Maritime Economic Outlook & Port Productivity

Maritime & Trade

Oct 2017

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Who are we?

IHS Markit - NASDAQ: (INFO)
+$17bn Market Cap
+13,000 employees
+30 global offices
+ An unmatched portfolio of information, analytics and expertise on these sectors

What do we do?

We deliver critical intelligence by addressing client’s strategic challenges with our interconnected capabilities
### Who We Serve

<table>
<thead>
<tr>
<th>All global investment banks</th>
<th>35 of 50 largest U.S. banks</th>
<th>All largest hedge funds</th>
<th>46 of 50 largest global asset managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 of 25 largest global oil companies</td>
<td>10 largest automobile companies in the world</td>
<td>47 of 50 largest global corporate enterprises</td>
<td>94 of 100 largest U.S. corporates</td>
</tr>
<tr>
<td>&gt;80% of the Fortune Global 500</td>
<td>&gt;75% of the Fortune US 1000</td>
<td>All largest global custodians</td>
<td>All G20 governments</td>
</tr>
</tbody>
</table>
Our unique data assets provide governments and commercial customers with access to the most comprehensive insights.

<table>
<thead>
<tr>
<th>News and Editorial Content</th>
<th>AIS Ship Movements</th>
<th>Consulting and Customized Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Trade Statistics</td>
<td></td>
<td>Cargo Records</td>
</tr>
<tr>
<td>Predictive Analysis - Behavioral models</td>
<td>Ship Data</td>
<td>Industry Events</td>
</tr>
</tbody>
</table>

MARITIME & TRADE
JOC Events – leading industry conferences worldwide
### Real GDP Growth Rate and its components

<table>
<thead>
<tr>
<th>Percent change</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP</td>
<td>2.5</td>
<td>3.1</td>
<td>3.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Private consumption</td>
<td>2.6</td>
<td>2.9</td>
<td>2.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Fixed investment</td>
<td>1.7</td>
<td>3.3</td>
<td>3.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Government consumption</td>
<td>2.0</td>
<td>1.3</td>
<td>2.0</td>
<td>2.2</td>
</tr>
<tr>
<td>World trade (exports)</td>
<td>2.6</td>
<td>4.4</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Industrial production</td>
<td>1.3</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: IHS Markit

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Emerging markets lead global real GDP growth

Real GDP

Source: IHS Markit

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Major Trends Affecting Global Logistics

- Rising Global Population and Incomes in the Developing World
- The Uncertainty of Trade Agreements and International Alliances
- Fewer Growth Opportunities from Outsourcing/Containerization
- Carrier Consolidation and Larger Vessels in Container Markets
- Renewed Focus on Infrastructure & Hinterland Logistics
- 4th Industrial Revolution – Automation & Electrification, 3D Printing, Supply Chain Transparency, Digital Platforms, E-Commerce Omni-channels and New Transportation Mode-based Systems
## Shipping

<table>
<thead>
<tr>
<th>Sector</th>
<th>Now?</th>
<th>Outlook</th>
<th>Fleet Size</th>
<th>Ship Size</th>
<th>Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruise</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
</tr>
<tr>
<td>Dry Bulk</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
<td>___</td>
<td>🌿</td>
</tr>
<tr>
<td>General/Project Cargo</td>
<td>🌿</td>
<td>🎵</td>
<td>🌿</td>
<td>___</td>
<td>🎵</td>
</tr>
<tr>
<td>Tankers Chemicals</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
<td>___</td>
<td>🌿</td>
</tr>
<tr>
<td>Tankers Crude</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
<td>___</td>
<td>🌿</td>
</tr>
<tr>
<td>Tankers Gas</td>
<td>🌿</td>
<td>🌿</td>
<td>🌿</td>
<td>___</td>
<td>🌿</td>
</tr>
<tr>
<td>Vehicle/Roro Carriers</td>
<td>🌿</td>
<td>🌿</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>
Container Shipping Market

- Demand growth 2-4%
- Supply growth 2-4%
- Can’t rely on demand to mop up supply
- Can’t rely on more reduction in supply
- Stronger rate sentiment is fragile
- Improved focus on efficiency and innovation
- Fighting chance of improved profitability in 2017
TOP 15 operators - thousands TEUs

Maersk+Hamburg Sud
MSC
CMA CGM
COSCO
NYK+MOL+Kline
Hapag-Lloyd+UASC
Evergreen
OOCL
Yang Ming
PIL
HMM
ZIM
Wan Hai
MCC
KMTC

