

OCTOBER 2021

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ECONOMIC OUTLOOK

Supply chains continue to be under tremendous pressure. Container ship reliability remains stuck near all-time lows across the world. And compounding the problem, ships are stuck at anchor waiting for a berth to unload. There is congestion widely felt. The most recent data for the ports of Long Beach and Los Angeles - which account for nearly half of all imports into the United States - shows 147 ships are in port, but only 51 are at berth. The remaining 96 are at anchor or at drift waiting to unload and of these 96 ships, 74 are container ships.

Airfreight capacity has also been stymied. It could take until 2024 for airfreight to return to pre-pandemic levels of capacity. About half of airfreight capacity is in the bellyhold of commercial airlines and commercial airline capacity remains 28 percent below 2019 levels. In both cases of containerized cargo and airfreight, prices remain extremely elevated.

Consumer spending and business investment both slowed in the third quarter in the United States. Some of the slowdown in demand is related to limited supply and higher prices. Some consumers are taking a wait-and-see approach. Retailers are being allocated orders which means they'll have less in stock for the holiday season than they ordered. At the same time, business investment also slowed in the third quarter so it isn't just consumers who are taking a step back.

The U.S. is not alone in seeing weaker growth. China recorded disappointing third quarter results as well, with GDP growth slowing to 4.9 percent. In China, industrial production rose 3.1 percent in September, well below the expectations for 4.9 percent growth. In Europe, we'll see results in the coming days but the economic picture has begun to pick up steam following the most recent shutdown. However, the supply chain disruptions are equally in effect for

Europe too. The Euro zone saw inflation hit a 13-year high in September, driven by higher energy prices, higher car prices, and higher accommodation prices. Higher energy prices are hitting both businesses and consumers. In China, many factories stopped production in September as the price of coal surged and a shortage of electricity prompted municipalities to cut power.

Manufacturers are seeing prices rise across the board. They are facing higher raw materials costs and because many have been forced to look to the broker market for needed parts, they are also paying higher prices for other inputs.

Even as COVID cases decline globally, optimism is shrinking somewhat. Consumer sentiment has been stuck at a low level in recent months as consumers face uncertainty about the coming year. While job prospects look good with a historic number of open jobs and businesses paying higher wages, job growth in recent months has been weaker than expected. Consumers also remain concerned about the longevity of inflationary pressures. Both small business optimism and consumer sentiment have edged lower in recent months. Persistent higher prices could stymie demand for goods and services from both businesses and consumers. At the same time, excess savings accumulated during the early part of the pandemic and fueled

by fiscal stimulus, will provide a cushion against higher prices.

In this month's IPC report on the current sentiment of the global electronics manufacturing supply chain, both the current conditions, as well as the outlook, remain fractured. While sales remain strong, the outlook from electronics manufacturing has deteriorated as a result of the supply chain disruptions. Expectations for material costs, labor costs, inventories and backlogs are all expected to continue to get worse before they get better. Nine in ten manufacturers report rising costs and 75 percent report rising labor costs, both of which have led a majority of electronics manufacturers to report profit margin decreases. Electronics manufacturers also continue to face a lack of skilled talent to hire. Only 15 percent of companies see the situation improving.

The report also finds that two-thirds of manufacturers raised prices in 2021 and 71 percent expect to raise prices in 2022. On average, prices charged are up 14.5 percent this year and firms expect to raise prices another 7-8 percent next year.

In this month's report, IPC's outlook for the largest global economies is included in the table on the final page.

14.5%

electronics manufactures report raising prices by 14.5% on average this year and expect to raise prices another 7-8% in 2022.

4.9%

China's economy grew just 4.9% in the third quarter, falling below expectations. The United States also saw growth slow precipitously in the third quarter.

96

There are 96 ships off the coast of Long Beach and Los Angeles waiting for a berth in port.

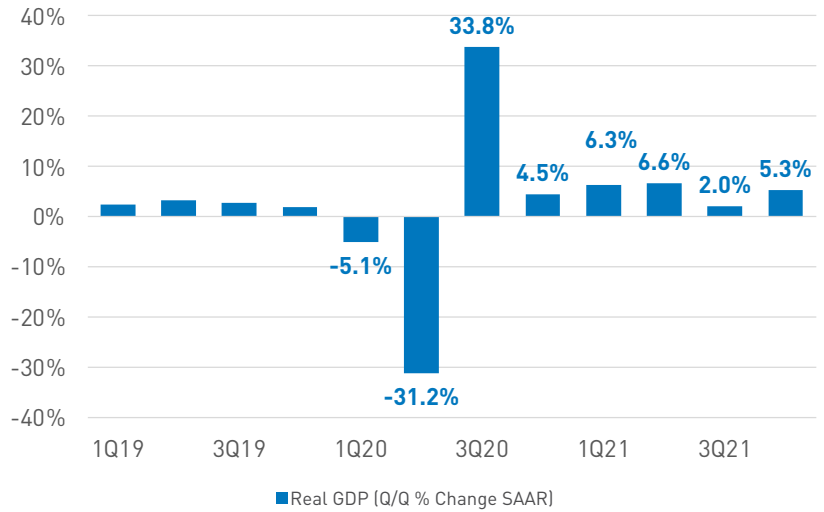
4.1%

Consumer prices rose 4.1% in Germany in September, the highest level in almost 30 years.

