THE STUDY ABOUT A STRATEGY OF GLOBAL CONTAINER TERMINAL OPERATORS

Takayuki Mori
Professor
Faculty of Commerce
University of Marketing and Distribution Sciences
3-1, Gakuen-Nishimachi, Nishi-ku, Kobe
651-2188 JAPAN
E-mail: Takayuki_Mori@red.umds.ac.jp

Abstract: The oligopoly by mergers and acquisitions or Alliances progresses in liner market. At the same time, Industry reorganization by mergers and acquisitions and the oligopoly are going in the world container terminal industry. Purchased P&O Port by Dubai Port World (DPW) and recent announcement of tie-ups PSA and Hutchison, such active movements proved above. An investment to container terminals becomes active especially in China. There are two reasons of investing to container terminals. One is secured terminal for own container vessels by liner companies. The other is because terminal business itself profitable. This study discusses the current situation of container terminal business and the strategy of the Global Terminal Operators. A background of oligopoly in container terminal industry must be also discussed.

Key Word: Global Terminal Operator, Oligopoly, M&A, Privatization, BOT

1. INTRODUCTION

The oligopoly progresses by mergers and acquisitions as well as alliance instead of freight conference in the liner industry. Mergers and acquisitions are also active in the world container terminal industry, and an investment to a container terminal continues in prospect of demand for container transportation, suddenly spread especially in China. The goal of this examine is clarifying a strategy and a future trend of Global Terminal Operators and world terminal industry. Drewry Shipping Consultants calls the world or global scale of terminal operators as “Global Terminal Operators” on their Annual Review. In this paper, also use “Global Terminal Operator” as follows.

The paper proceeds as follows; the first of the part presents the current conditions of
world terminal industry. The second part classified Global Terminal Operators. The third part, it discusses the background of oligopoly by a few Global Terminal Operators and the business expansion methods. Then I take up the upsizing of a containership and measurement by a container terminal. Final section is conclusion at the moment of the study.

Here, I report progress in the way of this study so that there is the part which a study goes continuously and is still investigating.

2. THE PRESENT CONDITIONS OF WORLD CONTAINER TERMINAL INDUSTRY

55% of world containers are handled in 2004 by top ten terminal operators. Hutchison Port Holdings (HPH) handled container 47,800,000TEU in 2004 had the top share of 13.3%. Then share follows AP Moller Terminal (APMT) 9.5%, PSA 9.3%, DPW 9.2%, and COSCO 3.7%. These big 5 operators share was 41.3% in total. By 22 Global Terminal Operators, which manage and administrate container terminal world scale, have 65% share all over the world (Table 1).

Global Terminal Operators share shows high ratio at the terminal so called Hub-Ports, such as Singapore, Hong Kong, Shanghai, Rotterdam, and so on.

Most of terminals which equip with the super gantry crane suitable for supers post panamax size containership like 10,000TEU type are administered by a few Global Terminal Operators. The share by Global Terminal Operators increases by an investment to new terminals, not only development but also mergers and acquisitions. The oligopoly progresses by a few Global Terminal Operators.

Global Terminal Operators are positive to invest container terminal expansion, according to the announced expansion program, container handling capacity will in crease by 50% until 2010 by top 5 Global Terminal Operators. In case of top 10 Global Terminal Operators, the increase ratio is approximately similar 1.5 times.

