BUILD ELECTRONICS BETTER

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ECONOMIC OUTLOOK

The economy improved over the last month, but it is clear that momentum is slowing and future growth will likely be more difficult to come by.

In the United States, the rate of new COVID-19 cases has slowed somewhat, which has likely helped to reduce some uncertainty. Manufacturing sentiment moved higher again, and the outlook for new orders and production remains solid. Consumers also appear somewhat less concerned about the year ahead, though expectations remain half as favorable as they did at the start of the year. Consumer sentiment in the United States has ebbed around April's lull but remains above the lows experienced during the last recession. However, other uncertainties remain, and business and consumer sentiment could slip in the coming months. In the United States, the outcome of November's election will increasingly weigh on sentiment, and uncertainties around another stimulus bill will influence businesses' investment decisions and Americans' spending habits. Retail sales in August slowed as the end of CARES Act cash payments and pandemic unemployment payments created a headwind for consumer spending. At the same time, many areas of retail sales are above pre-pandemic levels calling into question how far retail sales can go when, employment remains depressed and purchasing power has been curtailed.

In Europe, countries began to relax their stay-at-home orders in earnest. Businesses began to reopen as consumers worked toward a new normal. But rising cases of COVID-19 could dampen the recovery. France, for example, recently reported its highest daily increase of infections since the pandemic began in mid-February.

The Organization for Economic Co-operation and Development (OECD) recently "raised" its outlook for the global economy for 2020. The OECD now says the world economy shrank by 4.5 percent, up from its June forecast of a 6 percent decline. While the economy is doing better than anticipated, it isn't great. Only China will see positive growth in 2020 among the G20 countries.

Economies are extremely fragile right now, and any policy blunders will stymie the recovery. In the United States, there has been talk of additional fiscal stimulus but little movement forward. On the monetary front, the Federal Reserve remains committed to accommodative policy for several years, and interest rates are expected to stay near zero at least through 2023. The European Central Bank (ECB) recently announced it was leaving its policy programs unchanged, but many expect the entity will expand its bond purchase stimulus.

There is also growing concern that the expiration of some policy measures might push the economy back into contraction. In the United States, the expiration of eviction moratoriums will create a headwind. In Europe, the expiration of short-time work benefits could drive layoffs and increase the unemployment rate. Other policy measures will be dictated by economic realities yet to materialize. For example, weakness in the dollar will create a challenge for Europe in the coming year. The Euro continues to strengthen against the dollar, which will support U.S. exports but will likely hurt European exports at a time when manufacturers are working to move operating rates higher.

In both the United States and Europe, manufacturing has recovered a significant portion of ground lost to the pandemic, but most sectors remain below pre-pandemic levels. While manufacturing is expanding, manufacturers remain cautious. New orders and production are expanding on both continents, and backlogs are growing. This, in turn, is keeping prices firm, but manufacturers are not expanding employment, and inventories remain lean. Capital investment is likely to remain in check. Demand is anything but certain, and manufacturers are responding to an uncertain environment by trying to keep costs contained.

The initial recovery brought strong growth rates almost across the board as the economies reopened; however, as growth slows, we are likely to see a divergence in across sectors. The electronics industry continues to appear to have weathered the pandemic most favorably. Production is up in recent months and positive on a year-over-year basis in both the United States and Europe.

While downstream markets for electronics have been recovering, many are showing signs of slowing growth. The automotive industry was especially hard hit by the pandemic but recovered swiftly. Some of the pandemic-induced, pent-up demand has cleared, and now the auto industry is showing signs of a slowdown. In the last month, auto production declined from July. Sectors of the economy will likely feel a divergence in recovery as growth slows and some areas of the economy recover more fully than others.

1.4M

Nonfarm payrolls added another 1.4 million jobs in August, dropping the unemployment rate to a still high 8.4 percent.

35%

The cumulative gain of the stock market over the last five months is the best five-month increase since the 1930s.

6.2M

The number of unemployed workers on temporary leave (furlough) has fallen from 18 million to a still high 6.2 million in August.

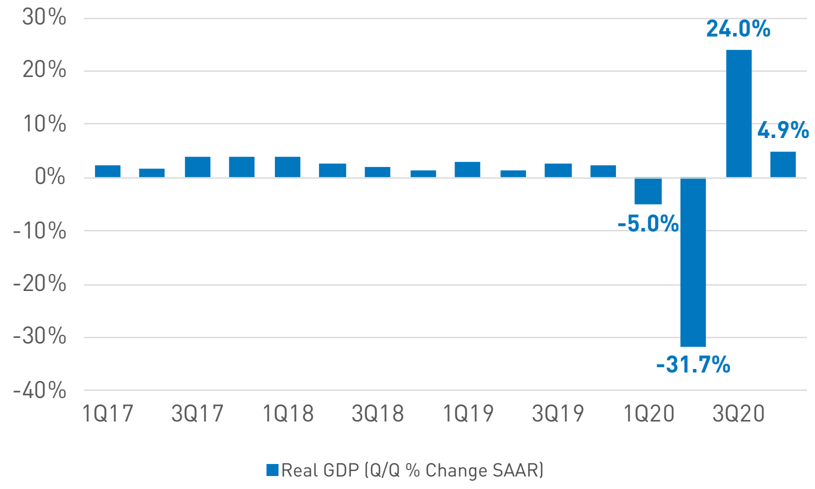
3.7%

The Mortgage Bankers Association (MBA) reported that 2.1 percent of all mortgages were overdue by 90+ days overdue and 3.7 percent were 90+ day delinquency — levels only seen in the aftermath of the Great Recession.