U.S. OUTLOOK

ECONOMIC GROWTH

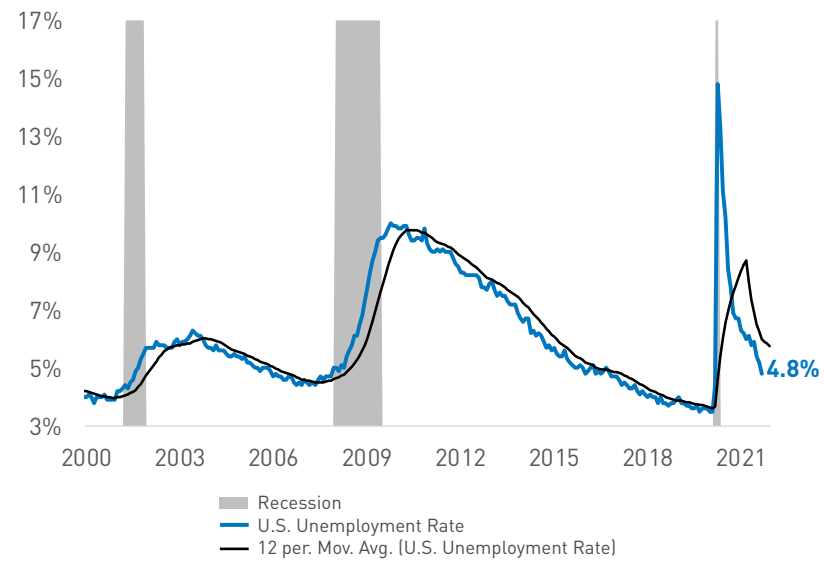
The U.S. economy decelerated significantly in the third quarter, growing just 2 percent. The primary reason for weak growth in the third quarter was a marked slowdown in consumer spending which grew just 1.6 percent in the quarter compared to 12.6 percent in the second quarter. Service spending held up well during the quarter, even in the face of rising COVID figures and was up by 7.9 percent. The slowdown in spending was driven by a 26.2 percent decline in spending on durable goods, driven by a major decline in spending on motor vehicles (down 53.9 percent). This decline was heavily related to supply chain disruptions which continue to cripple the auto industry. But business fixed investment was also disappointing, growing just 1.8 percent.



| | 2021 ECONOMIC GROWTH (GDP % Change) | 2022 ECONOMIC GROWTH (GDP % Change) | 2021 EXCHANGE RATE (v. USD) | 2022 EXCHANGE RATE (v. USD) |
|---------------|---|---|-----------------------------------|-----------------------------------|
| UNITED STATES | 5.7% | 4.1% | N/A | N/A |
| CANADA | 5.4% | 4.1% | 1.26 | 1.23 |
| MEXICO | 6.0% | 3.0% | 20.39 | 20.59 |
| EURO AREA | 5.0% | 4.2% | 1.18 | 1.22 |
| CHINA | 8.2% | 5.5% | 6.50 | 6.45 |

EMPLOYMENT

The U.S. labor market news was mixed in September. Nonfarm payrolls increased by just 194,000 during the month, lagging consensus expectations for 500,000 new jobs. Much of the weakness was driven by declines in government employment. Private sector payrolls rose 317,000 during the month. The largest increase was in leisure and hospitality (74,000), but this remains well below gains from earlier in the year. Manufacturing added 26,000 new jobs during the month. The unemployment rate dropped from 5.2 to 4.8 percent, but this was partially a result of lower labor force participation. While hiring was light, businesses appear willing to spend on labor. The total number of hours worked in the private sector rose 0.8 percent in September, the largest increase in six months. Businesses can use more work hours in place of hiring additional headcount, at least in the short-run. Average hourly earnings also increased sharply. A record number of open jobs right now, together with businesses increasing average hourly earnings, could point to higher hiring in the coming months.



SENTIMENT

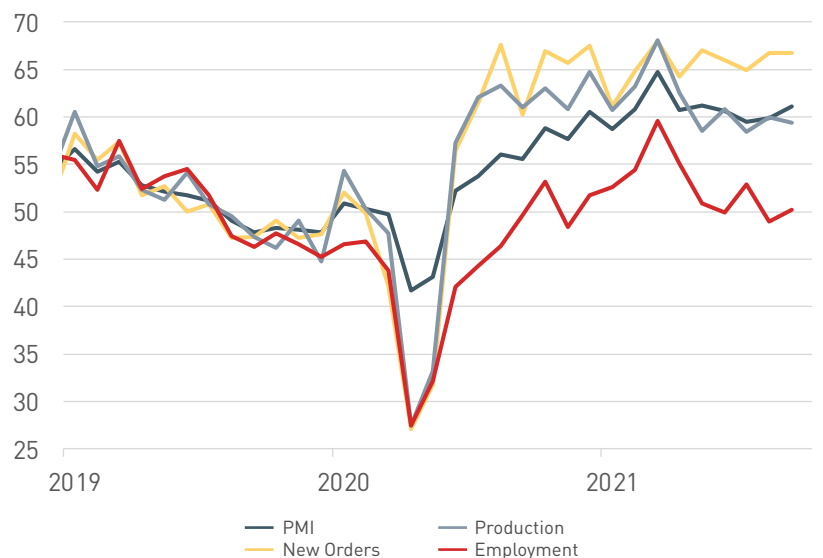
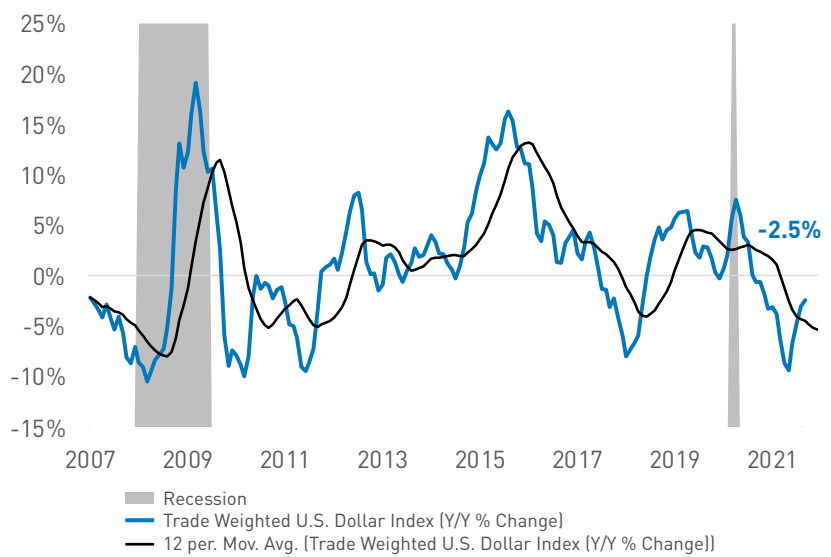
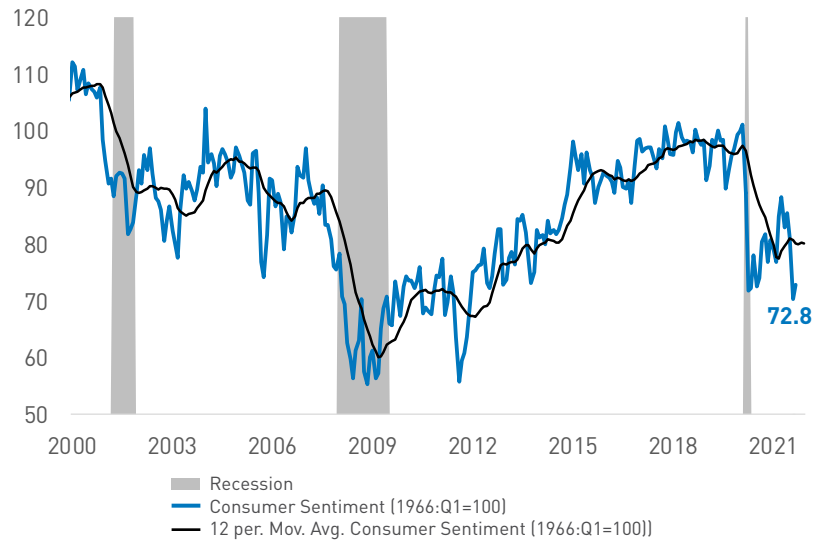
Consumer sentiment remains mired near the low levels first recorded at the onset of the pandemic. Sentiment fell in August as the Delta variant raged throughout the U.S., driving COVID cases higher. But sentiment was also brought down by concerns about rising inflation, supply chain shortages, and decreasingly favorable views on current economic policy. Last month also brought mediocre job gains which likely diminishes job prospects. Consumers have restrained spending in recent months, a further sign of rising uncertainty and declining optimism. With COVID cases once again declining, consumer optimism could begin to once again pick back up.

