IPC BUILD ELECTRONICS BETTER

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ECONOMIC OUTLOOK

We close out what has been a volatile year marked by significant uncertainty. Next month we'll update our views for 2023, but volatility and uncertainty will continue to influence the narrative in the early months of the new year.

We started 2022 acutely concerned about COVID and the widening omicron outbreak that at the time was engulfing large swaths of the world. Europe was especially hard hit as a number of countries reimposed strict lockdown measures. In recent months COVID has been a lesser concern but in the final days of the year it looks like COVID is once again on the rise.

China has relaxed its "zero COVID" policy which appears to have contributed to a record wave of inflections in China. At the same time, China has removed travel restrictions and the Centers for Disease Control and Prevention (CDC) announced new testing requirements for travelers coming from mainland China, Hong Kong, and Macau. The CDC also issued a travel alert suggesting travelers reconsider travel to China, Hong Kong, and Macau citing "reports that the healthcare system is overwhelmed," together with the risk of new variants.

Inbound travelers to China will not have to quarantine on arrival starting on January 8th. Reducing the strain caused by the "zero COVID" policy will be a positive for China and the global economy but the path towards normalization could be bumpy. The travel and tourism industries will see benefits in the first part of the new year and bringing new products to market will likely improve with increased travel but supply chains could see disruptions as a result of temporary labor shortages driven by surging infections.

Supply chain constraints were the other big story at the start of the year. A year ago there were 49 container ships in port at LA and Long Beach. Of these, 23 were at anchor or loitering, waiting for a berth. Today, there are no ships waiting for a berth at either port.

Despite these risks, I expected the U.S. economy to grow roughly 4% in 2022 and 2.6% in 2023. We close the year with growth around 1.9% for 2022 and an expectation of just 0.3% for 2023.

Russia's invasion of Ukraine in February 2022 was a major contributor to the cloud of uncertainty in 2022 and also to slower global economic growth. We expected inflation rates to trend downward in 2022, but the invasion accelerated already high prices. This forced central banks around the world to become more aggressive in increasing interest rates in an effort to contain prices and lower inflation which subsequently put further downward pressure on economic growth.

The U.S. Federal Reserve was the most aggressive central bank, raising rates from essentially zero to a range of 4.25% to 4.5%, the highest level they've been since 2007. This was also the steepest increase over a 12-month period since 1981. In Europe, the European Central Bank ended its decade-long experiment with negative interest rates. Even the Bank of Japan increased the cap on 10-year Japanese bonds from 0.25% to 0.5%. At this point it looks like central banks have been successful in moving past peak inflation but inflation rates remain well above comfortable levels which means we'll continue to see rates rise in 2023, though less aggressively.

Another byproduct of the aggressive response of the Federal Reserve was that interest rates have risen more rapidly in the United States than other places which has put upward pressure on the U.S. dollar. We could see the greenback remain strong in 2023 if the Federal Reserve continues to increase rates further and longer than markets currently anticipate. Global inflation rose from 4.7% in 2021 to 8.8% in 2022, and should fall to around 6.5% in 2023 and 4% in 2024.

The U.S. experienced two consecutive quarters of negative GDP growth in 2022 which would historically suggest a recession. The start of another recession has not ye) been declared by the NBER's Business Cycle Dating Committee, the group of academic economists who formally decide when recessions start and end in the U.S. Many believe a recession is a foregone conclusion in 2023. The start of the recession could even be dated back to the beginning of 2022 when GDP growth declined for the first time. I expect about a third of the world economy will likely be in recession in 2023. Global economic growth has already fallen, slipping from 6% in 2021 to about 3.2% in 2022. Global growth is expected to slow further in 2023, clocking in at less than 2%.

Although some think a recession has already begun in the U.S., this is not my view given the relative strength of other economic data. Industrial production continues to expand, albeit at a slower rate. Unemployment claims remain low and employment levels continue to rise. Monthly employment gains have slowed but the U.S. economy added about 4.5 million jobs in 2022. The average 12-month gain in employment since the 1940s has been a little over 1.4 million and since 2000 it has been under 1 million. The economy now has roughly a million more jobs than it did at the start of the pandemic.

2022 was hard for many reasons. And 2023 could be even more difficult for the economy but for very different reasons.

7.6%

U.S. imports of goods declined 7.6% in December, while exports declined 3.1%, a sign of slowing global economic activity.

$2,119

Drewry's composite World Container Index decreased by 0.3% to $2,119.96 per 40ft container in December 2022.

19%

The S&P 500 declined roughly 19% in 2022.

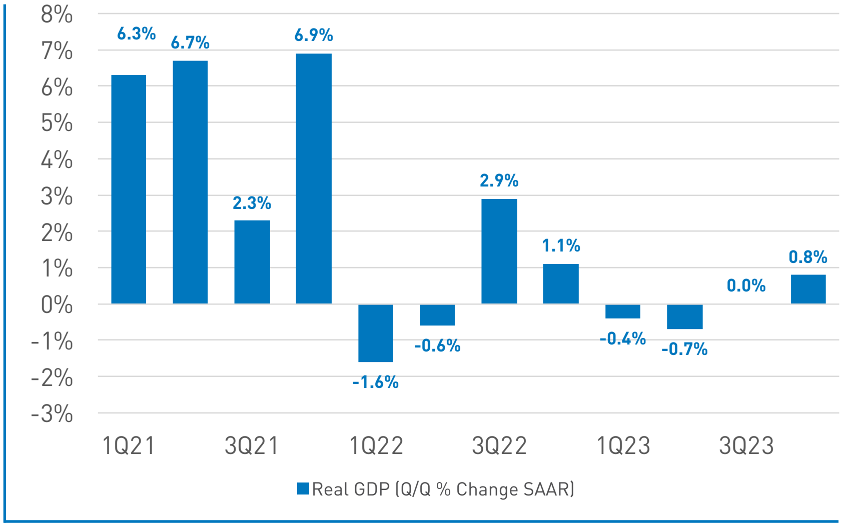
0.3%

U.S. economic activity is expected to increase just 0.3% in 2023.

