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ECONOMIC OUTLOOK

Roughly 11% of business economists believe that the U.S. economy is already in recession. At the same time, the labor market continues to expand, adding over 250,000 new jobs in September and averaging over 450,000 new jobs each month over the last year. If the U.S. economy is in fact already in recession, then it is a very unique start to a recession. There have only been two recessions in the postwar period that started while employment was still growing. The first was the 1969-1970 recession which started with two months of job gains before employment eventually fell below employment levels at the start of the recession. The second one was the 1973-1975 recession. In that recession it took 12 months for employment levels to fall below the levels that existed at the start of the recession, but job growth during that period was relatively weak - increasing on average fewer than 90,000 new jobs each month for the first eight months of the recession.

Recently released GDP data for Q3 was respectable, but it masks a slowing trend. GDP might not be the best gauge right now to measure the economic environment. An alternative measure is U.S. domestic demand, which excludes trade and inventory investment. This measure tells us how demand for domestic purchases from domestic sources is holding up. This figure rose just 0.5% in Q3. This is up from 0.2% in Q2, but down from 1.3% in Q1.

Businesses continue to invest, but that too is slowing. Business investment increased modestly in Q3. Outlays for equipment rose 10.8%, and investment in intellectual property rose 6.9%. These offset a steep decline in investment in structures, which fell 15.3%. Interestrate sensitive industries continue to suffer. Residential construction in the U.S. fell 26.4% in the third guarter after declining 17.8% in Q2 thanks to surging mortgage rates. The broader economy might not yet be in recession, but the U.S. housing market most certainly is already in recession as higher mortgages dissuade both buyers and builders.

Manufacturing output surprised to the upside in September, and manufacturing capacity utilization hit 80%, the highest level since 2000. The solid growth in output could be a result of easing supply chain dynamics that are helping companies fill their backlog of order. In both the U.S. and Europe, new orders are weakening as a result of high prices and weakening demand. For example, new orders for

durable goods in the U.S. rose 0.4% in September, a bit less than expected, but the gain was on an upward revised level in the prior month. On the surface. the gain looks good, but it was concentrated in the transportation sector which can swing sharply. Excluding transportation, new orders fell 0.5% in September and were revised downward by 0.3% in the prior month.

In the U.S., manufacturers continue to add jobs, adding over 20,000 new employees last month. However, job gains might begin to slow in the coming months if new orders continue to weaken. In Europe, manufacturers are already reducing production schedules as demand weakens, and a similar trend in the U.S. would likely result in fewer new hires.

Inflation continues to dominate the economic narrative. The U.S. is probably past peak inflation. but inflation rates remain high, and that will keep the Federal Reserve vigilant. We will likely see another 75 basis point increase in November, though this could result in smaller rate increases in subsequent months. Overall inflation has declined for two consecutive months, largely as a result of lower energy prices. However, prices for all items excluding the volatile categories of food and energy continue to rise suggesting that inflation is spreading to other categories. Moreover, food prices remain up 11.2% over the last year.

The inflation picture is worse almost everywhere else. In Europe, which is probably a few months away from peak inflation, prices continue to rise. Prices were up 10% in September compared to a year ago,

and October results will be worse. Germany reported a 10.4% increase in prices in October, and high prices are adversely impacting economic activity. Germany has started to release a new time series for energyintensive industries showing production in these sectors dropped by more than 8% between February and August. The European Central Bank raised interest rates by 75 basis points in October, doubling the target interest rate to 1.5%; further rate hikes will likely follow.

We have lowered our projections for economic growth in Europe in 2023 and now show a decline for the first time for the entire year.

China delayed reporting its GDP data for Q3 one day before the report was set to be published. The delayed results were published a week later showing 3.9% growth for the guarter. This was a pick-up from the 0.4% growth in the second quarter, but still below the targeted 5.5% growth for the year. The economy is likely to grow closer to 3% in 2022. While many central banks are raising interest rates to stave off inflation, China has cut interest rates in an effort to combat a slowing economy and a deteriorating housing market. As a result, the yuan has fallen to its lowest level in 14 years.