TRADE-WEIGHTED U.S. DOLLAR INDEX

The trade-weighted U.S. dollar index was little changed in September, rising 0.1 percent during the month, the fourth consecutive monthly increase. Similar to last month, this is likely the result of deteriorating global sentiment as the pandemic outlook worsened and economic activity slowed. Dollar strength is also likely a result of the Fed's intentions to taper asset purchases earlier than previously thought. The Federal Reserve's willingness to taper its asset purchases has pushed the 10-year Treasury yield higher in recent months. As we move into 2022, foreign central banks will likely tighten monetary policy ahead of the Fed. The Bank of Canada and the Reserve Bank of New Zealand are both set to raise rates more quickly than anticipated and the Bank of England will likely start rate hikes in Spring 2022. These moves will put downward pressure on the U.S. dollar during 2022.

MANUFACTURERS' SENTIMENT (PMI)

The U.S. manufacturing sector expanded again in September — the 16th consecutive month of growth. The September Manufacturing PMI increased 1.2 percentage points to 61.1 percent. Demand remains strong, the New Orders Index was unchanged at 66.7 percent. Manufacturers continue to see record-long lead times for raw materials, parts shortages, elevated commodity prices, and high transportation costs. Customers' Inventories Index remains at very low levels (31.7 percent), though it improved marginally during the month. The Backlog of Orders Index also remains at a very high level, though it too improved somewhat during the month.



U.S. END MARKETS FOR ELECTRONICS

Industrial production declined 1.3 percent in September, failing to meet consensus expectations of a 0.1 percent gain. Manufacturing production fell 0.8 percent during the month but remains 0.4 percent above pre-pandemic levels. Lingering effects from Hurricane Ida together with ongoing supply chain challenges likely combined to slow production during the month.



AUTOMOTIVE PRODUCTS

Auto production declined 7 percent as massive shortages continue to hamper production levels. Output is now off 11.8 percent from pre-pandemic levels.



TRANSIT EQUIPMENT

Transit equipment production fell 1.1 percent over the last month. The sector is up just 1.6 percent over the last year and down 24.6 percent from two years ago.



INFORMATION PROCESSING & RELATED EQUIPMENT

Production in the information processing and related equipment sector increased 0.1 percent in the month. The sector is up 11.9 percent over the last year and 15.1 percent from two years ago.



INDUSTRIAL & OTHER EQUIPMENT

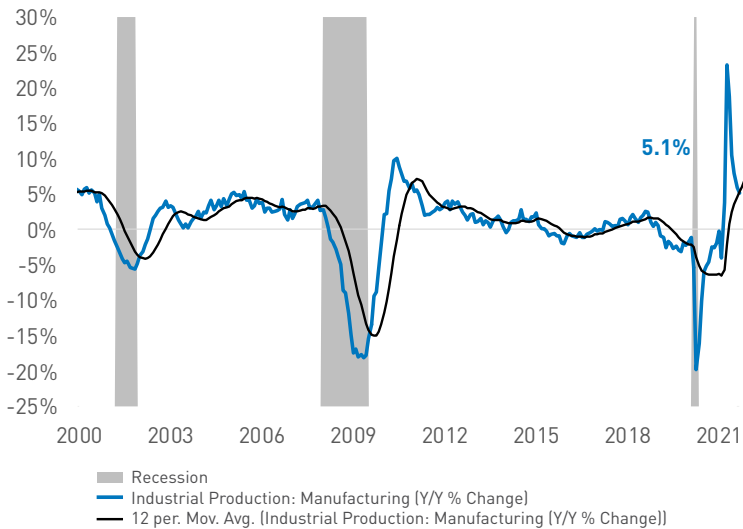
The industrial sector increased 1.2 percent last month. The sector is up 9.8 percent over the last year and now up 2.1 percent from the start of the pandemic.



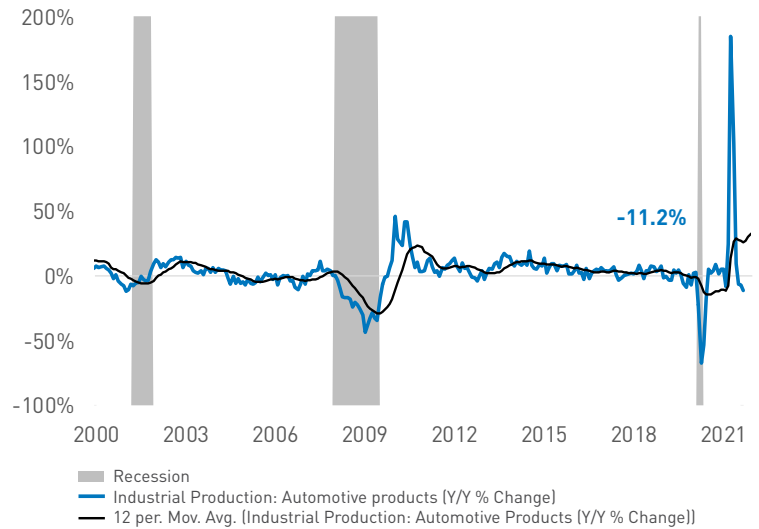
DEFENSE & SPACE EQUIPMENT

The defense and space equipment segment rose 0.3 percent last month. The sector is up 17.9 percent over the last year and up a strong 19.2 percent over the last two years.

