BUILD ELECTRONICS BETTER

MAY 2021

ECONOMIC OUTLOOK

The economic narrative we've been building in recent months continues to play out. First, COVID will be the predominant force defining economic growth in the early months of the recovery. Secondly, as COVID cases decline, economies will reopen, which will help fuel organic economic growth. Thirdly, as COVID recedes and economies reopen, pent-up demand will drive consumer spending, especially for services. Fourth, fiscal stimulus and accommodative monetary policy will be significant accelerants to economic recovery. The economies with the most fiscal and monetary support and stimulus will see the strongest growth rates.

Economic recoveries across the globe continue to follow the trajectory of COVID within their respective countries. In places like China and Australia, economies reopened quickly as COVID cases declined to almost zero. More recently, growing vaccination rates in the United States have helped the underlying economy surge forward. Vaccinations in Europe were hit by delays in production and distribution and the economy suffered as a result, but Europe is finally getting back on track and economic growth is picking up. Surging COVID cases in India are driving state lockdown measures and curtailing other economic activities. In addition to the tragic loss of life, COVID has also shed over 1 percent from expected GDP growth in India and more could follow.

Both economies reopening and consumer spending returning will help drive job growth, though it will take some time to fully recover all of the jobs lost. An interesting dichotomy has developed as economies have recovered. While the demand for physical goods has been extremely strong, the manufacturing sector hasn't returned to pre-pandemic levels. In the United States, stimulus checks have helped push retail sales nearly 18 percent higher than they were in February 2020 prior to the pandemic. That is the fastest gain in retail sales over a 14-month period since 1979 — a period fueled by double-digit inflation. But at the same time, the goods-producing sector of the economy continues to operate at below pre-pandemic levels.

We continue to believe that reopening economies will drive spending on services, especially leisure and

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hospitality services that have been largely forsaken over the last 18 months.

There is strong indication of significant pent-up demand for almost everything. This is coupled with continued supply chain disruptions. These two counter-directional forces combine to create extremely challenging issues for manufacturers. Take, for example, how these dynamics have played out in the US auto sector. While new vehicle sales hit a historic high in April, vehicle production is down compared to pre-pandemic levels. Moreover, supply constraints and shortages are hurting production levels. Motor vehicle assemblies were averaging nearly 897,000 per month from July 2020 through January 2021, outpacing the average 880,000 per month in all of 2019. The last three months have averaged 730,000 vehicle assemblies. Severe weather undoubtedly hurt production in February, but production remained constrained in the following months due to supply chain disruptions.

Strong demand coupled with supply chain disruptions has created large imbalances that have driven prices higher almost universally across the board. We saw this first with transportation costs early in the pandemic. But it has since spread to most input costs. Steel prices are up significantly and tariffs imposed by President Trump have helped to drive US prices to record highs. The US price for hot-rolled coil steel was around $500 per ton prior to the pandemic; it is now near $1,600. The price of wood is four times higher than it was before the pandemic. The price of copper and other commodities are near all-time highs. And unfortunately we expect prices to remain elevated through at least the first half of next year. Consumers also expect prices to remain high, as they are reporting the highest expected year-ahead inflation rate and the highest long-term inflation rate in over a decade.

Given tight supply, strong demand and rising prices, expect both consumers and businesses to look to buy as much as they can as early as they can. In some instances, shortages have led distributors to allocate supply, which, in turn, will force businesses to order more than they need or double book when possible with other distributors. Further out this could lead to a glut of supply, but at the earliest, we are many months away from that.

With the tight labor market and rising prices, expect workers to look to negotiate more aggressively with employers. This will include signing bonus, raises, price-of-living adjustments, adjustable work schedules and other benefits.

Despite all of this, the global economy is in recovery. The United States and China continue to lead the global recovery, and although Europe won't experience as significant growth rates as the United States and China, it is putting the double-dip recession behind itself. But there are, of course, risks. Variant strains of the virus are appearing throughout the globe, and although at least for now, none of them appear to be resistant to available vaccines, they remain a risk with the potential for significant negative impact.

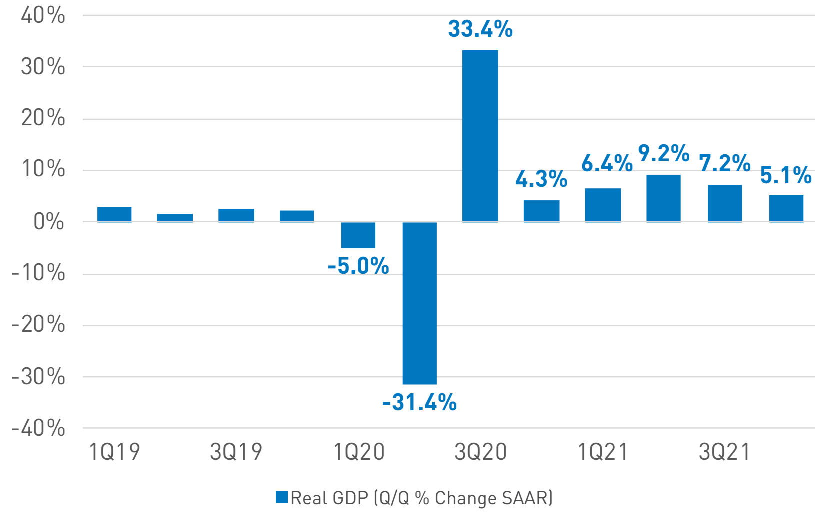
On June 8, IPC is hosting a webinar: Supply Chain Disruption, Economic Recovery, and What to Expect in the Post-Pandemic World. We'll look at some of these issues in more depth during this call. **Register now for this free event!**