The strong dollar coupled with slowing growth abroad are headwinds for the remainder of 2022 and the start of 2023. Tight financial conditions and an uncertain economic outlook are making both businesses and consumers more cautious. We have reached the end of the post-lockdown rebound.

80%

U.S. manufacturing capacity utilization increased to 80% last month, the highest level since 2000.

5.7%

China's exports grew 5.7% in September compared to a year earlier, but this is the slowest pace since April.

11%

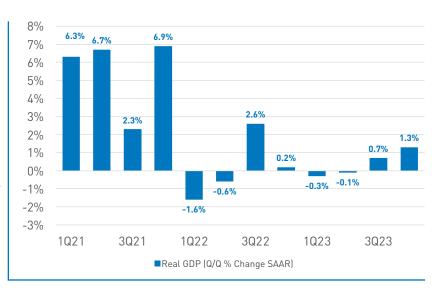
Roughly 11 percent of business economists believe the U.S. economy is already in recession. 10%

The Euro area reported record annual inflation in September. Energy prices were up 40.8% over the last year. Food, alcohol, and tobacco were up 11.8% compared to 10.6% in August.

U.S. OUTLOOK

ECONOMIC GROWTH

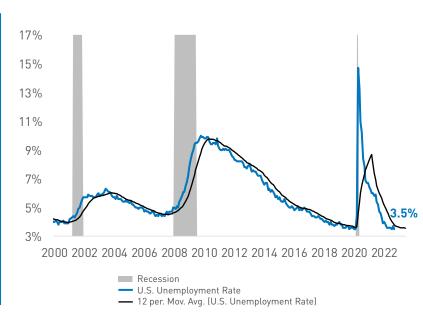
Real U.S. GDP grew 2.6% (annual rate) in the third quarter following two consecutive quarters of contraction. The trade sector was a key driver of this growth. Net exports contributed 2.8 percentage points to GDP. Exports expanded at a 14.4% annual rate while imports contracted 6.9% annualized. Inventory investment reduced GDP by 0.7 percentage points in the third quarter after removing 1.9 percentage points of Q2 GDP growth. Businesses are managing inventory levels cautiously, and this will likely continue well into 2023. Consumers continue to rotate away from goods and towards services. Spending on services rose 2.8% during the quarter, while spending on goods contracted 1.2%.



	2022 ECONOMIC GROWTH (GDP % Change)	2023 ECONOMIC GROWTH (GDP % Change)	2022 EXCHANGE RATE (v. USD)	2023 EXCHANGE RATE (v. USD)
UNITED STATES	1.6%	0.2%	N/A	N/A
CANADA	3.0%	0.7%	1.35	1.31
MEXICO	1.9%	1.2%	20.26	20.58
EURO AREA	2.7%	-0.2%	0.98	1.03
CHINA	3.2%	4.8%	7.07	6.80

EMPLOYMENT

The U.S. economy added 263,000 new jobs in September, and payroll gains for July and August were revised up by an additional 11,000 jobs. The leisure & hospitality industries continue to add back workers, adding 83,000 new workers last month. Other industries are also adding jobs. Health care added 60,000 new jobs, and manufacturing increased by 22,000 new workers. The unemployment rate fell to 3.5%, potentially marking the low point in this expansion period.



SENTIMENT

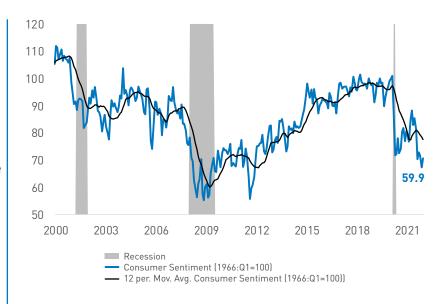
The Index of Consumer Sentiment was essentially unchanged in September, rising 0.4 percentage points from 58.2 to 58.6. The index is down from 72.8 percentage points last September. Consumer sentiment also rose slightly in October, increasing 1.3 index points. In September, consumer expectations of current economic conditions rose 1.9% from the prior month, largely on improving inflation expectations. The median expected year-ahead inflation rate declined to 4.7% in September but rose to 5% in October. Long run inflation expectations fell below the narrow 2.9-3.1% range for the first time since July 2021 in September. but since then, expectations have reverted to 2.9%. Perceived buying conditions for durable goods (think autos) continue to improve as supply chain disruptions are easing, but uncertainty about the trajectory of the economy remains acute.

