Liner Shipping Industry

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DR VENUS LUN
Outline

➢ Basic of liner shipping
➢ Industry background and recent trend
➢ Liner shipping market
➢ Pricing
➢ Shipping alliance
Basic of liner shipping

- What is liner shipping?
- How does one cargo get from origin to destination?
  - 10-step example
- Direct shipment
- Transshipment
What is liner shipping

There are different segments in the shipping market: tramp shipping and liner shipping

➢ The purpose of tramp shipping is to provide convenient and economical means to transport goods.

➢ Liner shipping is different from tramp shipping as it is committed to provide regular publicized schedule of shipping service between particular ports.

According to World Shipping Council, liner shipping is the service of transporting goods by means of high-capacity ocean-going ships that transit regular routes on fixed schedules. There are approximately 400 liner services in operation today. Most of these liner services provide weekly sailing from the ports of call.
How does a football get to a store?

An example from World Shipping Council:

- http://www.worldshipping.org/about-the-industry/how-liner-shipping-works/examples-animation
Step 1: Packaging at the factory

Footballs are normally packaged deflated at the factory where they are manufactured, in countries like China.

Source: World Shipping Council
Step 2: Stuffing in a container

Source: World Shipping Council
Step 3: Container terminal operations

Source: Yantian International Container Terminal (YICT)
Step 4: Container loading at a container terminal

Source: World Shipping Council
Step 5: Ship heading to the destination across ocean

Source: World Shipping Council
Step 6: Ship arriving the discharging port
Step 7: Container discharging at a container terminal

Source: World Shipping Council
Step 8: Container terminal operations

Source: Yantian International Container Terminal (YICT)
Step 9: Container moving to a distribution center for devanning

Source: World Shipping Council
Step 10: Delivering to the store
Direct shipment from port of loading to port of discharging
Transshipment

Transshipment is the shipment of goods from the origin to a transshipment hub, then to the final destination.
Industry background and recent trend

- Major routes
- Competition between ports
- Recent trends
  - Ship size
  - Number of ships
  - Throughput (in TEU)
  - Service
  - Market share
Major routes

<table>
<thead>
<tr>
<th>Route</th>
<th>West Bound</th>
<th>East Bound</th>
<th>North Bound</th>
<th>South Bound</th>
<th>Total</th>
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<td>Asia-North America</td>
<td>7,739,000</td>
<td>15,386,000</td>
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<td>4,519,000</td>
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<td>North Europe-North America</td>
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<td>2,074,000</td>
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<td>4,710,000</td>
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<td>Australia-Far East *</td>
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<td></td>
<td>1,072,016</td>
<td>1,851,263</td>
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<tr>
<td>Asia-East Coast South America</td>
<td>621,000</td>
<td>1,510,000</td>
<td></td>
<td></td>
<td>2,131,000</td>
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<tr>
<td>North Europe/Mediterranean-East Coast South America</td>
<td>795,000</td>
<td>885,000</td>
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<td></td>
<td>1,680,000</td>
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<tr>
<td>North America-East Coast South America</td>
<td>656,000</td>
<td>650,000</td>
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<td>1,306,000</td>
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</table>

Source: World Shipping Council
Competition between ports
Trends in the five components of the UNCTAD Liner Shipping Connectivity Index

Source: UNCTAD
Evolution of ship size

**EVOLUTION OF CONTAINER SHIPS**

TEU: twenty-foot equivalent units, length x width x depth below water in meters

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Size</td>
<td>500 – 800 TEU, 137x17x9m</td>
<td>1,000 – 2,500 TEU, 215x20x10m</td>
<td>3,000 – 3,400 TEU, 250x32x12.5m</td>
<td>3,400 – 4,500 TEU, 290x32x12.5m</td>
<td>4,000 – 5,000 TEU, 285x40x13m</td>
<td>6,000 – 8,000 TEU, 300x43x14.5m</td>
<td>12,500 TEU, 366x49x15.2m</td>
<td>18,000 TEU, 400x59x15.5m</td>
</tr>
</tbody>
</table>

Adapted with permission from the Geography of Transport Systems, Jean-Paul Rodrigue

