



Liner Shipping Service Cooperation in the Post-Crisis Era

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Incentives

- ④ Reliable Data
- ④ Existing Data
- ④ Confidential Data

- ④ What can we do then...

- ④ Look at the real world practices as well as the way that liners organize their cooperation & competition
- ④ Behavior observation & Mechanism design



Framework of this Talk

1. Factors Affecting the Liner Shipping Service
2. Trend of Demand Side (Macro Level)
3. Behavior of Supply Side (Micro Level)
4. Analysis on Performance Based on Different Mechanisms
5. Conclusions and Suggestions



1. Factors Affecting Liner Shipping Service

Capacity-based Pricing

Capacity-based pricing means the price of using a slot depends on the capacity constraints given by the liner carriers. An apparent example is the soaring freight rate retained to upcoming peak season, i.e., when supply falls short of demands.

Time-based Pricing

Time-based pricing means the price of using a slot depends on the Total Travel Time (TTT) of this specific voyage. When a service ordered by a shipper cannot be performed by one single voyage, one or more transshipments occur. Generally speaking, the more transshipments are involved, the longer TTT can be expected.

Service-based Pricing

Service-based pricing means the price of using a slot depends on the service quality offered by the carrier. For instance, in case a reefer container is to be carried, the price of providing carriage of such cargo is expected to be relatively high.

There might be some other factors.

2. Trend of Demand Side

Macro Level

- **Volume of Service:** some surprising data collected by FMC (Federal Maritime Commission of the US), e.g., which has been observed in Oct 2008, i.e., the loading factor was **extremely high** for a specific voyage.
- **Level of Service:** the shippers turn to be very **demanding**, especially in the Post-Crisis Era.

2. Trend of Demand Side

The screenshot shows the Maersk Line website interface. At the top, there are navigation links for Home, Services, Tools, News & Media, Help & Contact, Local offices, and About us. A search bar is located on the right. The main content area is divided into several sections:

- Creating opportunities in global commerce:** A banner image of a Maersk ship.
- What do you think?:** A section encouraging users to join the Maersk Line customer panel.
- Latest offers from Brazil:** A table listing shipping routes and rates:

Equipment:	20' Dry	From USD
Rio Grande → Jebel Ali Dubai	570*	
Rio Grande → Dammam	570*	
Rio Grande → Jawaharlal Nehru	570*	
- New customers, start here:** A section for new users to register for a self-service account.
- Registered customers, start here:** A section for existing users to track cargo, find rates, and manage bookings.
- Reducing the Canadian lobster's carbon footprint:** A news article snippet.
- Protecting your privacy:** A news article snippet.
- Search and Track sections:** A large blue box containing search fields for "Search schedules" (From, To, Search), "Search Vessel schedules" (Name, Search, Find Tariff), and "Track shipment" (Container no., Track).

At the bottom, there are links for Terms of use, Privacy policy, Sitemap, and A.P. Moller - Maersk Group. A footer note indicates "Done" and "Internet | Protected Mode On".

Food for Thought:
What kind of business procedures are involved?
[auctions, dynamic scheduling, etc]

