

**MAY 2022**

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# ECONOMIC OUTLOOK

The narratives laid out in last month's report continue to dominate the economic picture. There are three main forces exerting pressure on the economy, and conversely, the electronics manufacturing industry, right now. These include Russia's invasion of Ukraine, inflationary pressures pushing costs higher, and China's strict COVID policy that is hindering production in China and compounding existing supply chain issues.

Russia's invasion of Ukraine is a negative supply shock on already strained supply chains. It will take many months to fully determine the full effect it is having on the electronics industry. While the invasion has more severe negative consequences for Europe, the impacts are being felt globally. The biggest near-term impact has been on commodity prices. The Thomson Reuters CRB index comprising 21 commodities is up 15% since the conflict started. This is down about 4% from its peak in mid-April. Commodity prices are not showing much sign of returning to pre-invasion pricing anytime soon. We are seeing companies adjust pricing more frequently and more companies are attempting to lock in pricing over a longer time horizon. For example, some companies are committing to orders for the next year in order to lock in current pricing.

The invasion has also resulted in some concerns about the availability of supply for specific chemicals sourced from Russia. I have heard from some of you regarding specific issues. Let me know of other dynamics you are experiencing.

The conflict has also weakened confidence in the region. Weaker consumer confidence will put downward pressure on demand. Weaker business confidence will hurt investment. Manufacturer confidence weakened noticeably over the last month. We have also seen downward pressure on exchange rates since the conflict began. The Euro is down over 4% against the dollar over this time.

The conflict added upward pressure on prices, but inflationary pressures were already evident long before the invasion. The global policy response to the pandemic drove an increase in demand, which in turn has resulted in many of the inflationary pressures we are seeing

today. Central banks are moving quickly to combat inflation by raising rates. The Federal Reserve, Bank of England and Bank of Canada have all delivered rate hikes in the past four to six weeks. The Fed will likely increase its target Fed Funds rate by 50 basis points at the next Fed meeting held in the first week of May and perhaps make the same move again in its June meeting.

Aggressive rate hikes will put downward pressure on demand which should help better balance supply and demand, but this will take some time. Inflationary pressures remain acute. In the U.S., inflation in March recorded the highest year-on-year rate in 40 years (December 1981). And the rise probably is not over. Year-over-year inflation rates will likely peak next month, but even after this, prices will remain high. We are already seeing some negative consequences of higher prices. Retail sales in March were mixed as consumers shifted spending as a result of high inflation. Sales at gas stations were up 8.9%. Adjusted for inflation, overall retail sales declined 0.7% in March. In Europe, inflation in March was also high at 7.5%.

As we noted last month, another major risk for the electronics manufacturing supply chain is the rising COVID rates in China. China is battling its largest outbreak of COVID since the beginning of

the pandemic. China has a very strong zero-COVID policy that it enforces by shutting down swaths of the economy when COVID outbreaks occur. Moreover, China has thus far relied on an inferior vaccination and has a very large population to vaccinate. Shanghai is reporting its highest death rates. The city has struggled to provide fresh food and other necessities to individuals confined to their homes.

Currently, COVID restrictions are being tightened even further after weeks of strict lockdowns. Production delays are mounting. China's Ministry of Industry and Information Technology recently called for prioritizing the resumption of work at hundreds of major businesses in key industries like chips, biopharma, and equipment manufacturing, but restrictions have made it difficult to get all workers back. Most supply chains will be impacted through the end of the year.

Downside risks have increased but a recession is still unlikely in the United States in 2022. The risks of a recession in 2023 have increased somewhat. In Europe, the probability of a recession in major economic markets has increased. Several countries will see flat quarterly growth for several consecutive quarters which could easily turn negative and result in a recession in 2022.

**2.7%**

The Euro Area economy is now expected to grow 2.7% in 2022, down from an expected 4% prior to Russia's invasion of Ukraine.

**7.5**

The median duration of unemployment in the U.S. fell to roughly 7.5 weeks, lower than it was pre-pandemic. The labor market is very tight and will remain tight in the coming months.

**8.5%**

Food and energy costs rose in the aftermath of the invasion, pushing inflation to a new 40-year high. Euro-area inflation was 7.5% in March 2022.

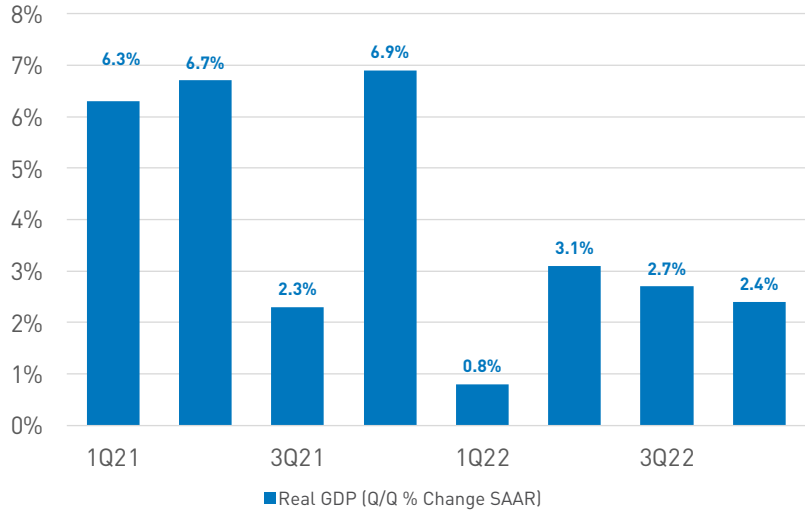
**-7.5%**

Industrial production in Shanghai fell 7.5% year-over-year, the first monthly drop in two years.