U.S. OUTLOOK

ECONOMIC GROWTH

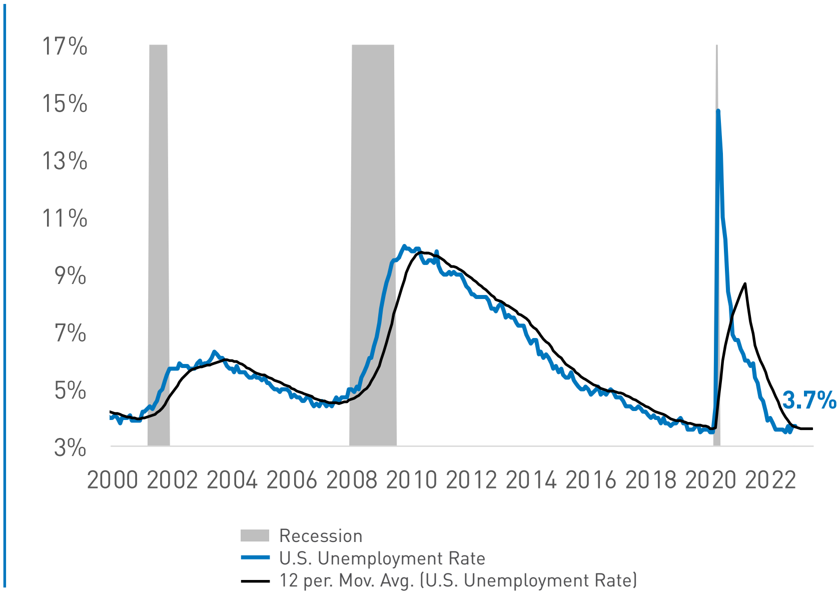
Real U.S. GDP growth in Q3 was revised higher, increasing from 2.9% (annualized growth) to 3.2%. Upward revisions to consumer spending, business investment, and government purchases more than offset downward revisions to inventories. The largest positive contributions to real GDP growth during the quarter were net exports and consumer spending. The weakest components were home building and inventory. We expect growth to slow in the fourth quarter to less than 1% and to be negative in the first two quarters of 2023.



	2022 ECONOMIC GROWTH (GDP % Change)	2023 ECONOMIC GROWTH (GDP % Change)	2022 EXCHANGE RATE (v. USD)	2023 EXCHANGE RATE (v. USD)
UNITED STATES	1.9%	0.3%	N/A	N/A
CANADA	3.4%	0.3%	1.36	1.32
MEXICO	2.7%	0.9%	19.96	20.27
EURO AREA	3.2%	-0.3%	1.02	1.06
CHINA	3.0%	4.4%	7.15	6.96

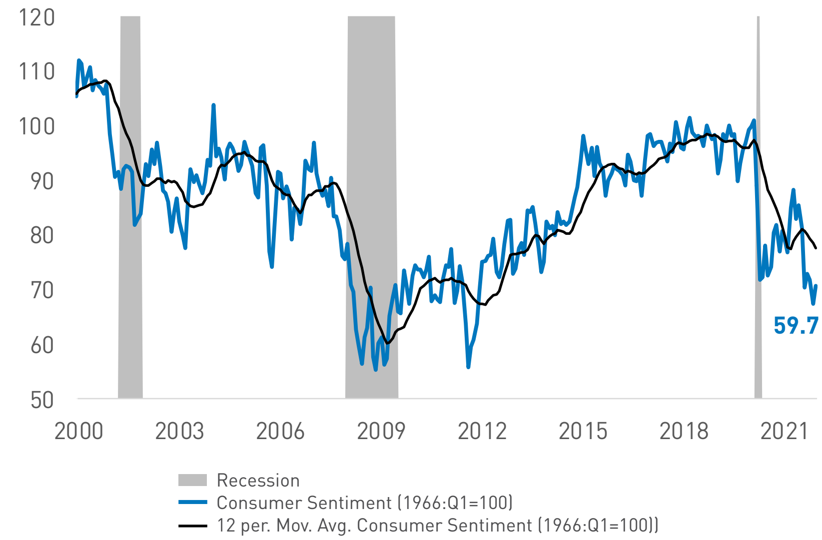
EMPLOYMENT

The U.S. economy added 263,000 new jobs in November, but payroll gains for the prior two months were revised down by 23,000. Job gains were led by leisure & hospitality (+88,000) which is still recovering from the pandemic and remains well below pre-pandemic levels. Manufacturing increased by 14,000, a sign of continued strength for U.S. domestic production. The unemployment rate remained at 3.7%. The labor force, people who are either working or looking for work, dropped 186,000 and the labor force participation rate ticked down to 62.1%, tying the lowest level in 2022. Average hourly earnings rose 0.6% in November and are up 5.1% versus a year ago. The strong 0.6% gain in November suggests workers remain aggressive in their wage demands.