2.7%	6.4%	35%	-0.6%
The rate of inflation has picked up significantly and is expected to increase 2.7 percent this year.	**The US economy grew 6.4 percent in the first quarter and is expected to grow 9.2 percent in the second quarter.**	**China's demand for semiconductors is up about 35 percent compared with pre-pandemic levels.**	**Europe's economy shrank in the first quarter but should still grow 4.1 percent for all of 2021.**

U.S. OUTLOOK

ECONOMIC GROWTH

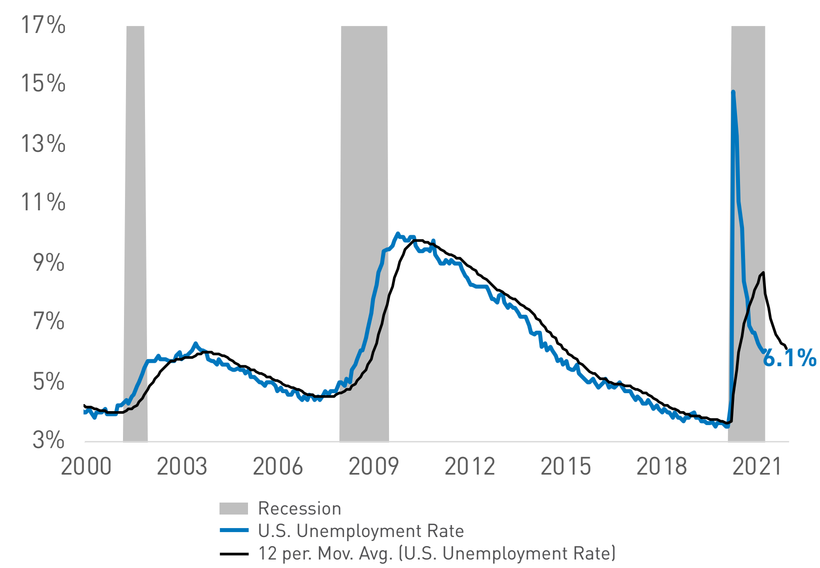
The U.S. economy continues to pick up steam. Our expectations for growth have improved for both 2021 and 2022. The middle quarters of 2021 are set to be extremely strong, with expected growth of 9.2 percent for the second quarter and 7.2 percent for the third. The economy continues to be fueled by accelerating vaccine rates, a reopening economy, massive fiscal stimulus and accommodative monetary policy. Roughly 29 percent of US adults had received at least one vaccination dose by the end of March 2021, and an additional 14 percent of the population received at least one dose during April. With increased vaccinations, states have lifted COVID-related restrictions and consumers are responding.



	2021 ECONOMIC GROWTH (GDP % Change)	2022 ECONOMIC GROWTH (GDP % Change)	2021 EXCHANGE RATE (v. USD)	2022 EXCHANGE RATE (v. USD)
UNITED STATES	6.6%	4.4%	N/A	N/A
CANADA	5.8%	3.6%	1.25	1.25
MEXICO	4.7%	2.8%	20.25	20.48
EURO AREA	4.1%	4.1%	1.19	1.22
CHINA	8.6%	5.5%	6.51	6.49

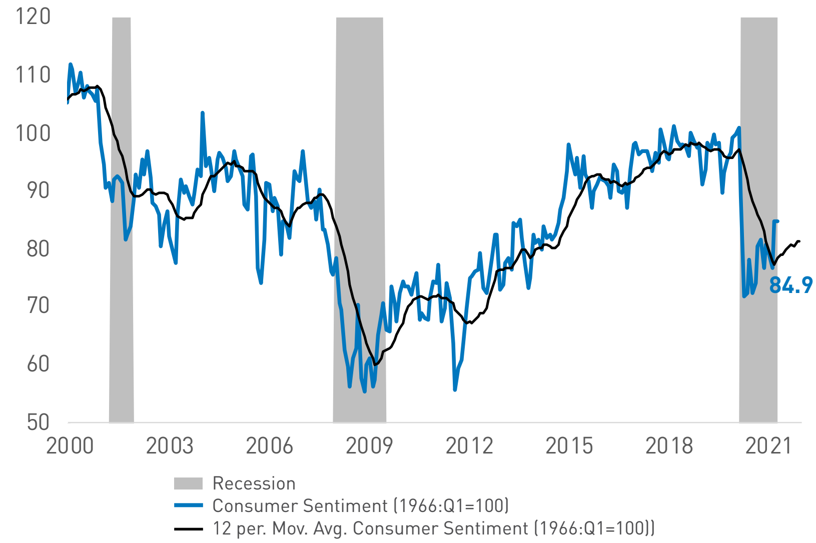
EMPLOYMENT

April jobs gains were much weaker than expected but were hopefully just a statistical aberration in the longer recovery trend. The economy added 266,000 during the month, well below the expected one million jobs. The unemployment rate inched up one-tenth of a percentage point to 6.1 percent. Leisure and hospitality showed strong growth during the month, gaining 331,000 jobs. Manufacturing lost 18,000 jobs, but the auto sector shed 27,000 jobs, more than offsetting gains in other manufacturing segments. The auto sector was likely held back by shortages that have hampered output. Average weekly hours worked in April tied a record 35 hours, and average hourly earnings rose. Total earnings are now 1.9 percent higher than pre-pandemic February 2020.



