It has been a tumultuous year and many of the risk factors that are prevalent today will continue through at least the first half of 2022.

COVID continues to be a major deterrent to growth and while the impact of the current outbreak remains unclear, the uncertainty it has created will hinder the recovery in the early months of the new year. The omicron variant is spreading rapidly around the globe. In Europe, France has reported a record number of new cases. The Netherlands has reimposed strict lockdowns and the UK is considering similar measures. In Belgium, shopping in large groups was banned, and movie theatres and concert halls closed. Iran has even banned travellers from parts of Western Europe as a result of escalating COVID cases there.

New cases have not reached a new peak in the United States yet, but they are on the rise. New COVID cases have set new highs on the East Coast, in places like New York and Maryland, and it is likely only a matter of weeks before new cases reach new highs nationally.

Data from South Africa, where the variant virus was first detected, suggests high rates may be short-lived. New cases in South Africa peaked in the middle of December and have since fallen, though new cases remain well above levels from a month ago. New cases are likely to rise for the next several weeks in both Europe and the United States before they start falling, but it will likely take several months for them to return to pre-Omicron levels. At the same time, Omicron cases appear to be less severe than previous COVID cases, suggesting death rates should be lower than previous peaks.

Still, rising cases create uncertainty, and hobbles growth. In the final weeks of 2021, hundreds of flights were cancelled because airline crews were
unable to fly. This type of impact will create further disruptions for supply chains and for businesses who have workers call out sick.

Supply chain challenges remain acute and have improved little over the last month. Shortages continue to hamper production levels and lead-times remain long. Logistics hubs remain backed-up. On Christmas morning, there were 49 container ships in port at LA and Long Beach. Of these, 23 were at anchor or loitering, waiting for a berth. This has improved over the last month, but is far from normal operating levels. Throughput has stabilized, but the number of ships waiting at anchor has declined largely because of fewer inbound ships. Expect supply chain challenges to linger well into 2022, and in some instances into 2023.

Another major pressure on businesses and consumers is higher prices. Inflation continues to rise around the globe. The headline price index for personal consumption expenditures (PCE) in the U.S. rose 0.6% in November and is up 5.7% over the last year. Even excluding some of the volatile categories like energy and food has the core price index up 4.7% over the last year. Inflation in Europe shot-up to 4.9% in November, the highest level since records began in 1997, two years before the euro was launched. In Estonia, the inflation rate jumped to 8.4% and in Lithuania it reached 9.3%.

Central Bankers in the United States and in Europe have the enviable task of addressing rising inflation rates while simultaneously considering the impact omicron is likely to have on the economy in the coming weeks. Price increases will slow somewhat next year, but could still run higher than pre-pandemic levels. At the same time, economic growth will be severely muted at the start of the year as omicon slows economic activity. The outlook for growth in 4Q21 is a bit better than we expected last month, but GDP growth in the US could drop to as low as 2.5% in the first quarter of the year.

26%

0.242
Inventory-to-sales for new vehicles has fallen to a historically low level as supply chain shortages continue to cripple production.

4.9%
euro area inflation was 4.9% in November, the highest rate since 1997, when the European Union started collecting statistics.

0.8%
US producer prices increased 0.8% in November and are up 9.6% over the last year.
U.S. OUTLOOK

ECONOMIC GROWTH
Third quarter GDP was revised up another two-tenths of a percentage point to 2.3%. This remains a steep deceleration from the 6.5% growth in the first half of 2021. The slight upward revision was primarily driven by an upward revision in consumer spending on services. Incoming data for Q4 suggests stronger growth, driven in part by international trade and inventories as companies work to rebuild depleted stock. I now expect growth to accelerate to 5.9% in Q4, one percentage point higher than last month. While my expectations for growth for 2021 and 2022 are muted from prior months, I still expect the economy to grow 4% next year.