Source: Geography of Transport Systems
Ship size and number of ships

Source: OECD
Source: ALPHALINER
Number of services

Source: Drewry
### Market share: Top 20 operators

<table>
<thead>
<tr>
<th>Rank</th>
<th>Operator</th>
<th>TEU</th>
<th>Share</th>
<th>Existing fleet</th>
<th>Orderbook</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>APM-Maersk</td>
<td>3,203,526</td>
<td>15.5%</td>
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<td></td>
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<tr>
<td>2</td>
<td>Mediterranean Shg Co</td>
<td>2,780,541</td>
<td>13.4%</td>
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<td>3</td>
<td>CMA CGM Group</td>
<td>2,299,362</td>
<td>11.1%</td>
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<tr>
<td>4</td>
<td>COSCO Container Lines</td>
<td>1,556,579</td>
<td>7.5%</td>
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<tr>
<td>5</td>
<td>Evergreen Line</td>
<td>955,086</td>
<td>4.6%</td>
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<tr>
<td>6</td>
<td>Hapag-Lloyd</td>
<td>916,174</td>
<td>4.4%</td>
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<tr>
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<td>Hanjin Shipping</td>
<td>612,714</td>
<td>3.0%</td>
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<td>8</td>
<td>Hamburg Süd Group</td>
<td>611,154</td>
<td>2.9%</td>
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<tr>
<td>9</td>
<td>OOCL</td>
<td>571,979</td>
<td>2.8%</td>
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<tr>
<td>10</td>
<td>Yang Ming Marine Transport Corp.</td>
<td>570,451</td>
<td>2.8%</td>
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<td>11</td>
<td>UASC</td>
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<td>12</td>
<td>MOL</td>
<td>528,974</td>
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<td>13</td>
<td>NYK Line</td>
<td>498,287</td>
<td>2.4%</td>
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<tr>
<td>14</td>
<td>Hyundai M.M.</td>
<td>445,604</td>
<td>2.1%</td>
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<tr>
<td>15</td>
<td>K Line</td>
<td>364,361</td>
<td>1.8%</td>
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<tr>
<td>16</td>
<td>PIL (Pacific Int. Line)</td>
<td>347,981</td>
<td>1.7%</td>
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<tr>
<td>17</td>
<td>Zim</td>
<td>345,806</td>
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<tr>
<td>18</td>
<td>Wan Hai Lines</td>
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<tr>
<td>19</td>
<td>X-Press Feeders Group</td>
<td>142,162</td>
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<tr>
<td>20</td>
<td>KMTC</td>
<td>123,409</td>
<td>0.6%</td>
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</tbody>
</table>

Source: Alphaliner
Liner shipping market

- Capacity adjustment
- Shipping demand
- Shipping supply
Capacity adjustment

The container shipping market is governed by a mechanism through which the demand for and the supply of shipping services interact to determine the freight rate and fleet size.

Demand for container shipping services is derived from demand for container trade. International trade volume is an important factor that affects the demand for container shipping services.
Shipping demand depends on a number of factors. International trade is one of the most important determinants affecting the demand for sea transport.

Shipping business is more sensitive than others to fluctuations in international economic activities.

The change in international trade volume may lead to a change in the volume of seaborne trade, and consequently a change in the demand for sea transport.
Shipping demand

The concept of elasticity of demand for sea transport helps to show the relationships between the shipping industry’s gross revenue and output and changes in freight rates.

Demand for sea transport is a derived demand.

For instance, demand for tramp shipping depends on demand for bulk materials. Furthermore, demand for bulk materials depends on the level of consumption on final products using the materials.
Supply of sea transport is measured in terms of the supply of tonnage, which refers to the shipping capacity for carrying cargo from one or more ports to one or more ports by sea. All the ships that are trading in the freight market constitute “active shipping supply”. Ships that are not trading (e.g., laid-up tonnage), constitute “available shipping supply”.

\[
\text{active shipping supply} + \text{available shipping supply} = \text{total shipping supply}
\]
Managing active supply

- Maximization of the possible service speed at sea
- Acceleration of the processes of loading and unloading to reduce the berthing time
- Postponement of periodic surveys and maintenance
- Reduction in laid-up tonnage

Increase active supply
Managing active supply

- Carrying quantities of cargo that are less than the maximum cargo-carrying capacity of vessels
- Slow operations in loading and discharging
- Decrease in the average speed of vessels at sea
- Laying up of vessels

Reduce active supply
Shipping supply: short run & long run

How do shipping firms adjust their supply of shipping services?

The supply of shipping is difficult to expand or reduce in the short run.

In the long run, there is a time lag between the decision to expand fleet size and the actual time of delivery of new vessels.

Thus, the supply of shipping services tends to be inelastic and incapable of responding instantly to demand and freight rate changes.
Short run shipping supply

Depending on the level of freight rates and carriers’ expectation of the shipping market, shipping companies adjust their output in the short run with a view to minimizing their costs and maximizing their profits.

In the short run, there may be changes in the magnitude of active supply, but total supply cannot expand or contract.

In other words, the supply of shipping services in the short run tends to be inelastic.
Long run shipping supply

Increase tonnage
- Order new vessels
- Long term repairs of out of use vessels

Reduce tonnage
- Break up old ships
Shipping supply

Shipping is a capital-intensive industry.

The cost of capacity adjustment is high. It takes about many years for the investment in new ships to be recovered.

A long time interval ranging from 1 to 4 years, depending on the capacity of shipyards, may elapse between ordering and delivering of new ships.