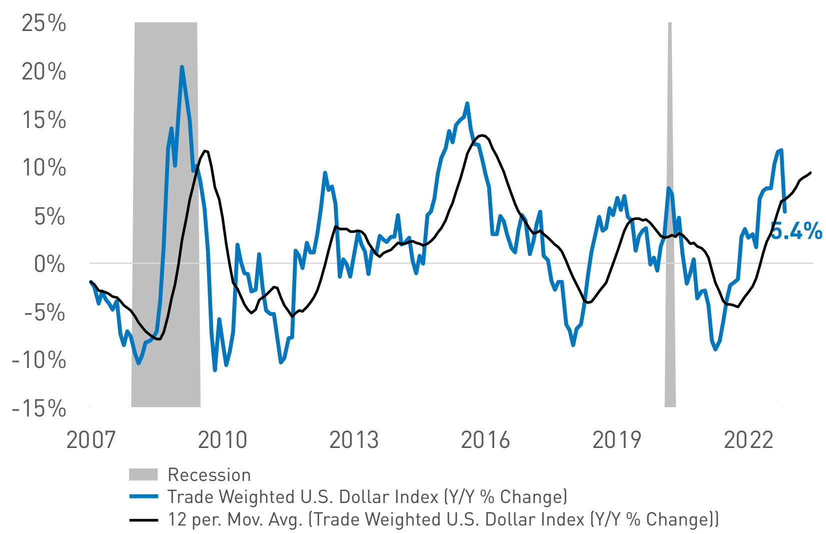
SENTIMENT

The Index of Consumer Sentiment rose in December, increasing from 56.8 to 59.7, a 5.1% increase over the last month. The index remains down 15.4% from a year ago. Consumer sentiment is gloomy but has risen off the lows recorded in 2022, likely a result of easing inflationary pressures. Expected business conditions for the next year surged 25% and the long-term outlook improved a solid 9%. However, both measures remain below 2021 levels. Inflation expectations have improved but still remain elevated. Year-ahead inflation expectations declined from 4.9% last month to 4.4% this month, the lowest reading in 18 months, but still well above trend.



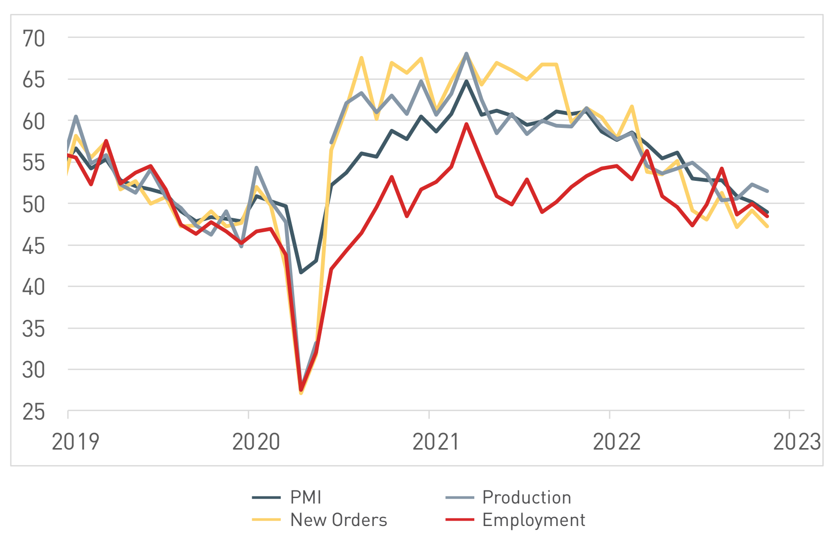
TRADE-WEIGHTED U.S. DOLLAR INDEX

The Trade-Weighted U.S. Dollar Index declined in December, but closes out the year 5% higher than at the start of 2022. The dollar has had its best year since 2015 on the back of aggressive Fed action that raised interest rates by 425 basis points since March 2022. At the same time, expectations for further U.S. rate hikes are easing and other central banks have also moved rates higher which has shrunk the interest rate differential between the U.S. and its trading panthers. As a result, the dollar has given back some of its gains in recent months. This seesaw pattern will likely continue into 2023.



MANUFACTURERS' SENTIMENT (PMI)

Sentiment around U.S. manufacturing contracted for the first time since May 2020. The Manufacturing PMI fell from 50.2% to 49%, a 1.2 percentage point drop. The New Orders Index contracted for the second consecutive month. Manufacturers are preparing for weaker future demand and lower future output as a result. At the same time, supply chains appear to be healing quickly in the face of weaker demand and lower production. The Customers' Inventory Index rose 7.1 percentage points, likely getting within range of balanced inventory positions. The Prices Index has fallen sharply over the last two months. The Employment Index moved back into contractionary territory, suggesting firms are becoming more cautious when it comes to hiring.



U.S. END MARKETS FOR ELECTRONICS

U.S. industrial production fell 0.2% in November, the second straight month of decline. Manufacturing, which excludes mining/utilities was the biggest contributor to the decline, falling 0.6% in November (-1.3% including revisions to prior months). Despite the weak November results, production of consumer goods is up 1.8% in the past year and production of business equipment is up 5.7%.

AUTOMOTIVE PRODUCTS

Auto production fell 2.8%, while non-auto manufacturing fell 0.4%. Auto production is up 5.6% in the past year, while non-auto manufacturing is up 0.9%.

TRANSIT EQUIPMENT

Transit equipment production fell 15% during the month. The sector is up 7.2% over the last year and 16.4% from pre-pandemic levels.

INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment sector rose 0.4% during the month. The sector is up 1% over the last year against strong comps and is 2.8% higher than pre-pandemic levels.

