

Supply Chain Stress:
How Much Longer?
2022 Midyear Economic Update



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In the news and in the boardrooms...

Consumers

- No products available
- Delays in product availability
- High prices
- Low quality
- Bad service ...

Businesses

- All the same, AND
- Unavailable transport capacity – ships, trucks, trains, planes
- Overwhelmed warehouses with unsold inventory
- Delays at US ports
- Covid lockdowns and delays in China manufacturing, shipping
- Labor shortages and unrest ...

What's a supply chain?

Networks that link producers to consumers; the beginning-to-end process of getting products to their final destination

Basic objective: match supply with demand → make product available and affordable to customers



Flows of Products/Services, Resources, Information, etc.



Problems: Complexity and length (spanning the globe)

Communication

Coordination

Control

Visibility



Responsiveness

Resilience

Security

Evolution of current globalized supply chains

- Offshoring manufacturing and service to low-cost-countries
 - Low labor and energy costs → inexpensive production
 - Availability of qualified labor → high quality products
 - Containerization → low transportation costs
- LEAN supply chain management practices that emphasize efficiency and cost reductions (just-in-time inventory; supplier concentration etc.)
- Long lead times but with low variability due to predictable, stable demand
- Better productivity → higher profits



Problems: Consumer demand vs. supply availability

Hershey won't be able to meet Halloween demand this year



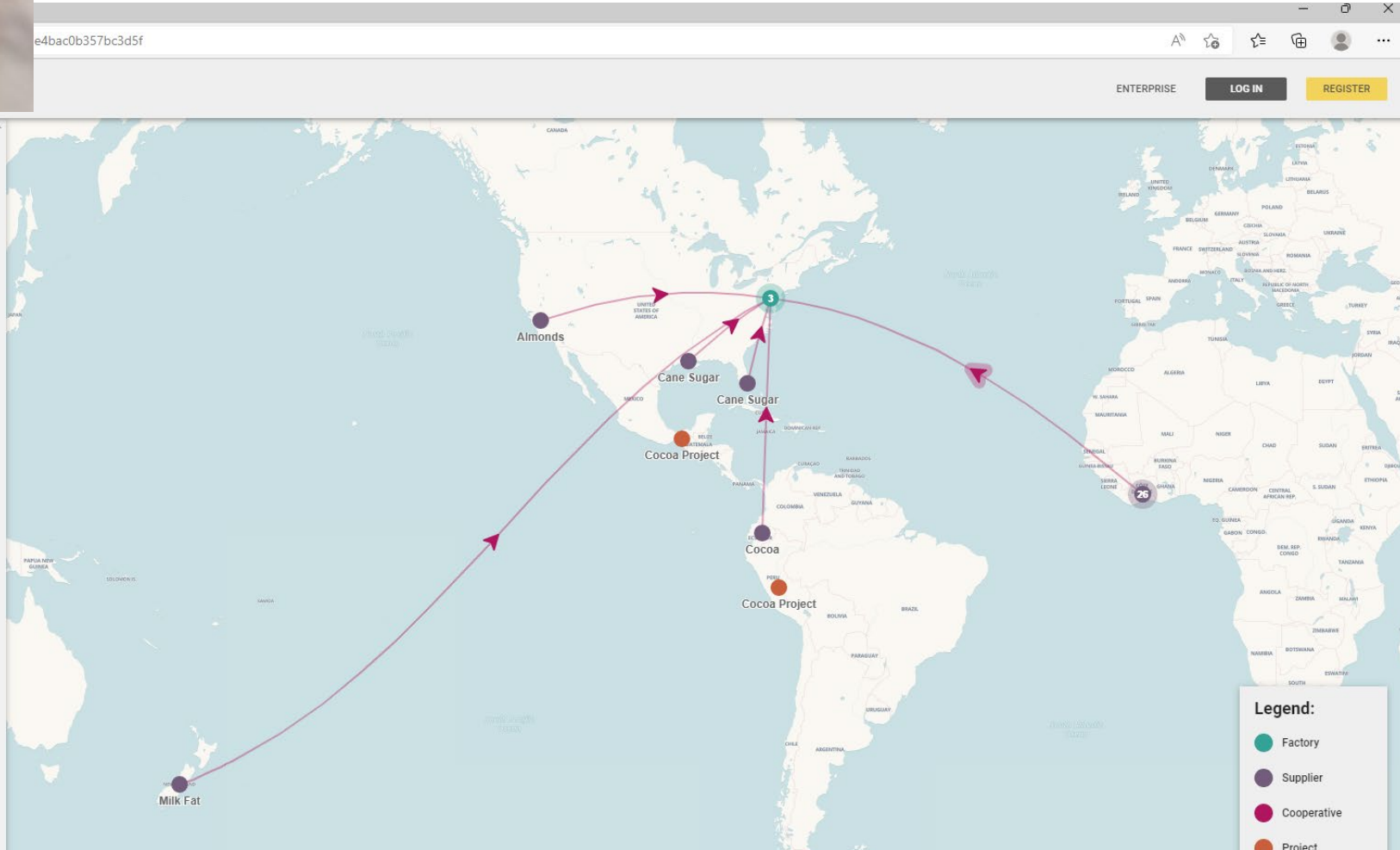
Hershey's Milk Chocolate with Almonds

If you've ever wondered about chocolate or other ingredients in your snacks, our interactive map is a great way to find out more. Click on any point to explore and see images and videos, as well as read about the ingredients and their origins. It all centers around our manufacturing facilities in Hershey, Pa., and connects to farms in the U.S. and places like Africa, Mexico and Peru, where you can learn about work with local farmers and local communities.

[The Hershey Company](#)



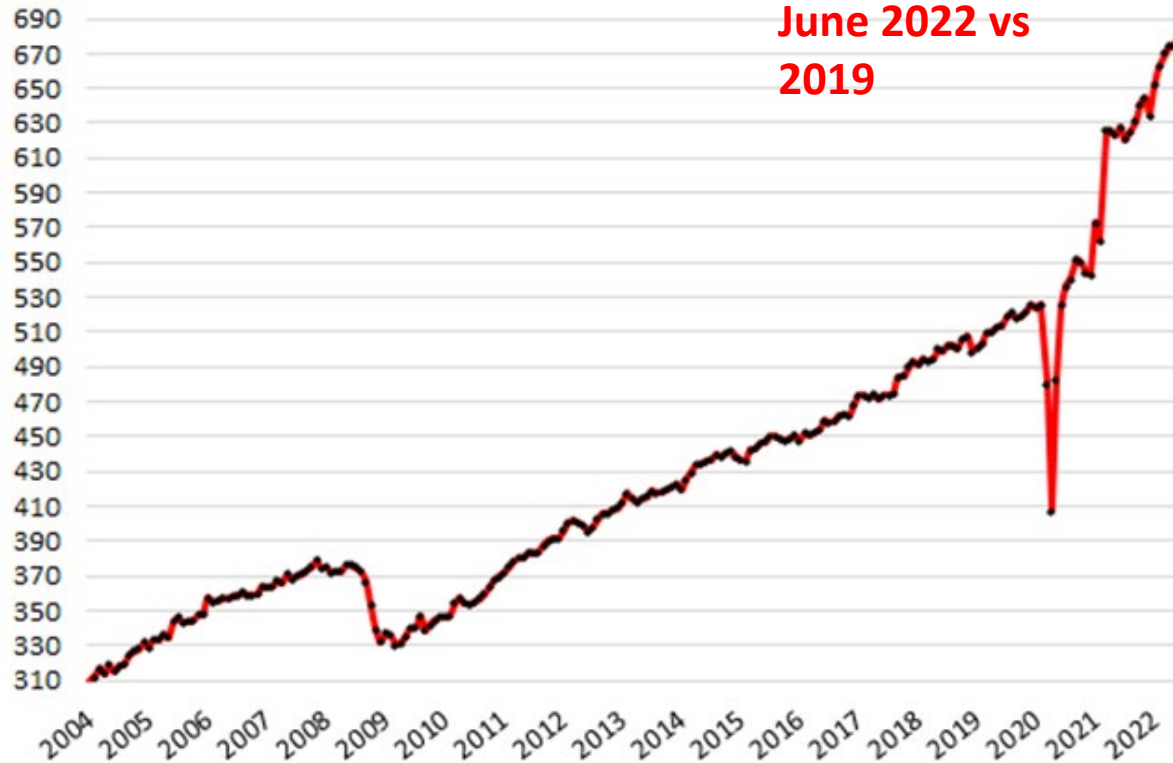
Updated by [The Hershey Company](#) a year ago