TRADE-WEIGHTED U.S. DOLLAR INDEX

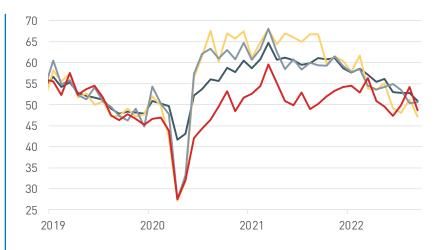
The Trade-Weighted U.S. Dollar Index rose roughly 2.7% in September and is up 10.8% over the last year. Dollar strength continues to be driven by risk aversion and widening interest rate differentials. The U.S. dollar continues to act as a safe haven for investors as global economies slow and uncertainty remains elevated. Other safe haven currencies, like the Japanese Yen, have kept interest rates low in the face of mounting economic pressure at home which has added to U.S. dollar strength. The Japanese yen has lost more than a fifth of its value against the U.S. dollar, falling to its lowest level since 1990. The Fed on the other hand has raised interest rates five times this year and several additional increases are expected in the coming months. While we could be nearing peak dollar value, a decline in dollar strength will require an increase in risk appetites or higher interest rates elsewhere in the world.

MANUFACTURERS' SENTIMENT (PMI)

The Manufacturing PMI was 50.9 percent in September, down from August but still indicating the manufacturing sector is expanding. At the same time, this is the lowest level recorded in the current expansionary period. The New Orders Index fell into contractionary territory in September, a sign that demand is slowing. But in good news, the Prices Index fell to 51.7 percent during the month, the lowest level since June 2020. Likewise, the Supplier Deliveries Index fell to 52.4 percent, the lowest reading since the pandemic began. Supply chain dynamics are improving, but many companies appear to be bracing themselves for a recession.







U.S. END MARKETS FOR ELECTRONICS

U.S. industrial production increased 0.4% in September (+0.7% including prior month revisions). Mining production rose 0.6%, and manufacturing output increased 0.4% (+0.6% including prior month revisions). Factory activity continues to deliver positive gains, hitting a new high in the month of September. Production of consumer goods is up 3.8% in the last year while production of business equipment is up 8.2%, suggesting businesses are driving demand for the manufacturing sector.



AUTOMOTIVE PRODUCTS

Auto production rose 1% during the month. Production is up 19.4% over the last year and up 0.9% from pre-pandemic levels.



TRANSIT EQUIPMENT

Transit equipment production was flat with last month. The sector is up 12.1% over the last year and 14.6% from prepandemic levels.



INFORMATION **PROCESSING** & RELATED **EQUIPMENT**

Production in the information processing and related equipment sector rose 1.3% during the month. The sector is up 1.2% over the last year against strong comps and is 2.5% higher than prepandemic levels.



INDUSTRIAL & OTHER EQUIPMENT

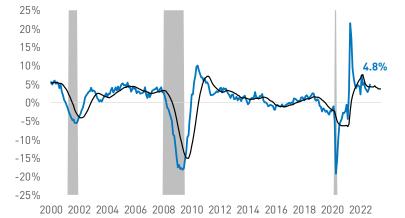
The industrial sector fell 0.3% during the last month. The sector is up 5.1% over the last year and up 12.1% from the start of the pandemic.



DEFENSE & SPACE **EQUIPMENT**

The defense and space equipment seament rose 0.6% to another new alltime high. The sector is up 5.1% over the last year and 12.1% since the pandemic began.