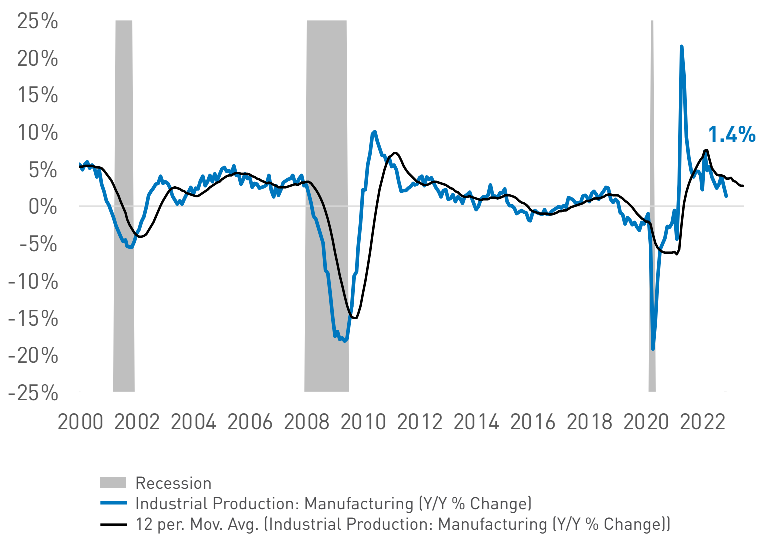
INDUSTRIAL & OTHER EQUIPMENT

The industrial sector fell 1% during the last month, hitting a new high. The sector is still up 6.9% over the last year.

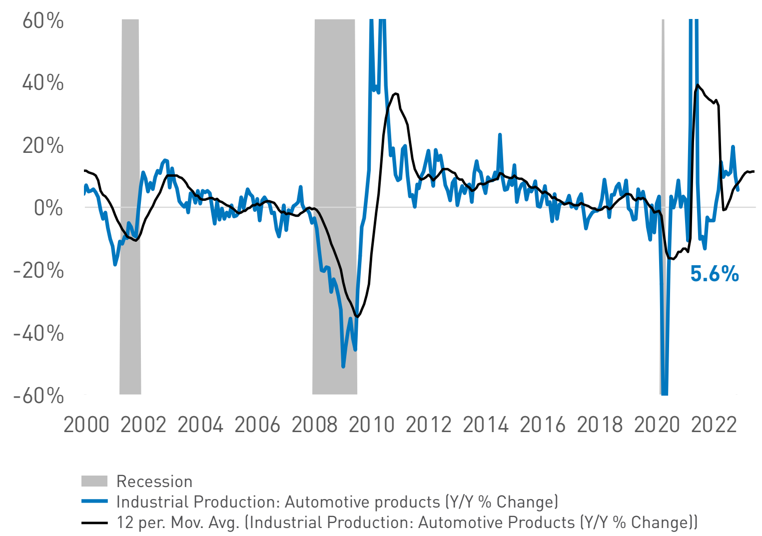
DEFENSE & SPACE EQUIPMENT

The defense and space equipment segment rose 1% to another new all-time high. The sector is up 6.4% over the last year and 15.3% since the pandemic began.

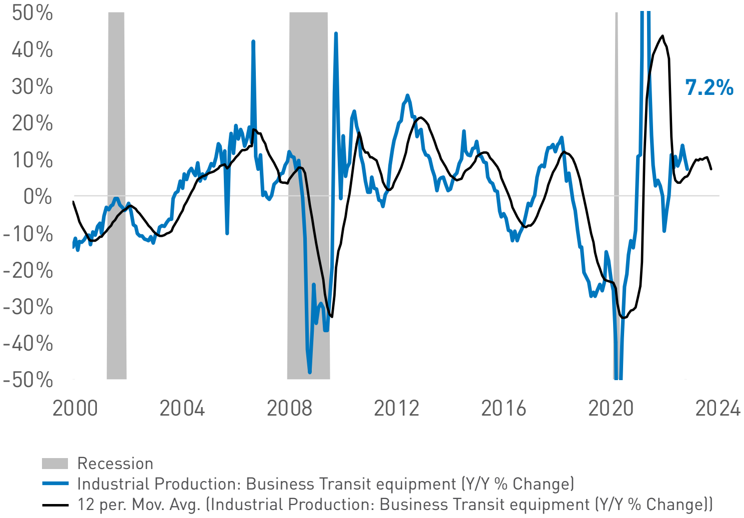
Manufacturing



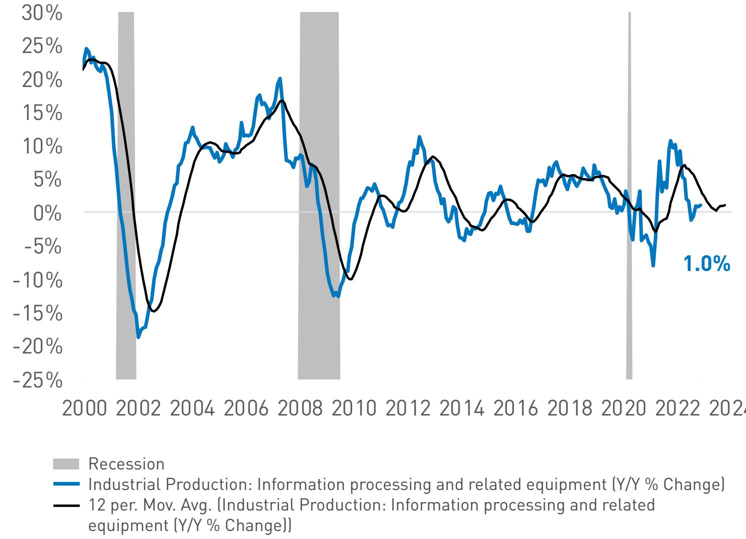
Automotive Products



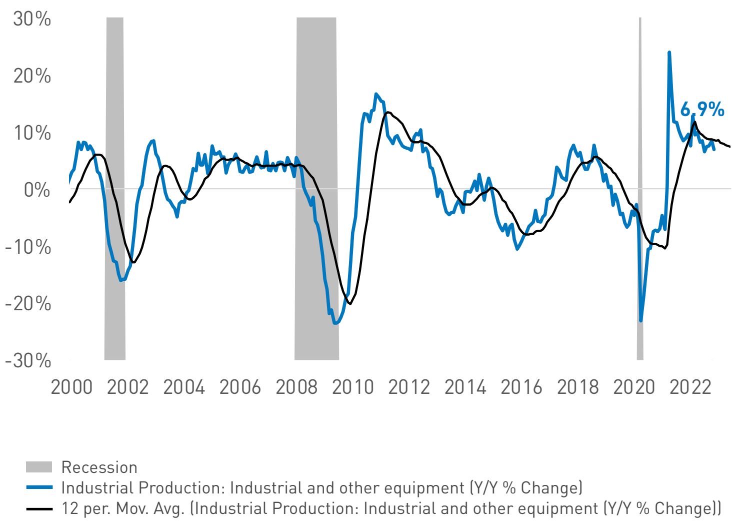
Business Transit Equipment (Y/Y % Change)