Surge in consumer demand

Total Retail Sales

Billion \$, seasonally adjusted

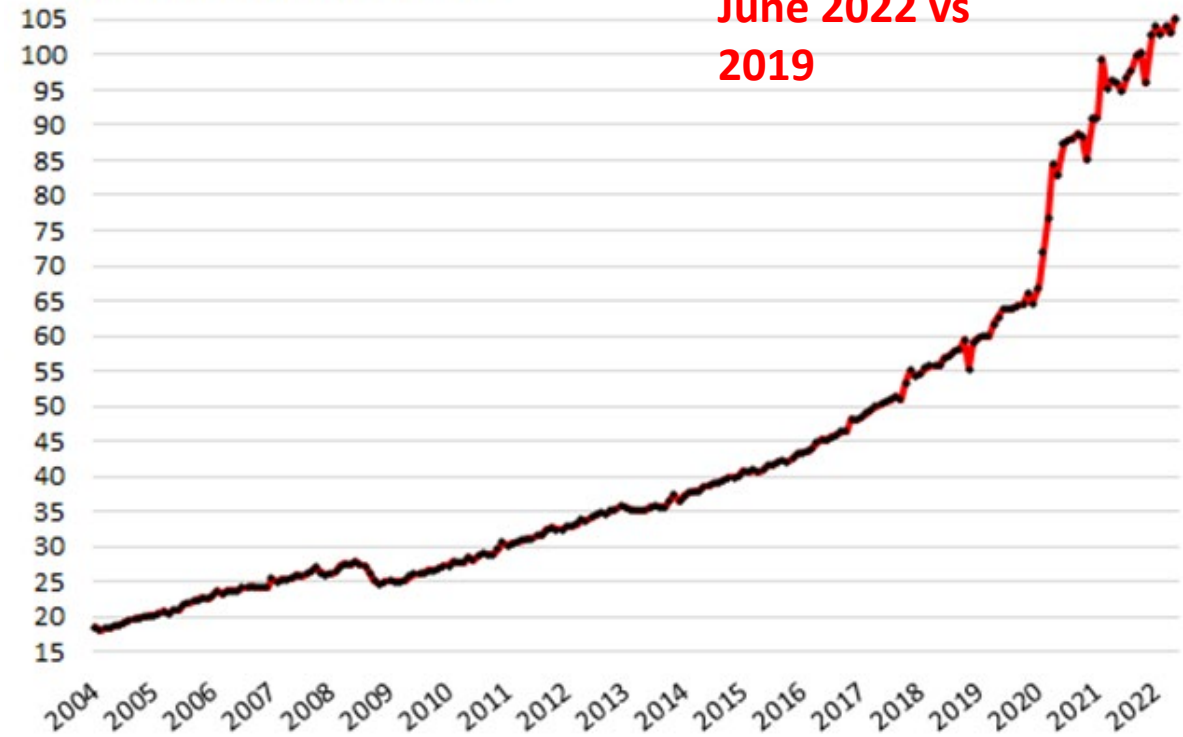


Source: Census Bureau

WOLFSTREET.com

Nonstore Retailers

Billion \$, seasonally adjusted



Source: Census Bureau

WOLFSTREET.com

Difficulties in forecasting demand → inventory

Bullwhip effect:

Temporary surges in retail demand are exaggerated by upstream manufacturers and suppliers, who rapidly increase production well beyond the level that can be supported by consumers.



