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

Suppliers → Contracted Manufacturers → Manufacturers → Wholesalers/Distributors → Retailers/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 $\rightarrow$ inexpensive production
  • Availability of qualified labor $\rightarrow$ high quality products
  • Containerization $\rightarrow$ 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 $\rightarrow$ higher profits
Hershey won't be able to meet Halloween demand this year.

Problems: Consumer demand vs. supply availability
Surge in consumer demand

- **Total Retail Sales**: 33% higher June 2022 vs 2019
- **Nonstore Retailers**: 68% higher June 2022 vs 2019
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.
Outbound Tender Volume Index (OTVI) which measures truckload demand vs. Personal Consumer Expenditures for durable good (PCE)
Example:
China – US transportation volume vs costs
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**

<table>
<thead>
<tr>
<th>Year</th>
<th>US manufacturing import ratio (MIR)</th>
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<tbody>
<tr>
<td>2008</td>
<td>9.15</td>
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<tr>
<td>2009</td>
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<td>2021</td>
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</table>

**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

• 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