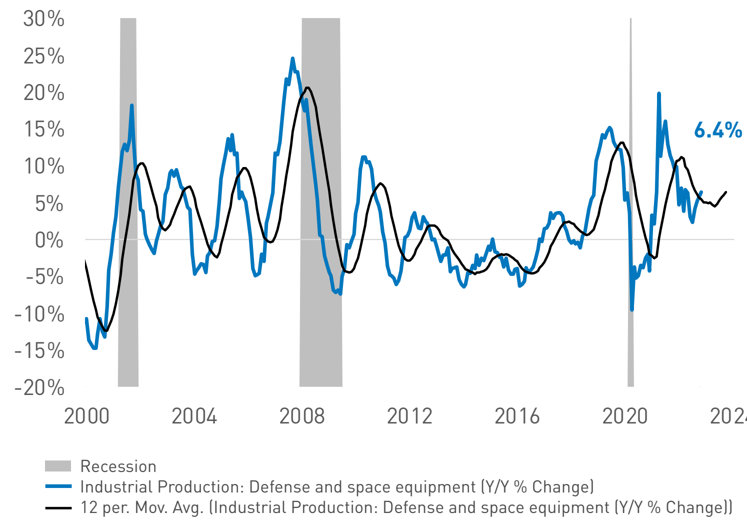
Information Processing & Related Equipment (Y/Y % Change)



Industrial & Other Equipment (Y/Y % Change)



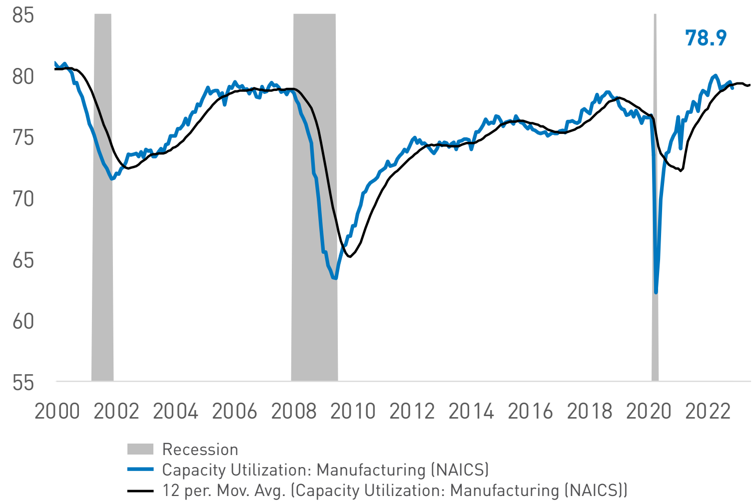
Defense & Space Equipment (Y/Y % Change)



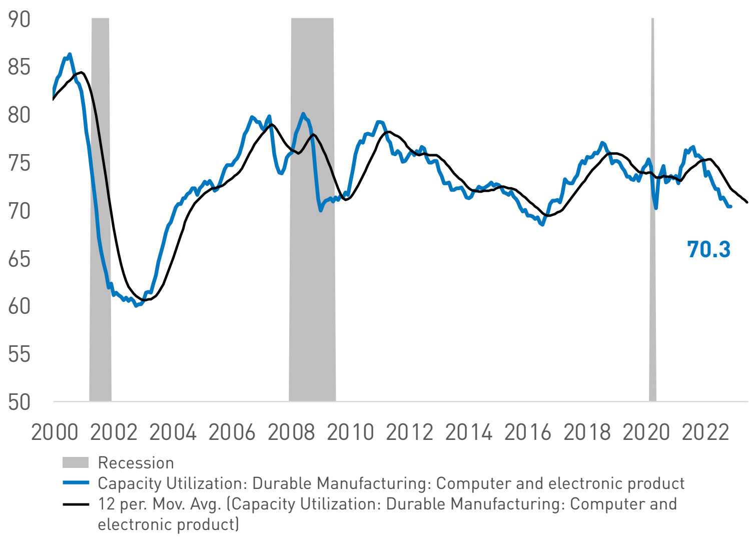
MANUFACTURING CAPACITY UTILIZATION

Overall capacity utilization fell to 79.7% in November from 79.9% in the prior month. Manufacturing capacity fell from 79.5% to 78.9%. Computer and electronic production capacity utilization was flat at 70.3%. Electrical equipment, appliances and components utilization fell 0.5 percentage points to 80.3%. Utilization in the auto sector fell 2.9% to 74.3%. Capacity utilization in the aerospace and miscellaneous transportation equipment sector inched up again this month to 75.6%.