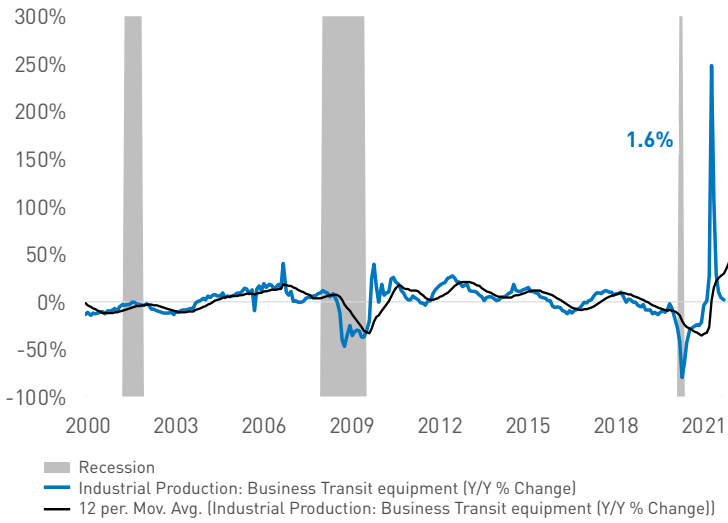
Manufacturing



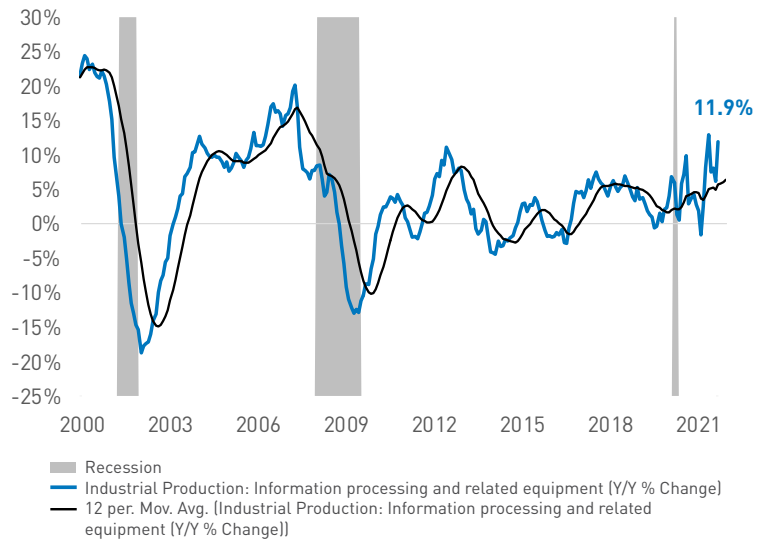
Automotive Products



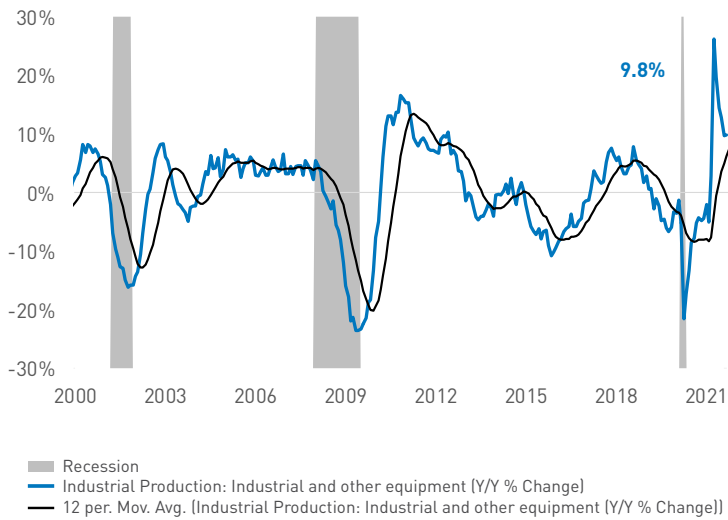
Business Transit Equipment (Y/Y % Change)



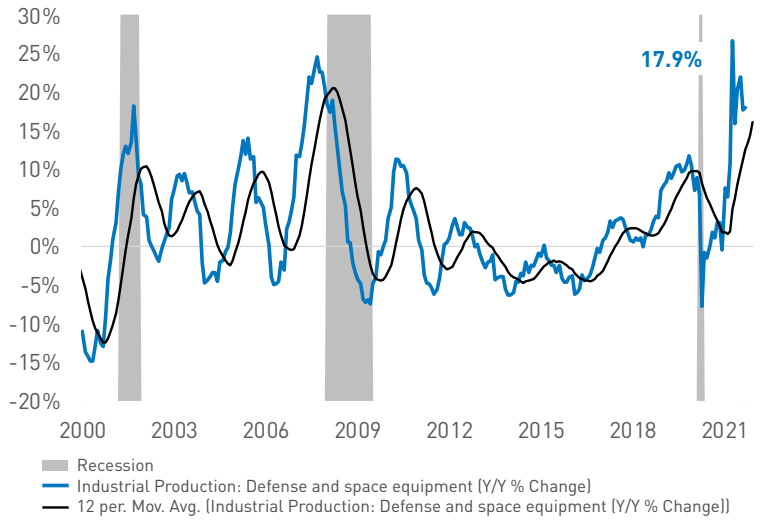
Information Processing & Related Equipment (Y/Y % Change)



Industrial & Other Equipment (Y/Y % Change)



