

Marine Board Spring Meeting

Session 1: COVID-19 Global Shipping and Supply Chain Impacts

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At 4.1 million COVID-19 cases worldwide (May 11), a historic pandemic

Key impact outlook assumptions

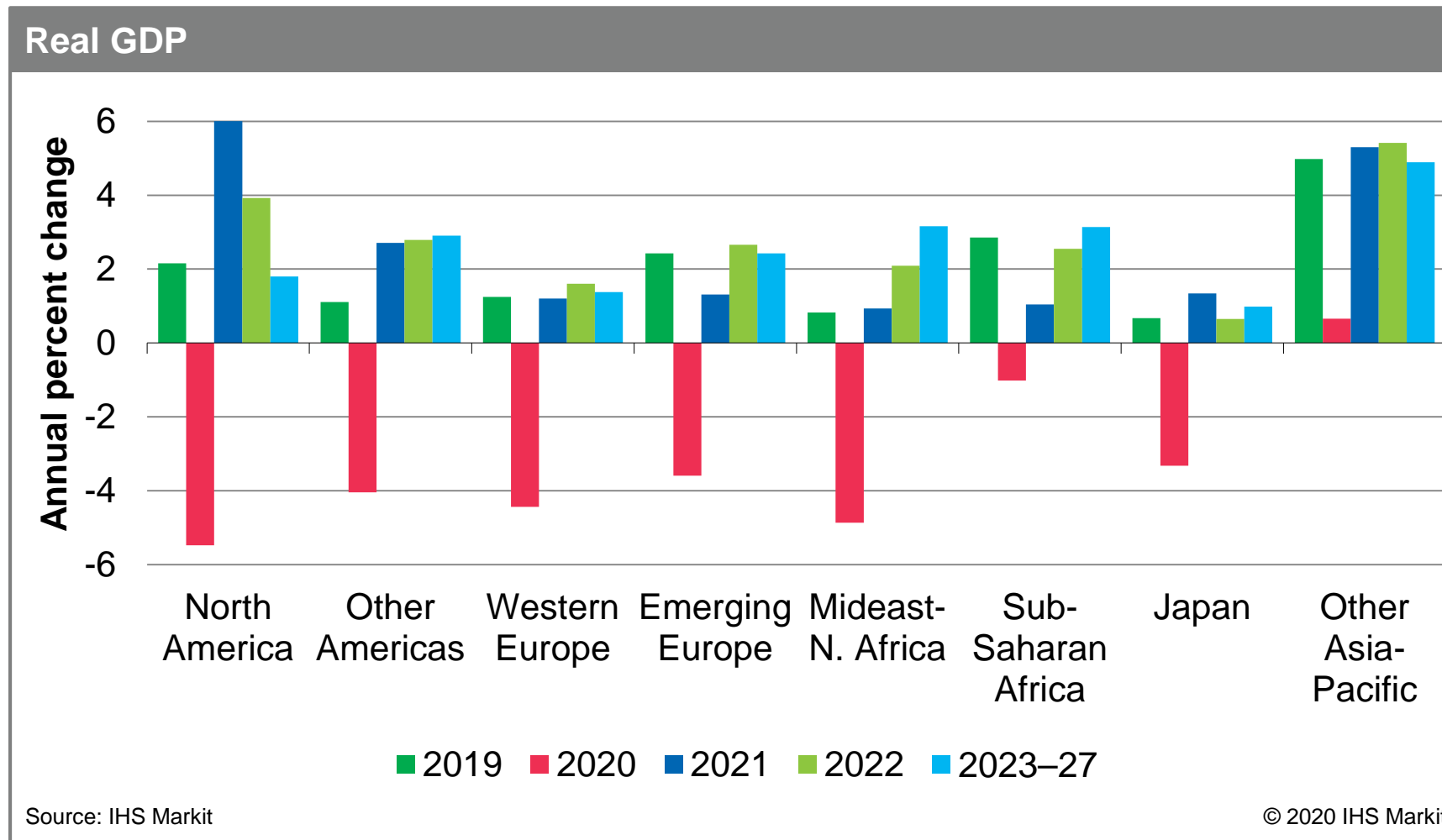
- Global pandemic is the biggest shock to supply chains since WWII; Peak health impact in 2020 Q2 as key baseline forecast assumption
- World real GDP growth of **-3.0% for 2020**, a “real” recession, on sharp reduction in near-term demand/supply followed by recovery starting 2021
- U.S. real GDP growth forecast now **-7.3% for 2020; -37% in 2020 Q2**
- North America, Asia and Europe all in recession already; Historic job loss