<table>
<thead>
<tr>
<th></th>
<th>2021 ECONOMIC GROWTH (GDP % Change)</th>
<th>2022 ECONOMIC GROWTH (GDP % Change)</th>
<th>2021 EXCHANGE RATE (v. USD)</th>
<th>2022 EXCHANGE RATE (v. USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITED STATES</td>
<td>5.6%</td>
<td>4.0%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CANADA</td>
<td>4.8%</td>
<td>4.1%</td>
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<td>1.24</td>
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<td>MEXICO</td>
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<td>EURO AREA</td>
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<td>4.1%</td>
<td>1.14</td>
<td>1.15</td>
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<tr>
<td>CHINA</td>
<td>7.9%</td>
<td>4.9%</td>
<td>6.45</td>
<td>6.52</td>
</tr>
</tbody>
</table>

EMPLOYMENT
U.S. labor market gains were muted in November. Nonfarm payroll increased 210,000, and gains for prior months were revised higher by 82,000 jobs. Civilian employment, an alternative measure of jobs that includes small-business start-ups, increased 1.136 million in the month, the fastest pace in more than a year. The unemployment rate fell to 4.2% in November. The largest increases in November were for professional & business services (90,000), transportation & warehousing (50,000), construction (31,000), and manufacturing (31,000). Overall, workers are working longer hours and hourly earnings are higher. Average hourly earnings rose 0.3% in November and are up 4.8% over the last year. Total hours worked rose 0.5% and are up 4.4% in the last year. Combined, total worker pay, excluding irregular bonuses, is up 9.4% over the last year and 7.6% above pre-pandemic levels.
SENTIMENT
Consumer sentiment improved marginally in December, but the gains might be short-lived thanks to rising cases of COVID. Consumer sentiment reached lows in November not seen since 2011. Sentiment declined in the face of rapidly rising inflation rates combined with the absence of federal policies that would offset the inflationary damage to household budgets. The gains in December were driven by gains in expectations among households with incomes in the bottom third of the income distribution. The announced increase in Social Security of 5.9% in 2022 was partly responsible for the gain. There have only been five times in the past 50 years that income expectations among low income households have exceeded the December 2021 level.

TRADE-WEIGHTED U.S. DOLLAR INDEX
The trade-weighted U.S. dollar index rose again in November, hitting the highest levels in 2021. The dollar value increased 0.9% during the month and is now up the same amount over the last year. The dollar continues to gain strength on hawkish expectations for the Federal Reserve which is facing rising inflationary pressures. The FOMC concluded its December meeting by saying it would accelerate the drawdown of its pandemic-spurred bond-buying intervention. Markets expect the Fed will end its bond-buying by March 2022 and follow it with two to three rate increases during the year. The dollar is also likely benefiting from omicron-induced uncertainty.

MANUFACTURERS’ SENTIMENT (PMI)
The U.S. manufacturing sector expanded in November — the 18th consecutive month of growth. The November Manufacturing PMI increased 0.3 percentage points from the prior month. Manufacturing demand remains strong and new orders continue to grow. The New Orders Index was 61.5%, up 1.7 percentage points. Ongoing supply chain challenges continue to hinder growth, but the data does show some small signs of easing. The Backlog of Orders Index points to a rising backlog of orders, but perhaps less severe than in recent months.
U.S. END MARKETS FOR ELECTRONICS

Industrial production increased 0.5% during the month and is up 5.3% over the last year. Manufacturing output rose 0.7% during the month and is up 2.3% over pre-pandemic levels. Despite severe supply chain constraints, manufacturers are working to fulfill strong order flow.

AUTOMOTIVE PRODUCTS
Auto production rose 2.8% during the month, a hopeful sign that shortages and other disruptions are abating somewhat. Output is off 1.9% from pre-pandemic levels.

TRANSIT EQUIPMENT
Transit equipment production rose 1.1% over the last month. The sector is down 3.8% over the last year and down 27.9% from two years ago.

INFORMATION PROCESSING & RELATED EQUIPMENT
Production in the information processing and related equipment sector increased 0.9% in the month. The sector is up 7.6% over the last year and 12.1% from two years ago.

INDUSTRIAL & OTHER EQUIPMENT
The industrial sector increased 0.2% during the last month. The sector is up 7.7% over the last year and now up 0.9% from the start of the pandemic.