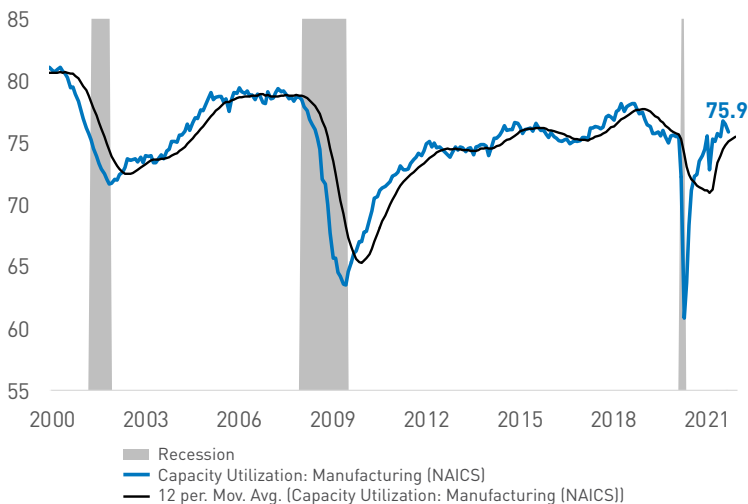
Defense & Space Equipment (Y/Y % Change)



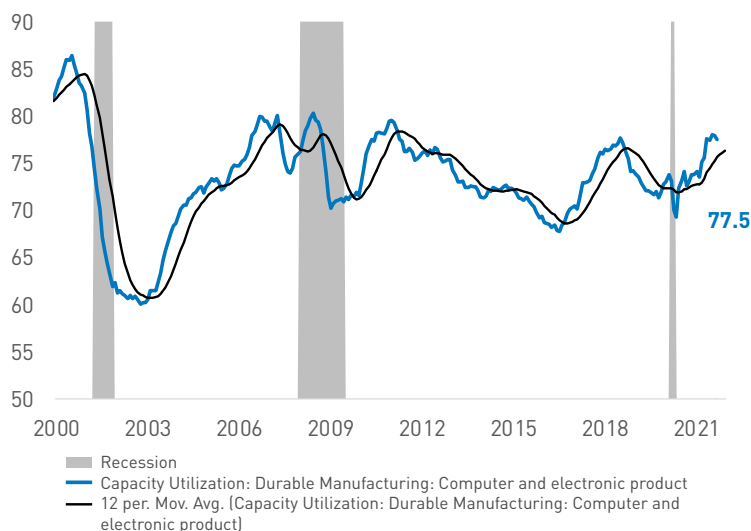
MANUFACTURING CAPACITY UTILIZATION

Overall capacity utilization declined during the month, falling from 76.2 percent in August to 75.2 percent in September. Declines in capacity utilization were driven by lingering effects from Hurricane Ida, parts shortages and other supply chain disruptions that are hindering production levels. Manufacturing capacity utilization dropped from 76.5 percent to 75.9 percent but remains above pre-pandemic levels. Computer and electronic production capacity utilization fell 0.4 percentage points to 77.5 percent. Electrical equipment, appliances and components utilization fell during the month, dropping 1.17 percentage points to 80.7 percent. Utilization for the motor vehicles and parts sector saw one of the biggest drops, declining nearly five percentage points to 62.8 percent.

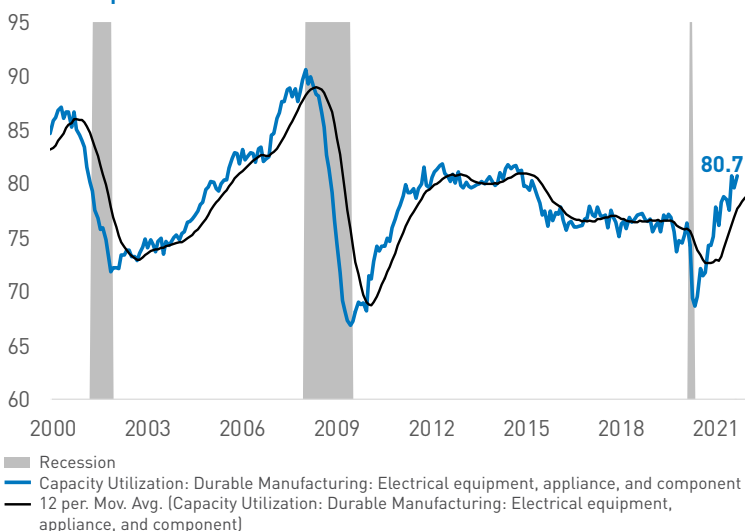
Manufacturing (NAICS)



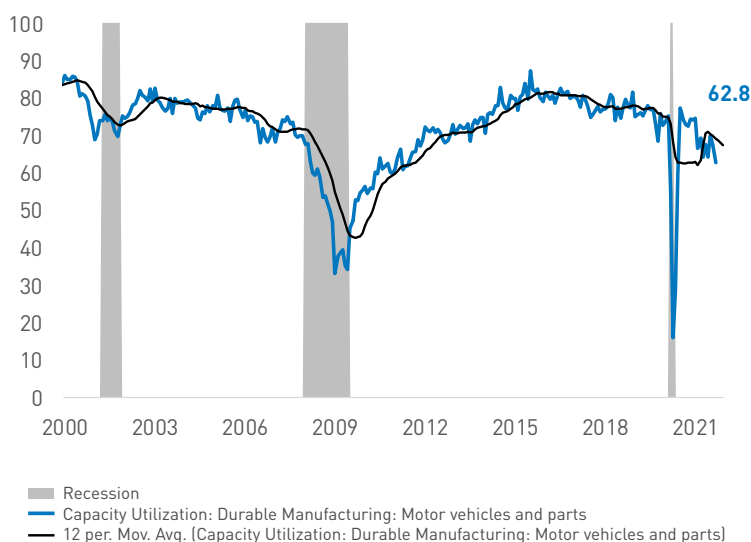
Computer & Electronic Product



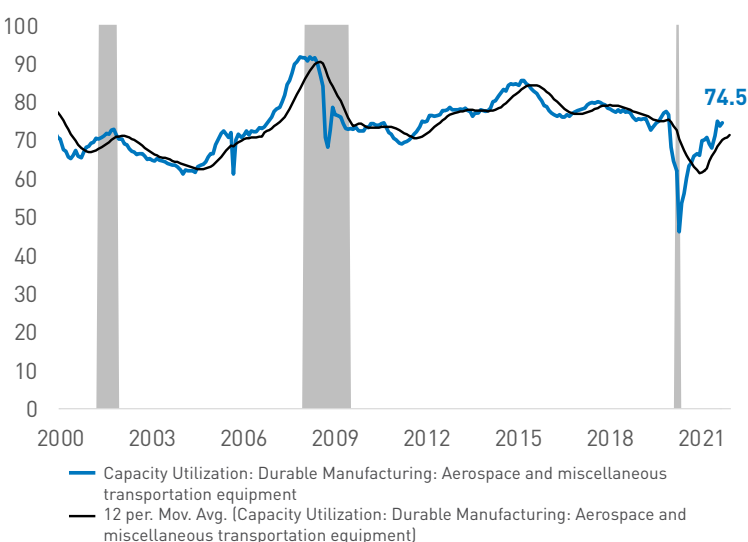
Electrical Equipment, Appliance, & Component



