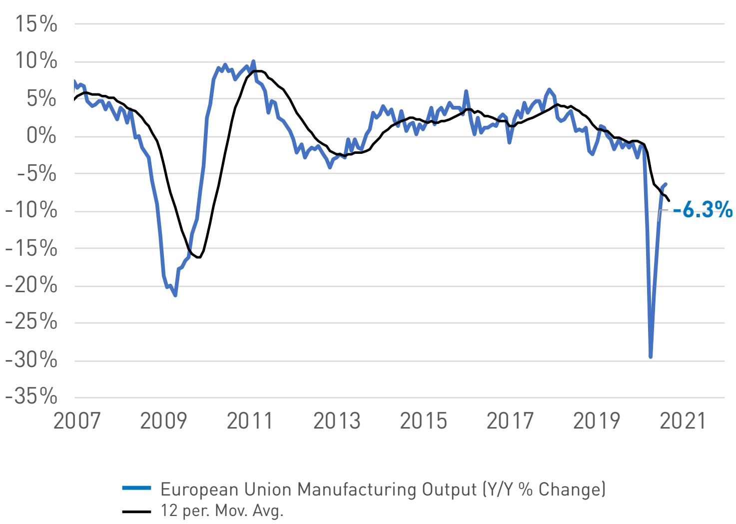
MOTOR VEHICLES

Motor vehicle manufacturing production decreased 12 percent in August and is down 26.8 percent from last year. Production is down 24.6 percent from the start of the year.

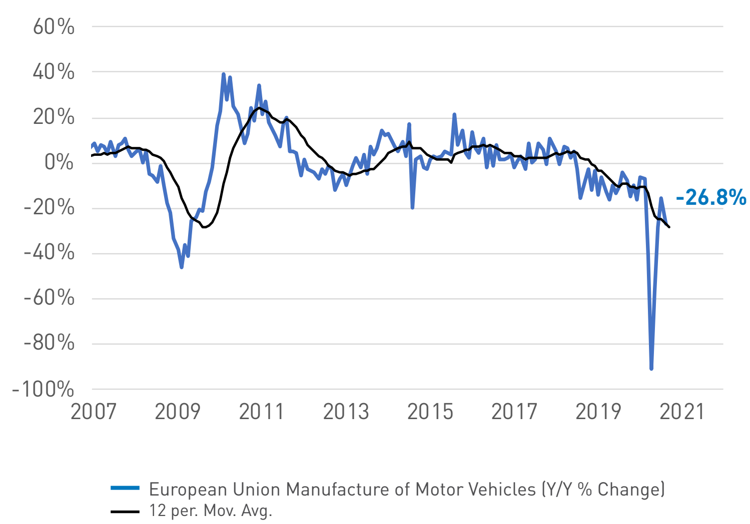
AIR & SPACECRAFT & RELATED MACHINERY

The air and spacecraft manufacturing sector saw production increase 3.1 percent in August, after a 0.8 percent decline in July. Production in the sector is down 24.5 percent from last year, and given reduced air travel, the sector will likely see reduced output through at least the remainder of the year.

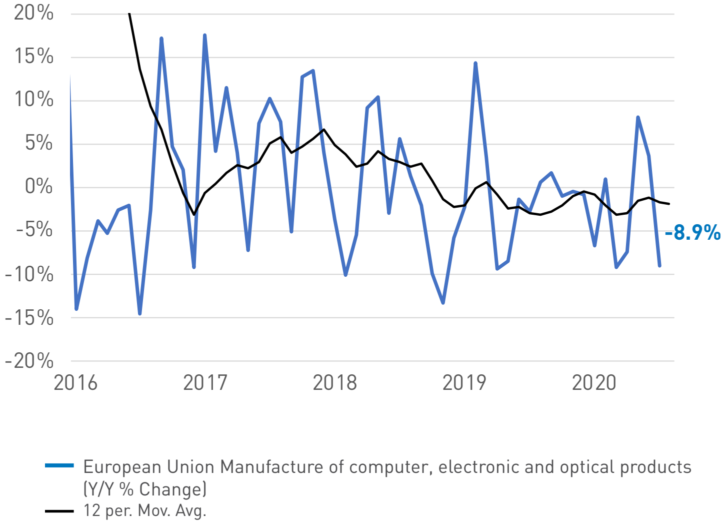
E.U. Manufacturing Output



E.U. Manufacture of Motor Vehicles



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



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