Table 1. Global Container Terminal Operators

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Million TEU</td>
<td>Share (%)</td>
<td>Million TEU</td>
</tr>
<tr>
<td>1</td>
<td>HPH</td>
<td>47.8</td>
<td>13.3%</td>
<td>53.9</td>
</tr>
<tr>
<td>2</td>
<td>APMT</td>
<td>34.0</td>
<td>9.5%</td>
<td>43.6</td>
</tr>
<tr>
<td>3</td>
<td>DP World</td>
<td>33.3</td>
<td>9.3%</td>
<td>40.8</td>
</tr>
<tr>
<td>4</td>
<td>PSA</td>
<td>33.1</td>
<td>9.2%</td>
<td>39.4</td>
</tr>
<tr>
<td>5</td>
<td>COSCO</td>
<td>13.3</td>
<td>3.7%</td>
<td>15.7</td>
</tr>
<tr>
<td>6</td>
<td>EUROGATE</td>
<td>11.5</td>
<td>3.2%</td>
<td>14.0</td>
</tr>
<tr>
<td>7</td>
<td>EVERGREEN</td>
<td>8.1</td>
<td>2.3%</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td>SSA Marine</td>
<td>6.7</td>
<td>1.9%</td>
<td>8.5</td>
</tr>
<tr>
<td>---</td>
<td>------------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>9</td>
<td>MSC</td>
<td>5.7</td>
<td>1.6%</td>
<td>7.1</td>
</tr>
<tr>
<td>10</td>
<td>HHLA</td>
<td>5.6</td>
<td>1.6%</td>
<td>6.9</td>
</tr>
<tr>
<td>11</td>
<td>APL</td>
<td>5.3</td>
<td>1.5%</td>
<td>6.0</td>
</tr>
<tr>
<td>12</td>
<td>HANJIN</td>
<td>4.4</td>
<td>1.2%</td>
<td>5.4</td>
</tr>
<tr>
<td>13</td>
<td>NYK</td>
<td>4.4</td>
<td>1.2%</td>
<td>6.6</td>
</tr>
<tr>
<td>14</td>
<td>OOCL</td>
<td>3.6</td>
<td>1.0%</td>
<td>4.1</td>
</tr>
<tr>
<td>15</td>
<td>MOL</td>
<td>3.6</td>
<td>1.0%</td>
<td>3.8</td>
</tr>
<tr>
<td>16</td>
<td>DRAGODOS</td>
<td>3.1</td>
<td>0.9%</td>
<td>4.5</td>
</tr>
<tr>
<td>17</td>
<td>K LINE</td>
<td>2.6</td>
<td>0.7%</td>
<td>3.3</td>
</tr>
<tr>
<td>18</td>
<td>TCB</td>
<td>2.4</td>
<td>0.7%</td>
<td>4.4</td>
</tr>
<tr>
<td>19</td>
<td>ICTSI</td>
<td>1.9</td>
<td>0.5%</td>
<td>2.9</td>
</tr>
<tr>
<td>20</td>
<td>YANG MING</td>
<td>1.7</td>
<td>0.4%</td>
<td>1.5</td>
</tr>
<tr>
<td>21</td>
<td>HYUNDAI</td>
<td>1.2</td>
<td>0.3%</td>
<td>1.1</td>
</tr>
<tr>
<td>22</td>
<td>CMA CGM</td>
<td>1.2</td>
<td>0.3%</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Global Operators Total</td>
<td>234.5</td>
<td>65.1%</td>
<td>284.7</td>
</tr>
</tbody>
</table>

DPW including CSXWT & P&O Ports (including terminal in USA)
APMT including P&ONL
Data: Drewry Shipping Consultants

3. A CLASSIFICATION OF GLOBAL TERMINAL OPERATOR

3.1 A Classification by parent company

Global Terminal Operators can be classified by 2 categories by their parent companies. One is the Global Terminal Operator who has port operation or stevedoring company as parent, and the other is whose parent is liner shipping company. An operator affiliated with a liner company is possible to divide by 2 more. The first one is the terminal operator whose main purpose is to support liner business as core of parent company. A Global Terminal Operator of most affiliated with liner company is a business for the first classification that is support of a parent company. There are a lot of cases which support of container transportation which limits the business to U.S.A. and East Asia in an original purpose to support and help container shipping for parent company’s core business. Hanjin and Hyundai (Korea), Yang Ming (Taiwan), OOCL (Hong Kong) and Kawasaki Kisen (Japan) are the examples of this classification. For these companies, terminal business is placed as “cost center”.

The second is to offer service to third party as well as supporting parent core business. The company of this category manages the terminal business as independent and evaluates it “profit center”. APMT and NYK are given for a Global Terminal Operator.
classified in the second obviously. The second category must be minority or exception for the moment. NYK is counted in second category, purchased Ceres Terminal and expanding terminal business itself.