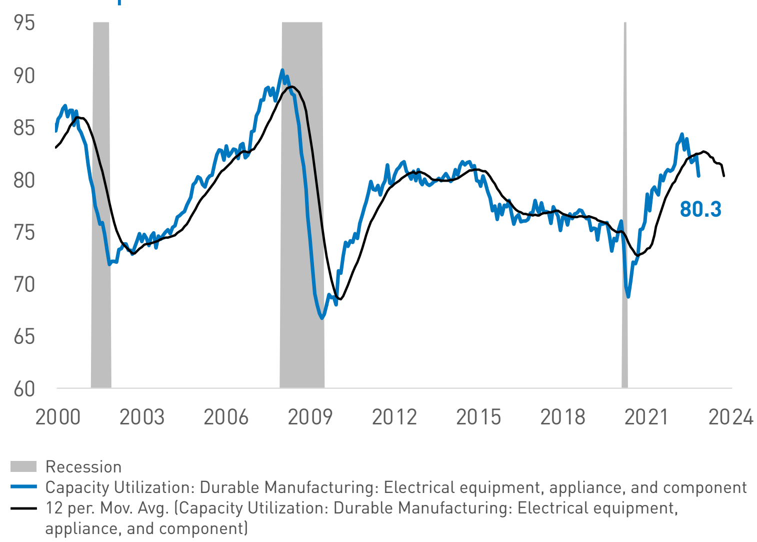
Manufacturing (NAICS)



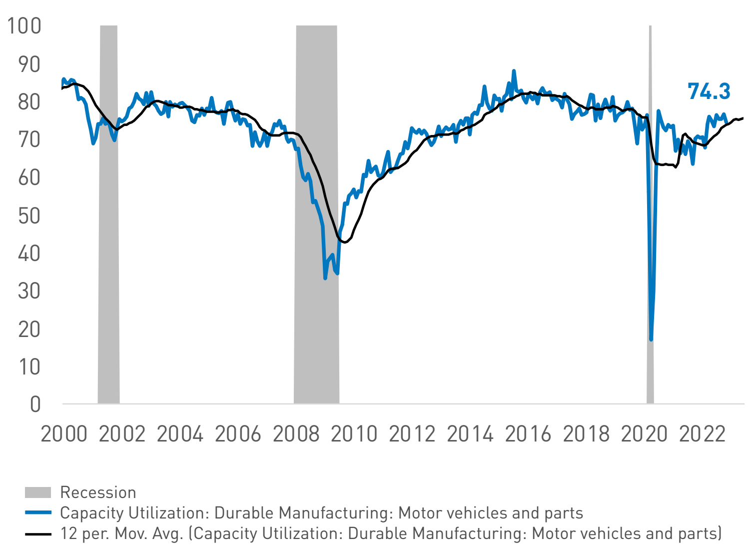
Computer & Electronic Product



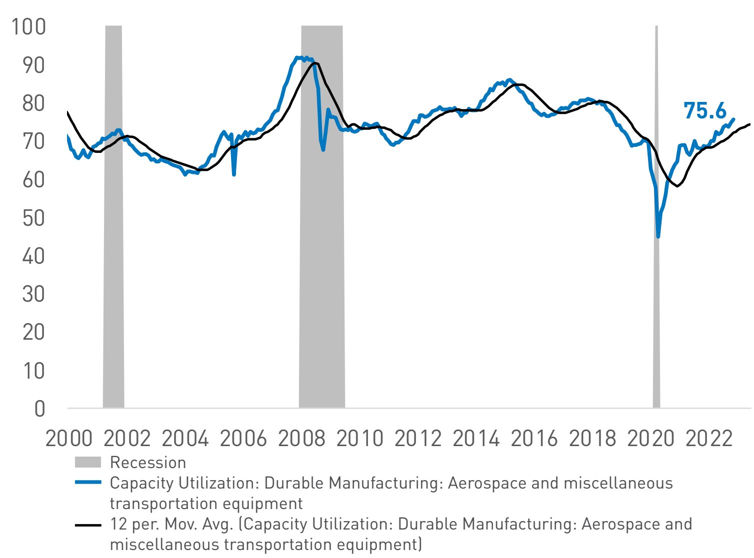
Electrical Equipment, Appliance, & Component