U.S. OUTLOOK

ECONOMIC GROWTH

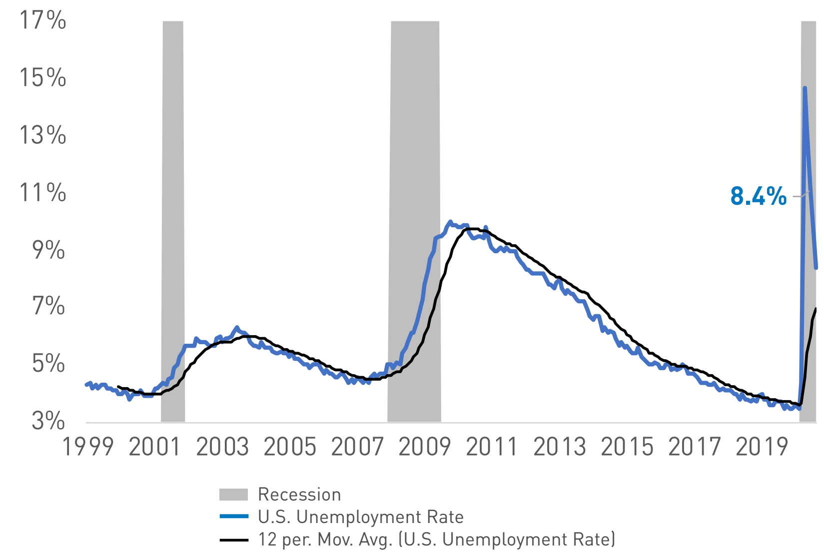
Economic growth for the second quarter was revised up marginally but did little to offset the worst quarterly decline in history. The economy fell by 31.7 percent (annualized). The prior record was a decline of 10 percent in 1958 (also during a pandemic). The economy is down 9.1 percent from a year ago. The third quarter will show growth in excess of 24 percent (the latest estimate from the Federal Reserve Bank of Atlanta's GPDNow forecast is 30 percent), 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	-4.6%	3.8%	N/A	N/A
CANADA	-6.3%	4.9%	1.34	1.32
MEXICO	-9.6%	3.1%	22.33	21.50
EURO AREA	-7.7%	5.4%	1.17	1.21

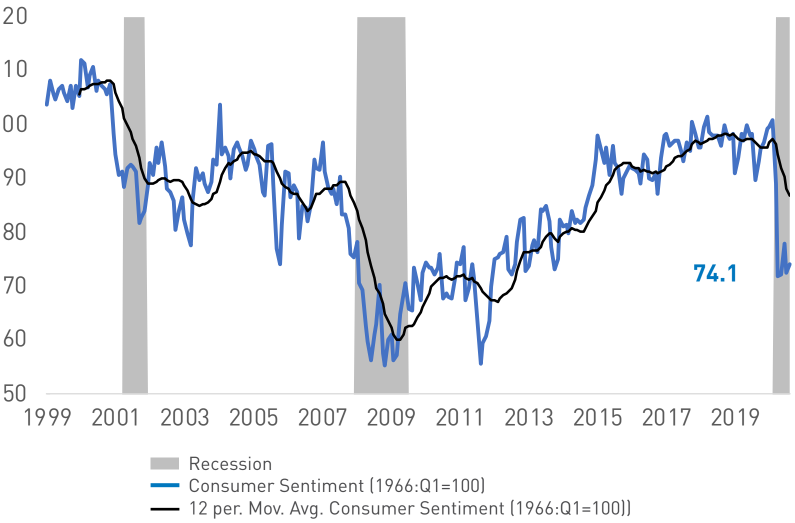
EMPLOYMENT

August brought a fourth consecutive month of employment gains. Nonfarm payrolls added another 1.4 million jobs in August. The economy has now added 10.6 million jobs back (roughly 48 percent of all jobs lost in the early months of the pandemic). The unemployment rate moved down to 8.4 percent from 10.2 percent last month and a high of 14.7 percent in April. Manufacturing added 29,000 jobs during the month and has now added back 47 percent of the jobs lost. But several manufacturing sectors did shed jobs during the month, suggesting that regaining all jobs lost will take some time.



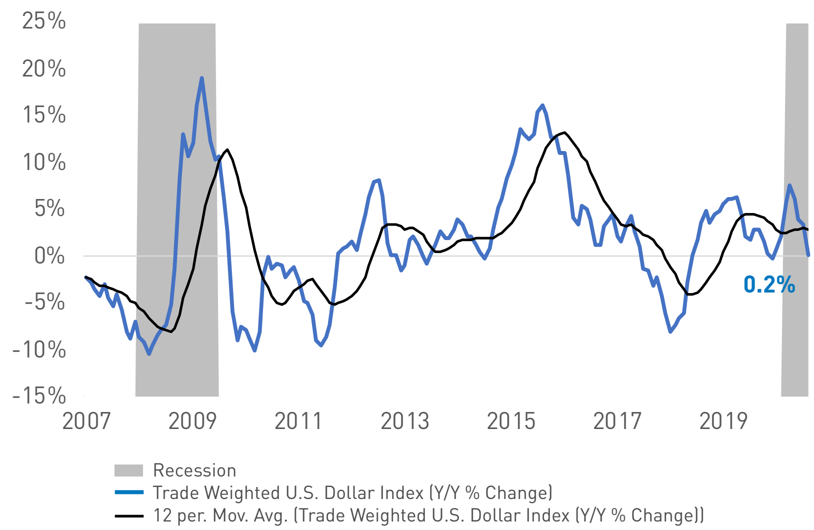
SENTIMENT

Consumer sentiment inched higher in August but has essentially moved sideways since the steep downturn in the early months of the pandemic. The sentiment index increased to 74.1, changing little from the 71.8 April reading. Concerns for the year-ahead outlook diminished somewhat during the month; however, expectations remain half as favorable as they did at the start of the year. Consumers remain hopeful that the economy will improve. For example, while nine in 10 consumers consider the current state of the economy to be negative, half of all consumers believe the economy will improve in the year ahead.