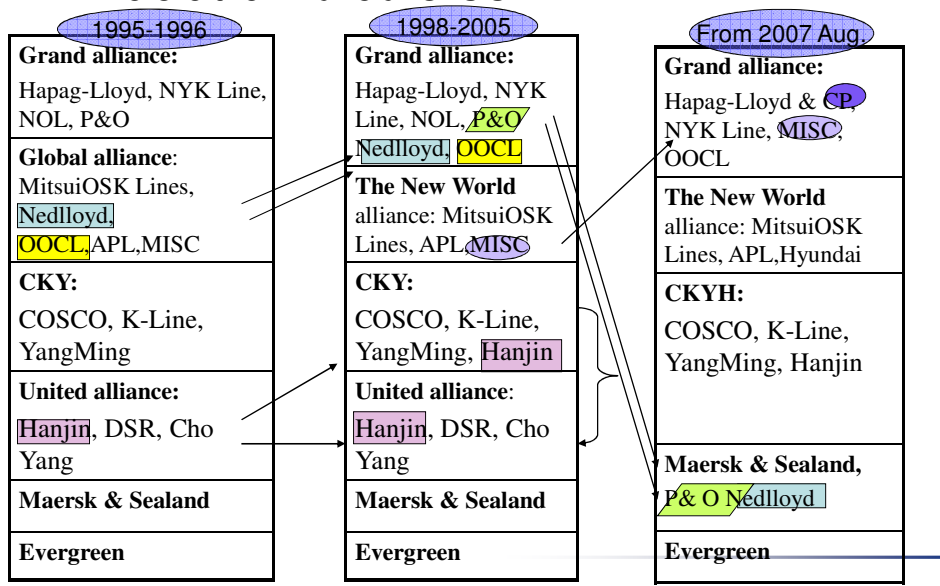
Source: www.maerskline.com

We are users of data rather than providers, at least at this stage.

- <http://www.axsmarine.com/public/>
- <http://sisi-smu.org/viewarticle.asp?ArticleID=16294&ClassID=79>
- <http://www.chinashippinginfo.net/>
- <http://www.elaa.net/>

3. Behaviours of Supply Side

➤ Before the Financial Crisis



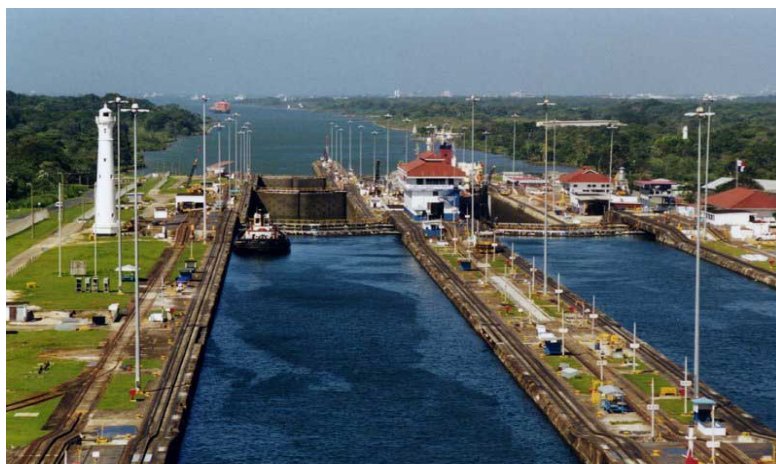
3. Behaviours of Supply Side

➤ **During and after the Financial Crisis**, there are some good reasons as shown below

- ④ Economies of Scale
Deploying mega-ships and build alliances
- ④ Economies of Scope
Implementing sophisticated networks
- ④ Economies of Fitness
 - Vessel-sharing
 - Slot agreement
 - Slot-chartering
 - Slot-exchanging

3. Behaviours of Supply Side

➤ **For the forthcoming years**, there is some other good **excuse**, for instance, for deploying Mega Ships in the liner shipping service sector.

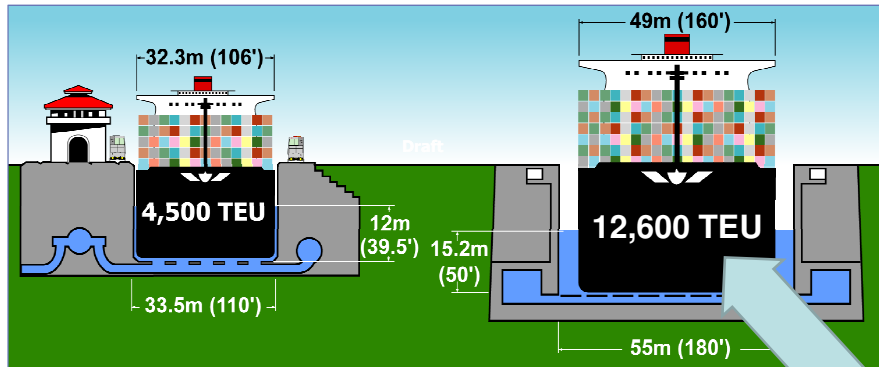


3. Behaviours of Supply Side

Locks and vessel dimensions

Existing locks allow vessels this size to pass through

New locks let much bigger ships go along the canal



Chamber Length 305m (1,000')
Max. Vessel LOA 294.3m (965')