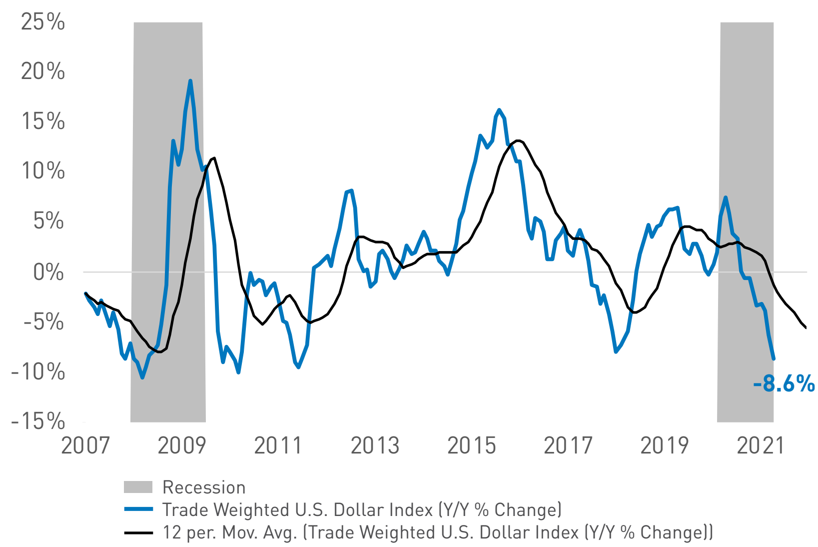
SENTIMENT

Consumer sentiment improved again in April, moving four points higher to 88.3. Consumers remain most optimistic about the near-term economic outlook. The Current Economic Conditions Index climbed 4.5 points in the last month to 97.2 and is now 30.8 points above the April 2021 level. But overall, consumer sentiment remains below pre-pandemic levels. In early May, sentiment stepped back somewhat as expectations for inflation increased. Consumers currently have the highest expected year-ahead inflation rate and the highest long-term inflation rate in well over a decade. This, in turn, has lowered real income expectations to the weakest reading in five years.



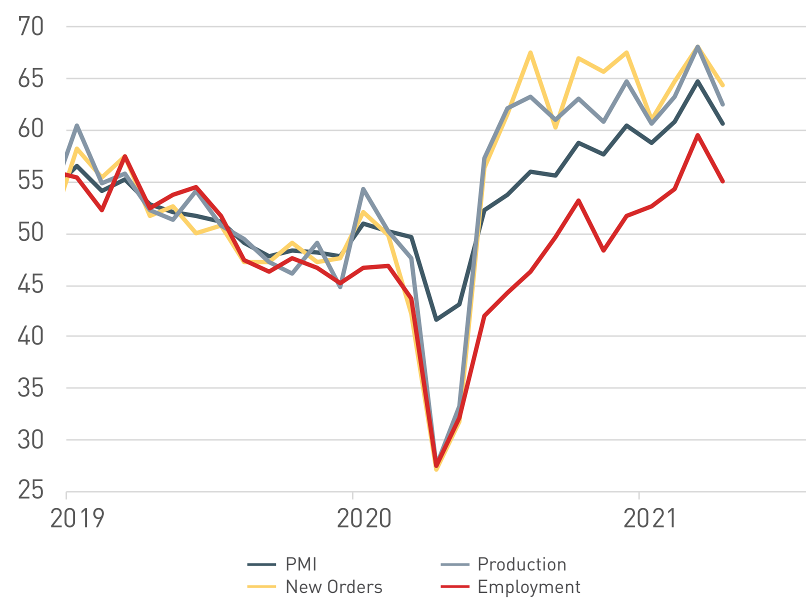
TRADE-WEIGHTED U.S. DOLLAR INDEX

The dollar weakened over the last month, with the trade-weighted dollar index decreasing 0.6 percent in April. Compared to last April, when the dollar was strengthening in the immediate aftermath of the pandemic, the trade-weighted dollar index is off 8.6 percent. Dollar weakness is expected to continue in the coming months as investors move out of dollars in search of higher yields in other currencies. Of course, should the Federal Reserve tighten monetary policy earlier than expected, it could drive rates higher and, in turn, strengthen the dollar. The weaker dollar exacerbates already higher input prices faced by US-based manufacturers.



MANUFACTURERS' SENTIMENT (PMI)

The manufacturing sector continues to show strong expansion in April. The April Manufacturing PMI fell four percentage points to 60.7 but remains decidedly in expansionary territory. The New Order Index fell 3.7 percentage points, to 64.3, but again remains clearly in expansion territory. Last month's readings were some of the highest we've seen in 30 years, so coming off those peaks somewhat is not concerning. The biggest story remains supply chain disruptions, strong demand and tight supply and higher prices for inputs. The Customers' Inventories Index is at an all-time low, while the Backlog of Orders Index continues at a record high level.



U.S. END MARKETS FOR ELECTRONICS

Industrial production moved higher in April, rising 0.7 percent during the month. But production remains below pre-pandemic levels. Manufacturing output rose 0.4 percent in April but is down 0.7 percent from two years ago and 1.4 percent from February 2020.

AUTOMOTIVE PRODUCTS

Auto production decreased 4.5 percent in April. While it is up 283 percent from a year ago, it is down 3.2 percent from February 2020 levels. Output for the sector continues to be constrained by shortages and other supply constraints and the coming months will likely show reduced production.

TRANSIT EQUIPMENT

Transit equipment production decreased 1.3 percent during the month. The sector is down 20.2 percent from two years ago and down 3.2 percent compared to February 2020.

INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment sector increased 0.6 percent during the month. The sector is up 7.1 percent over the last year, 7.4 percent from two years ago and 1.2 percent from February 2020.