# U.S. OUTLOOK

## ECONOMIC GROWTH

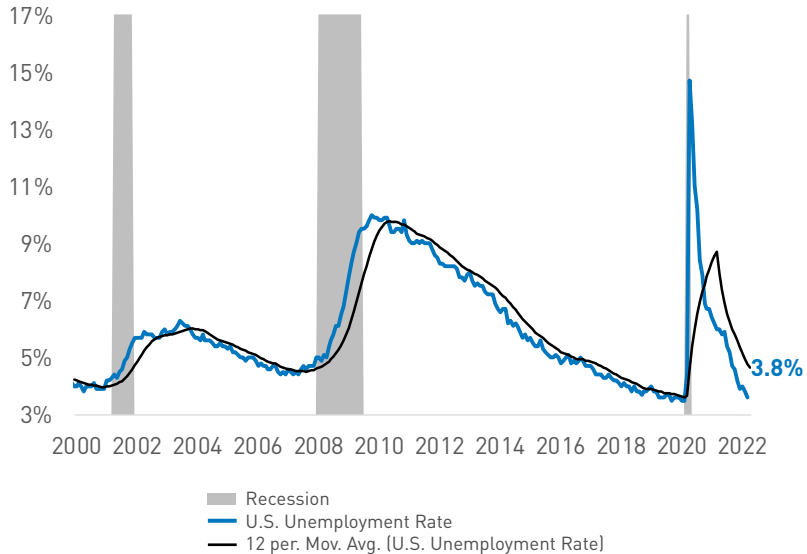
The U.S. economy is on track to expand just under 1% in the first quarter of 2022. Two areas are weighing to the downside: inventory investment and net exports. Inventory investment added 5.3 percentage points of growth in the fourth quarter so some cooling is expected. Net exports will likely shave two percentage points from GDP growth in the quarter. A slowdown in exports highlights slowing growth abroad while at the same time imports were strong as domestic demand remains positive. Slow growth in the first quarter does not signal recession but it does highlight a more challenging economic environment ahead with less stimulus and more restrictive monetary policy. We have lowered our growth projections three-tenths of a percentage point to 3.2% for 2022.



	2022 ECONOMIC GROWTH (GDP % Change)	2023 ECONOMIC GROWTH (GDP % Change)	2022 EXCHANGE RATE (v. USD)	2023 EXCHANGE RATE (v. USD)
UNITED STATES	3.2%	2.3%	N/A	N/A
CANADA	3.7%	3.1%	1.25	1.25
MEXICO	1.8%	2.4%	20.65	20.97
EURO AREA	2.7%	2.4%	1.13	1.17
CHINA	5.0%	5.2%	6.47	6.37

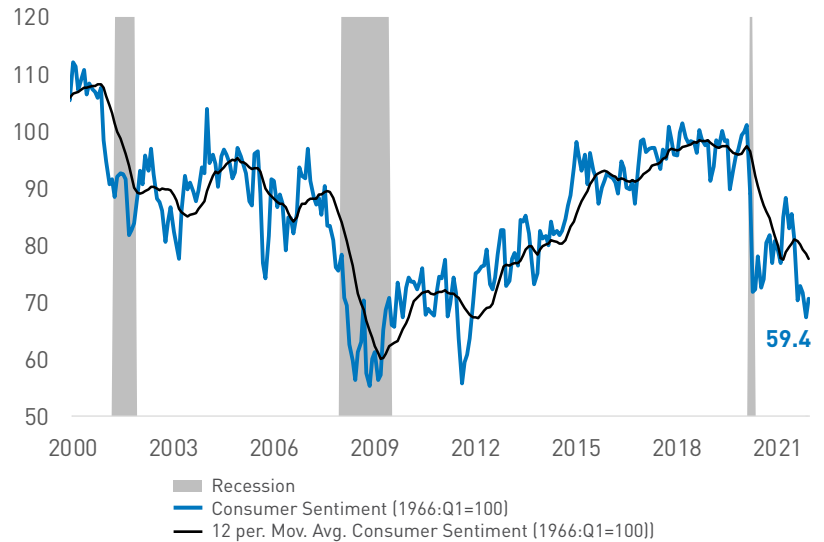
## EMPLOYMENT

The economy added 431,000 new jobs in March and figures from January and February were revised up 95,000 jobs. Similar to last month, the largest gains were in leisure & hospitality (112,000), professional & business services (102,000 jobs including temps), and education and health services (53,000). Manufacturing saw solid growth, adding 38,000 new jobs in the month. Payrolls are rising quickly, but are still about 1.6 million below pre-pandemic levels. The manufacturing sector is roughly 129,000 jobs below its pre-pandemic levels. The unemployment rate fell from 3.8% in February to 3.6% in March. Civilian employment, an alternative measure that includes small-business start-ups, increased by 736,000. The median duration of unemployment fell to roughly 7.5 weeks, lower than it was pre-pandemic. The labor market is very tight and will remain tight in the coming months.