Key uncertainties

- Forecasting in this environment is extremely difficult
- This historic disruption to trade and freight likely to be greatest across the next 2-6 months, on all continents. Supply & demand down record levels.
- Forecast risks are high and depend on how governments and consumers respond (health / economic relief / stimulus and containment)

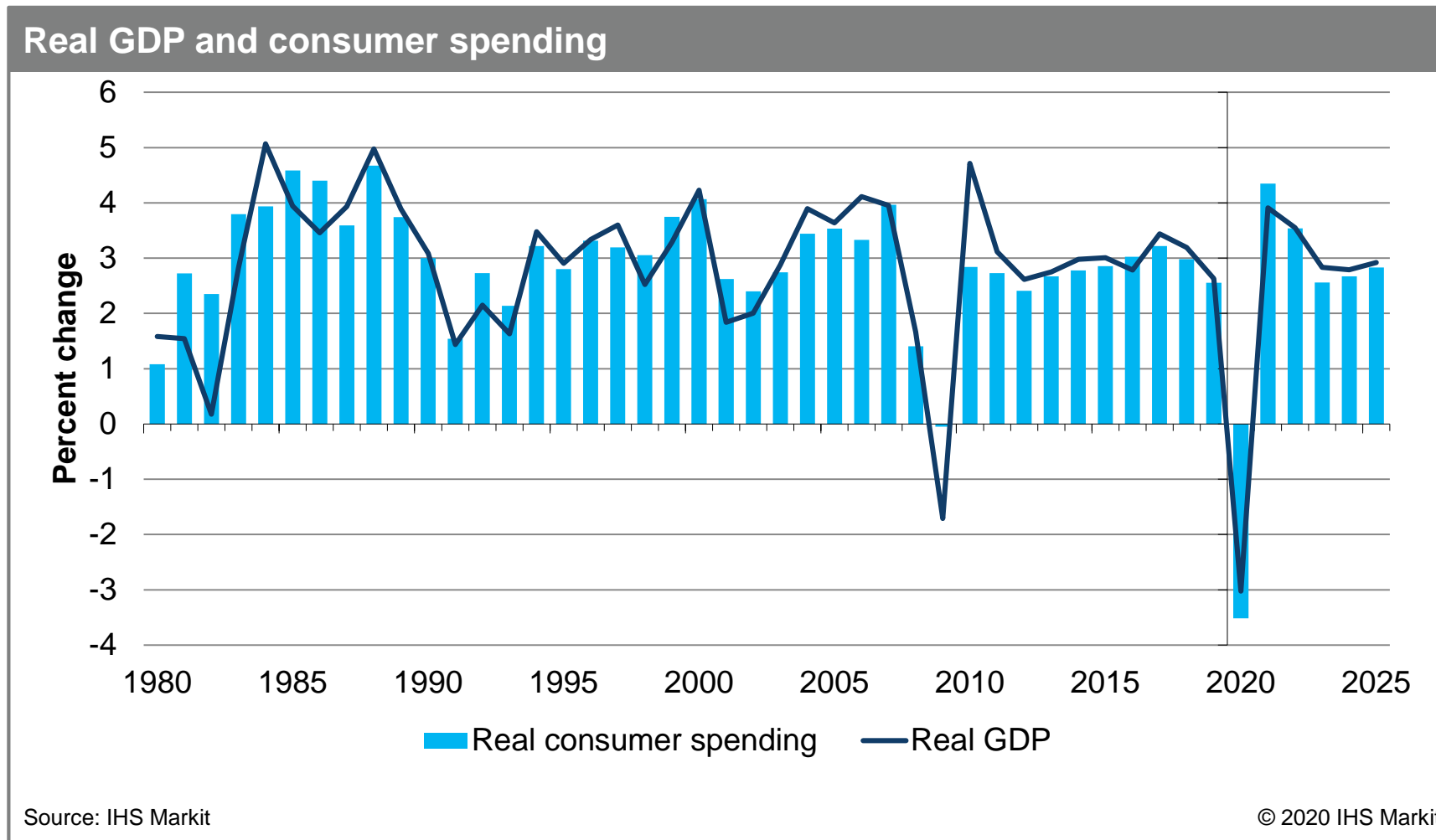
Source: IHS Markit Economics and Country Risk