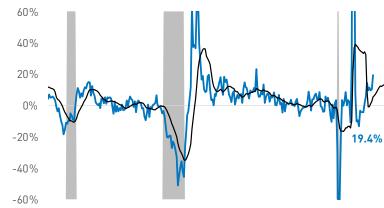
Manufacturing



Recession

Industrial Production: Manufacturing (Y/Y % Change)
 12 per. Mov. Avg. (Industrial Production: Manufacturing (Y/Y % Change))

Automotive Products

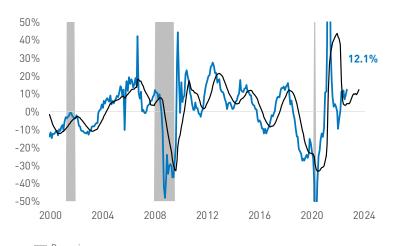


2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022

Recession

Industrial Production: Automotive products (Y/Y % Change) 12 per. Mov. Avg. (Industrial Production: Automotive Products (Y/Y % Change))

Business Transit Equipment (Y/Y % Change)



Recession
Industrial Production: Business Transit equipment (Y/Y % Change)

– 12 per. Mov. Avg. (Industrial Production: Business Transit equipment (Y/Y % Change))

Industrial & Other Equipment (Y/Y % Change)

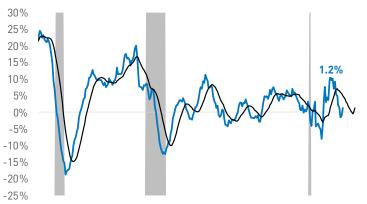


Recession

Industrial Production: Industrial and other equipment (Y/Y % Change)

12 per. Mov. Avg. (Industrial Production: Industrial and other equipment (Y/Y % Change))

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

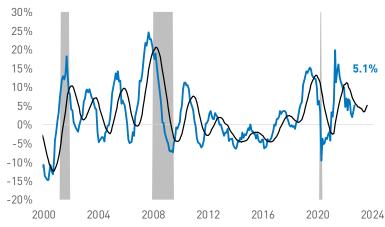


2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024

Recession

Industrial Production: Information processing and related equipment (Y/Y % Change)
 12 per. Mov. Avg. (Industrial Production: Information processing and related equipment (Y/Y % Change))

Defense & Space Equipment (Y/Y % Change)



Recession

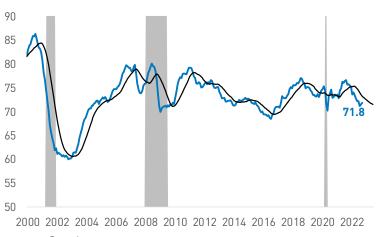
Industrial Production: Defense and space equipment (Y/Y % Change)

— 12 per. Mov. Avg. (Industrial Production: Defense and space equipment (Y/Y % Change))

MANUFACTURING CAPACITY UTILIZATION

Overall capacity utilization rose from 80.1% in August to 80.3% in September. Manufacturing capacity rose from 79.7% to 80% - the highest level since 2000. The supply chain challenges of the last two years have likely driven manufacturers to become more productive and find ways of producing more with their existing equipment in addition to replenishing their capital stock with new equipment. Computer and electronic production capacity utilization rose 0.5% to 71.8%. Electrical equipment, appliances and components utilization rose 0.9% to 82.8%. Utilization in the auto sector rose 0.9% to 75.4%. Capacity utilization in the aerospace and miscellaneous transportation equipment sector inched up again this month to 74.3%.

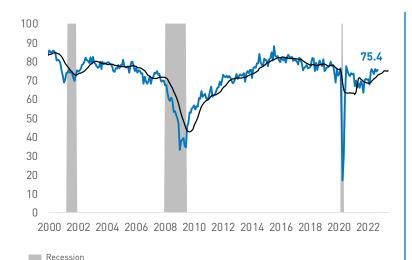
Computer & Electronic Product



Capacity Utilization: Durable Manufacturing: Computer and electronic product

12 per. Mov. Avg. (Capacity Utilization: Durable Manufacturing: Computer and

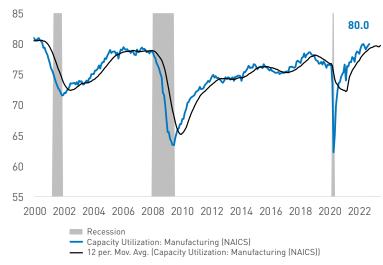
Motor Vehicles & Parts



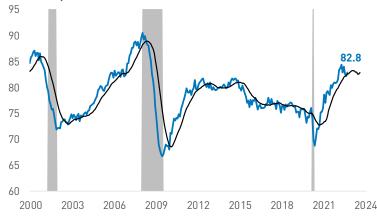
— Capacity Utilization: Durable Manufacturing: Motor vehicles and parts