Logistics congestion → delays, added costs

- Container and shipping availability
- Port operations
- Trucking
- Rails
- Air cargo
- Warehouse capacity

Extraordinary profits for logistics companies!

What is the current situation?

Global Supply Chain Pressure Index (GSCPI), 1998–2022

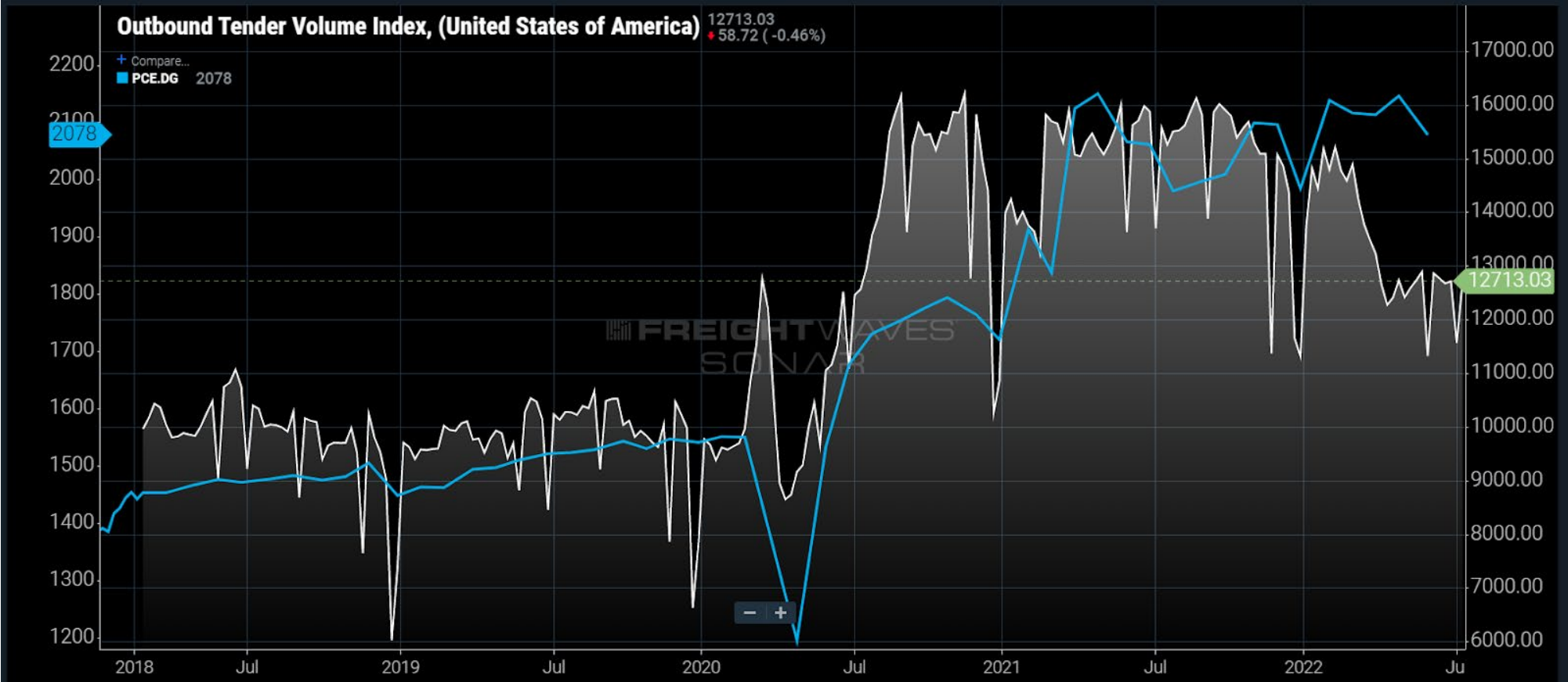


Tracks how backed up supply chains are around the world. Updated monthly by experts at the Federal Reserve Bank of New York.