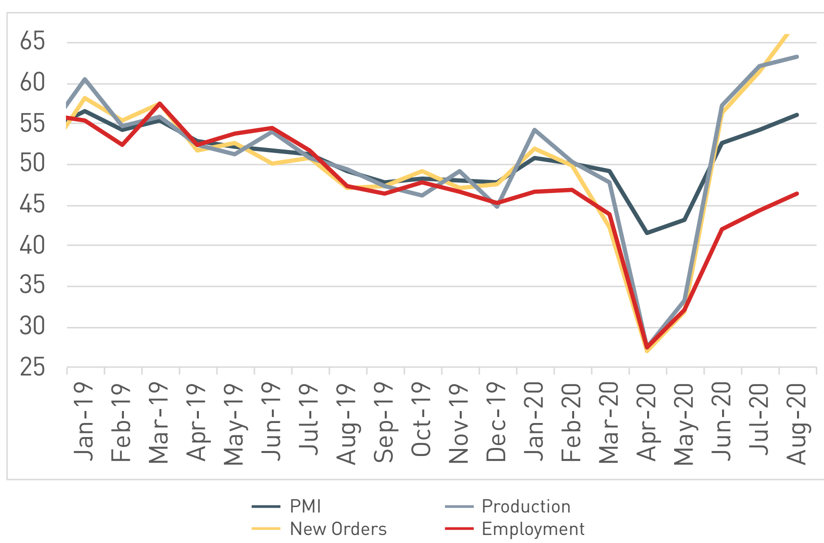
TRADE-WEIGHTED U.S. DOLLAR INDEX

The trade-weighted dollar index decreased again in August, falling 1.4 percent. The dollar index is now just 0.2 percent higher than a year ago. The dollar is likely to continue to trend lower over the next year. It will continue to be weighted down by very accommodative monetary policy from the Federal Reserve, and recently announced revisions to the Federal Reserve's policy framework could keep inflation above target for a time if inflation has been running below target (which it has been). There is also a building risk that the dollar's dominance gives way (eventually) to the euro, and the dollar/euro exchange rate is at a two-year low.



MANUFACTURER'S SENTIMENT (PMI)

The manufacturing sector reported its fourth consecutive month of expansion. The PMI moved to 56, the highest level since November 2018. The new orders component shot higher to 67.6, the highest level since January 2004. Inventories remain lean for manufacturers and their customers. This combined with strong orders has expanded backlogs and pushed prices higher. While demand appears to be strong and most manufacturing sectors are reporting solid expansion, manufacturers are remaining cautious about employment. The employment component remains in contractionary territory and several manufacturing sectors shed jobs in August.

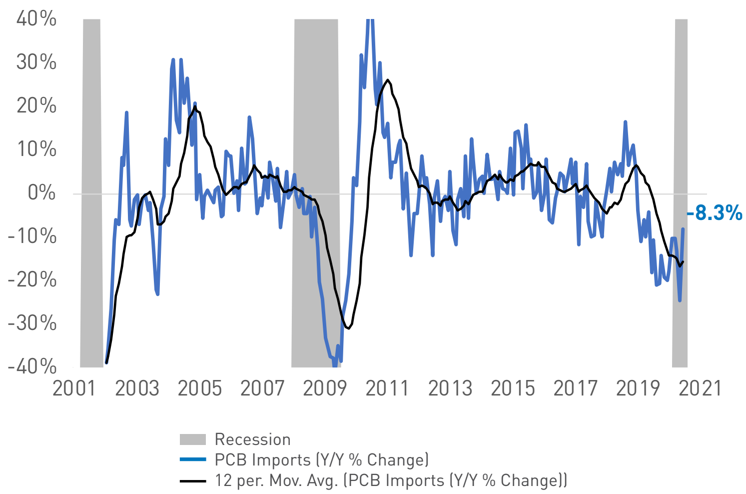


U.S. PCB DEMAND & INDUSTRY EMPLOYMENT

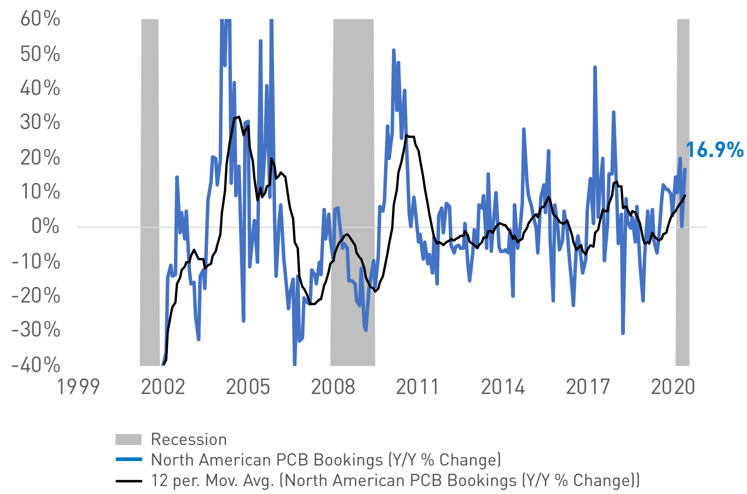
PCB INDUSTRY

Electronics production remains strong and incoming data suggests strong demand for PCBs has probably led to some backlog of orders. As a result, the industry did see PCB imports increase during July. PCB imports increased 6.7 percent in July and are down 10 percent from last year. North American PCB shipments decreased nearly 16 percent in July but are up 10 percent over the last year. Bookings also fell sharply in July (down 36.5 percent from June 2020) and are down 9.4 percent from last year. Bookings from month-to-month can be volatile, but the year-over-year trend has been strongly positive. The decline in July is the first year-over-year decline since July 2019. The decline in bookings could also be a signal of slowing demand, something to watch for closely in the months ahead.