12 per. Mov. Avg. (Capacity Utilization: Durable Manufacturing: Motor vehicles and parts)

Manufacturing (NAICS)



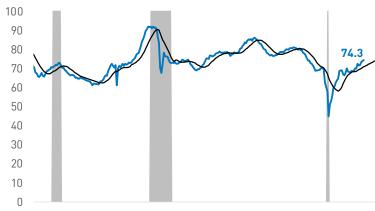
Electrical Equipment, Appliance, & Component



Recession

Capacity Utilization: Durable Manufacturing: Electrical equipment, appliance, and component
 12 per. Mov. Avg. (Capacity Utilization: Durable Manufacturing: Electrical equipment, appliance, and component)

Aerospace & Miscellaneous Transportation Equipment



2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022

Recession

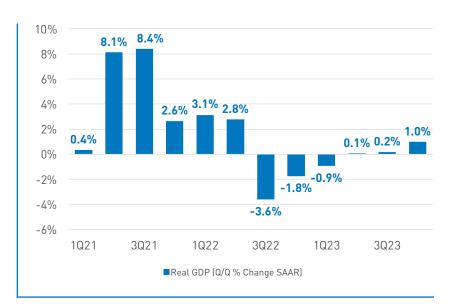
 Capacity Utilization: Durable Manufacturing: Aerospace and miscellaneous transportation equipment

 12 per. Mov. Avg. (Capacity Utilization: Durable Manufacturing: Aerospace and miscellaneous transportation equipment)

EUROPEAN OUTLOOK

ECONOMIC GROWTH

Most expect Europe to dip into recession in the coming months. The key questions remaining are how severe the winter recession will be and when the recession will ultimately begin. The preliminary flash estimate for Q3 GDP will be published on October 31st, but early results suggest the economy might have staved off the start of the recession. Germany saw growth of 0.3% in the third quarter, an acceleration from 0.1% the prior quarter. The German economy has now surpassed its prepandemic level for the first time. At the same time, eurozone economies are slowing. Spain grew 0.2% compared to the prior quarter, a notable slowdown from the 1.5% growth in Q2. Growth was propped up by a strong tourism sector; growth here will likely



dissipate during the winter months, dropping the economy into recession. France also recorded growth of 0.2%. In an effort to contain skyrocketing inflation, the European Central Bank raised its deposit rate by a further 75 basis points to 1.5% - the highest rate since 2009. Inflation in France is expected to hit 6.2% in October, lower than in other countries but due largely to government intervention. Spain saw inflation ease from 10.8% to 7.3%. Italy on the other hand saw inflation soar from 8.9% to 11.9%.

	Q/Q PERCENTAGE CHANGE			Y/Y PERCENTAGE CHANGE				
	2021Q3	2021Q4	2022Q1	2022Q2	2021Q3	2021Q4	2022Q1	2022Q2
EURO AREA	2.2%	0.5%	0.7%	0.8%	3.7%	4.6%	5.4%	4.1%
EU (27)	2.0%	0.7%	0.8%	0.7%	4.0%	4.8%	5.5%	4.2%
GERMANY	0.8%	0.0%	0.8%	0.1%	1.8%	1.2%	3.5%	1.7 %
FRANCE	3.4%	0.5%	-0.2%	0.5%	3.6%	5.0%	4.7%	4.2%
ITALY	2.7%	0.7%	0.1%	1.1%	4.0%	6.4%	6.3%	4.7%
SPAIN	2.6%	2.2%	0.2%	1.1%	3.5%	5.5%	6.3%	6.3%