Table 2.Classification of Global Terminal Operators

<table>
<thead>
<tr>
<th>Classification</th>
<th>Characteristics Points</th>
<th>Owner</th>
<th>Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Started with Stevedores</td>
<td>Primary business is port operations and stevedoring “profit center”</td>
<td>Public (Government or Port Authority )</td>
<td>PSA, DPW(P&amp;O Ports), HHLA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>HPH, Eurogate, SSA Marine, Dragados, Grup TCB, ICTSI</td>
</tr>
<tr>
<td>Started with Container Carriers</td>
<td>Main business is container shipping and investment to container terminals is supporting this core activity. “cost center”</td>
<td>Public (Government or Port Authority )</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>CMA-CMG, Evergreen, APL, Hanjin, Kline, MISC, MOL, Yang Ming, Hyundai(HMM)</td>
</tr>
<tr>
<td></td>
<td>Parent company is container shipping, but establish terminal business independently which handle third party business as well as in-house traffic</td>
<td>Public (Government or Port Authority )</td>
<td>COSCO Pacific</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>APMT, NYK</td>
</tr>
</tbody>
</table>

Data: by T. Mori
Note: APMT has clear distinction between the terminal operating business and the parent company liner business

A Global Terminal Operator who placed own business as “profit center” has worldwide expanse, but there are own strong presence and not. APMT resists North America. HPH begins Hong Kong and establishes the presence that is strong in the Far East and North Europe and Central America, the Caribbean. PSA presents a terminal business around Southeast Asia around local Singapore. In addition, P&O Ports was
succeed in DPW which I put in affiliation by having built a strong base in Australia and Southern Asia opening a network in deep Southern Asia of a connection with the local Middle East. APMT concentrates power on Middle East, Africa and Central and South America not to mention China while further expansion, reinforcement more in North America. COSCO is establishing the presence in China and MSC in North Europe and Mediterranean Sea by their own schedule. A common point is to be active in a terminal investment in China which anticipated demand, spread rapidly. In Japan, ICTSI invested and joined operation in Naha, Okinawa and PSA participated to Hibikinada Container Terminal, Kita Kyushu, but are hard to say that is succeeded.

3.2 A classification by management forms

A Global Terminal Operator can classify it by the management form again. These are owned or administrated by public sector like a government or a port authority, and a private enterprise. Representatives of an operator administered possession by a government or a port authority are PSA (Singapore) and DPW (UAE). PSA is the affiliation in investment company Temasek, a holding company owned by the Singapore Government. DPA (Dubai Port Authority) and DPI (Dubai Port International) together and started a terminal business by a name of DPW positively recently. Following the purchase of 2005 CSXWT, then purchased P&O Ports in 2006 and grew rapidly and now ranked to Top 3 Global Terminal Operator. HHLA, which Hamburg City owns, belongs to this classification. In this way most of operators started from port operation business are owned by a government or a port authority. For a Global Terminal Operator affiliated with a liner company, as well as owned by public sector, Chinese COSCO Pacific is given.

On the other hand, most of operators are belonging to private sector, like HPH, Eurogate, SSA Marine and ICTSI etc.

4. THE PROGRESS OF THE OLIGOPOLY IN THE CONTAINER TERMINAL INDUSTRY

4.1 Mergers and Acquisitions strategy

According to the aforesaid, world container handling share is occupied 45% by top 5 Global Terminal Operators and by top ten occupied 55%, and 65% share by 22 Global Terminal Operators. Above all, HPH, APMT, DPA and PSA, these 4 companies are especially active in business expansion. APMT, DPW, PSA surpass in the scale and the number of mergers and acquisitions in 2005. In addition, they are aggressive in investment, and it is anticipated that the scale becomes about 1.5 times as for 4 Global Terminal Operators capacity by 2010. It is anticipated that the oligopoly by Global Terminal Operators progresses more and more.
Mergers and acquisitions become the mainstream as a business expansion strategy. DPW purchased CSXWT in 2005 and P & O Ports in 2006. DPW rapidly growth as Global Terminal Operator and is force to enter top 3 now. NYK is going to serve as expansion of a terminal business, reinforcement by the purchase of Ceres Terminal, too. Many mergers and acquisitions were shown by APMT in 2005 (Table -3), but there are also many mergers and acquisitions by APMT in 2004. APMT raised shareholding ratio of Suez Canal Container Terminal (Egypt) and Gioia Tauro (Italy), and 40% share acquired of Douala (Cameroon) in 2004. Positive investments by APMT continue.