INDUSTRIAL & OTHER EQUIPMENT

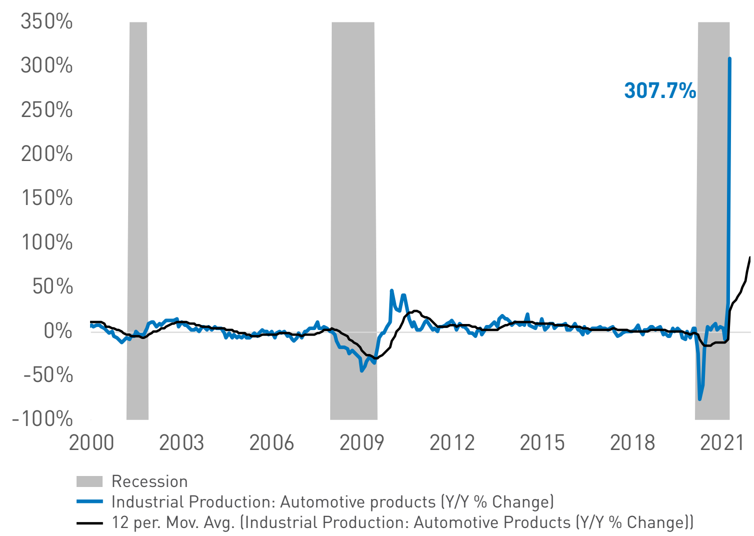
The industrial segment rose 0.7 percent last month. The sector is up 28.9 percent over the last year and down 0.4 percent from two years ago.

DEFENSE & SPACE EQUIPMENT

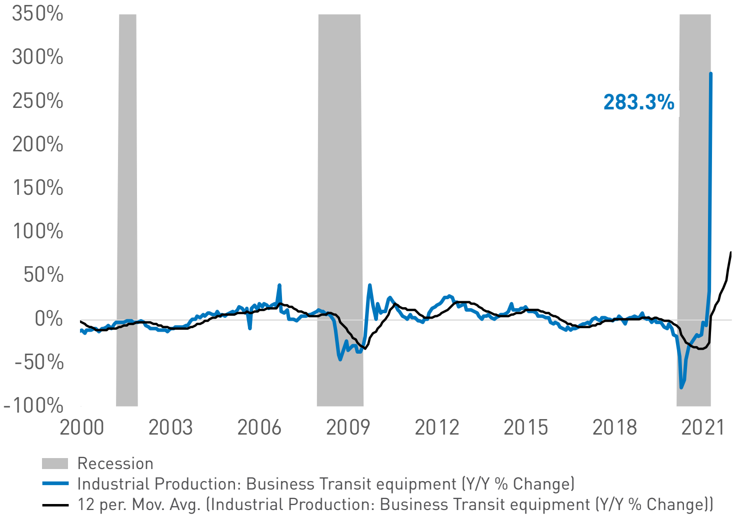
The defense and space equipment segment slipped 0.1 percent in April. The sector is up 20.7 percent over the last year and 8.3 percent over the last two years.

Manufacturing

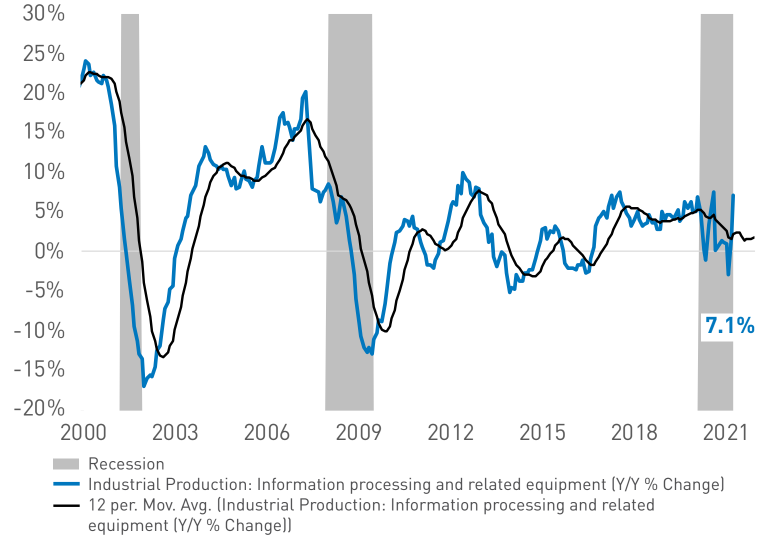
Automotive Products



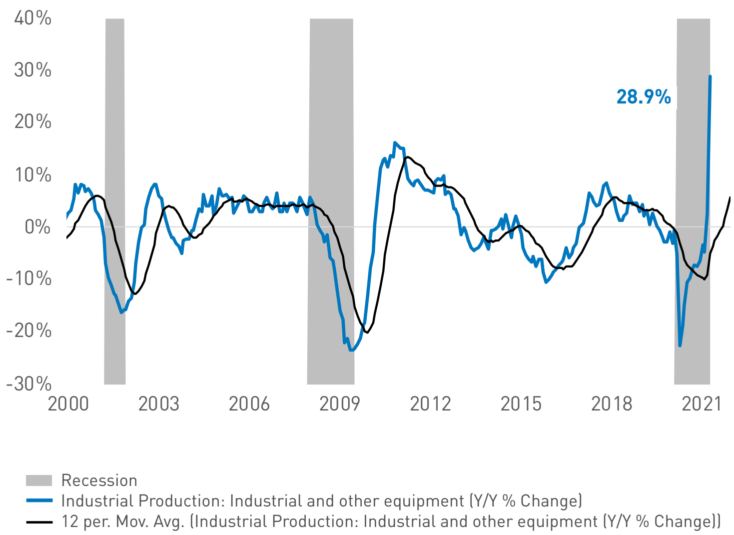
Business Transit Equipment (Y/Y % Change)