Note: Y-axis displays standard deviations from average value.

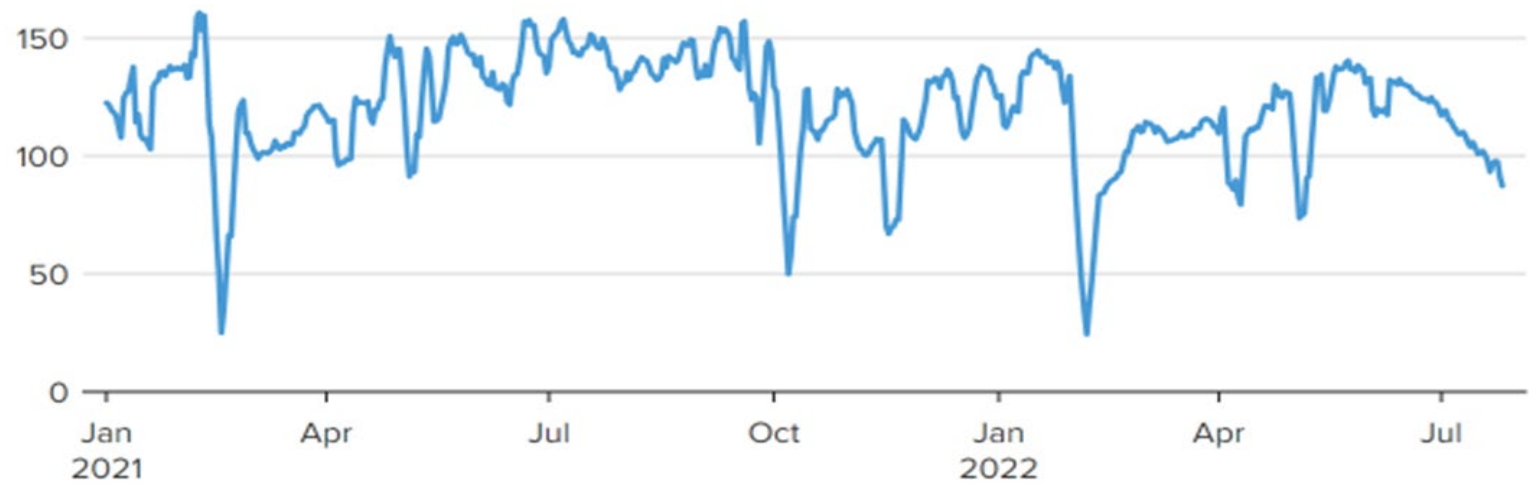
Product shipment vs. customer buying

Outbound Tender Volume Index (OTVI) which measures truckload demand vs. Personal Consumer Expenditures for durable good (PCE)



Example: China – US transportation volume vs costs

Cargo departing Chinese ports for the U.S.