Motor Vehicles & Parts

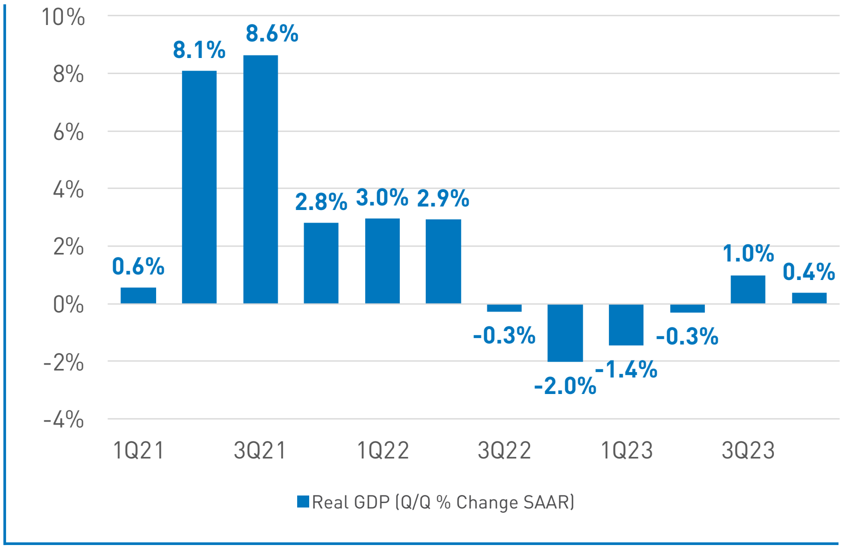


Aerospace & Miscellaneous Transportation Equipment



EUROPEAN OUTLOOK

ECONOMIC GROWTH



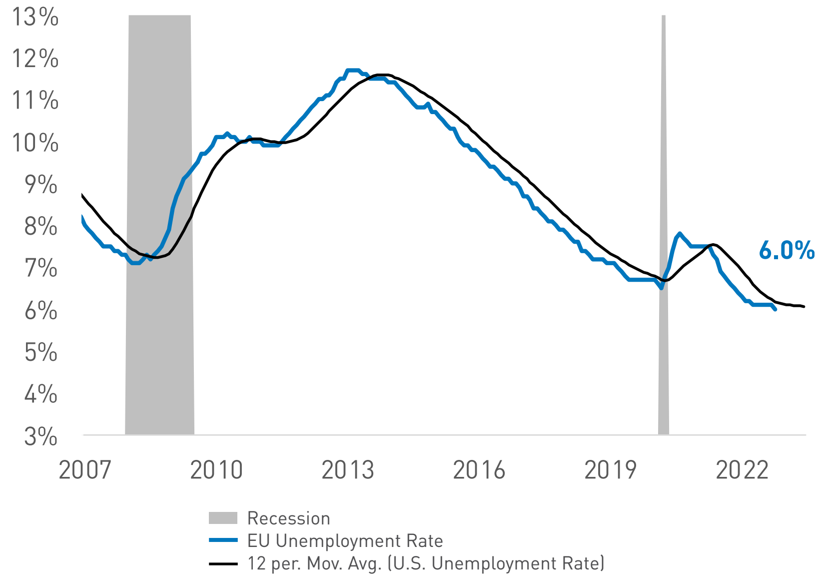
Economic growth in Europe in Q3 was revised slightly higher in the last month. GDP rose 0.3%, one-tenth of a percentage point higher than previously estimated. Year-over-year, the eurozone rose 2.3%, compared with the previous projection of 2.1%. Household spending contributed to the upward revision, adding 0.4 percentage points to the eurozone growth. Ireland recorded the strongest growth during the quarter, rising 2.3%. Malta and Cyprus both grew 1.3%. Several countries reported a decline during the quarter including Estonia (1.8%), Latvia (1.7%), and Slovenia (1.4%). The Eurozone is expected to decline 2% (annual rate) in Q4, or and see further declines in the first quarters of 2023. In some positive news for Europe, Front-month natural gas futures on the Dutch Title Transfer Facility, the benchmark contract in Europe, fell below 77 euros per megawatt hour, a level not seen since Russia's invasion of Ukraine. A mild start to the winter in northwest Europe has reduced natural gas demand. At their peak in August, European gas prices topped 345 euros/MWh.

	Q/Q PERCENTAGE CHANGE				Y/Y PERCENTAGE CHANGE			
	2021Q4	2022Q1	2022Q2	2022Q3	2021Q4	2022Q1	2022Q2	2022Q3
EURO AREA	0.5%	0.6%	0.8%	0.3%	4.8%	5.5%	4.2%	2.3%
EU (27)	0.7%	0.7%	0.7%	0.4%	5.1%	5.6%	4.3%	2.5%
GERMANY	0.0%	0.8%	0.1%	0.4%	1.2%	3.5%	1.7%	1.3%
FRANCE	0.6%	-0.2%	0.5%	0.2%	5.1%	4.8%	4.2%	1.0%
ITALY	0.8%	0.2%	1.1%	0.5%	6.5%	6.4%	5.0%	2.6%
SPAIN	2.3%	-0.2%	1.5%	0.2%	6.6%	6.7%	6.8%	3.8%

	2022 ECONOMIC GROWTH (GDP % CHANGE)	2023 ECONOMIC GROWTH (GDP % CHANGE)
EURO AREA	3.2%	-0.3%
GERMANY	1.7%	-0.6%
FRANCE	2.5%	0.1%
NETHERLANDS	4.4%	0.4%

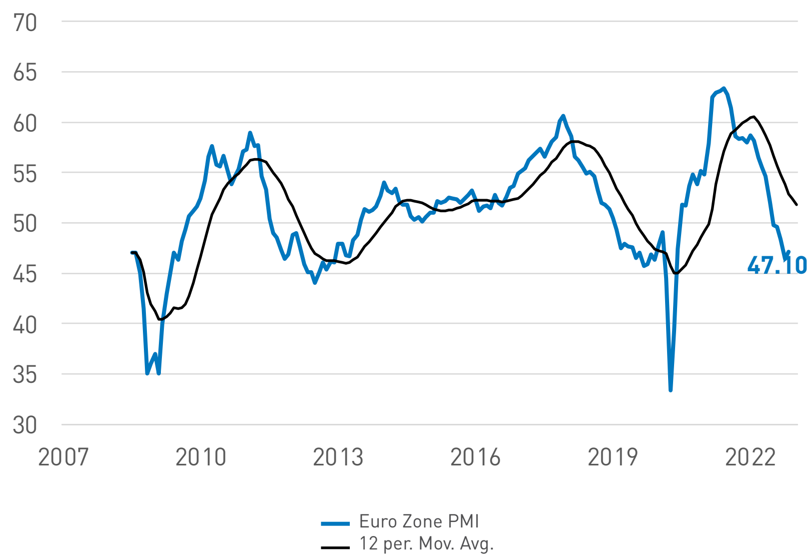
EMPLOYMENT

Employment levels expanded in the eurozone in Q3, rising 0.3% quarter-on-quarter, matching the pace in Q2. The unemployment rate for the euro area dropped 0.1 percentage points in October from the prior month. The euro area seasonally-adjusted unemployment rate was 6.5% in October, down from 6.6% in September 2022 and from 7.3% in October 2021.The EU unemployment rate was 6.0% in October 2022, down from 6.1% in September 2022 and down from 6.6% in October 2021. Only Lithuania, Luxembourg, Malta, Romania, and Slovenia experienced rising unemployment, and in each county the unemployment rate only rose 0.1 percentage points. Czechia unemployment fell to 2.1%, the lowest in the euro area. German unemployment remains just 3%. Poland also recorded 3% unemployment and Malta's unemployment rate rose to 3.1%. Despite recessionary pressures in Europe, employment is holding up.