Severe recession in 2020 across the world; Asia only region with growth Recovery pace in 2021 strongest in North America and Other Asia

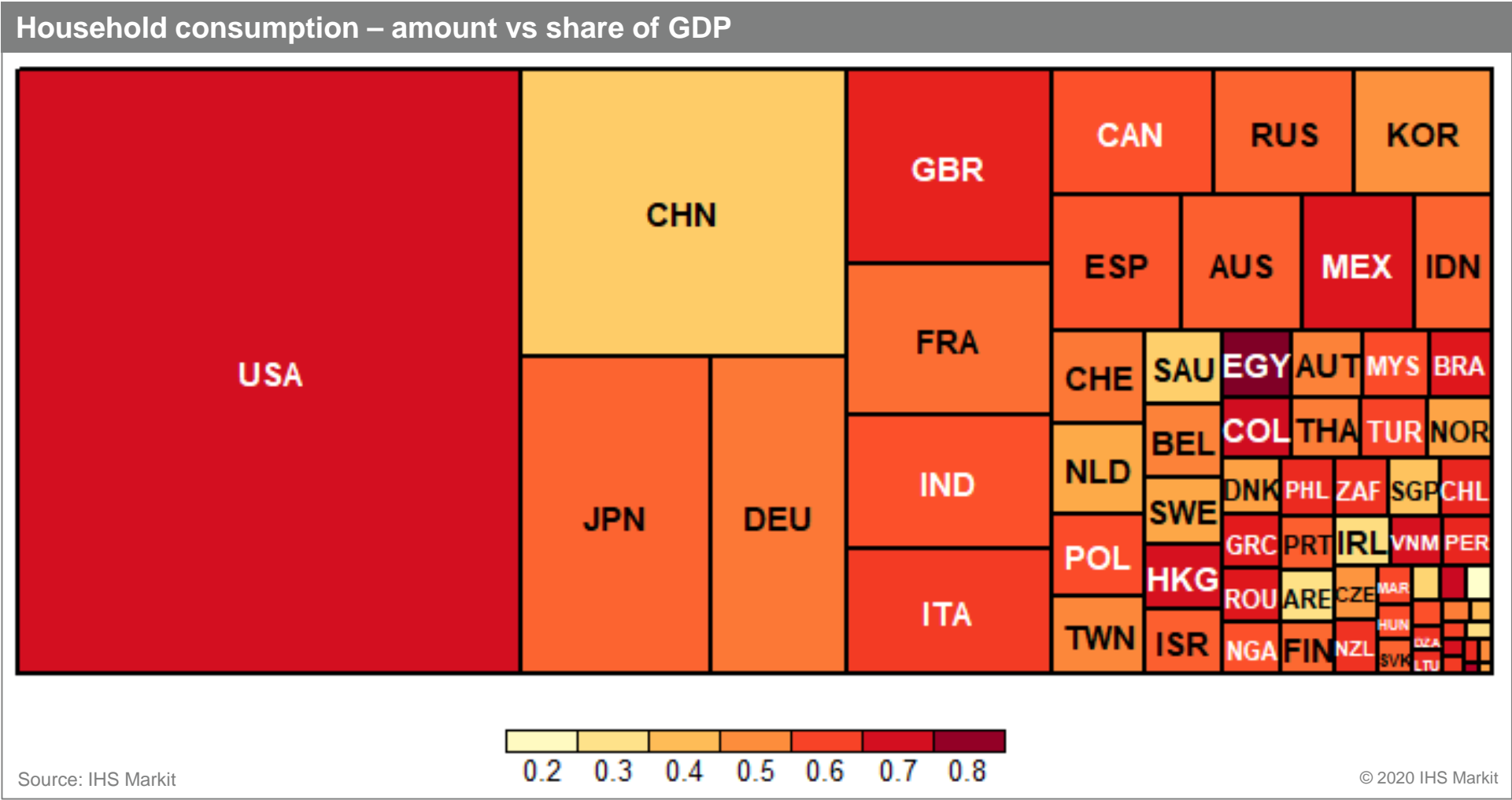


Global consumer spending will decline more sharply than GDP in 2020