PCB Imports (Y/Y % Change)



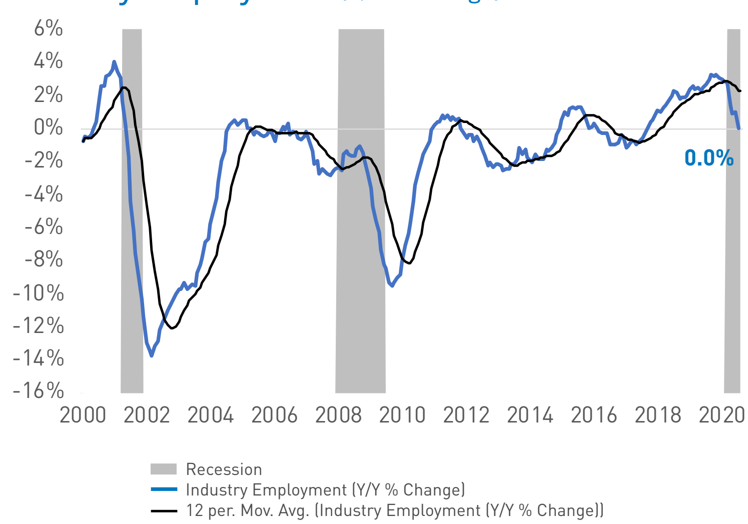
North American PCB Bookings (Y/Y % Change)



INDUSTRY EMPLOYMENT

The electronics industry added 1,900 jobs in August. The labor picture in the industry has looked somewhat different than other industries.The industry shed 40,800 jobs in March and April — roughly 2.7 percent of total industry employment. Overall, manufacturing shed about 10.6 percent of its total labor force, and the broader economy shed 14.5 percent of its labor force. So while the electronics industry has shed a much smaller percentage of its workforce, it has also added back a smaller percentage. The electronics industry workforce remains down 37,300 — roughly 1.7 percent lower than last year and 2.7 percent below pre-pandemic levels.

Industry Employment (Y/Y % Change)



U.S. END MARKETS FOR ELECTRONICS

Industrial production rose 0.4 percent in August, adding to gains in the prior three months but showing a step down in the rate of growth. Industrial production is down roughly 7.3 percent from pre-pandemic levels. Manufacturing production rose 1 percent in August and is down 6.4 percent from pre–COVID-19 levels.

AUTOMOTIVE PRODUCTS

Auto production fell 3.8 percent in August. Knowing that the auto sector can be volatile, a slowdown was expected given the fact that production had completely recovered pre-pandemic levels. Auto production is flat over last year.

TRANSIT EQUIPMENT

Transit equipment production increased 2.7 percent in August. The sector remains down 28.4 percent from last year and 13 percent from pre-pandemic levels.

INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment sector rose 2 percent in August and is the star of the factory sector. This segment is up 8.3 percent from last year and is now up 2.9 percent from pre-pandemic levels.

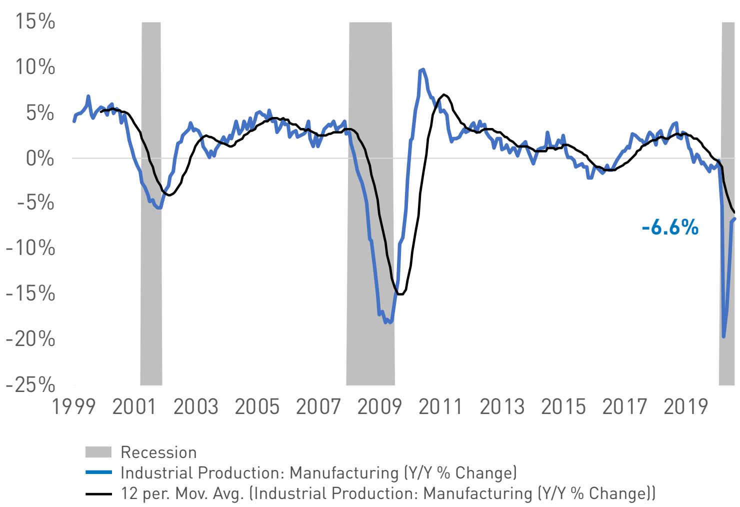
INDUSTRIAL & OTHER EQUIPMENT

The industrial segment increased 1.6 percent in August. The sector is down 12.1 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.

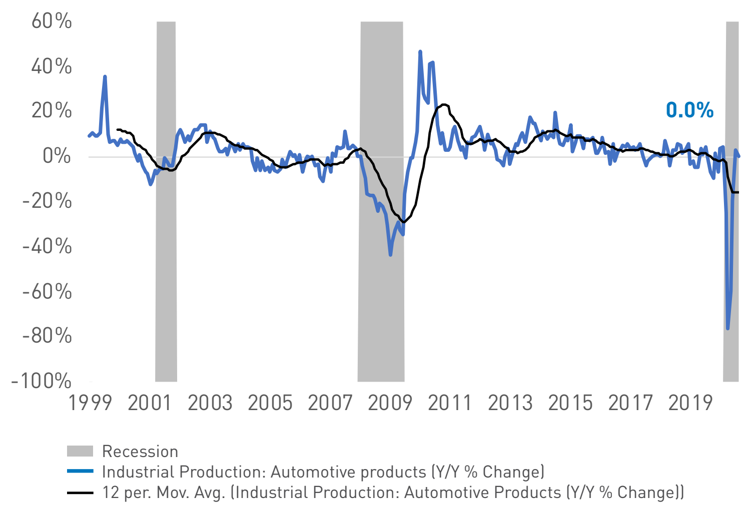
DEFENSE & SPACE EQUIPMENT

The defense and space equipment segment increased 1.3 percent in August and is down about 1.8 percent from last year and 4 percent from pre-pandemic levels.