DEFENSE & SPACE EQUIPMENT
The defense and space equipment segment rose 2.5% last month. The sector is up 20.3% over the last year and up a strong 24% over the last two years.
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)
Overall capacity utilization improved during the month, rising to 76.8% in November. The rise in utilization rates is a hopeful sign that some of the supply chain disruptions are improving. Manufacturing capacity utilization rose to 77.2%, roughly 2.4% above pre-pandemic levels. Computer and electronic production capacity utilization rose 0.4% to 75.9% and is 3% above pre-pandemic levels. Electrical equipment, appliances and components utilization rose 0.3% to 79.3%. Utilization for the motor vehicles and parts sector rose 2.2% to 70.4%. Finally, utilization in the aerospace and miscellaneous transportation equipment sector increased 1.7% to 75.1%.
**ECONOMIC GROWTH**

GDP rose 2.2% in the euro area during the third quarter (2.1% in the European Union). On an annualized basis, GDP rose 9.3% in the euro area and 8.8% in the European Union, far outpacing 2.3% GDP growth in the United States over the same period. The reemergence of COVID had stymied Europe’s recovery early in the year, but Europe is quickly getting growth back on track. Growth in the third quarter was 3.7% higher than a year-ago. Growth in the third quarter was highest in Australia (3.8%), France (3%), and Portugal (2.9%).

**EUROPEAN OUTLOOK**

<table>
<thead>
<tr>
<th>2020Q4</th>
<th>2021Q1</th>
<th>2021Q2</th>
<th>2021Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU AREA</td>
<td>-0.4%</td>
<td>-0.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>EU (27)</td>
<td>-0.2%</td>
<td>-0.0%</td>
<td>2.1%</td>
</tr>
<tr>
<td>GERMANY</td>
<td>0.7%</td>
<td>-1.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>FRANCE</td>
<td>-1.1%</td>
<td>0.1%</td>
<td>1.3%</td>
</tr>
<tr>
<td>ITALY</td>
<td>-1.6%</td>
<td>0.3%</td>
<td>2.7%</td>
</tr>
<tr>
<td>SPAIN</td>
<td>0.2%</td>
<td>-0.6%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

**2021 ECONOMIC GROWTH (GDP % CHANGE)**

| EURO AREA | 5.1% |
| GERMANY | 2.7% |
| FRANCE | 6.8% |
| NETHERLANDS | 4.4% |

**2022 ECONOMIC GROWTH (GDP % CHANGE)**

| EURO AREA | 4.1% |
| GERMANY | 4.1% |
| FRANCE | 4.0% |
| NETHERLANDS | 3.4% |
EMPLOYMENT
The number of employed persons increased by 0.9% in both the euro area and in the EU during the third quarter, but the unemployment rate has declined slowly during the recovery. The euro area unemployment rate was 7.3% in October, down slightly from 7.4% in the previous month. The EU unemployment rate was 6.7% in October, unchanged from the previous month. In the third quarter of 2021, Ireland (+4.0%), Spain (+2.6%), Lithuania (+2.1%), Estonia and Greece (both +1.9%) recorded the highest growth of employment in persons compared with the previous quarter.

MANUFACTURERS’ SENTIMENT (PMI)
Manufacturing sentiment remains solid in Europe. Factory operations continue to be hindered by supply disruptions, similar to elsewhere in the world. The headline index rose 0.1 percentage point to 58.4, the first rise since June 2021. During the month, Italy recorded a new record high for the country. Other countries reported manufacturing production is expanding though at slower rates than recent months. Likewise, new orders remain strong, but did slow somewhat as well, suggesting either normalization towards trend growth or supply-related constraints that continue to restrict business. Average input lead times lengthened once again, suggesting supply chain challenges will remain in place well into 2022. IHS reports output prices were raised to the greatest extent since this series began in November 2002.
Manufacturing output rose 1.2% in October. Manufacturing output remains up 3.3% over the last year and is now flat on a two-year basis.

**COMPUTER, ELECTRONIC & OPTICAL PRODUCTS**

The electronics industry, which includes categories such as components, loaded boards, computers, communications equipment and consumer electronics, saw output increase 2.6% during the month. The sector is up 30.6% over the last year and up 12.8% over the last two years.

**MOTOR VEHICLES**

The motor vehicle manufacturing production index shot up in October, rising 16.8%. Auto production continues to be hampered by supply shortages. Auto production in the European Union remains off 33.3% from two years ago.

**AIR & SPACECRAFT & RELATED MACHINERY**

The air and spacecraft manufacturing sector rose 7% in October. The segment is up 4.6% over the last year and down 20.1% 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)

- European Union Manufacture of computer, electronic and optical products (Y/Y % Change)
- 12 per. Mov. Avg.
- European Union Manufacture of air and spacecraft and related machinery (Y/Y % Change)
- 12 per. Mov. Avg.