Consumer spending recovery leads way out of recession in 2021



Supply chain impacts more severe in countries such as #1 USA where household consumption accounts for a higher share of GDP

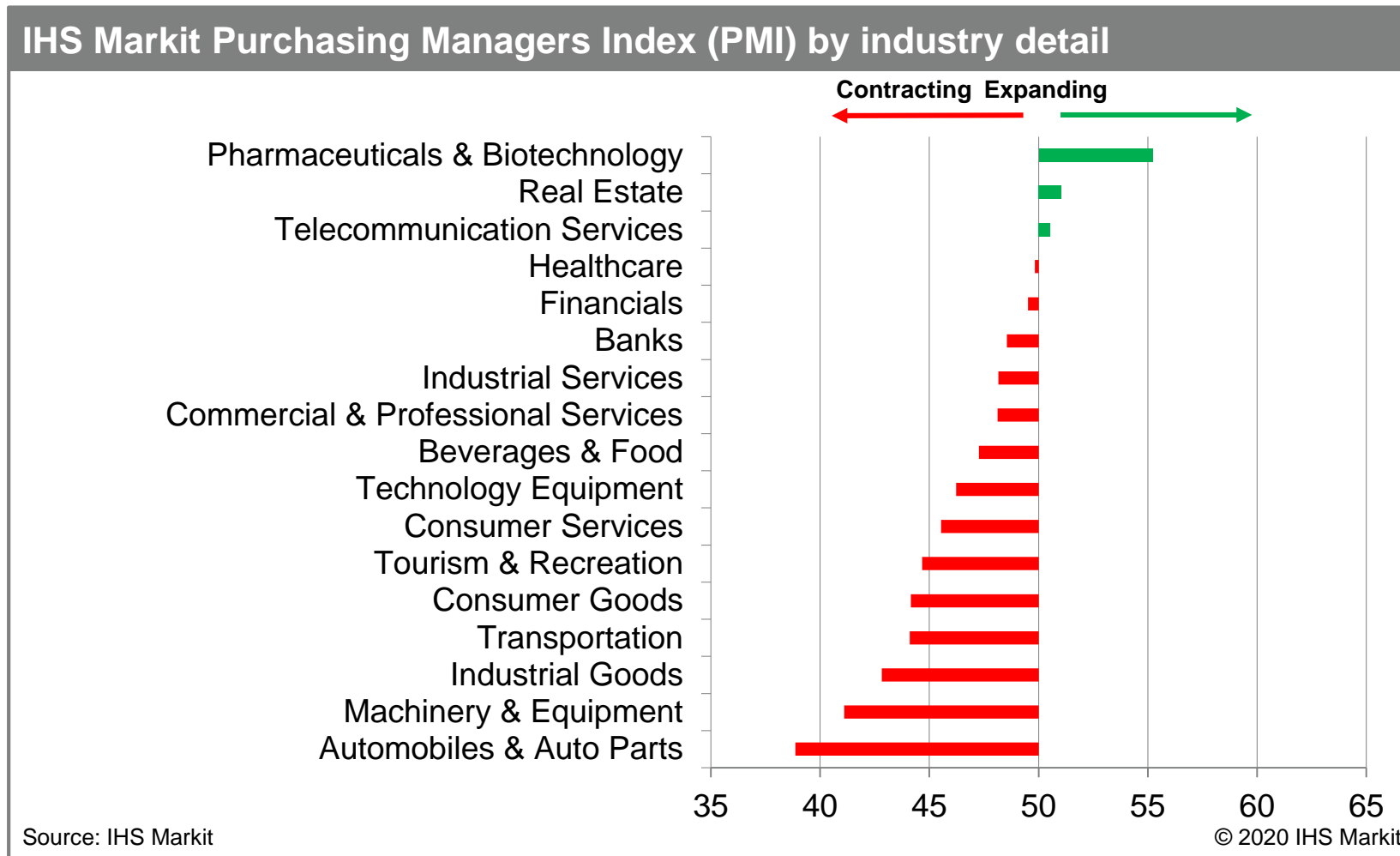


Reading:

Size of rectangle: total amount of country's domestic household consumption (real USD)

Color of rectangle: share of household consumption in country's GDP (100% = 1)

IHS Markit PMIs® show a broad-based decline with the sharpest contractions in trade and shipping-intensive U.S. manufacturing versus service sectors



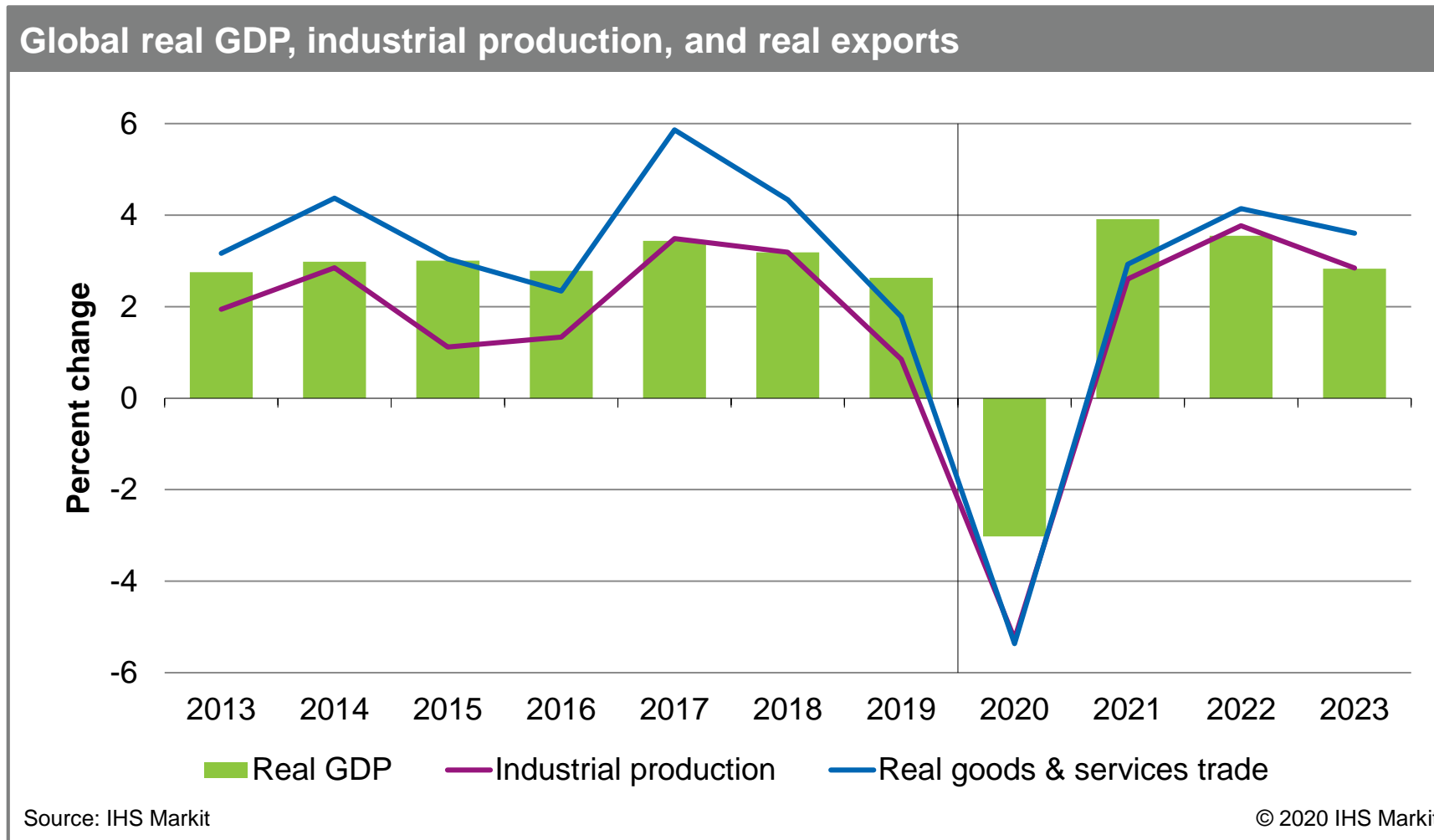
World trade decline worst since 2009; Export orders signal worse to come