Motor Vehicles & Parts



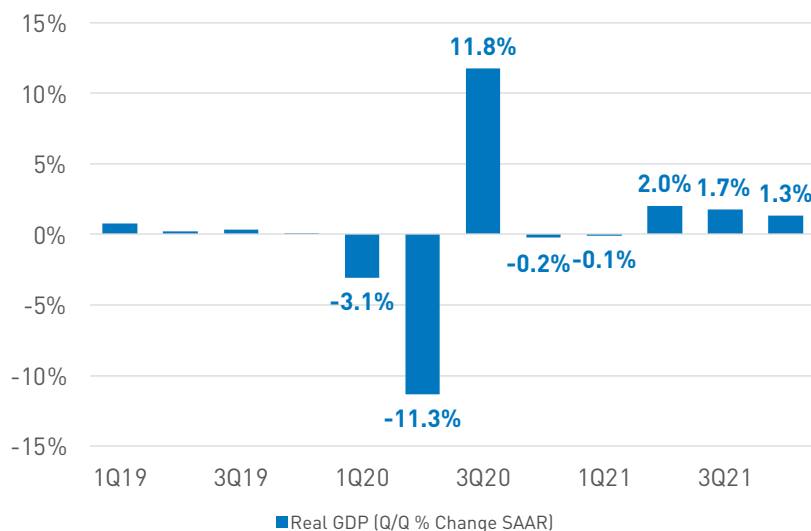
Aerospace & Miscellaneous Transportation Equipment



EUROPEAN OUTLOOK

ECONOMIC GROWTH

The first estimate of third quarter GDP growth will be published at the end of October. GDP rose 2.2 percent during the second quarter (2.1 percent in the European Union). On an annualized basis, GDP rose 9.2 percent in the euro area and 8.8 percent in the European Union, outpacing 6.6 percent 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. Recall that in the first quarter of 2021, GDP had declined by 0.3 percent in the euro area and 0.1 percent in the European Union. During the quarter, Ireland (6.3 percent), Portugal (4.9 percent) and Latvia (4.4 percent) experienced the fastest growth of any Member State. Only Malta (-0.5 percent) and Croatia (-0.2 percent) reported negative growth.

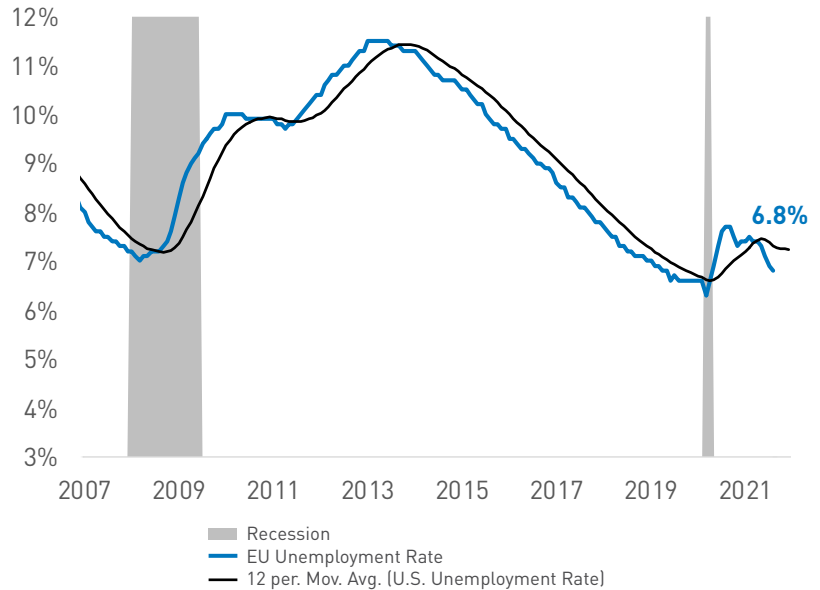


| | Q/Q PERCENTAGE CHANGE | | | | Y/Y PERCENTAGE CHANGE | | | |
|------------------|-----------------------|--------------|--------------|-------------|-----------------------|--------------|--------------|--------------|
| | 2020Q3 | 2020Q4 | 2021Q1 | 2021Q2 | 2020Q3 | 2020Q4 | 2021Q1 | 2021Q2 |
| EURO AREA | 12.6% | -0.4% | -0.3% | 2.2% | -4.0% | -4.4% | -1.2% | 14.3% |
| EU (27) | 11.8% | -0.2% | -0.1% | 2.1% | -3.9% | -4.1% | -1.2% | 13.8% |
| GERMANY | 9.0% | 0.7% | -2.0% | 1.6% | -3.7% | -2.9% | -3.1% | 9.4% |
| FRANCE | 18.6% | -1.1% | 0.0% | 1.1% | -3.6% | -4.3% | 1.5% | 18.7% |
| ITALY | 16.0% | -1.8% | 0.2% | 2.7% | -5.2% | -6.5% | -0.7% | 17.3% |
| SPAIN | 17.1% | 0.0% | -0.4% | 2.8% | -8.6% | -8.9% | -4.2% | 19.8% |

| | 2021 ECONOMIC GROWTH (GDP % CHANGE) | 2022 ECONOMIC GROWTH (GDP % CHANGE) |
|--------------------|--|--|
| EURO AREA | 5.0% | 4.2% |
| GERMANY | 3.0% | 4.4% |
| FRANCE | 6.1% | 4.0% |
| NETHERLANDS | 3.6% | 3.3% |

EMPLOYMENT

The employment narrative in Europe has changed little over the last month. The seasonally adjusted unemployment rate in the euro area fell from 7.6 to 7.5 percent in August. The unemployment rate in the EU fell from 6.9 to 6.8 percent over the same period. The European economy has picked up steam in the months since the Spring lockdown. Expectations for growth have improved and businesses are hiring but inflation has also picked up, hitting a 13-year high last month.