	2022 ECONOMIC GROWTH (GDP % CHANGE)	2023 ECONOMIC GROWTH (GDP % CHANGE)
EURO AREA	3.0%	-0.2%
GERMANY	1.5%	-0.4%
FRANCE	2.4%	0.1%
NETHERLANDS	4.4%	0.5%

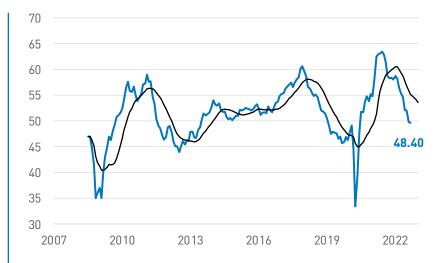
EMPLOYMENT

The unemployment rate for the euro area stayed steady at 6.6% in August. This is down from 7.5% in August 2021. The unemployment rate in the EU also remained consistent with the prior month at 6%. This is down from 6.8% in August 2021. Only four countries reported higher unemployment in August. Austria's unemployment rate increased 0.6 percentage points to 5.2%, Cyprus reported a 0.4 percentage point increase to 8.6%, the Netherlands reported a 0.2 percentage point increase to 3.8%, and Luxembourg reported an increase of 0.1 percentage points to 4.3%. Czechia had the lowest unemployment rate at 2.4%, followed by Poland (2.6%), and Malta (2.9%). Germany's unemployment remains at 3%.



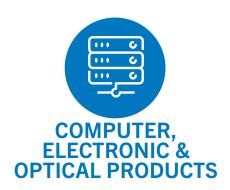
MANUFACTURERS' SENTIMENT (PMI)

The S&P Global Eurozone Manufacturing PMI fell in September, hitting a 27-month low at 48.4. The euro area's manufacturing sector fell deeper into contraction territory because of both weaker output and weaker new order results during the month. Higher energy costs are also negatively impacting production levels, and companies are cutting production schedules as demand slows. September marks the fourth consecutive month of declines in manufacturing output. Higher prices and economic uncertainty appear to be adversely impacting new orders. Only Ireland reported manufacturing output expanding in September.



E.U. END MARKETS FOR ELECTRONICS

Manufacturing output rose sharply in August, increasing 0.5% to a new all-time high. Output is up 4% over the year and up 3.4% since the start of the pandemic.



The electronics industry, which includes categories such as components, loaded boards, computers, communications equipment, and consumer electronics, saw output increase 13.6% in August. The sector is up 4.3% over the last year and up 16.1% from pre-pandemic levels.



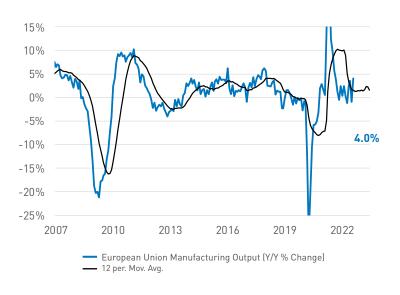
MOTOR VEHICLES

Motor vehicle manufacturing production increased 6.1% in August. Auto production in the European Union is now up 43.3% over the last year but remains off 20.8% from prepandemic levels.

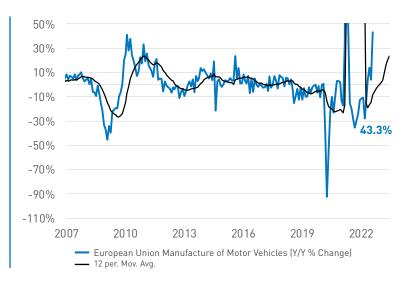


The air and spacecraft manufacturing sector fell 0.5% in August. The segment is up 8.5% over the last year but off 17.8% since the start of the pandemic.

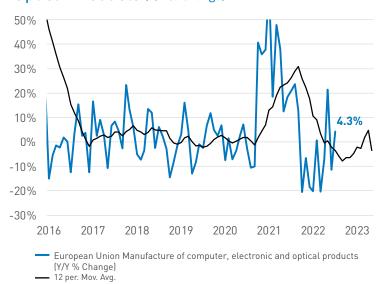
E.U. Manufacturing Output



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)