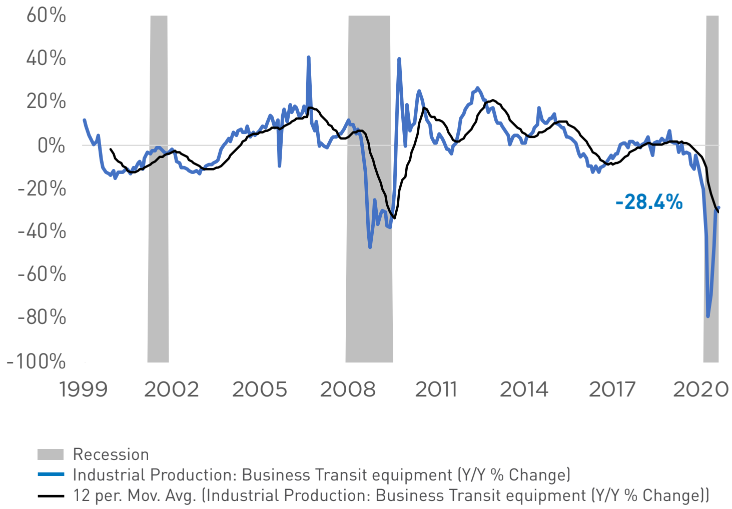
Manufacturing



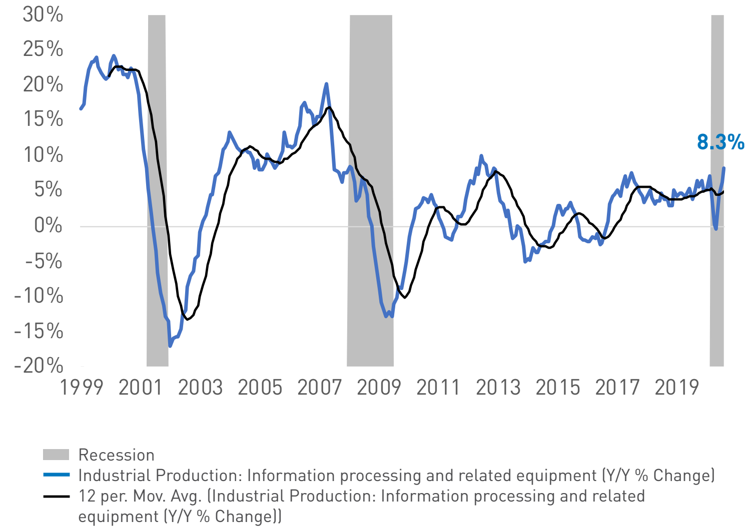
Automotive Products



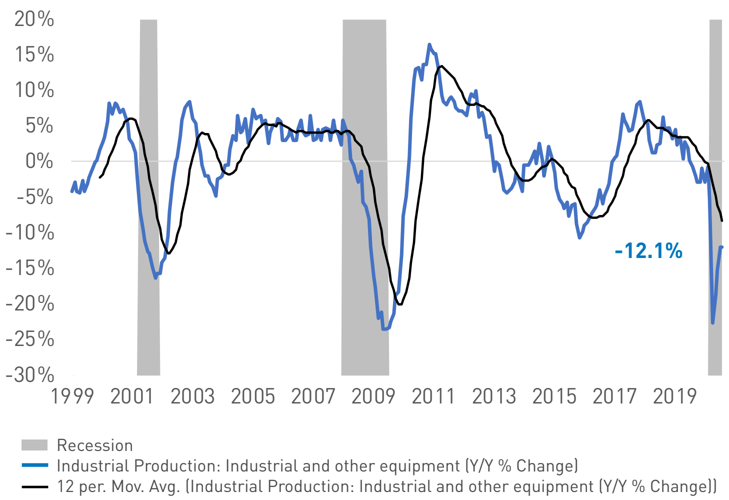
Business Transit Equipment (Y/Y % Change)



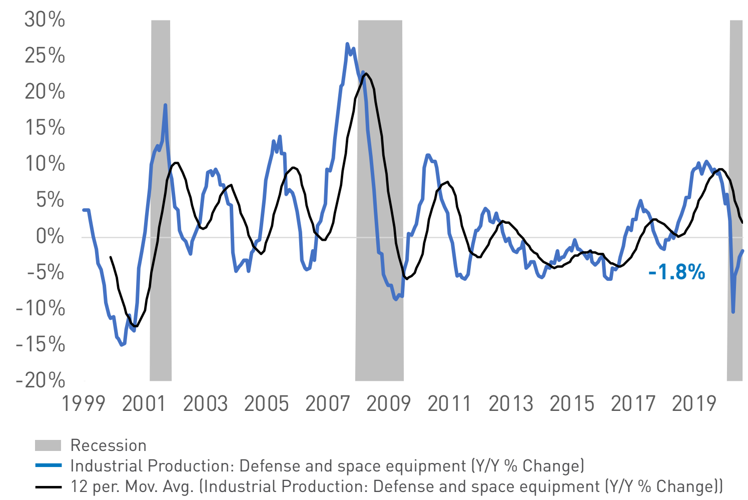
Information Processing and Related Equipment (Y/Y % Change)



Industrial & Other Equipment (Y/Y % Change)



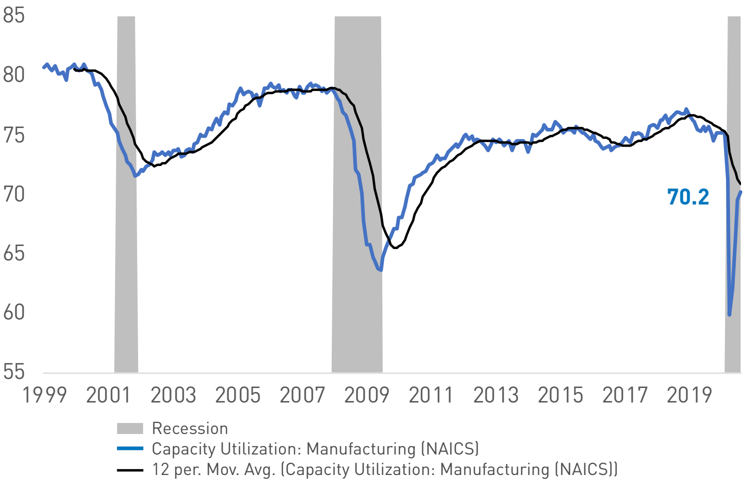
Defense & Space Equipment (Y/Y % Change)