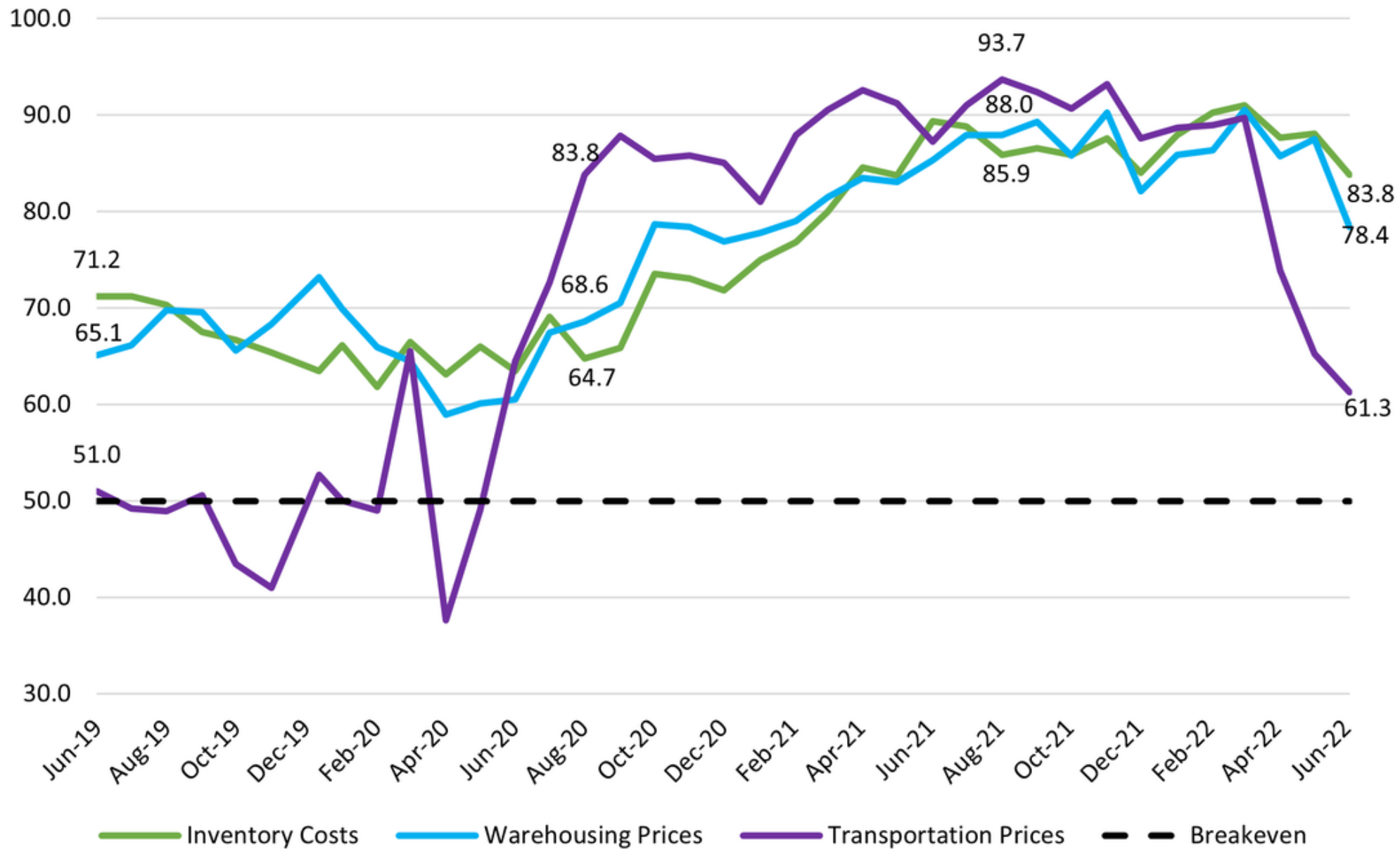


Note: The FreightWaves index represents the amount of TEU (container) volume departing from all ports globally on vessels that are destined for U.S. ports. The index value baseline is set at 100 for averaged 2019 TEU (container) volumes.



Logistics Manager Index

tracks managers perceptions of inventory, transportation and warehousing costs, capacity and utilization



Fixing the supply chains for the future

Lean and Brittle → Agile and Resilient
and also Lean
and also Green!

Bring manufacturing back to the US?