<table>
<thead>
<tr>
<th>Global Operator</th>
<th>M&amp;A</th>
<th>内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>APM Terminals</td>
<td>Vridi Container terminal</td>
<td>acquired 40% stocks</td>
</tr>
<tr>
<td></td>
<td>Abidjan, Ivory Cost</td>
<td></td>
</tr>
<tr>
<td>APM Terminals</td>
<td>Port of Mina Salman, Bahrain</td>
<td>Acquired admin. &amp; Operation right, Mina Salman Terminal</td>
</tr>
<tr>
<td>APM Terminals</td>
<td>Gujarat Pipavav Terminal, Yemen</td>
<td>acquired 47% stocks</td>
</tr>
<tr>
<td>APM Terminals</td>
<td>Terminal de Conteineres do Vale do Itajai S/A (Teconvi), Itajai, Southern Brazil</td>
<td>acquired 50% stocks of Terminal Operating Company</td>
</tr>
<tr>
<td>APM Terminals</td>
<td>Apapa Container Terminal, Lagos, Nigeria</td>
<td>Acquired 25 years Terminal Admin. &amp; Operation right</td>
</tr>
<tr>
<td>PSA</td>
<td>HIT Terminal, Hong Kong</td>
<td>20% stocks transferred by HIT</td>
</tr>
<tr>
<td>PSA</td>
<td>COSCO-HIT Terminal Hong Kong</td>
<td>10% stocks transferred by Cosco-HIT</td>
</tr>
<tr>
<td>PSA</td>
<td>Terminal 3, Hong Kong</td>
<td>Acquired 33.3% stocks</td>
</tr>
<tr>
<td>PSA</td>
<td>Terminal 8 Wset, Hong Kong</td>
<td>Acquired 54.2% stocks</td>
</tr>
<tr>
<td>DPW</td>
<td>Aden Container Terminal, Yemen</td>
<td>Development &amp; Operating Contract concluded</td>
</tr>
<tr>
<td>DPW</td>
<td>Rajeev Gandhi Container Terminal, Cochin, India</td>
<td>Acquired admin. &amp; Operation right</td>
</tr>
<tr>
<td>DPW</td>
<td>Fujairah Container Terminal, UAE</td>
<td>Acquired 30 years Terminal Admin. &amp; Operation right</td>
</tr>
<tr>
<td>DPW</td>
<td>CSXWT Terminal Portfolio</td>
<td>Acquired management right of CSX World Terminal</td>
</tr>
<tr>
<td>CMA/CGM</td>
<td>Zeebrugge OCHZ Terminal</td>
<td>Acquired 35% stocks</td>
</tr>
<tr>
<td>ICTSI</td>
<td>Toamasina Terminal, Madagascar</td>
<td>Acquired 20 years Terminal Admin. &amp; Operation right</td>
</tr>
</tbody>
</table>

Data : Drewry Shipping Consultants  DPW-including DPA and DPI
### Table 4. Container Terminals operating by DP World、PSA、HPH

<table>
<thead>
<tr>
<th>地域</th>
<th>国家</th>
<th>DP World(P&amp;O Ports)</th>
<th>DP World</th>
<th>PSA</th>
<th>HPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Asia</td>
<td>Russia</td>
<td>Vostocyn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>China</td>
<td>Qingdao</td>
<td>Tianjin *</td>
<td>Dalian</td>
<td>Hong Kong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shoukou</td>
<td>Yantai *</td>
<td>Tianjin</td>
<td>Shanghai</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hong Kong</td>
<td>Fuzhou</td>
<td>Yantian</td>
</tr>
<tr>
<td></td>
<td>Korea</td>
<td>Pusan</td>
<td>Inchon</td>
<td>Pusan</td>
<td>Shantou</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South East Asia</td>
<td>Philippines</td>
<td>Manila</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
<td>Laem Chabang</td>
<td>Laem Chabang</td>
<td>Laem Chabang</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brunei</td>
<td>Muara</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Singapore</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indonesia</td>
<td>Surabaya</td>
<td></td>
<td>Tanjung Priok</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Malaysia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vietnam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Asia</td>
<td>India</td>
<td>Chennai</td>
<td>Visakhapatnam</td>
<td>Tuticorin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nhava Sheva</td>
<td>Cochin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mundra</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Port Qasim</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>UAE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Saudi Arabia</td>
<td>Colombo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>Australia</td>
<td>Brisbane</td>
<td>Jebel Ali</td>
<td></td>
<td>Damman</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sydney</td>
<td>Port Rasid</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Melbourne</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fremantle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>Netherlands</td>
<td></td>
<td></td>
<td>Rotterdam</td>
<td>Rotterdam</td>
</tr>
<tr>
<td></td>
<td>Belgium</td>
<td>Antwerp</td>
<td></td>
<td>Antwerp</td>
<td>Zeebrugge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>Le Havre</td>
<td>Genoa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marseille</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Portugal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UK</td>
<td>Tilbury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Southampton</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Romania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UAE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>New York/New Jersey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Philadelphia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baltimore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miami</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>New Orleans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Canada</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>Dominica Rep</td>
<td>Puerto Caucedo *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Venezuela</td>
<td></td>
<td></td>
<td>Puerto Cabello *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bahamas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Panama</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mexico</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Argentina</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data: Mitsui O.S.K. Lines, Drewry Shipping Consultant
4-2 Methods of Container Terminal Business expansion