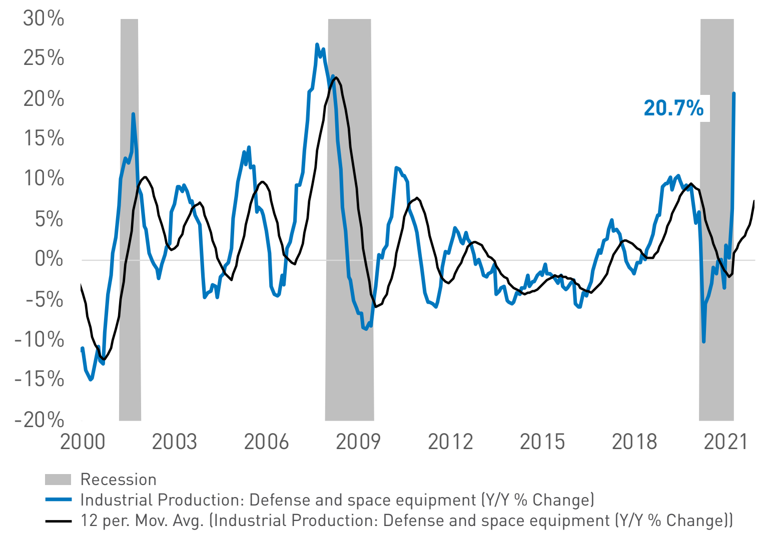
Information Processing & Related Equipment (Y/Y % Change)



Industrial & Other Equipment (Y/Y % Change)



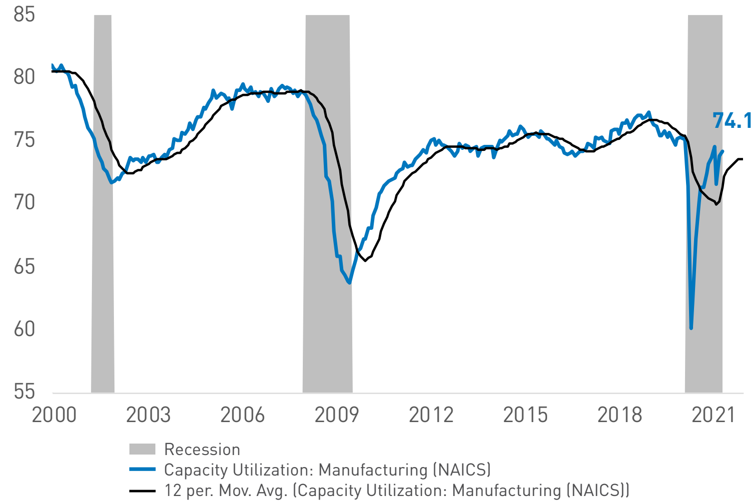
Defense & Space Equipment (Y/Y % Change)



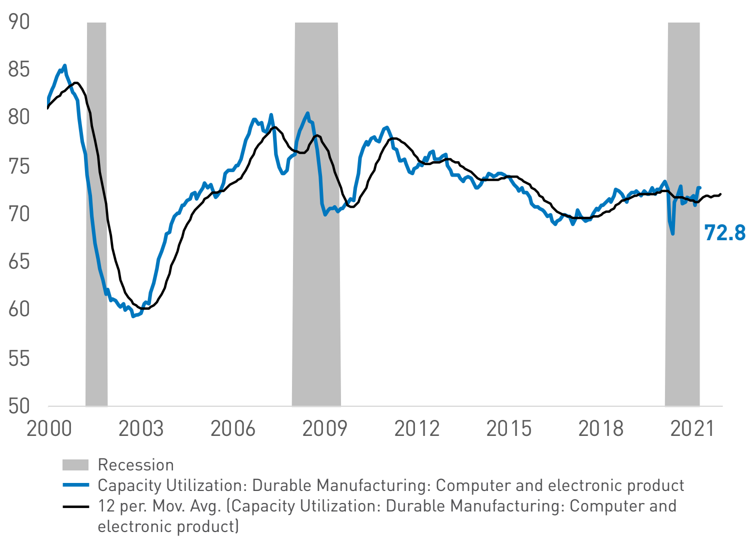
MANUFACTURING CAPACITY UTILIZATION

Recovery in the industrial and manufacturing sectors broadly expanded in April, and capacity utilization crept up in most sectors while declining in some sectors likely as a result of supply constraints. Overall, manufacturing capacity utilization increased to 74.1 percent during the month. Computer and electronic production capacity utilization was flat at an upwardly revised 72.8 percent. Capacity utilization in electrical equipment, appliances and components increased to 73.6 from 74.4. Utilization in the aerospace and miscellaneous transportation equipment sector saw utilization rates inch lower to 71.1. Utilization for the motor vehicles and parts sector fell 3.1 percentage points to 69.4 percent.