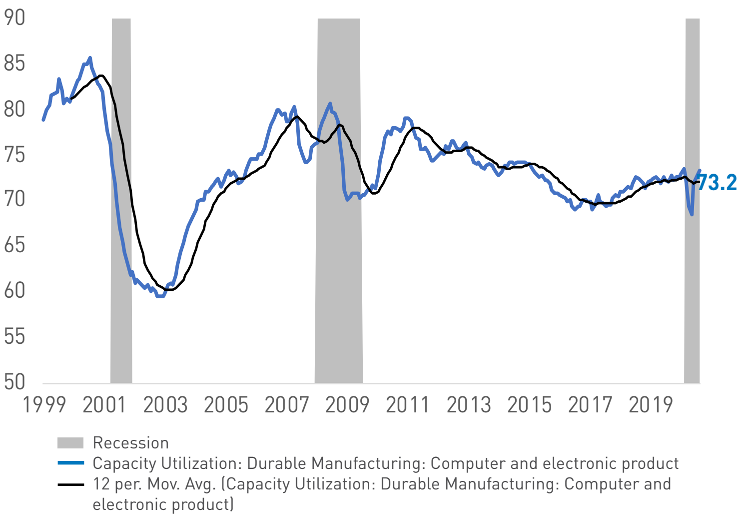
MANUFACTURING CAPACITY UTILIZATION

Manufacturing capacity utilization inched higher in August, the fourth consecutive monthly increase. But operating rates still have ground to make up. Manufacturing capacity utilization was 70.2 percent in August, up from 69.5 percent. Capacity utilization for manufacturing is 10.3 percentage points higher than its trough in April but still 8 percentage points below its long-run average. The operating rates for computer and electronic product and electrical equipment, appliance and component both increased marginally. Operating rates fell for the auto sector, coinciding with a step back in production. Aerospace and miscellaneous transportation equipment saw operating rates increase to 61.4.

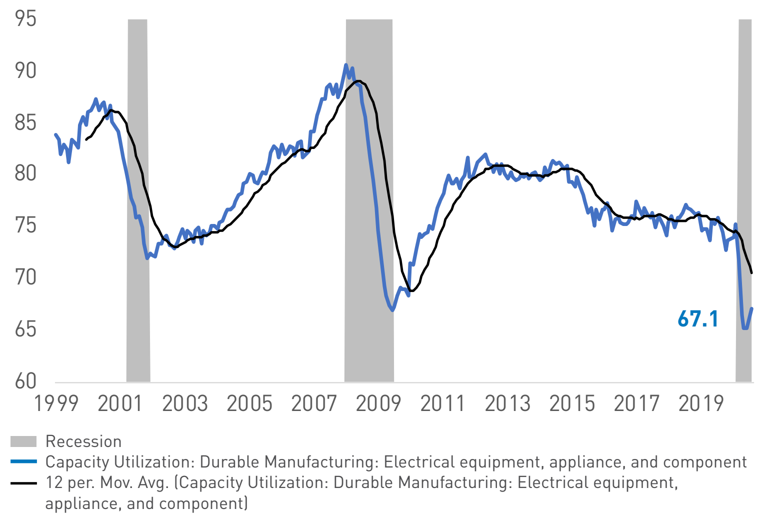
Manufacturing (NAICS)



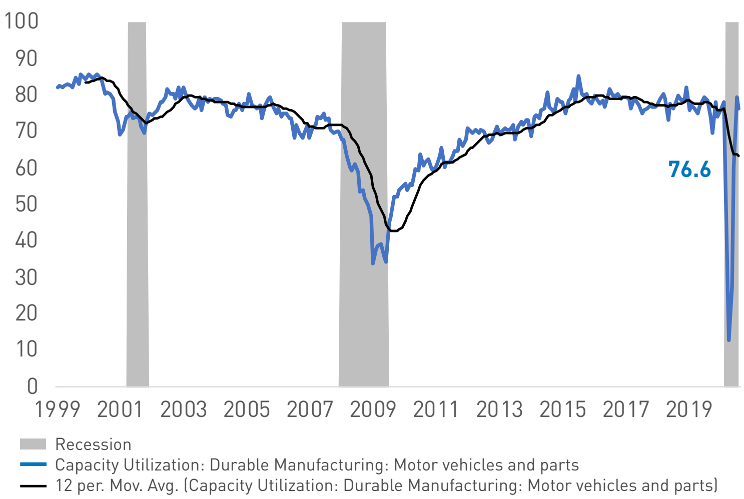
Computer and Electronic Product



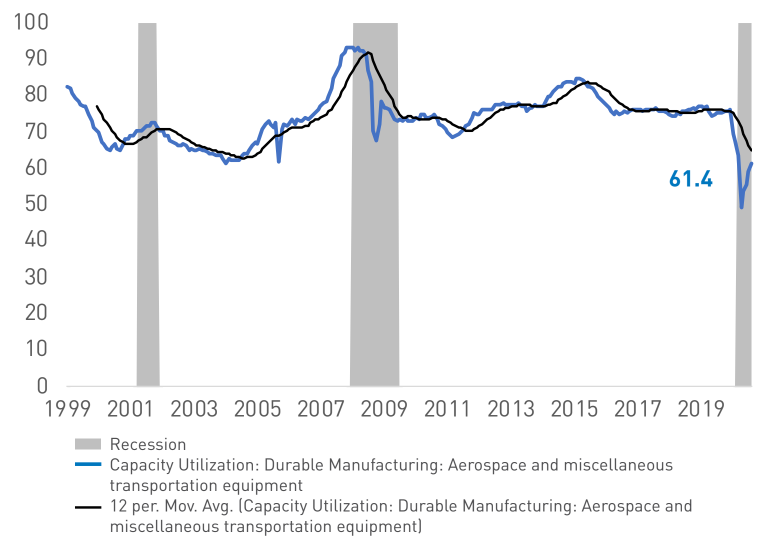
Electrical Equipment, Appliance, & Component