According to two examples of mergers and acquisitions by DPW, it is clear that mergers and acquisitions are the quickest means for business expansion. However, there are the places must develop from now on by countries or governments. It means that it cannot always use technique to purchase an existing institution. The growth of containers in China is remarkable and terminal business must be profitable. According to “Containerlisation International, March 2006”, Shanghai recorded container handling volume 1,810 million TEU and Shenzhen 1,620 million TEU in 2005. Shanghai’s handling volume expects 2,650 million TEU in 2007 which will be more than Singapore and Hong Kong and it will be top. Like China, some countries has regulation and joint development with a government or a port authority are performed, too. Here, the place where plural Global Terminal Operators push forward development jointly is thought to be a government or a port authority. In this way various techniques is used for business expansion. Effective methods of terminal expansions are privatization and BOT as well as M&A.

The method of expanding terminal business by privatization is to purchase a terminal and the institution or the administration matter from a government or a port authority at an opportunity of privatization. In 2004, Malta Freeport was privatized, and CMA-CGM which was the greatest user bought it. Management consigns it to P&O Ports, and the institution is used sequentially afterwards in a general user. In an example of 2005, APMT acquires Nigerian Apapa Container Terminal, the administration right of Port of Mina Salman of Bahrain. It is a method it does not acquire the assets all in privatization to attract attention here, and to acquire only the terminal administration right. There are examples such as the administration right acquisition of 30 years of Fujairah Container Terminal by DPW and administration right acquisition for 20 years of Toamasina Terminal of Madagascar by ICTSI. In addition, in late years It expects Turkey as traffic of an increasing container and an Iraq gate way, Turkey expresses privatization of Izmir, Mersin, Iskenderun.

The second method is BOT (Build, Operate and Transfer). BOT is the scheme of utilizing private capital. Construction by private company with own fund (Built), then administrate and operate (Operate), finally transfer the constructed facility to government after collecting investment (Transfer). By adopting a BOT (Built, Operate and Transfer) scheme, a government / a port authority can keep the proprietary rights in the long term and at the same time inviting foreign capital and technology is possible as well. Such an example is seen in HPH in an expansion program in Laem Chabang (Thailand) and APMT in American Greenfield.

4.3 A background of the oligopoly in the container terminal industry

A tendency of the oligopoly continues. The oligopoly is progressing not only terminal industry but also liner shipping and other industries, too.
The unification of global market after end of cold war between the East and the West is the progressing background of the oligopoly. The globalization of economy promoted expansion of further trade and expansion of a market. China with 1.3 billion populations, also Russia and India, then in total 3 billion populations entered into a market. Outsourcing and an off shore ring progressed for a capital saving to lead the market which spread, and this began circulation to accelerate further globalization. Friction between nations and a wall go to minimization under global economy. Global enterprises produce where the cheapest cost and sell at the highest price and R & D where many excellent manpower live. Logistics supports such a global economy and global activities. Especially, liner shipping supports international logistics and distributions. Liner shipping companies expand the service scale and improve the quality to meet needs of a shipper.

Alliance in Liner Shipping, the meaning is to materialize the improvement of service quality and scale expansion at the same time with minimum cost. But a weak point of alliance is that decision making takes time as much as members increase. Because of the weak point, there are liner companies choosing mergers and acquisitions not alliance. It is the reason that alliance and mergers and acquisitions activate in liner shipping. Such a movement happens in not only the liner industry but also iron and steel, a car, chemistry in every industry. It is not an exception in a terminal business either.

To win the competition and to rule over a market under global economy, terminal operator must extend a business scale and increase service quality. An enormous amount is necessary for investment and R&D. The shortest method is mergers and acquisitions. The greatest merit gets a necessary thing immediately that is a saving of time of construction of a terminal is to be possible. An existing customer holds the terminal, and there does not need to be a thing suffering from oversupply. As a result, it extends a share and gets power to influence a market.