MANUFACTURERS' SENTIMENT (PMI)

The S&P Global Eurozone Manufacturing PMI moved higher in November, increasing from 46.4 to 47.1, but remains in contractionary territory for the fifth consecutive month. All countries reported contractionary levels, suggesting sentiment remains subdued. The eurozone's goods-producing sector is still declining, although the rates of decline in output and new orders appear less severe than October's aggressive levels. Inflationary pressures are also easing due to weaker demand and less strain on suppliers. The level of new orders fell again, as the euro area and the broader global economy continues to deteriorate. Firms remain pessimistic about the outlook. Manufacturing output levels fell in November for a sixth straight month. Firms are cutting production levels as orders continue to moderate. Companies are showing some hesitation to place orders given the economic uncertainty, sufficient stock levels and high selling prices.



E.U. END MARKETS FOR ELECTRONICS

Manufacturing output fell in October after two months of growth. Output decreased 2% (month-on-month), but production remains high. Output is up 4.4% over the last year.

COMPUTER, ELECTRONIC & OPTICAL PRODUCTS

The electronics industry, which includes categories such as components, loaded boards, computers, communications equipment, and consumer electronics, decreased output by 4.1% (month-on-month) in October. The sector is up 20.8% over the last year.

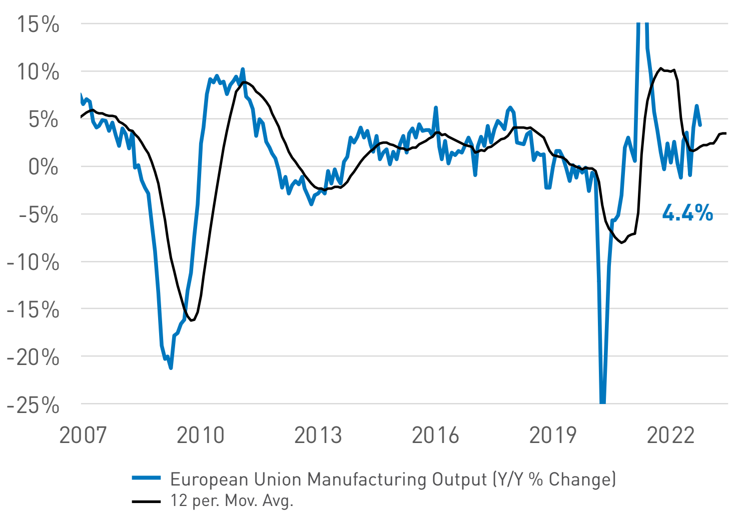
MOTOR VEHICLES

Motor vehicle manufacturing saw output decline 1.8% in October. The sector is up 17.3% over the last year.

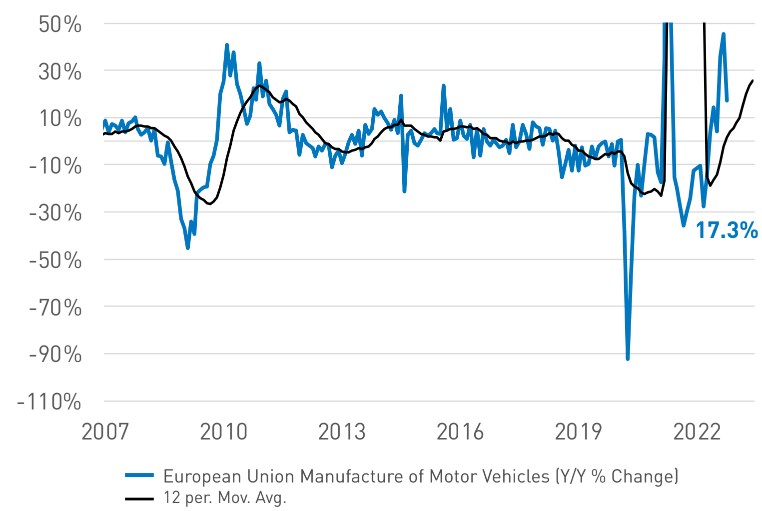
AIR & SPACECRAFT & RELATED MACHINERY

The air and spacecraft manufacturing sector was flat again in October. The segment is up 1.5% over the last year.

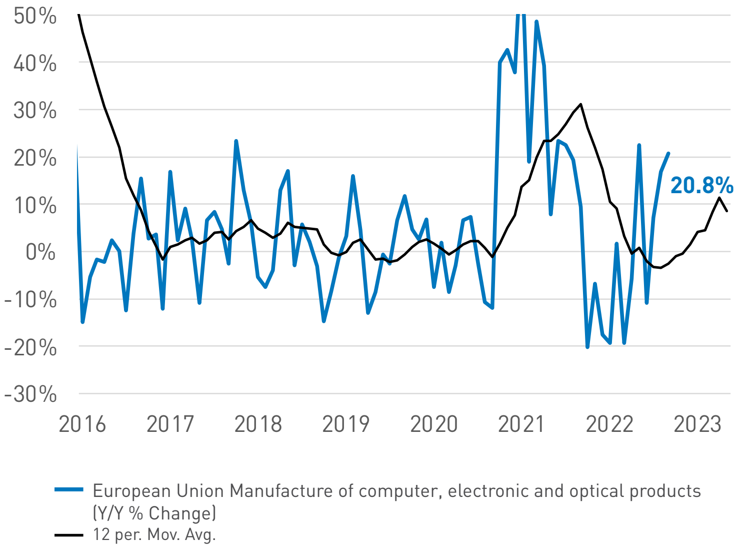
E.U. Manufacturing Output



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)