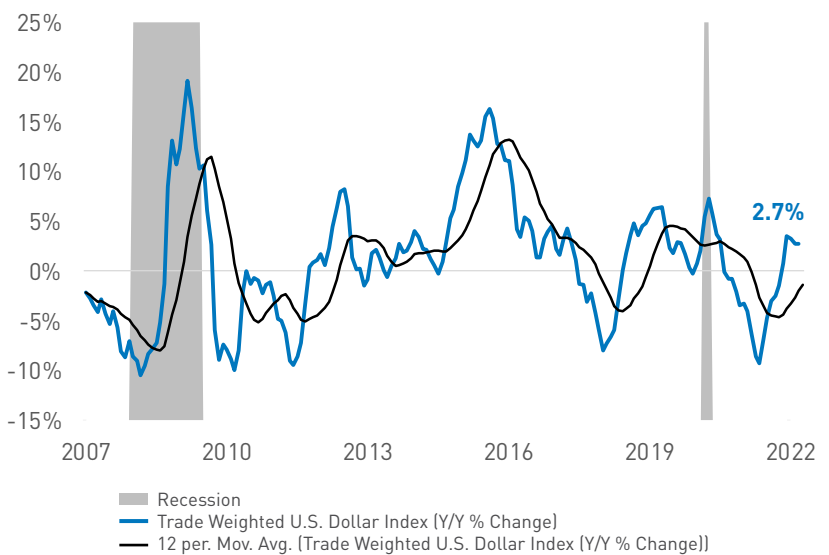
## SENTIMENT

Consumer sentiment has been deteriorating in recent months as consumers internalize higher prices and a weakening economic environment. Recent data is mixed. The daily index from Morning Consult is down in April while the University of Michigan index improved. The University of Michigan measure jumped 10.6% in the first half of the month, though it remains below the reading in January and lower than in any prior month in the past decade. April gains were entirely driven by improvements in the Expectations Index. Personal financial expectations jumped 17.2%, driven by a tight labor market and expectations for higher wages. Consumers under the age of 45 expect wages to grow 5.3%, the largest expected gain in more than three decades. Though even this high rate is not keeping up with inflation. Gas prices have receded somewhat from their March peaks which could also be contributing to improved sentiment. While big increases in nominal wages are expected, inflation remains a key concern for consumers.



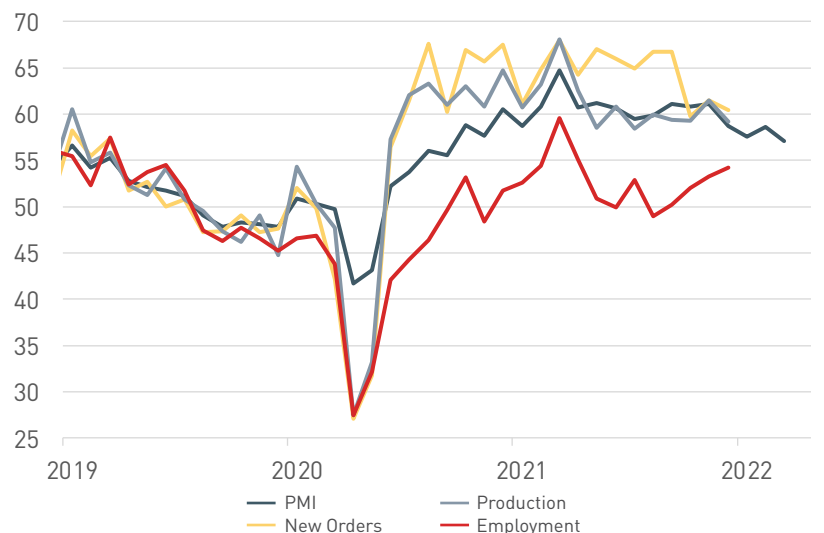
## TRADE-WEIGHTED U.S. DOLLAR INDEX

The U.S. dollar rose in March and in the early weeks of April, boosted in part by Russia's invasion of Ukraine. The other driving force is the hawkish tone being set by the Federal Reserve. Financial markets expect the Fed to aggressively tighten monetary policy which should drive the U.S. dollar over the medium-term. Many central banks around the world are likely to get more aggressive with rate hikes in an effort to combat uncomfortably high inflation. The Federal Reserve, Bank of England and Bank of Canada have all delivered rate hikes in the past four to six weeks. Europe's proximity and exposure to the Russia-Ukraine war are likely to put downward pressure on the euro and other Eastern European currencies.



## MANUFACTURERS' SENTIMENT (PMI)

The U.S. manufacturing sector expanded in March for the 22nd consecutive month. The headline PMI did decline 1.5 percentage points to the lowest level since September 2020. The New Orders Index fell 7.9 percentage points to 53.8. Some of this decline was a result of weaker export orders - a sign that global growth is slowing. Inflationary pressures continue to be a key pain point. The Prices Index registered 87.1, up 11.5 percentage points compared to the February figure of 75.6. Strong demand and tight supply are enabling manufacturers and suppliers to negotiate higher prices.





# U.S. END MARKETS FOR ELECTRONICS

Industrial production rose a strong 0.9% in March and is up 5.5% over the last year. Manufacturing recorded solid performance thanks to auto manufacturing, rising 0.9% as well. The auto sector jumped 7.8%, while non-auto manufacturing was up 0.4%. Auto production is up 3.9% in the past year, while non-auto manufacturing is up 5.0%. The mining sector, which includes oil rigs, rose a solid 1.7% during the month as it continues to gain momentum with high oil prices and a less restrictive federal government.



## AUTOMOTIVE PRODUCTS

Auto production fell 7.8% in March. Production is up 3.5% over the last year but the sector is volatile and parts shortages have curtailed production gains.



## TRANSIT EQUIPMENT

Transit equipment production rose 5.2% over the last month. The sector is up 1.5% over the last year and 3.4% from pre-pandemic levels.



## INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment sector increased by 0.1% in the month. The sector is up 6.1% over the last year and 7.6% from the start of the pandemic.