Another background of expansion of investment to terminal business can support the container transportation that continues increasing under global economy. It was a serious delay of a containership at Los Angeles and Long Beach in autumn, 2004. The situation that, however, was similar in each European port. The meaning that liner companies concentrate power on keeping terminal due to secure terminal for own containership. The congestion at Los Angels and Long Beach in 2004 was the trigger. This means that demand of a terminal continues in future, and it is to have proved that the future of a terminal business is promising the profitable business continuously.

5. FUTURE TREND OF CONTAINER TERMINAL BUSINESS

5. 1 Development of containership upsizing

40 years ago, it is 1966 that Sea Land put the containership into overseas transportation. The first ship was “Gateway City”, remodeling containership and had
loading container capacity with 226 (35 feet container). In 1988, APL launched 4300TEU type containership C-10. It is so called over-panamax or post-panamax, which size was exceeded the size passing through Panama Canal. After C-10, as for the containership, post-panamax size became the mainstream, and, after this, up-sizing of a containership was accelerated. The containership that 10,000TEU loading is possible appears soon. The loading capacity improved more than 20 times greatly for 40 years.

In 2003, a large quantity of containerships were placed an order under good business results and favorable condition of ocean freight. Order of a particularly large-scale containership gets a lot of looks. More than 40% of ordered containerships were 8,000TEU size in 2003. These large-size containerships are completed successively in 2006. Dockyards until 2008 are approximately fully occupied, and, as for the quantity of loading capacity, increase of yearly average 13% is anticipated from 2006 to 2008.

Table 5. Changing Containership-size in Europe/Asia and Trans Pacific Trade Lanes

<table>
<thead>
<tr>
<th>Year</th>
<th>Sea Land (Gateway City ’57) 35’x226</th>
<th>TRIO GROUP 2,100-3,000TEU</th>
<th>TRIO GROUP and Others 3,500-3,700TEU</th>
<th>NYK 4,800TEU</th>
<th>MOL 4,750TEU</th>
<th>Maersk 6,000TEU</th>
<th>HYUNDAI 5,550TEU</th>
<th>Maersk 6,800TEU*</th>
<th>P&amp;O Nedlloyd 6,674TEU</th>
<th>Hapag-Lloyd 7,179TEU</th>
<th>OOCL 8,063TEU</th>
<th>Trans Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Matson 24’x465</td>
</tr>
<tr>
<td>1967</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NYK(Hakone Maru) 752TEU</td>
</tr>
<tr>
<td>1968</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MOL(America Maru) 716TEU</td>
</tr>
<tr>
<td>1971</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Verazano Bridge 2,068TEU</td>
</tr>
<tr>
<td>1973</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maersk 2,100-3,000TEU</td>
</tr>
<tr>
<td>1980/84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>APL 2,284TEU</td>
</tr>
<tr>
<td>1981</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>APL 2,750TEU</td>
</tr>
<tr>
<td>1982</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USL ECON Ship 4,148TEU</td>
</tr>
<tr>
<td>1984/85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>APL &quot;Over Panamax(C10) 4,300TEU</td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OOCO 4,950TEU</td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>COSCO 5,250TEU</td>
</tr>
<tr>
<td>1991-92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EMC 5,364TEU</td>
</tr>
<tr>
<td>1994-95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NYK 6,208TEU</td>
</tr>
<tr>
<td>1995</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maersk Sealand 6,600TEU*</td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Maersk Sealand 6,600TEU*</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P&amp;O Nedlloyd 6,674TEU</td>
</tr>
</tbody>
</table>

Data: Mitsui O.S.K. Lines, Research Office
5.2 Measurement of a Container Terminal with containership upsizing

Lots of large size containerships, more than 8,000TEU, anticipate to lunch after 2006. At the same time, handling of the container cargo continuously increases again. At the main ports, maintenance and expansion of a container terminal were hurried. China and Southeast Asian countries, these are adding to the roll not only the world's factory but also a market. The maintenance of container terminals are pushed forward even in U.S. west coast ports which caused big confusion in 2004. There is the thing which it is assumed that there is a limit in U.S. west coast, and started terminal construction of at east coast. For example, Mitsui O.S.K. Lines started construction of a container terminal in Jacksonville. In terminal maintenance, security of depth of the quay as 15 meters, the equipment of a gantry crane with 18 row lengths in order to support containerships of 8,000TEU or 10,000TEU type in main ports.