MANUFACTURERS' SENTIMENT (PMI)

Manufacturing sentiment remains high in Europe, but momentum did slow again in September. The manufacturing sector reported strong rates of expansion in output, new orders, and employment, but all three declined from August. This led to the largest drop in the headline PMI index since April 2020. Supply chain constraints and disruptions continue to hinder the manufacturing sector in Europe, not dissimilar from everywhere else in the world. But demand is also softening. Supplier delivery times continue to extend and shortages have led to weak purchasing activity. Shortages and disruptions have also led to higher prices.



E.U. END MARKETS FOR ELECTRONICS

Manufacturing output fell in August, declining 1.7 percent. Manufacturing output remains up 5.8 percent over the last year, but is now down 0.7 percent on a two-year basis. Like the United States, much of this decline was driven by the auto sector.



COMPUTER, ELECTRONIC & OPTICAL PRODUCTS

The electronics industry, which includes categories such as components, loaded boards, computers, communications equipment and consumer electronics, decreased 4.2 percent during the month. The sector is up 23.7 percent over the last year and 12.1 percent over the last two years.



MOTOR VEHICLES

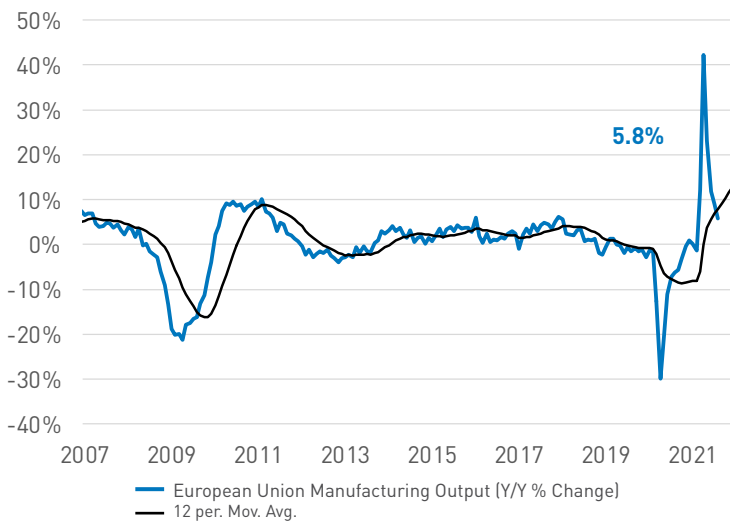
The motor vehicle manufacturing production index decreased another 15.2 percent in August. Auto production continues to be hampered by supply shortages. Auto production in the European Union remains off 43.7 percent from two years ago.



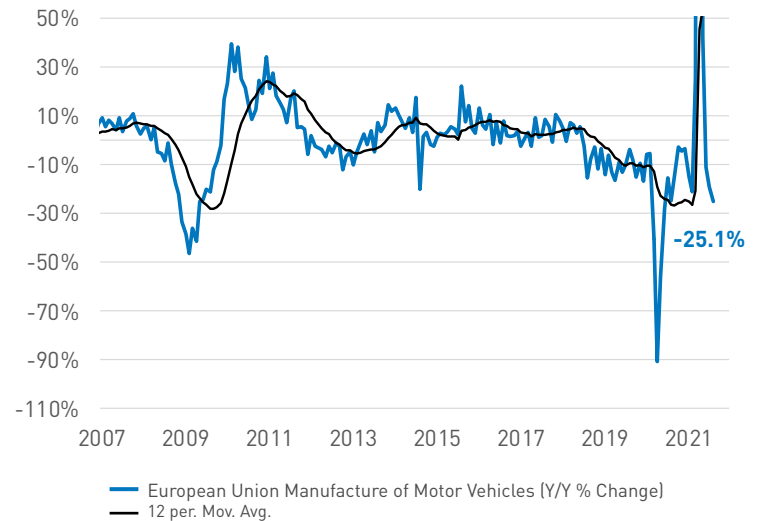
AIR & SPACECRAFT & RELATED MACHINERY

The air and spacecraft manufacturing sector declined 8.3 percent in August. The segment is down 0.9 percent over the last year and 27.6 percent over the last two years.