## INDUSTRIAL & OTHER EQUIPMENT

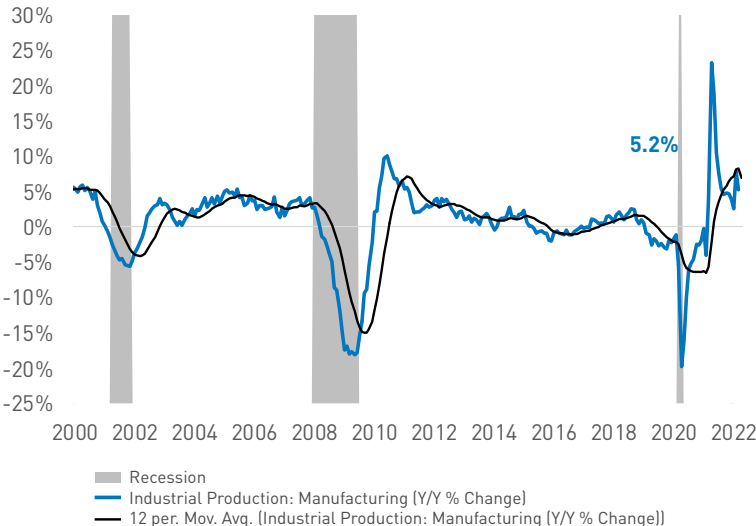
The industrial sector moved 0.9% higher during the last month. The sector is up 6.5% over the last year and up 5.1% from the start of the pandemic.



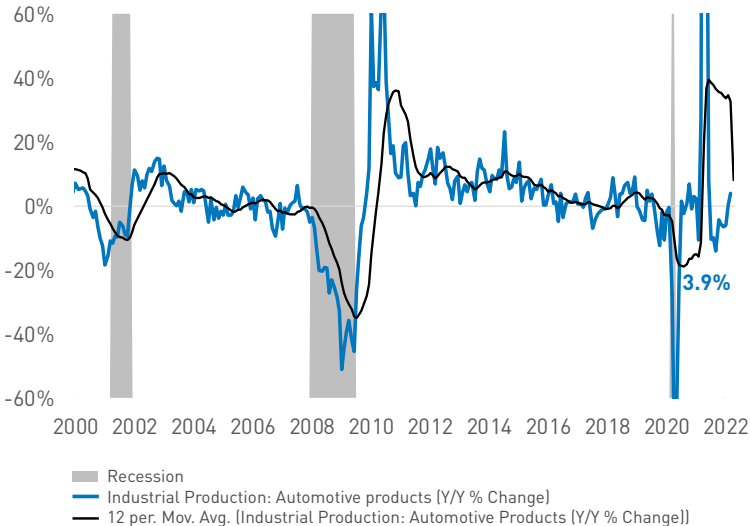
## DEFENSE & SPACE EQUIPMENT

The defense and space equipment segment rose 1.1% last month. The sector is up 9.3% over the last year and 19.8% over the last two years.