Global manufacturing exports

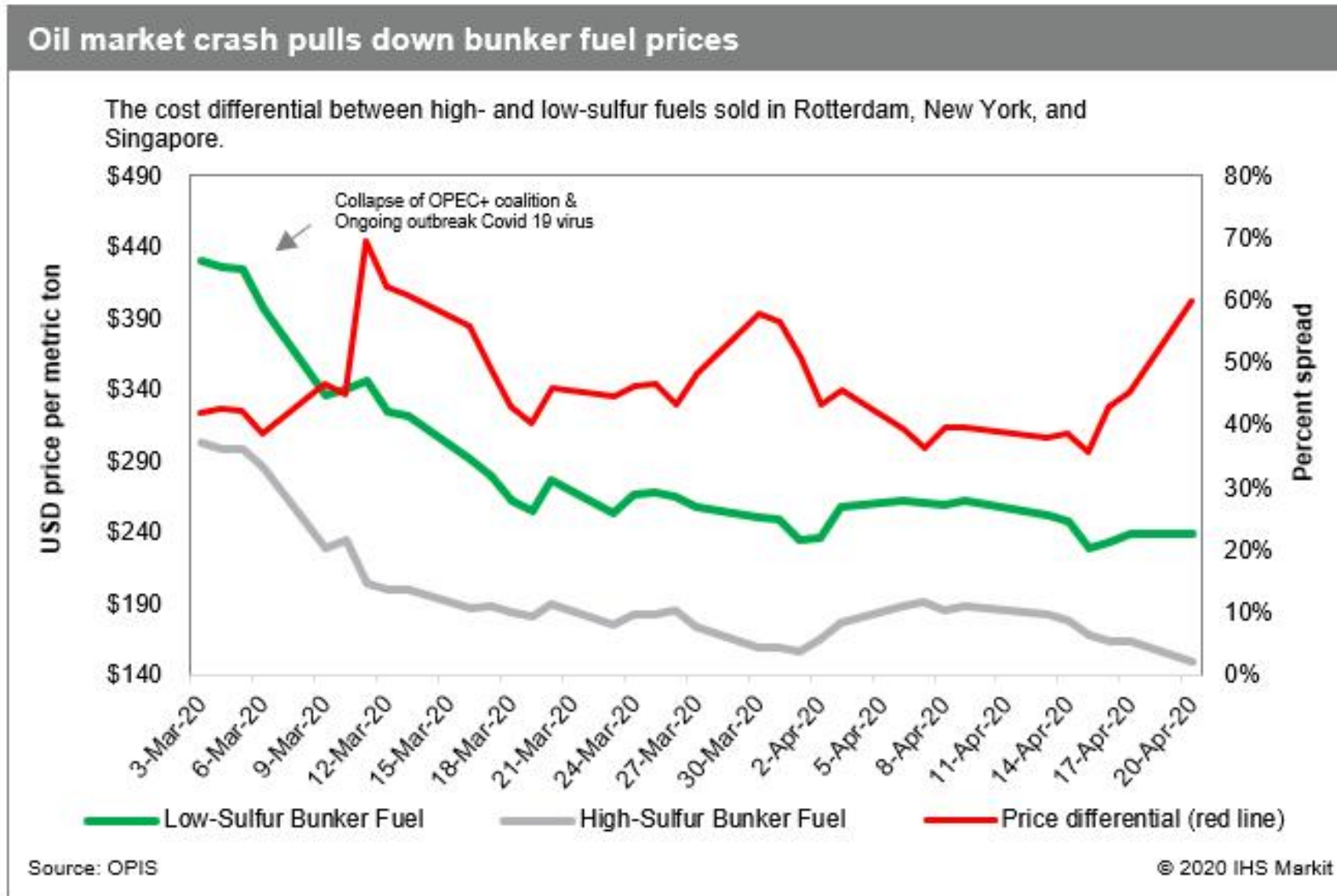


Sources: IHS Markit, CPB World Trade Monitor.