Motor Vehicles and Parts



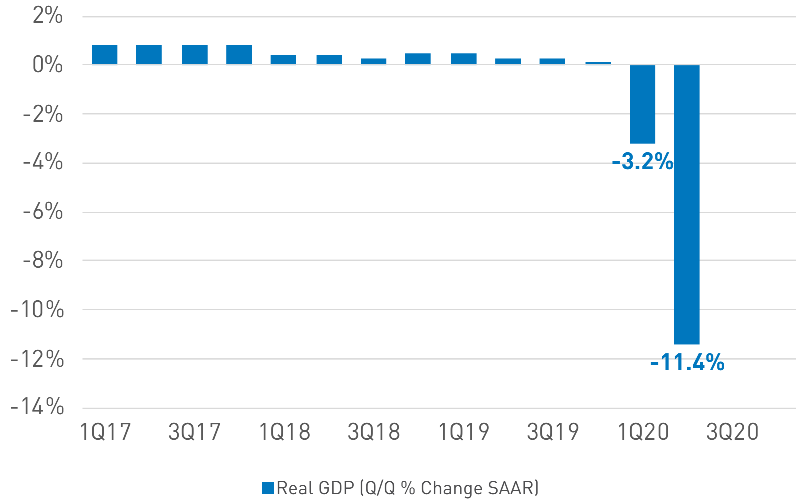
Aerospace & Miscellaneous Transportation Equipment



EUROPEAN OUTLOOK

ECONOMIC GROWTH

Euro-area 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 14.7 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 18.5 percent, followed by Croatia (14.9 percent), Hungary (14.5 percent) and Greece (14 percent). Finland (-4.5 percent), Lithuania (-5.5 percent) and Estonia (-5.6 percent) saw the lowest declines in GDP. Gross fixed capital formation decreased by 17 percent in the euro area, subtracting 3.8 percentage points from GDP growth.

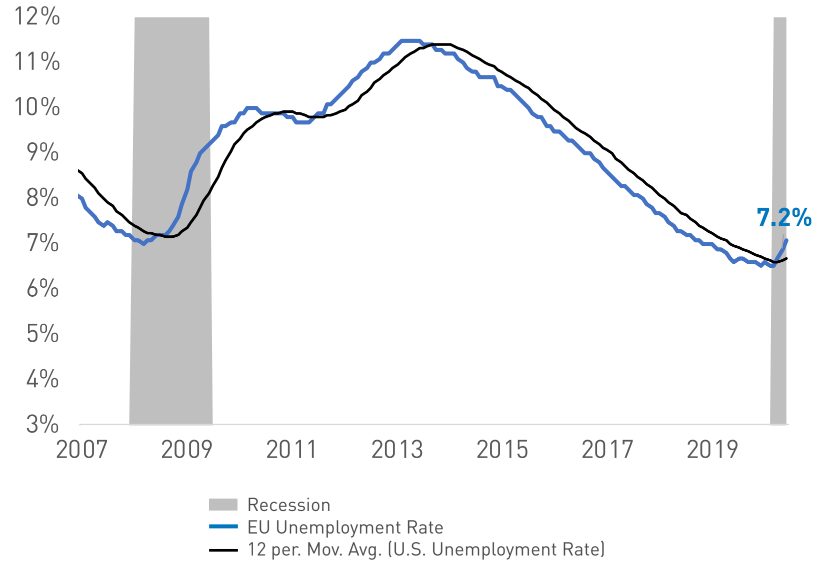


	Q/Q PERCENTAGE CHANGE				Y/Y PERCENTAGE CHANGE			
	2019Q3	2019Q4	2020Q1	2020Q2	2019Q3	2019Q4	2020Q1	2020Q2
EURO AREA	0.3%	0%	-3.7%	-11.8%	1.4%	1%	-3.2%	-14.7%
EU (27)	0.4%	0.1%	-3.3%	-11.4%	1.6%	1.2%	-2.7%	-13.9%
GERMANY	0.3%	0%	-2%	-9.7%	0.8%	0.4%	-2.2%	-11.3%
FRANCE	0.2%	-0.2%	-5.9%	-13.8%	1.6%	0.8%	-5.7%	-18.9%
ITALY	0%	-0.2%	-5.5%	-12.8%	0.5%	0.1%	-5.6%	-17.7%
SPAIN	0.4%	0.4%	-5.2%	-18.5%	1.9%	1.8%	-4.1%	-22.1%

	2020 ECONOMIC GROWTH (GDP % CHANGE)	2021 ECONOMIC GROWTH (GDP % CHANGE)
EURO AREA	-7.7%	5.4%
GERMANY	-5.6%	4.6%
FRANCE	-10%	6.9%

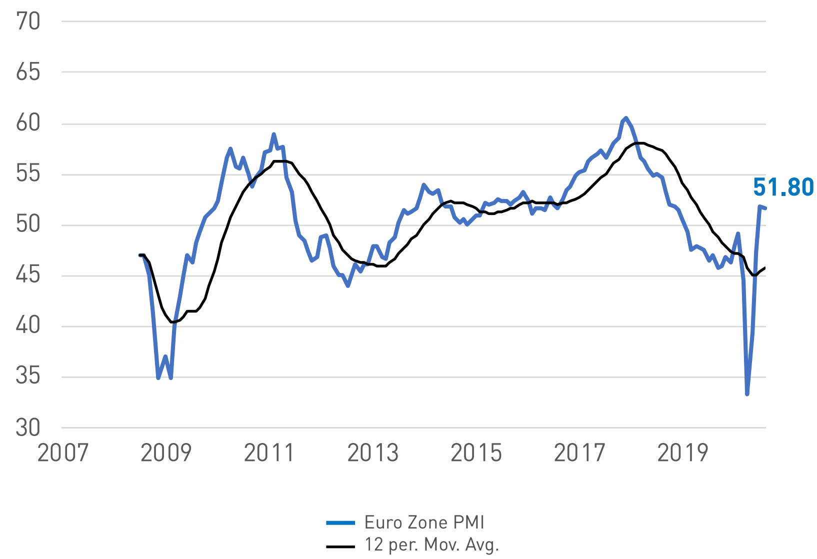
EMPLOYMENT

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 7.9 percent in July (up from 7.7 percent in June). Short-time work policies implemented in the euro zone have kept unemployment from running higher. In Germany, where unemployment was just 4.3 percent in July, 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 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.