This situation can be viewed as supply rigidity.
Shipping supply: very long run

- Technology/Innovation
  - Ship design
  - Vessel operation

- Bigger and cost-efficiency vessels
- Drop in cost/ton-mile
- Increase in shipping tonnage

- New trading routes
- Freight market expansion
Pricing

- Determinants of freight rate
- Market players
- Freight rate & surcharges
- Tariff & service contract
- Incoterms (e.g., FOB, CIF)
Determinants of freight rate

- Balance between shipping demand and shipping supply
- Shipping costs
  - Capital cost (e.g., LIBOR)
  - Operating cost (e.g., labor, flag, administration)
  - Voyage cost (e.g., bunker, port charges)
Market players

Supply side:

- vessel operating common carrier (VOCC), i.e. shipping line

Demand side:

- beneficial cargo owner (BCO), i.e. shipper/consignee or exporter/importer
- non-vessel operating common carrier (NVOCC), i.e. freight forwarder or 3PL
Freight rate & surcharges

The total price for a shipment consists of various components: basic rate, mandatory surcharges and extra services.

Basic Ocean Freight - The BAS (commonly known as “freight rate”) is a transportation rate for moving cargo. The rate is determined by a number of factors such as different origin/destination and cargo type (i.e. general cargo, reefer cargo or special cargo).

Mandatory surcharges - Mandatory surcharges constitute a part of the rate which is not covered by the BAS. Mandatory surcharges are established to cover cost items or services that are either pass-through charges (e.g. from terminals) or beyond the basic ocean transport services. These surcharges are applicable to every shipment.

Other surcharges are applicable to some shipment. Shippers with bargaining power can sometime negotiate with carriers not to pay for certain non-mandatory surcharges.
Freight rate & surcharges

Most frequent surcharges:

- **Bunker Adjustment Factor (BAF):** The BAF is a charge to account for the fluctuation in bunker costs (fuel used by the vessels).

- **Currency Adjustment Factor (CAF):** The CAF aims to offset losses from the fluctuation of exchange rate. It is a charge to account for the changing exchange rates between the US dollar and other currencies. The CAF increases as the US dollar decreases.

- **Terminal Handling Charge (THC):** The THC is based on the cost of handling the container in the terminals, including loading and discharging containers to/from the vessel.

- **Documentation Charge (DOC):** The DOC is a service charge related to the provision of transport documents at the origin and the destination based on shipping instruction (SI).

- **Value Added Services (VAS):** The VAS are extra services that offered to accommodate additional requirements. Examples of VAS include Container Cleaning, Garments on Hangers, Out of Gauge.
Freight rate & surcharges

Source: Maersk
General rate increase (GRI)

GRI is an adjustment of freight rates across all trade routes or on specific trade routes during a specific time frame. GRI is applied by shipping lines, generally based on the supply and demand on the trade routes. Some shippers with bargaining power can negotiate not to include GRI clauses in their service contracts.

Example:

- Effective date: 1st September, 2013 (applicable to all cargo gated-in from the 1st of September)
- Scope: Far East Asia countries to South Africa (including hinterland countries serviced via South Africa)
- General rate increase: USD 300 per 20’ container & USD 600 per 40’ container
Tariff

Carriers publish their tariffs setting forth the rates, charges, and other terms and conditions of all-water and intermodal transportation for the general public.

Rates, charges, rules, and practices between all points or ports on a carrier’s route and on any through transportation route that has been established are included in the published tariff.

Tariff rate can be used as one of the reference points for contract negotiation.

Situations for using tariff:
- Non-regular business
- Small consignment
Sample tariff

**Rate Tariff Details**

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<tr>
<th>Rate Tariff Details</th>
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</thead>
<tbody>
<tr>
<td><strong>Tariff:</strong></td>
<td>Asia-Europe</td>
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<tr>
<td><strong>Carго Nature:</strong></td>
<td>General</td>
</tr>
<tr>
<td><strong>Commodity:</strong></td>
<td>Cargo Ns: Non-Temperature Controlled</td>
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<tr>
<td><strong>Shipping Date:</strong></td>
<td>06 Aug, 2016</td>
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</table>