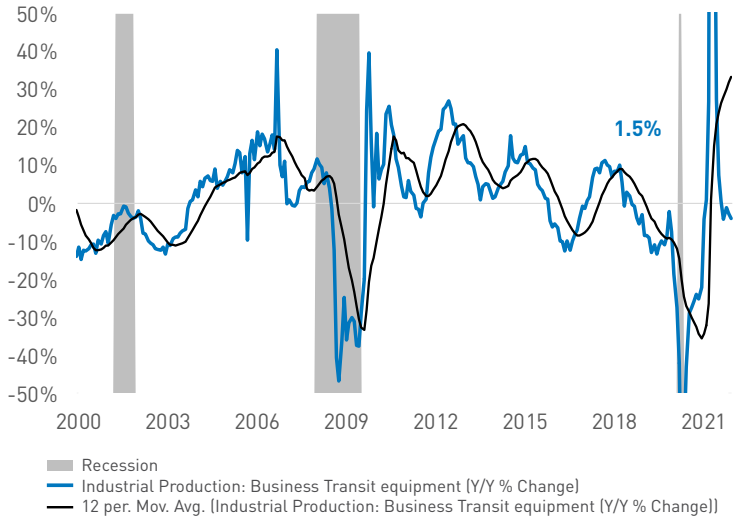
Manufacturing



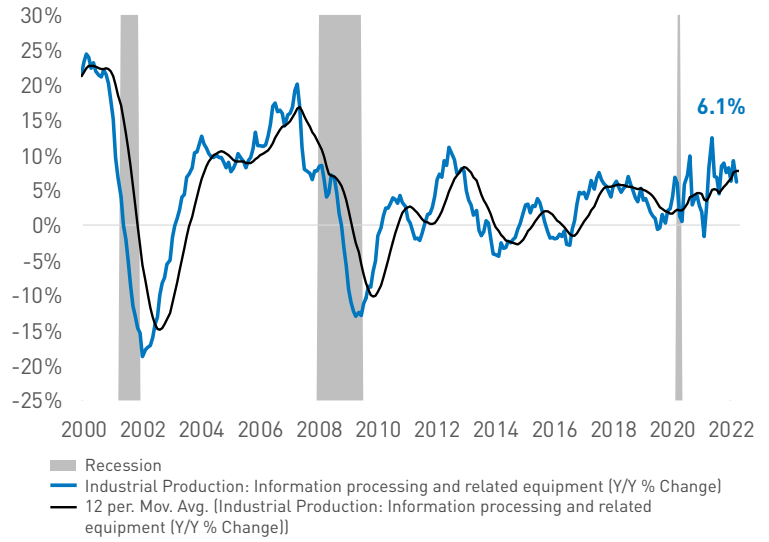
Automotive Products



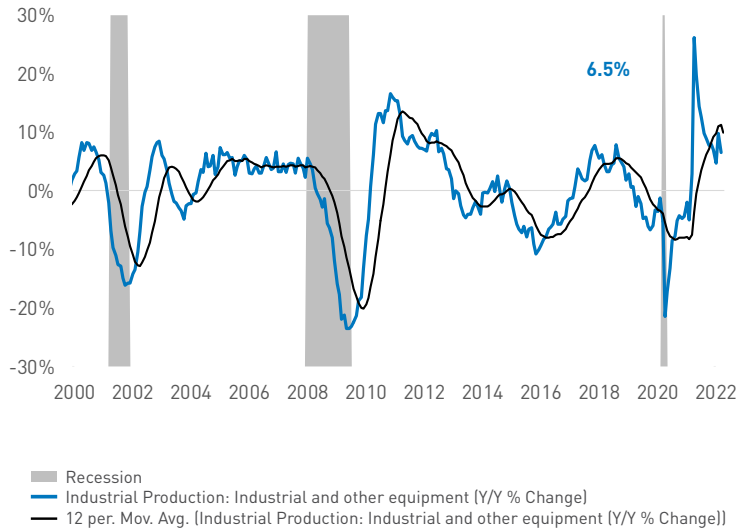
### Business Transit Equipment (Y/Y % Change)



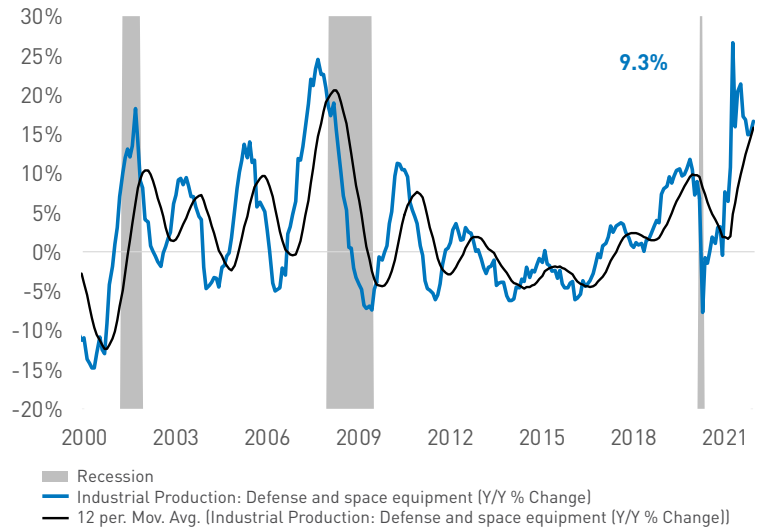
### Information Processing & Related Equipment (Y/Y % Change)



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



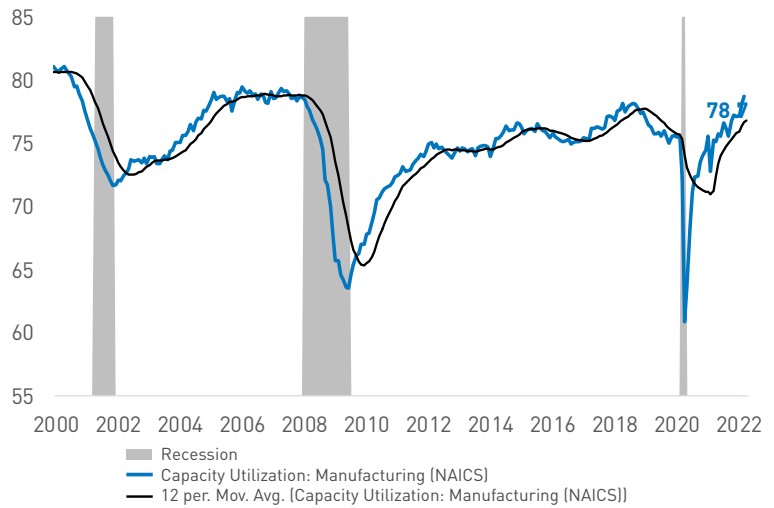
### Defense & Space Equipment (Y/Y % Change)



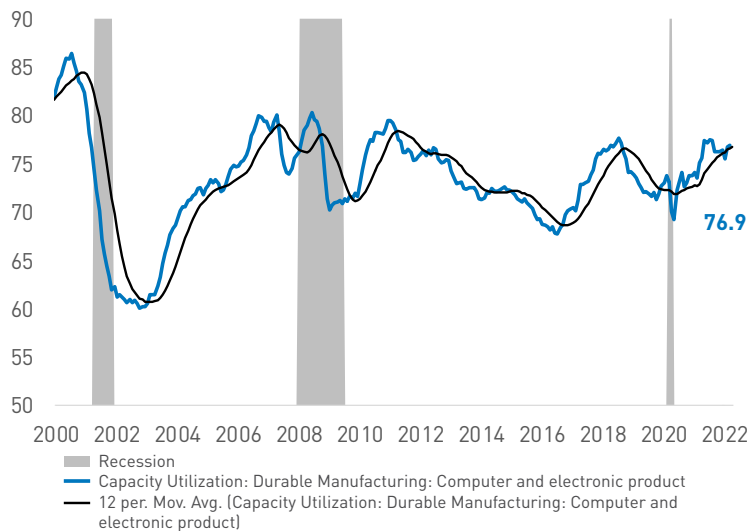
# MANUFACTURING CAPACITY UTILIZATION

Overall capacity utilization increased during March, rising from 77.7% to 78.3%. Manufacturing capacity rose from 78.1% to 78.7%. Manufacturing capacity utilization is 4.2% above pre-pandemic levels. Computer and electronic production capacity utilization rose 0.2% to 76.9% and is 4.3% above pre-pandemic levels. Electrical equipment, appliances and components utilization rose 0.9% to 83.3%. Capacity utilization for the motor vehicles and parts sector rose 7.8% to 72% but is still down 4.3% from pre-pandemic levels. Finally, utilization in the aerospace and miscellaneous transportation equipment sector rose 1.8% to 75.2%. This is 16.3% above pre-pandemic levels.