Notes: Fleet as of October 2017; Includes proposed and approved mergers
Source: IHS Markit
<table>
<thead>
<tr>
<th>Group</th>
<th>Members</th>
<th>Active (TEUs)</th>
<th>Active (Ship #)</th>
<th>Order (TEUs)</th>
<th>Order (Ship #)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2M</td>
<td>Maersk (Hamburg Sud), MSC, HMM</td>
<td>37%</td>
<td>36%</td>
<td>30%</td>
<td>26%</td>
</tr>
<tr>
<td>Ocean Alliance</td>
<td>CMA CGM, COSCO, OOCL, APL, Evergreen</td>
<td>34%</td>
<td>36%</td>
<td>60%</td>
<td>66%</td>
</tr>
<tr>
<td>The Alliance</td>
<td>Hapag Lloyd (UASC), Yang Ming and ONE (NYK,</td>
<td>29%</td>
<td>28%</td>
<td>10%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>K Line, MOL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

% = % of global fleet in terms of either TEU capacity or Vessel Count
Container fleet - % of active fleet

<table>
<thead>
<tr>
<th>Capacity Range</th>
<th>Total</th>
<th>15 years old +</th>
<th>Orderbook</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3,000 teu</td>
<td></td>
<td>7.9%</td>
<td>14.7%</td>
</tr>
<tr>
<td>3,000-5,400 teu</td>
<td></td>
<td>3.1%</td>
<td>13.0%</td>
</tr>
<tr>
<td>5,400-10,000 teu</td>
<td></td>
<td>0.1%</td>
<td>10.3%</td>
</tr>
<tr>
<td>10,000 + teu</td>
<td></td>
<td>0.0%</td>
<td>41.8%</td>
</tr>
</tbody>
</table>

Notes: As of 1st of October 2017
Source: IHS Markit

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Terminal & Ports Trends

• Bigger Container Ships, Fewer Calls, More Challenging Operations

• More Capital Required (Cranes, Automation Tech, Dredging, Inland Terminals, New Potential Land-Use Needs)

• Negotiating Power of Container Carriers is Up, Terminals Down

• Bilateral Engagement Among Stakeholders Harder due to Alliances

• New Ownership Structures (Terminal Consolidation into Larger, Professional Firms or Integration with/Acquisition by Carriers)
IHS Markit Port Productivity Research

• Launched in 2009 by *The Journal of Commerce* (now part of IHS Markit) through urging of carriers

• Benchmarking system based on data provided by participating carriers, which represents about 75% of total global container capacity

• Program includes roundtables in Hamburg and New Jersey (again soon – in Dec 2017!)

• Outputs include data files, dashboards and white papers
Metrics

- Berth Productivity: Crane Moves Per Hour + Arrival Process (All fast, First Move) + Departure Process (Last Move, Last Line)

- Port Productivity: Berth Productivity + Waiting Time + Steam-in (Harbor Limits, All Fast)

- Steam-in Time / Steam-Out Time
- Average Waiting Time
- Average Call Size
- Average Moves per Call
- Total Idle Time in Port
- Total Active Time in Port
Average Call Size Development - Top 30 Ports

Source: IHS Markit / Journal of Commerce
Average Waiting Time - 2014 - 2016 - Top 30

Source: IHS Markit / Journal of Commerce
Relative Productivity Development - 2014 to 2016
- Top 30 Ports

Source: IHS Markit / Journal of Commerce
Inefficiencies in Current Operations

Mistiming

- Port authorities don’t have good visibility into vessel ETAs
- Berth Windows not always adjusted for larger vessels
- Berth availability often isn’t aligned with schedules
- Ships burn more fuel than needed when they speed to unavailable berths
- Late notifications of vessel schedule changes
- Pilots often aren’t informed of early completions, chance for early departures

Lost Ops Management, Risk or Revenue Opportunities

- Ship profiles sometimes inaccurate
- Terminals unable to validate load plans until arrival
- Terminals can’t see vessels’ past terminal needs
- Carriers often have little-to-no visibility in berth ops until arrival
- Carriers often have no input on exceptions
- Poor stowage planning creates many problems/lost opportunities including inability to accept last minute loadings
What is at Stake?

• Competitive Position

• Cost Reductions (Fuel, etc)

• Revenue

• Untapped Cargo Capacity!
Want to Hear Solutions?

Read our free White Paper!

To get a copy, please find me today

Or please contact me at

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Karl.Palsgaard@IHSMarkit.Com