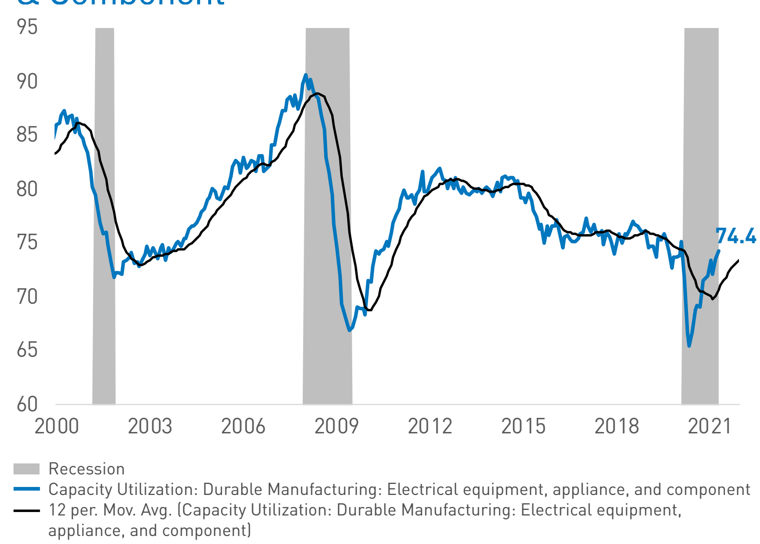
Manufacturing (NAICS)



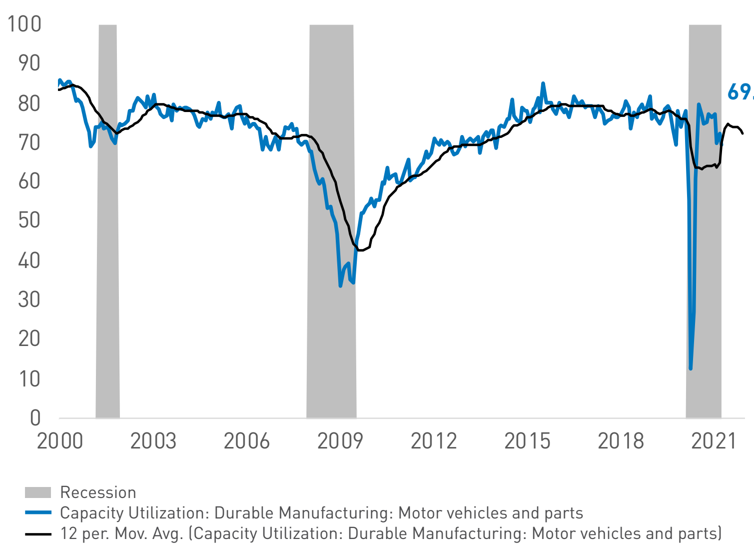
Computer & Electronic Product



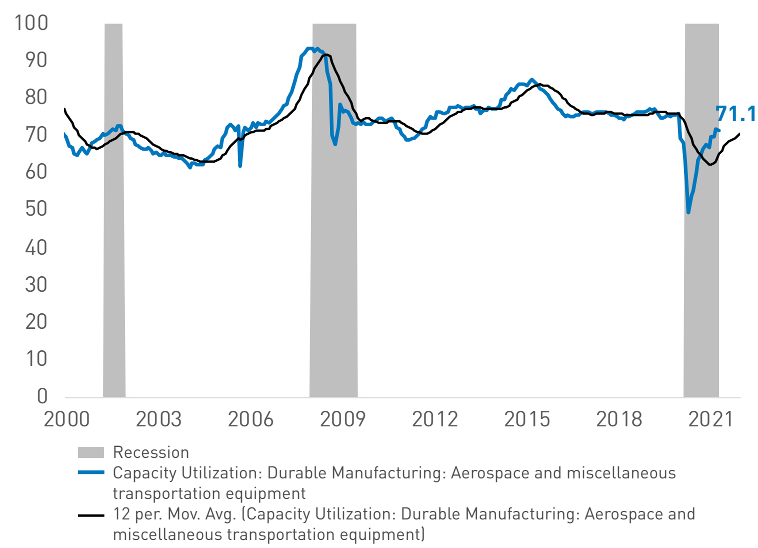
Electrical Equipment, Appliance, & Component



Motor Vehicles & Parts



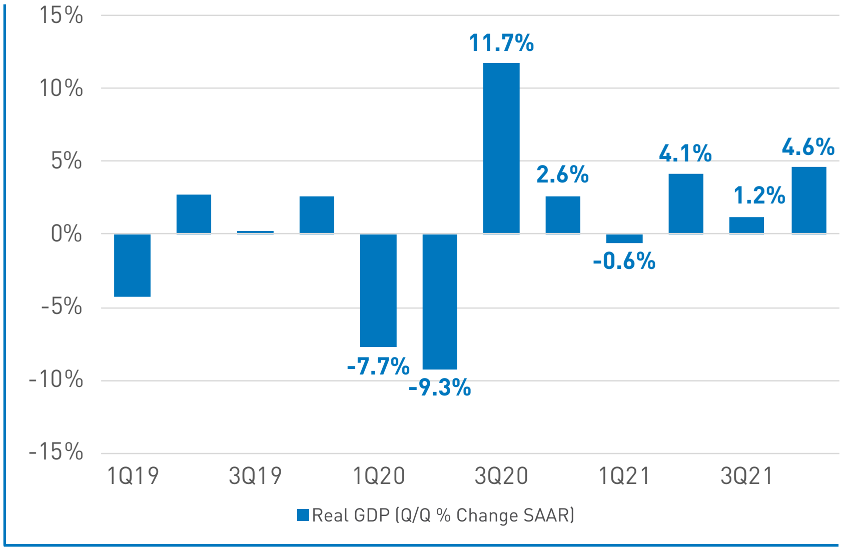
Aerospace & Miscellaneous Transportation Equipment



EUROPEAN OUTLOOK

ECONOMIC GROWTH

Consistent with our expectations, the european economy fell in the first quarter, as the double-dip recession took hold and extended into the new year. In the first quarter, GDP fell 0.6 percent in the euro area and 0.4 percent in the European Union. The declines in the first quarter follow declines in the prior quarter of 0.7 percent in the euro area and 0.5 percent in the European Union. The economy is down 1.8 percent in the euro area and down 1.7 percent in the European Union compared with the first quarter of 2020 prior to the pandemic. Among the Member States for which data are available, Portugal had the steepest decline in the first quarter falling 3.3 percent. Lithuania (up 1.8 percent) and Sweden (up 1.1 percent) recorded the strongest growth during the quarter.