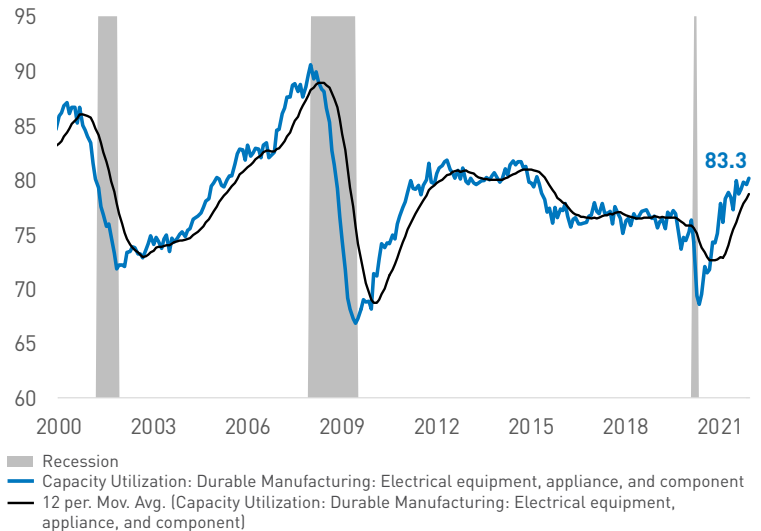
## Manufacturing (NAICS)



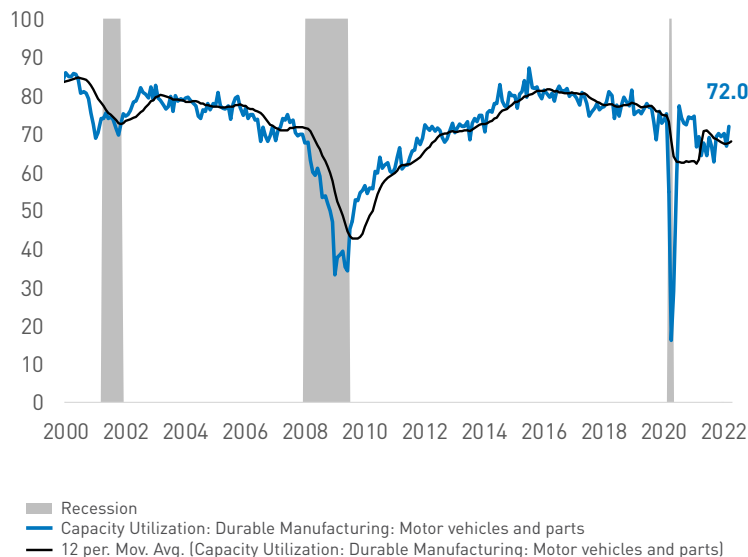
## Computer & Electronic Product



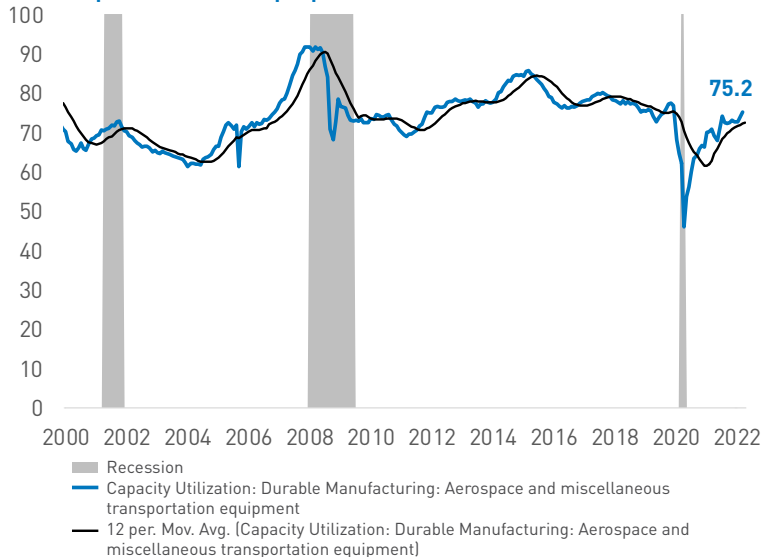
## Electrical Equipment, Appliance, & Component



## Motor Vehicles & Parts



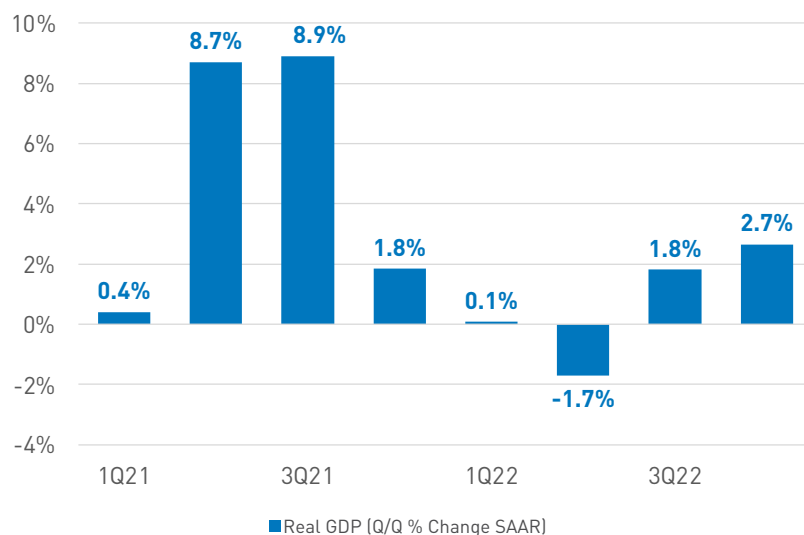
## Aerospace & Miscellaneous Transportation Equipment