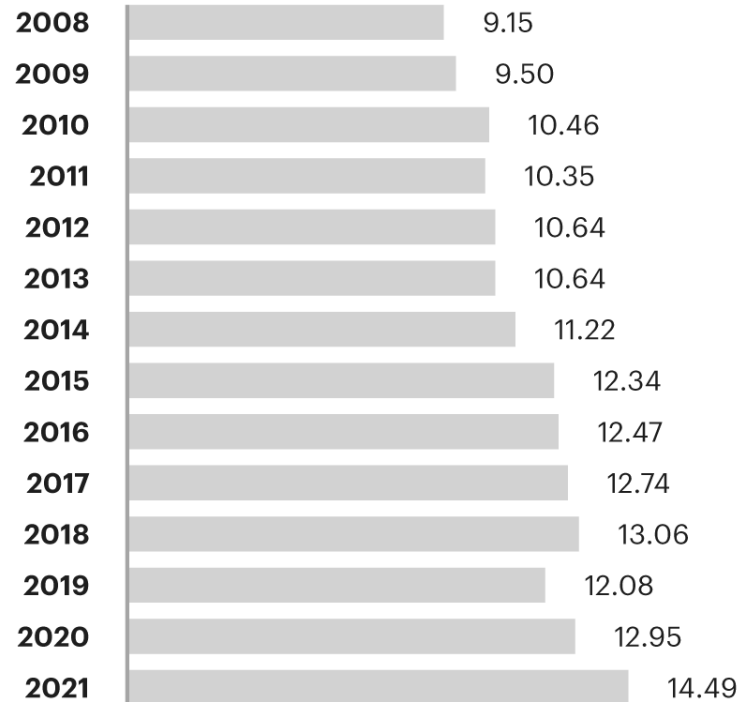
- “Companies' mentions of **re-shoring** skyrocketed recently amid supply chain challenges and we believe the 2020s will mark the beginning of de-globalization” WSJ 7/25/2022
- Kearney’s survey of CEOs and manufacturing executives of American companies:
 - 92% of Execs positive sentiments toward reshoring
 - 79% of Execs with manufacturing ops in China consider reshoring in next 3 years
- Trend of diversification away from China to other LCCs: US manufacturing imports’ China share dropped from 65% in 2018 to 55% in 2021

Meanwhile...
Kearney's 2021
Reshoring Index
found that US
companies were
relying even
more heavily on
manufacturing
operations in
LCCs.

US manufacturing imports from 14 Asian low-cost countries rose in 2021, resulting in a negative score on the Reshoring Index

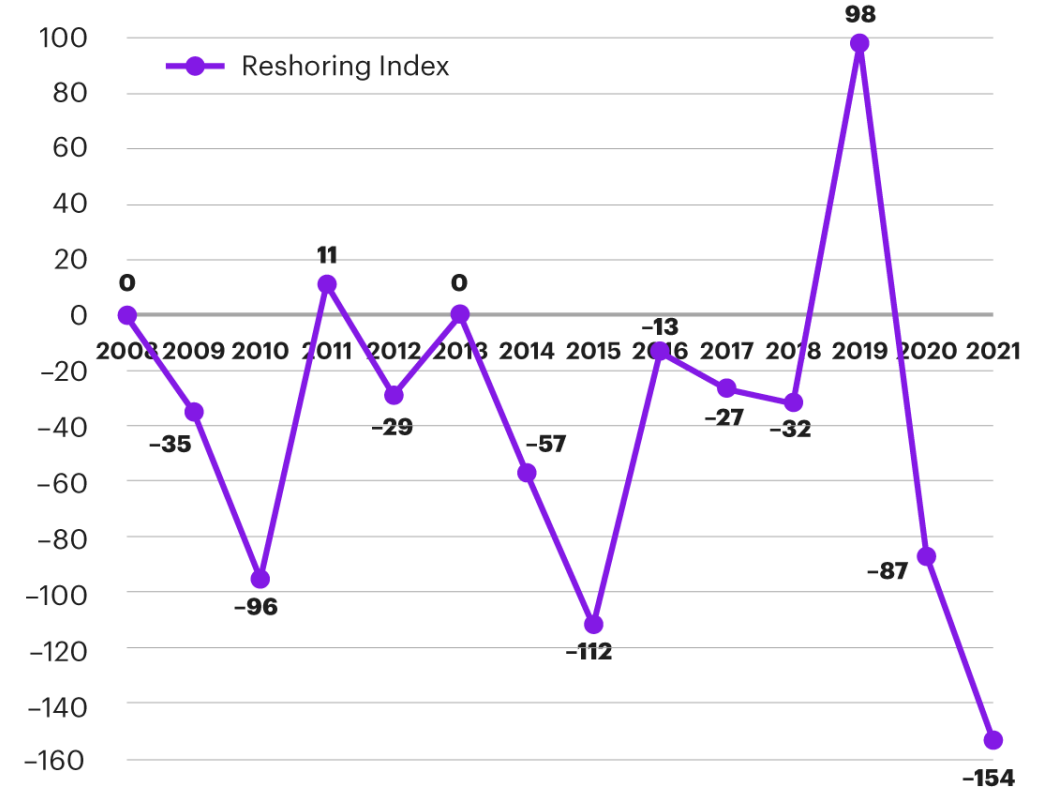
US manufacturing import ratio (MIR)