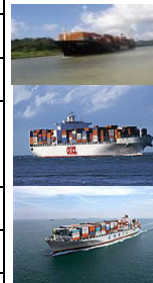
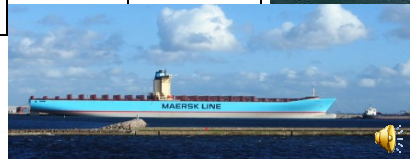
Chamber Length 427m (1,400')
Max. Vessel LOA 366m (1,200')

Source: CSIC website

3. Behaviours of Supply Side

Generations / Classes	Years	Type of vessels	TEU	Speed (knots) / percentage that speed applied
4 th generation	late 1980s to early 1990s	Panamax	4400-5000	23-25
5 th generation	1996-1998	Post- Panamax (VLCS)	6400-7200	24-26
6 th generation	Booming since 2006	Super- Post- Panamax (VLCS)	7800 and beyond	24-26
7 th generation	after 2009	Suez-Max (ULCS)	12500-13000	25-26 expected
		Post-Suez-Max	18000	
		Post-Malacca-Max		

Sources: Shi and Voß (2007) and images.google.com



4. Analysis on Performance Based on Different Mechanisms

Stages	Origin Slot-Chartering Contract	Modified Slot-Chartering Contract
Stage 1	The slot-charterer decides <ul style="list-style-type: none"> revenue share 	Same as that of Advantage Contract
Stage 2	The slot-owner decides <ul style="list-style-type: none"> list price 	The slot-owner chooses <ul style="list-style-type: none"> the list price together with the delivery quantity (capacity)
Stage 3	The slot-charterer decides <ul style="list-style-type: none"> the selling price of the slot to the market together with the order quantity of the slot 	The slot-charterer decides <ul style="list-style-type: none"> the selling price of the slot to the market

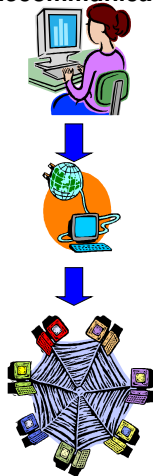
Based on afore-mentioned contracts, the difference on their performance can be as much as 26.4% of collective revenue, given some cost functions.

The mathematic part is skipped :P

Interested readers may contact the presenter for more details.

5. Conclusions and Suggestions

Telecommunication



Port Operation



Freight Shipping

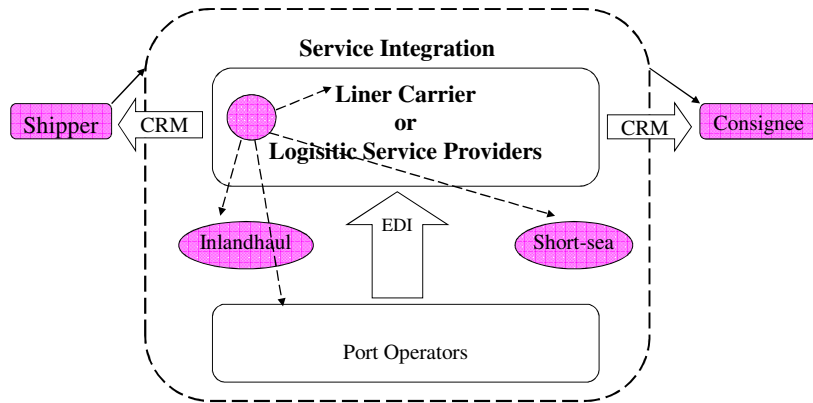


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5. Conclusions and Suggestions

- Slot related information is exchanged among different agents.



Copyright: Xiaoning Shi

Source: X. Shi and S. Voß, 2008, in Journal of Telecommunications and Information Technology



5. Conclusions and Suggestions

- Remember **what is mentioned** on the 1st PPT slide?
- Reliable Data
- Existing Data
- Confidential Data**



Concerns on confidentiality, of course, makes the involved liners less reluctant to share their data on number of slots, the chartering and selling prices of these slots, etc.

However, maybe there is a way to **persuade** them.

To some extent, slot-chartering agreement designed based on centralized (**sharing some data**) decision making procedures would help increase collective profits.



Thanks for your attention!

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