MANUFACTURER'S SENTIMENT (PMI)

The euro zone's PMI was changed little in August, declining to 51.7 from 51.8 in July. August marks the second month of expansion for the European manufacturing sector, though France and Spain both reported contraction. Similar to the United States, manufacturers look cautious. Manufacturers report that employment continues to contract despite expanding output. Europe is reopening, but Spain, France and Germany are all recording higher numbers of COVID-19 cases since they've emerged from stay-at-home directives, which could dampen economic activity in the coming months.



E.U. END MARKETS FOR ELECTRONICS

Manufacturing output in the European Union increased 4.4 percent in July, which is down 7.6 percent from last year and 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 such as components, loaded boards, computers, communications equipment and consumer electronics, increased 7 percent in July. Electronics output is up 6 percent from last year and 14.4 percent from the start of 2020.

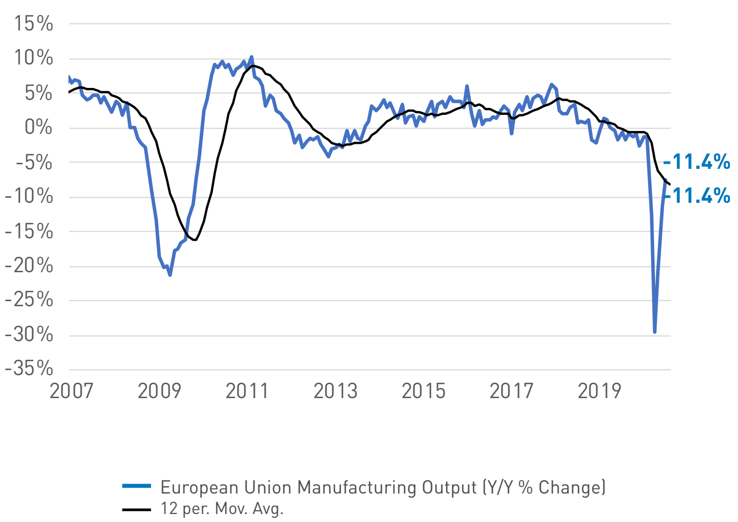
MOTOR VEHICLES

Motor vehicle manufacturing production increased nearly percent in June and another 11.7 percent in July from the prior month. Production is still down 16.6 percent from last year.

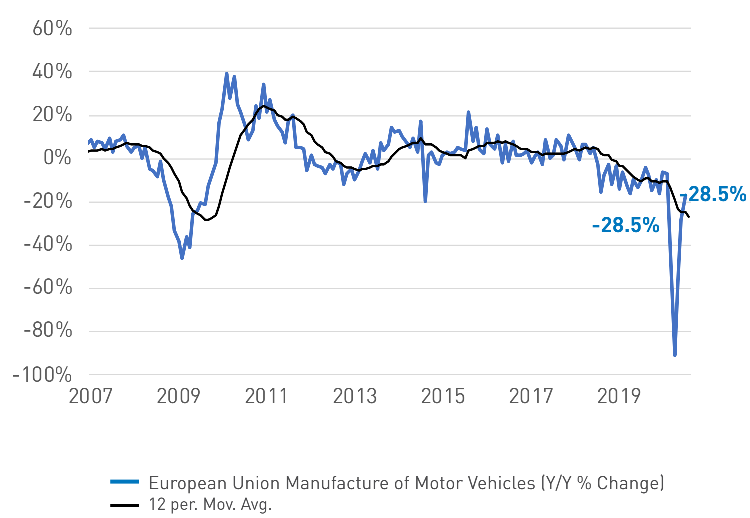
AIR & SPACECRAFT & RELATED MACHINERY

The air and spacecraft manufacturing sector saw production increase 10.4 percent in June but fell 0.7 percent in July. Production in the sector is down 27.2 percent from last year, and given reduced air travel, the sector will likely see reduced output through the remainder of the year.

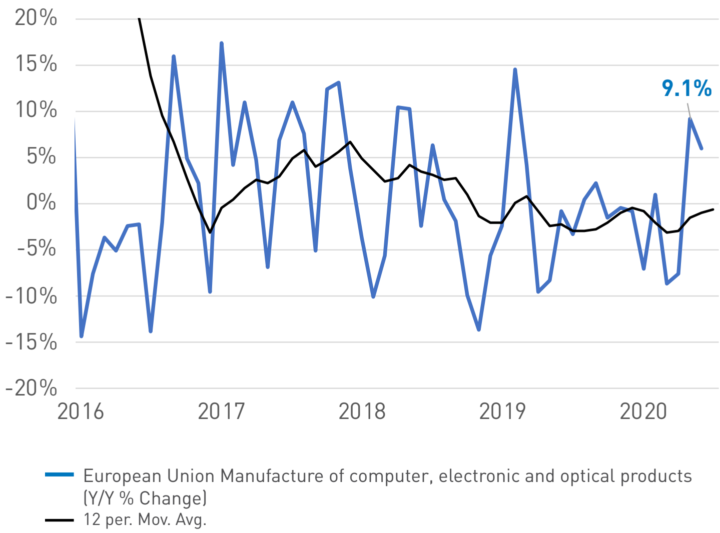
E.U. Manufacturing Output



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)