MIR = total manufactured goods import as % of domestic output



Year-over-year change in the US MIR

(Basis points, 2008-2021)



Sources: United States International Trade Commission, Bureau of Economic Analysis; Kearney analysis

Government intervention/Industry regulation

- Subsidies for reshoring: CHIPS Act

Top chipmakers' spend to grow their chip capacity vs. CHIPS Act

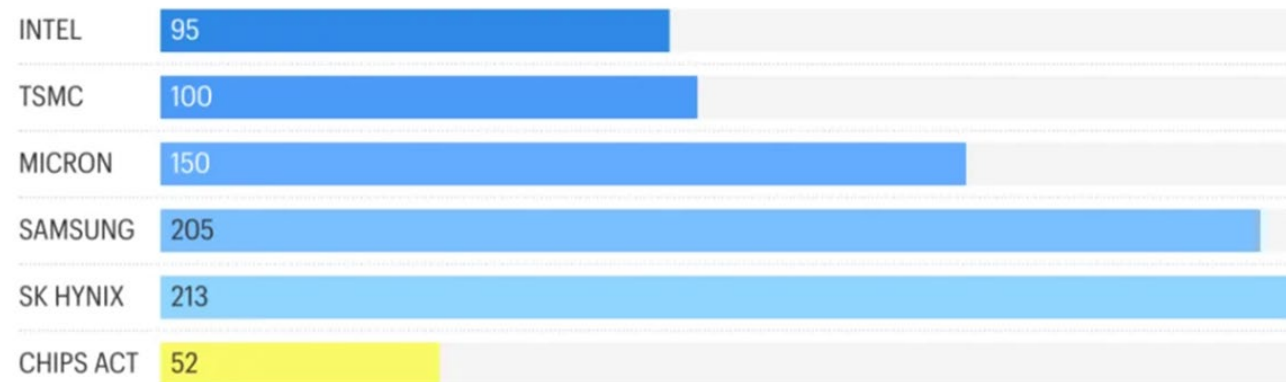


CHART: YVONNE LAU • SOURCE: COMPANY DATA

FORTUNE

- Ocean Shipping Reform Act of 2022 –Detention and Demurrage fees
- Freight Logistics Optimization Works (FLOW) data exchange (pilot)

Tried and true best business practices

- Geographic diversification of supply sources with risk/cost balance
- Shortening of supply chains through near-shoring where appropriate
- Better inventory/order management with JIT/safety stocks
- Better control/coordination with suppliers
- Design for manufacture (change product make-up or design)
- Balance competition with cooperation
- Better care of the workforce
- Most important: INVESTMENT IN TECHNOLOGY → control, coordination, visibility