<table>
<thead>
<tr>
<th>Origin (Traffic Mode):</th>
<th>Hong Kong, Hong Kong (CY)</th>
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</thead>
<tbody>
<tr>
<td>Origin Via (Transport Mode):</td>
<td></td>
</tr>
<tr>
<td>Service Loop(s) / T/S Port(s):</td>
<td></td>
</tr>
<tr>
<td>Destination Via (Transport Mode):</td>
<td></td>
</tr>
<tr>
<td>Destination (Traffic Mode):</td>
<td>Rotterdam, Zuid-Holland, Netherlands (CY)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Charge Description</th>
<th>Code</th>
<th>Payment Currency</th>
<th>Per 20'</th>
<th>Per 40'</th>
<th>Per 40' High Cube</th>
<th>Effective Date</th>
<th>Expiry Date</th>
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<tbody>
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<td>Ocean Freight</td>
<td>OCEAN USD</td>
<td>1150</td>
<td>2300</td>
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<td>31 Dec, 2016</td>
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<td>Amendment for Advance Manifest Security Charge</td>
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<td>40</td>
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<td>Advance Manifest Security Charge</td>
<td>AMS USD</td>
<td>30</td>
<td>30</td>
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<td>Per BL</td>
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<td>Banker Adjustment Factor</td>
<td>BAF USD</td>
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<td>192</td>
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<td>Per Container</td>
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<td>Currency Adjustment Factor</td>
<td>CAF USD</td>
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<td>14</td>
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<td>Inbound Documentation Fee</td>
<td>DOC EUR</td>
<td>39</td>
<td>39</td>
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<td>Per Container</td>
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<tr>
<td>Outbound Documentation Fee</td>
<td>DOC HKD</td>
<td>500</td>
<td>500</td>
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<td></td>
<td></td>
<td>Per BL</td>
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<tr>
<td>Gulf of Aden Surcharge</td>
<td>GAS USD</td>
<td>43</td>
<td>86</td>
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<td>Gate In Charge</td>
<td>GIC HKD</td>
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<td>600</td>
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<td>HSS HKD</td>
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<td>65</td>
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<td>Late EL Charge</td>
<td>LES HKD</td>
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<td>450</td>
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<td>Per BL</td>
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<td>Low Sulphur Fuel Surcharge</td>
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<td>17</td>
<td>34</td>
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<td>Per Container: Service Loops: LP2, LP7, LP6, LP1, LP4</td>
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<td>Suez Canal Transit Charge</td>
<td>SUZ USD</td>
<td>9</td>
<td>18</td>
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<td>Per Container</td>
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<tr>
<td>Terminal Handling Charge at Origin</td>
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<td>2700</td>
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<tr>
<td>Terminal Handling Charge at Destination</td>
<td>THO EUR</td>
<td>199</td>
<td>199</td>
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<td></td>
<td></td>
<td>Per Container</td>
<td></td>
</tr>
</tbody>
</table>

Source: OOCL
Service contract

Service contract: Carriers enter into individual, separately-negotiated, confidential service contacts with customers that set forth the rates, charges and other terms of transportation.

A service contract is a contract between a carrier and its customer (BCO or NVOCC) in which the customer commits to provide a certain minimum quantity or cargo over a fixed period of time and the carrier commits to a certain rate or rate schedule and a defined level of service.

Each carrier negotiates service contracts with each individual customer on a confidential basis.

Source: HKLSA
Incoterms

The Incoterms or International Commercial Terms are a series of pre-defined commercial terms published by the International Chamber of Commerce (ICC). The incoterms are widely used in international commercial transactions or procurement processes.

A series of three-letter trade terms (e.g., FOB, CIF) related to common contractual sales practices in international trade. The Incoterms aims to provide clear communication between buyers and sellers on the tasks, costs, and risks associated with the transportation and delivery of goods.

Incoterms for sea transport:

- **FOB – Free on Board (named port of shipment):**
  - Seller is responsible for all charges (i.e. local surcharges) incurred before the cargos are loaded on the ship
  - Buyer is responsible for all charges (i.e. freight and destination surcharges) incurred after the cargos are loaded on the ship

- **CIF – Cost, Insurance & Freight (named port of destination)**
  - Seller is responsible for all charges (i.e. local surcharges and freight) incurred before the cargos arrive at the port of destination
  - Buyer is responsible for all the charges (i.e. destination surcharges) incurred after the cargos arrive at the port of destination
Liner shipping alliance

- Current major alliances
- Possible changes
Major alliances

Four major liner shipping alliances:

- 2M: Maersk and MSC
- CKYHE: COSCO, K Line, Yang Ming Line, Hanjin Shipping and Evergreen Line
- G6: APL, Hapag-Lloyd, Hyundai, MOL, NYK, OOCL
- O3: CMA CGM, China Shipping, UASC
Liner shipping alliances

Source: OECD
Reshuffling of alliances

Existing alliances will be broken up:

* Merger between Hapag-Lloyd and UASC
* Merger between COSCO and China Shipping
* CMA CGM acquiring NOL and its liner unit APL

Possible changes (2017):

➤ Hyundai will join Maersk and MSC
➤ Ocean Alliance (2CEO) will bring together the newly merged China COSCO Shipping, CMA CGM, Evergreen, and OOCL
➤ THE Alliance will comprise Hanjin, MOL, NYK, K Line, Hapag-Lloyd and Yang Ming
Thank you