5.3 Container supply and demand prospects

According to the aforesaid, the completion of large-size containerships more than 8,000TEU occurs successively after 2006. As a result, in main routes of Asia / European
route, North America route, as for the supply of loading capacity, large increase more than yearly average 10% is anticipated. Piers, Drewry and some Japanese main liner companies forecast the demand and supply increase 2 digits for these 3 years. This means that demand for container terminals is increases continuously more and more.

Table 6. World main Ports Terminals Draft & G/C for over 8000TEU containership

<table>
<thead>
<tr>
<th>Port</th>
<th>Terminal</th>
<th>G/C</th>
<th>MAX Draft (m)</th>
<th>Possibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hong Kong</td>
<td>HIT (Terminal9)</td>
<td>22×9</td>
<td>15.5</td>
<td>○ ○</td>
</tr>
<tr>
<td>2 Singapore</td>
<td>Tanjong Pagar</td>
<td>18</td>
<td>14.6</td>
<td>○ ×</td>
</tr>
<tr>
<td></td>
<td>Keppel</td>
<td>18</td>
<td>14.6</td>
<td>○ ×</td>
</tr>
<tr>
<td></td>
<td>Pasir Panjang</td>
<td>18×24</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>3 Shanghai</td>
<td>WGO</td>
<td>18</td>
<td>14.2</td>
<td>○ ×</td>
</tr>
<tr>
<td>4 Shenzhen</td>
<td>Xiantai(YICT) Phase III</td>
<td>23×18</td>
<td>16.0</td>
<td>○ ○</td>
</tr>
<tr>
<td></td>
<td>Shekou(SCT) Phase II</td>
<td>20×8</td>
<td>17.0</td>
<td>○ ○</td>
</tr>
<tr>
<td></td>
<td>Chiwan(CCT) Phase II</td>
<td>22×17</td>
<td>16.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>5 Busan</td>
<td>PECT</td>
<td>18</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td></td>
<td>HBCT</td>
<td>SP×3</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td></td>
<td>GANMAN(HGCT)</td>
<td>SP×4</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>6 Kaosiu</td>
<td>APL (68/69)</td>
<td>16×2,16×4,13×1</td>
<td>14.0</td>
<td>○ ×</td>
</tr>
<tr>
<td></td>
<td>HMM (75)</td>
<td>17×3</td>
<td>14.0</td>
<td>○ ×</td>
</tr>
<tr>
<td>7 Los Angeles</td>
<td>TraPac</td>
<td>18×1,15×4</td>
<td>13.7</td>
<td>○ ×</td>
</tr>
<tr>
<td>8 Rotterdam</td>
<td>ECT Delta Terminal</td>
<td>18×23</td>
<td>18.6</td>
<td>○ ○</td>
</tr>
<tr>
<td>9 Hamburg</td>
<td>Burchardkai Terminal</td>
<td>SP×3</td>
<td>16.5</td>
<td>○ ○</td>
</tr>
<tr>
<td>10 Antwerp</td>
<td>Delware Dock Terminal</td>
<td></td>
<td>16.1</td>
<td>○ ○</td>
</tr>
<tr>
<td>11 Dubai</td>
<td>Jebel Ali</td>
<td>SP×6</td>
<td>14.0</td>
<td>○ ×</td>
</tr>
<tr>
<td>12 Port Klang</td>
<td>KCT North</td>
<td>SP PP</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td></td>
<td>KMT West</td>
<td>SP×20</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>13 Long Beach</td>
<td>CUT (HMM)</td>
<td>18×3,16×2</td>
<td>14.6</td>
<td>○ ×</td>
</tr>
<tr>
<td>14 Qingdao</td>
<td>QQCT</td>
<td>SP×24</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>15 NY/NJ</td>
<td>HHOOK</td>
<td>15×4,13×2,12×1</td>
<td>12.2</td>
<td>× ×</td>
</tr>
<tr>
<td>16 Tanjung Pelepas</td>
<td>Phase I + Phase II</td>
<td>22×10,18×14</td>
<td>16.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>17 Tokyo</td>
<td>TICT</td>
<td>18×3,17×3</td>
<td>15.0</td>
<td>○ ○</td>
</tr>
<tr>
<td>18 Bremen/Bremerhaven</td>
<td>Eurogate Container Terminal</td>
<td>PP×7</td>
<td>14.5</td>
<td>× ×</td>
</tr>
<tr>
<td>19 Laem Chabang</td>
<td>Tips</td>
<td>13×3</td>
<td>14.0</td>
<td>× ×</td>
</tr>
<tr>
<td></td>
<td>ESCO</td>
<td>15×1,13×2</td>
<td>14.0</td>
<td>× ×</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>PP×3</td>
<td>14.0</td>
<td>× ×</td>
</tr>
<tr>
<td>20 Gioia Tauro</td>
<td>Medcenter</td>
<td>20×4,18×6,17×18</td>
<td>15.5</td>
<td>○ ○</td>
</tr>
</tbody>
</table>