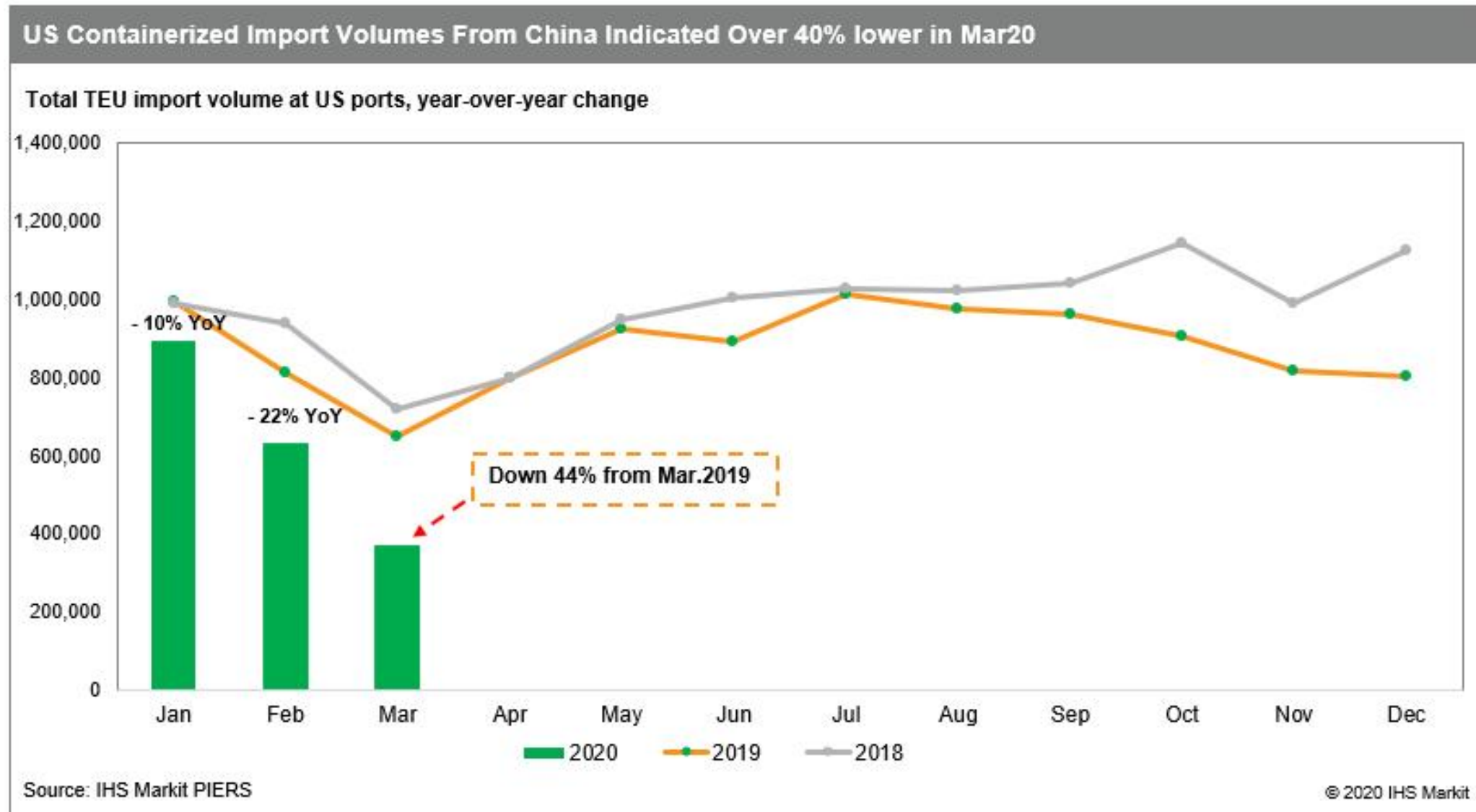
World Trade Decline and Industrial Production Down More than GDP Globally in 2020; Recovery in 2021