After two quarters of contracting GDP, the economy is starting to show signs of recovery. Economies are reopening and consumer demand remains strong. As a result, private consumption should play a bigger role in second quarter growth. Strong order books and rising backlog should also help the goods side of the economy.

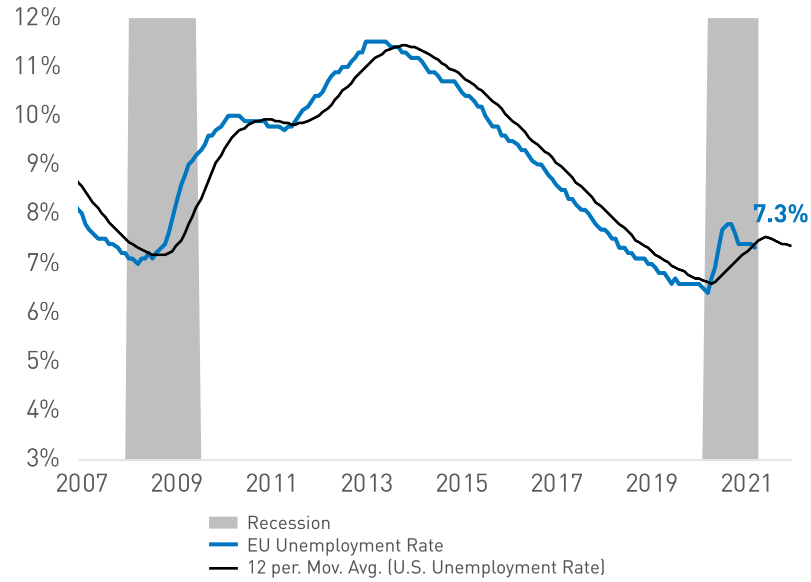
	Q/Q PERCENTAGE CHANGE				Y/Y PERCENTAGE CHANGE			
	2020Q2	2020Q3	2020Q4	2021Q1	2020Q2	2020Q3	2020Q4	2021Q1
EURO AREA	-11.6%	12.5%	-0.7%	-0.6%	-14.6%	-4.1%	-4.9%	-1.8%
EU (27)	-11.2%	11.7%	-0.5%	-0.4%	-13.8%	-4.0%	-4.6%	-1.7%
GERMANY	-9.7%	8.7%	0.5%	-1.7%	-11.2%	-3.8%	-3.3%	-3.0%
FRANCE	-13.6%	18.5%	-1.4%	0.4%	-18.1%	-5.2%	-6.6%	-1.4%
ITALY	-12.9%	15.8%	-1.8%	-0.4%	-18.1%	-5.2%	-6.6%	-1.4%
SPAIN	-17.8%	17.1%	0.0%	-0.5%	-21.6%	-8.6%	-8.9%	-4.3%

	2021 ECONOMIC GROWTH (GDP % CHANGE)	2022 ECONOMIC GROWTH (GDP % CHANGE)
EURO AREA	4.1%	4.1%
GERMANY	3.3%	4.1%
FRANCE	5.3%	4.0%

EMPLOYMENT

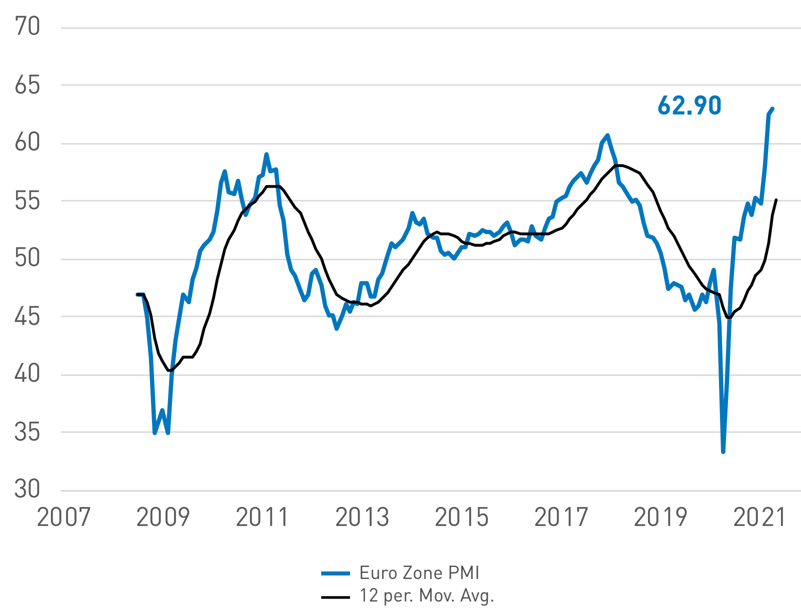
Employment in Europe continues to improve. The unemployment rate for the euro area edged lower, declining to 8.1 percent in March, down from 8.2 percent in the prior month. This is up from 7.1 percent in March 2020. For the European Union, unemployment declined from 7.4 percent to 7.3 percent. Likewise, this is up from 6.4 percent in March 2020.

Similar to the United States, Europe could also see worker shortages in the coming months and years. Central to Europe's recovery efforts is the Recovery and Resilience Facility, the main instrument of the European Union's Đ800 billion recovery fund, which will drive investment in digital transformation and decarbonization. This will likely require skilled, specialized labor that might be in short supply.