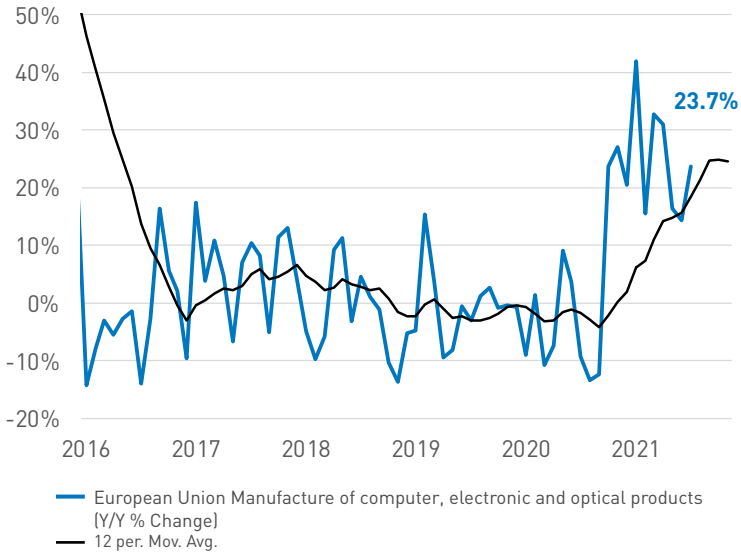
E.U. Manufacturing Output



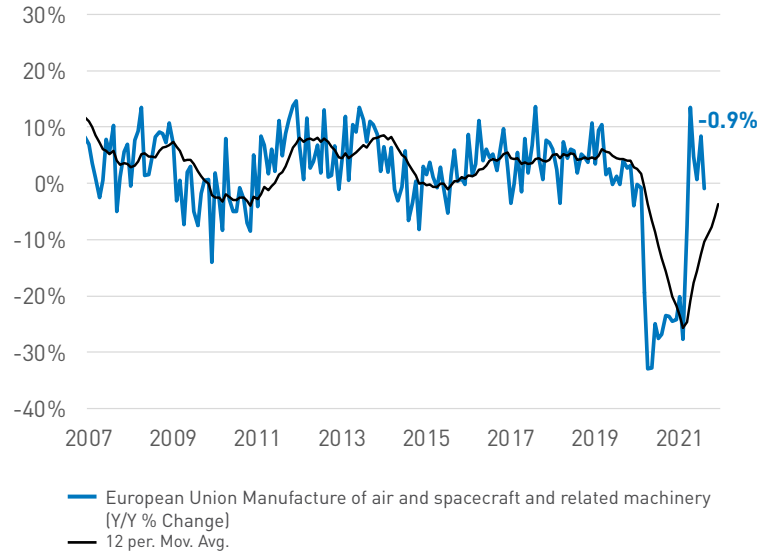
E.U. Manufacture of Motor Vehicles



E.U. Manufacture of Computer, Electronic & Optical Products (Y/Y % Change)



E.U. Manufacture of Air & Spacecraft & Related Machinery (Y/Y % Change)



GLOBAL ECONOMIC OUTLOOK

| COUNTRY/REGION | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---------------------------|--------|-------|-------|--------|--------|-------|--------|---------|-------|-------|
| UNITED STATES | 1.80% | 2.30% | 2.70% | 1.70% | 2.30% | 2.90% | 2.30% | -3.40% | 5.70% | 4.10% |
| CHINA | 7.80% | 7.40% | 7.00% | 6.90% | 6.90% | 6.80% | 6.00% | 2.30% | 8.20% | 5.50% |
| JAPAN | 2.00% | 0.30% | 1.60% | 0.80% | 1.70% | 0.60% | 0.00% | -4.60% | 2.40% | 2.90% |
| GERMANY | 0.40% | 2.20% | 1.50% | 2.20% | 2.70% | 1.10% | 1.10% | -4.90% | 3.00% | 4.40% |
| UNITED KINGDOM | 2.20% | 2.90% | 2.40% | 1.70% | 1.70% | 1.30% | 1.70% | -9.60% | 6.90% | 5.20% |
| FRANCE | 0.60% | 1.00% | 1.00% | 1.00% | 2.40% | 1.80% | 1.80% | -7.90% | 6.10% | 4.00% |
| INDIA | 6.40% | 7.40% | 8.00% | 8.30% | 6.80% | 6.50% | 4.80% | -6.90% | 8.10% | 7.90% |
| ITALY | -1.80% | 0.00% | 0.80% | 1.30% | 1.70% | 0.90% | 0.30% | -8.90% | 5.80% | 4.20% |
| BRAZIL | 2.30% | 2.90% | 0.70% | 1.00% | 3.00% | 2.40% | 1.40% | -4.00% | 5.10% | 2.20% |
| CANADA | 2.20% | 2.90% | 2.40% | 1.70% | 1.70% | 1.30% | 1.90% | -5.30% | 5.40% | 4.10% |
| RUSSIA | 1.80% | 0.70% | 2.00% | 0.20% | 1.80% | 2.80% | 2.00% | -2.90% | 3.90% | 2.70% |
| SOUTH KOREA | 3.20% | 3.20% | 2.80% | 2.90% | 3.20% | 2.90% | 2.20% | -0.80% | 4.10% | 3.20% |
| AUSTRALIA | 2.10% | 2.60% | 2.30% | 2.70% | 2.40% | 2.80% | 1.90% | -2.30% | 3.90% | 3.40% |
| SPAIN | -1.40% | 1.40% | 3.80% | 3.00% | 3.00% | 2.30% | 2.10% | -10.80% | 5.70% | 6.40% |
| MEXICO | 1.40% | 2.80% | 3.30% | 2.60% | 2.10% | 2.20% | -0.10% | -8.30% | 6.00% | 3.00% |
| INDONESIA | 5.60% | 5.00% | 4.90% | 5.00% | 5.10% | 5.20% | 5.00% | -2.10% | 3.20% | 5.90% |
| NETHERLANDS | -0.10% | 1.40% | 2.00% | 2.20% | 2.90% | 2.40% | 1.90% | -3.80% | 3.60% | 3.30% |
| SAUDI ARABIA | 2.70% | 3.70% | 4.10% | 1.70% | -0.70% | 2.40% | 0.30% | -4.10% | 2.80% | 4.80% |
| TURKEY | 8.50% | 4.90% | 6.10% | 3.30% | 7.50% | 3.00% | 0.90% | 1.80% | 9.00% | 3.30% |
| SWITZERLAND | 1.90% | 2.40% | 1.60% | 2.00% | 1.70% | 2.90% | 1.20% | -2.50% | 3.70% | 3.00% |
| TAIWAN | 2.50% | 4.70% | 1.50% | 2.20% | 3.30% | 2.80% | 3.00% | 3.10% | 6.10% | 3.20% |
| | | | | | | | | | | |
| WORLD | 3.40% | 3.50% | 3.40% | 3.30% | 3.80% | 3.60% | 2.80% | -3.10% | 5.90% | 4.90% |
| AFRICA | 4.90% | 5.00% | 3.20% | 1.50% | 3.00% | 3.30% | 3.10% | -1.70% | 3.70% | 3.80% |
| ASIA | 6.90% | 6.90% | 6.80% | 6.80% | 6.60% | 6.40% | 5.40% | -0.80% | 7.20% | 6.30% |
| AUSTRALIA & PACIFIC | 2.10% | 2.70% | 2.50% | 2.90% | 2.50% | 2.90% | 2.00% | -2.30% | 4.10% | 3.40% |
| EUROPE | -0.20% | 1.40% | 2.00% | 1.90% | 2.60% | 1.90% | 1.50% | -6.30% | 5.00% | 4.20% |
| LATIN AMERICA & CARIBBEAN | 2.90% | 1.30% | 0.40% | -0.60% | 1.40% | 1.20% | 0.10% | -7.00% | 6.30% | 3.00% |
| MIDDLE EAST | 3.00% | 3.30% | 2.70% | 4.60% | 2.50% | 2.20% | 1.50% | -2.80% | 4.10% | 4.10% |
| NORTH AMERICA | 1.80% | 2.40% | 2.70% | 1.70% | 2.30% | 2.80% | 2.30% | -3.50% | 5.70% | 4.10% |