Commodity Price Drops Affect Value of Trade and Affect Input Costs



Ocean container trade volume down each month in 2020 vs. 2019 so far



Divergent Freight / Trade Patterns: Slowing Down and Speeding Up

Changes in retail and manufacturing demand have split shipment velocity needs:

- Many shippers of retail, manufacturing, bulk goods want slower deliveries or a halt altogether.
- Shippers of personal protective equipment (PPE) and essential consumer goods want speed so with reduced capacity and high air cargo rates, premium container / port services in demand.

Seaport and intermodal terminals risk congestion if customers fail to pick up shipments, slowing productivity and potentially leading to equipment disruption. Warehouse, DC, and tank farm space was highly utilized pre-crisis so slack storage capacity is limited.

Carrier service options can reduce demurrage / detention charges, with storage overseas, delay-in- or suspension-of-transit options or off-terminal storage. Bulk vessel storage.

Larger near-term problem from deployed container capacity reductions. Blanked sailings removing 20% of May U.S. container vessel sailings and about 10% into June already. Carriers trying to sustain rates by matching weekly capacity to reduced demand.

Source: IHS Markit Maritime and Trade Journal of Commerce; IHS Markit Economics and Country Risk

New country-specific health-driven trade restrictions

So far, country-imposed commodity-specific export limits are not widespread.

U.S. has limited PPE exports, with exceptions. Past U.S. trade policy moves have resulted in retaliation which may affect U.S. imports.

India restricted exports of some pharmaceutical ingredients and medicines in March; Vietnam stockpiled rice and suspended new export contracts.

With supply sources for key products concentrated, restrictions risk prompting other countries to restrict food and other essential goods trade facing U.S. domestic supply chain disruptions.

Trade protectionism interventions may dampen maritime trade flow volumes longer term.

Source: IHS Markit Economics and Country Risk

Country Supply Chain Geography and Network Shifts

Global COVID-19 Spread Timeline Has Affected Supply Chain Geography Sequentially:

- Production and demand geography impacted first in the Wuhan metro area on Yangtze River in Hubei Province in Mid-January, then rest of Mainland China and Hong Kong by end of January
- S. Korea, Japan, Italy, Iran, Spain, rest of Europe and US followed February into March
- Over 200 countries with diagnosed COVID-19 cases by April, some recovered and past the peak
- May brings asynchronous reopening of some economies while some developing country infections rise

Global supply chain changes underway now accelerate trends already evident pre-crisis

Amazon and other e-Commerce vendor networks increase share of manufactured trade volumes long-term

Trade network changes unlikely to fully revert to 2019 patterns, as demand patterns shift

Bulk commodity shipping patterns will reflect changes in global manufacturing geography

Source: IHS Markit Economics and Country Risk

Possible COVID-19 Supply Chain Research Topics

1. **Short Term Infrastructure Requirements Related to Surges in Economic Activity:** Anticipate where bottlenecks and infrastructure performance may be likely strained at ports in the rebound in shipping volumes in recovery.
2. **Impacts on Marine Transportation System of Policy (in reaction to COVID-19 related issues) to Bring the Supply Chain for Specified Commodities Back into the Country:** What would policies intended to reduce reliance on foreign sources for specific commodities mean for the MTS? What changes in port cargo volume and infrastructure requirements would follow, and how quickly?
3. **The Impact of a “Restructured” Economy on Future Maritime Flows:** How will structural changes in the economy, with at this point unknown changes in the composition of output, affect future maritime and port demand? (e.g. if service sector is reduced relative to increased domestic manufacturing, would does that mean for the MTS?)
4. **Improved Supply Chain Digitalization and Data Transparency Needs:** Maritime port operations often remain as weak points in supply chain information links. With supply chains anticipated to undergo additional significant changes how could the country benefit from expanded data standards and information interchange practices?

Thank You

Q & A

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