# EUROPEAN OUTLOOK

## ECONOMIC GROWTH

We have lowered our 2022 forecast for economic growth in Europe as the Russian-Ukraine conflict continues. We now expect GDP growth of just 2.7% in 2022 and 2.4% in 2023. We had expected economic growth of 4% prior to the invasion. Spiking food and energy prices are cutting into household consumption and economic uncertainty will restrain investment. The war is a supply shock that reduces economic output and raises prices. The probability of a recession this year in Europe has increased. Many countries will see flat growth for several quarters which could easier deteriorate into a recession. If Russian gas supplies were to be cut, either by Russia or as part of expanded sanctions, many European economies would suffer a sharp decline. Germany for example buys nearly 60% of its natural gas from Russia.



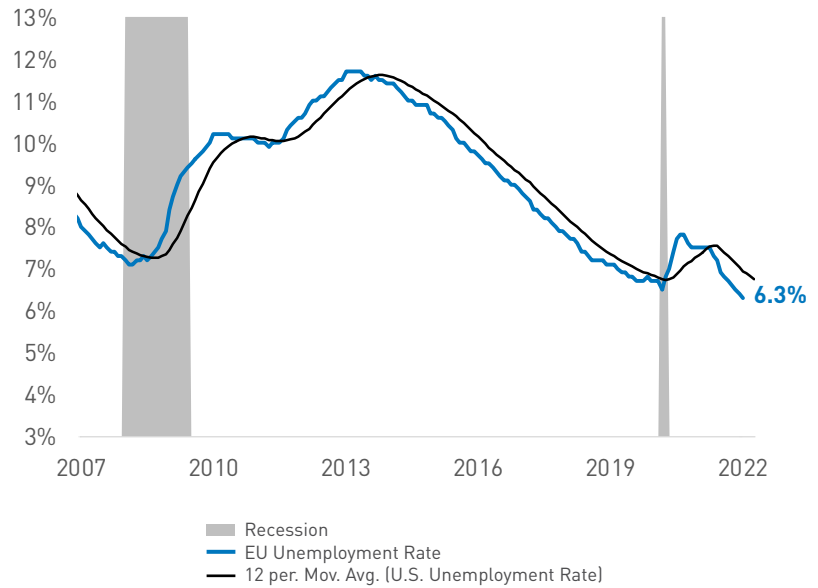
	Q/Q PERCENTAGE CHANGE				Y/Y PERCENTAGE CHANGE			
	2021Q1	2021Q2	2021Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4
<b>EURO AREA</b>	-0.1%	2.2%	2.3%	0.3%	-0.9%	14.6%	4.0%	4.6%
<b>EU (27)</b>	0.1%	2.1%	2.2%	0.4%	-0.9%	14.0%	4.2%	4.8%
<b>GERMANY</b>	-1.7%	2.2%	1.7%	-0.3%	-2.8%	10.4%	2.9%	1.8%
<b>FRANCE</b>	0.2%	1.3%	3.1%	0.7%	1.7%	19.0%	3.5%	5.4%
<b>ITALY</b>	0.3%	2.7%	2.5%	0.6%	-0.1%	17.6%	3.9%	6.2%
<b>SPAIN</b>	-0.7%	1.2%	2.6%	2.0%	-4.3%	17.7%	3.4%	5.2%

	2022 ECONOMIC GROWTH (GDP % CHANGE)	2023 ECONOMIC GROWTH (GDP % CHANGE)
<b>EURO AREA</b>	2.7%	2.4%
<b>GERMANY</b>	2.3%	2.7%
<b>FRANCE</b>	3.1%	2.1%
<b>NETHERLANDS</b>	3.0%	1.9%



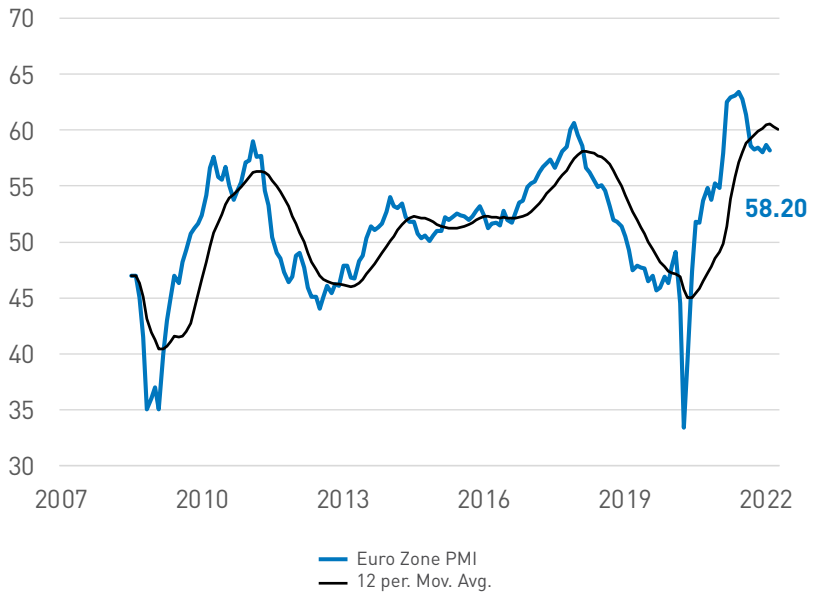
## EMPLOYMENT

In February, the euro area seasonally-adjusted unemployment rate was 6.8%, down from 6.9% in the prior month and from 8.2% in February 2021. The EU unemployment rate was 6.2% in February 2022, down from 6.3% in January 2022 and from 7.5% in February 2021. The unemployment rate of 6.2% is the lowest in 14 years. Spain recorded the highest unemployment rate in February at 12.6%, followed by Greece at 11.9%. Czechia reported the lowest unemployment rate in the EU at 2.4%, followed by Germany, Malta, and Poland, all below 3.1%.