SP= Super Post Panamax, PP=Post Panamax, P=Panamax
Objects=Top 20 Ports
Max Draft 15m (at quay) & Gantry Cranes with 18 row lengths necessary for 8000TEU container vessel.
Data: Mitsui O.S.K. Lines, Research Office
6. CONCLUSION

It is expected that excellent demand of container cargo movements will continue in the future. In addition, large-size containerships more than 8,000TEU type are completed in sequence. Even if there is it, as for the some waves, it is anticipated that an active stage continues as for the container transportation for the time being by supply and demand both sides. In other words it means that there are firm needs to container terminals continuously.

It is a business to be able to anticipate high profit for Global Terminal Operators, whichever the main purpose is supporting liner business or terminal business itself. Then positive investment is expected. Actually, a profit rate of a container terminal is high. Profit rates such as HPH, PSA or ICTSI exceed 30%. P&O Ports, Eurogate, a little bit less than said companies, and it is 15.5%, 11.3% each (2004). Profit of a terminal business of NYK is extremely bad, but rather this will be an exception. Charm a certain investment ahead for a Global Terminal Operator affiliated with port operation or stevedoring, there is already now a large quantity of containers or can anticipate increase of containers in the near future. Interesting part is China where rapidly increase containers. Other interesting part for investment is future containers anticipated to increase, but enough terminal facilities at the present. For example, they are Southern Asia or Central and South American ports.

On the other hand, Global Terminal Operators affiliated liner shipping has intension to maintain and expand terminals that it is necessary to never happen to wait more than ten days at outside port of Los Angels or Long Beach which happened in 2004. Therefore, as for the terminal business affiliated with a shipping company, it is important to secure container terminal at main trade lanes, like U.S., Europe and Far East Asia.

The strategy of COSCO as ranked as No.5 has to be paid attention as well as top 4 Global Terminal Operators, HPH, APMT, DPW and PSA. There is a big difference between top group and COSCO. Top group has share more than 9% each, but COSCO’s share is 3.7% for the moment. COSCO’s participation in planning to a new terminal-centered in the country in China is a plan to raise the handling ability to 2 times by 2010. China Shipping which a name is not yet over as a Global Terminal Operator. However, backed by lots of containers from China, China Shipping has possibility to join Global Terminal Operators in the near future. MSC is interesting, too. MSC became one of the biggest liner companies within very short periods. It has its container fleet following to Maersk Sealand. For the mean time, MSC expands a terminal business mainly on North Europe and the Mediterranean Sea, but the pace is slow in comparison with expanding speed of a container fleet now. But it is worth to pay attention it how MSC evaluates and changes terminal business.

Recently, the construction of container terminal is not easy for land or an environmental problem in main developed nations such as U.S. or Europe. Rather I anticipate that an investment goes to new areas of China, Turkey, Central and South America.
For the time being, HPH, PSA, APMT, and DPW have strong presence continuously in the industry. It is anticipated that the oligopoly progresses. It is not so far that the share by above 4 exceeds 50%. What you should pay attention to is a share of second group which are next to above 4 companies.

On the other hand, rather slow mutual cooperation becomes important. Antwerp International Terminal (AIT), which started the container handling in December, 2005 is nominated for an example. A terminal is administered jointly by 3 companies, Kawasaki Kisen/Yang Ming/Hanjin (except COSCO of CKYH group) and PSA-HNN (PSA Hesse-Noord Natie NV is PSA affiliate in Belgium). In this case, PSA can secure customers and shipping companies can keep influential terminal at Europe main port. As result, an interest is to have agreed. It is expected a terminal business in future if with many opportunities when common enterprises of various combinations such as Global Terminal Operators and Liner companies and a government or a port authority are chosen as a strategy. It is the world where cooperation coexists with competition.

REFERENCES


JOHO No.1533, No153 2006, Mitsui O.S.K. Lines Research Office