MANUFACTURERS' SENTIMENT (PMI)

The Eurozone manufacturing sector hit new all-time highs in April, signaling that the economic recovery is once again taking hold. The Eurozone's manufacturing PMI increased from 62.5 in February to 62.9 in April — the highest ever recorded level. April marked the tenth consecutive month of manufacturing expansion. The Netherlands and Germany led the way in terms of absolute PMI, and both countries have been important catalysts for manufacturing output. Firms are reporting rising market confidence as evidenced by new order books expanding sharply. Similar to the United States, capacity constraints in some sectors do appear to be limiting output. Supply and demand continue to be misaligned, and lead times are lengthening and production shortages are rising as a result.



E.U. END MARKETS FOR ELECTRONICS

Manufacturing output increased in March, rising 0.5 percent during the month. Output remains down 1.2 percent from a year ago. Output is up 11.4 percent over the last year but down 2.3 percent over the last two years and down 0.8 from the start of the pandemic.

COMPUTER, ELECTRONIC & OPTICAL PRODUCTS

The electronics industry, which includes categories such as components, loaded boards, computers, communications equipment and consumer electronics, decreased in March, falling 3.8 percent. The sector is now up 17 percent from last year and 19.8 percent over the last two years.

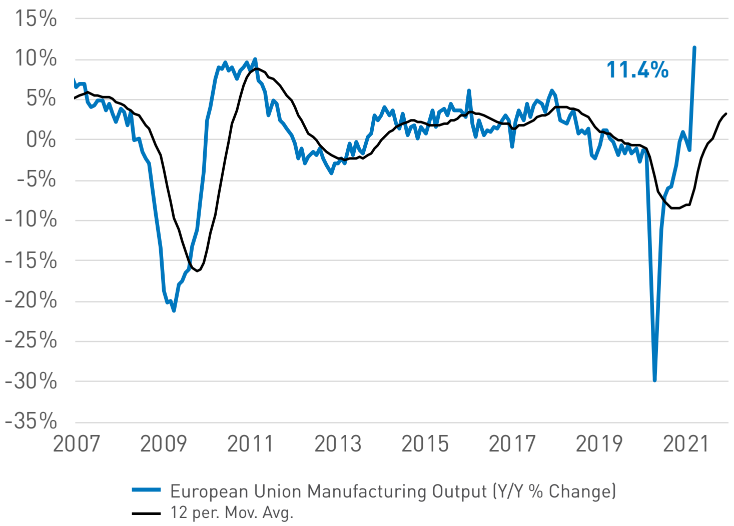
MOTOR VEHICLES

The motor vehicle manufacturing production index increased 0.4 percent in March, after falling 5.7 in the prior month. Auto production in the European Union is up 26 percent from a year ago but off 25.3 percent from two years ago.

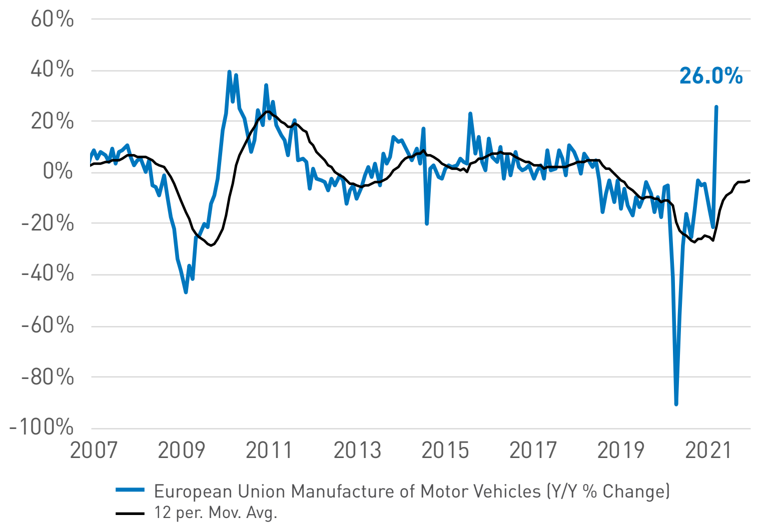
AIR & SPACECRAFT & RELATED MACHINERY

The air and spacecraft manufacturing sector continues to struggle. The industry fell 3.8 percent in March. The segment is up 6.7 percent over the last year but down 2.2 percent percent over the last two years.

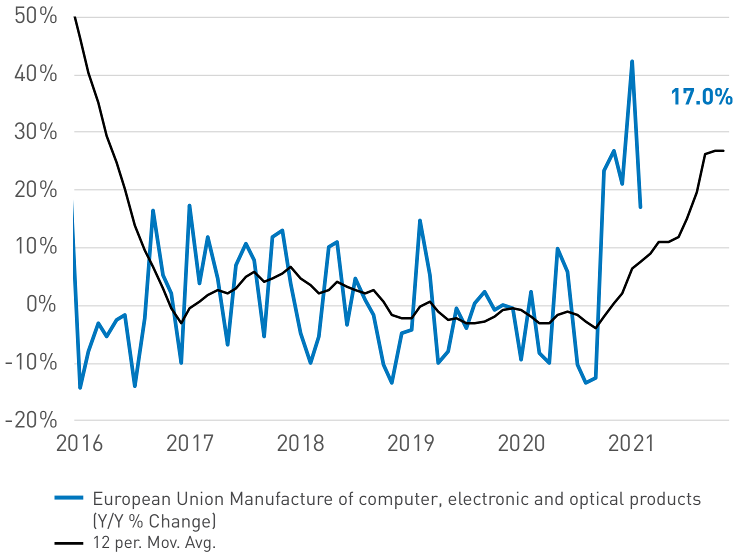
E.U. Manufacturing Output



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)