## MANUFACTURERS' SENTIMENT (PMI)

The Eurozone manufacturing sector slowed in March, the first sign of how the industry is being impacted by the Russia-Ukraine war. Business confidence fell to its weakest levels since May 2020 and demand showed signs of slowing. The S&P Global Eurozone Manufacturing PMI fell to 56.5, the lowest level in 14 months. The Eurozone Manufacturing Output Index fell to 53.1, the lowest level in 21 months. Both of these metrics suggest expansion in the European manufacturing sector, but the drag of geopolitical uncertainty is evident. Costs pressures worsened during the month as rising commodity and energy prices compounded already difficult supply chain challenges.



# E.U. END MARKETS FOR ELECTRONICS

Manufacturing output rose 0.7% in February. Manufacturing output is up 2.6% over the last year and up 3% since 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, saw output increase 1.2% during the month. The sector is up 17% from pre-pandemic levels.



## MOTOR VEHICLES

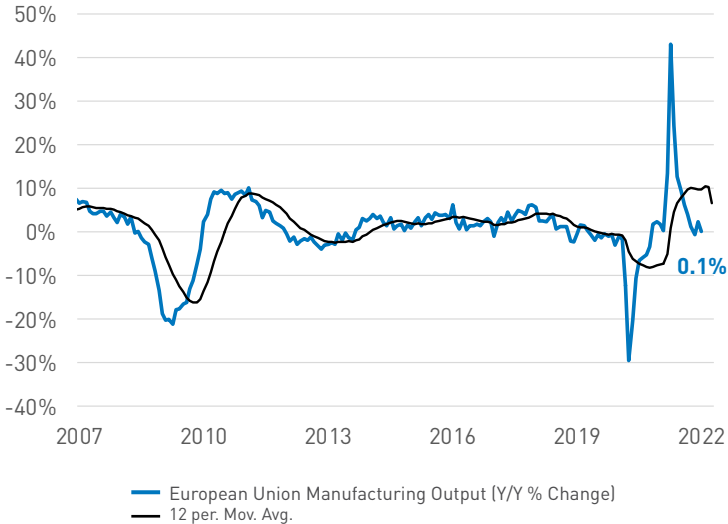
The motor vehicle manufacturing production index declined 0.3% in February. Auto production continues to be hampered by supply shortages. Auto production in the European Union remains off 12.1% from a year ago and 30% from pre-pandemic levels.



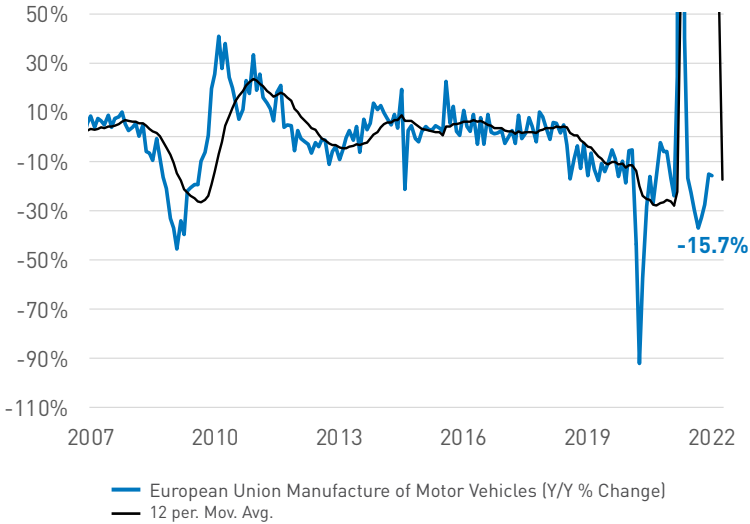
## AIR & SPACECRAFT & RELATED MACHINERY

The air and spacecraft manufacturing sector rose 1.5% in February. The segment is up 10.4% over the last year but off 19.7% over the last two years.

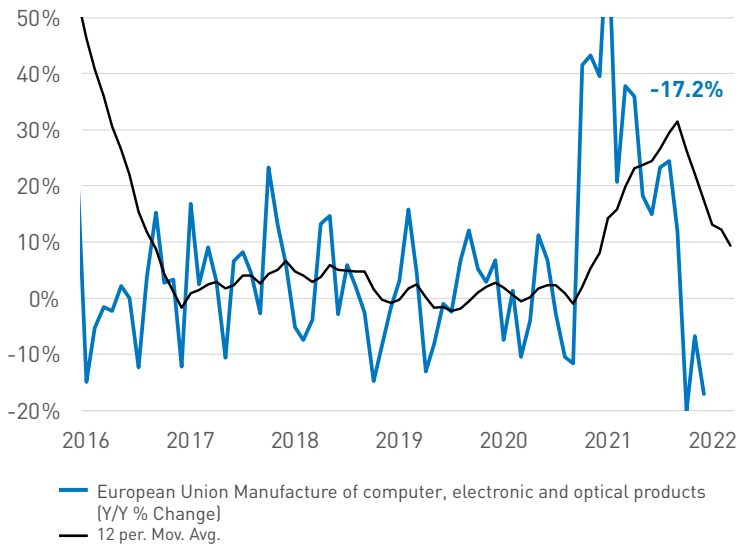
### E.U. Manufacturing Output



### 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)

