Shipbuilding & Ocean Development
Business Operation

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MITSUBISHI HEAVY INDUSTRIES, LTD.

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1. FY2008 Overview

**Order Receipt**
- After Lehman shock, no new orders for commercial-use ships
- Public-sector orders held at normal level
- Ships ordered: 18 (-14 YoY)
  - 1H: 16
  - 2H: 2 (public sector)

**Net sales**
- Ship deliveries: 23 (+1 YoY)
  - Car carrier: 10
  - LNG carrier: 5
  - LPG carrier: 1
  - Container carrier: 2
  - Patrol boat: 2
  - Ferry: 1
  - Others: 2

**Operating Profits**
- Bottom line improved, but profits were eroded by provision for losses in ordered work arising from yen appreciation and higher prices for steel, and other materials.

<table>
<thead>
<tr>
<th>Initial FY2008 target</th>
<th>320.4 (JPY billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>353.6</td>
</tr>
<tr>
<td>2008</td>
<td>271.3</td>
</tr>
<tr>
<td>Decline in orders for commercial ships</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ship deliveries</th>
<th>Previous 5-yr average: JPY240.7 billion (2003~2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>283.9</td>
</tr>
<tr>
<td>2008</td>
<td>240.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Profits</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>1.6</td>
<td></td>
</tr>
</tbody>
</table>
Lehman shock has caused major changes in marine transport and shipbuilding industries.

1) Marine transport industry

- **Before Lehman shock**
  - Increased seaborne cargoes ⇒ Tonnage shortages ⇒ Soaring transport fees ⇒ Rush for expansion of ship ownerships
  - Concern over “2010 problem”

- **After Lehman shock**
  - Seaborne cargoes decreasing ⇒ Tonnage surplus ⇒ Falling transport fees ⇒ Deterioration in earnings
  - Large backlogs of outstanding ship orders ⇒ Financial difficulties ⇒ Cancellations/Delivery deferrals/Bankruptcies ⇒ Increased scrapping ⇒ Through near term, adjustment of tonnage surpluses

Bankruptcies of shipowner, etc.

- Although few corporate shipowners have gone bankrupt, cancellations and delivery deferrals are increasing.

**<Tonnage, Idle vessels, Scrapped ships, Backlog of outstanding orders>**

<table>
<thead>
<tr>
<th>Ship type</th>
<th>Current tonnage</th>
<th>Outstanding order backlog</th>
<th>Cancellations '08.10-'09.05</th>
<th>Scrapped ships '08.10-'09.04</th>
<th>Tonnage Ships targeted for scrapping (over 20 yrs old)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Worldwide</strong></td>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Tonnage '09.04'</td>
<td>Idle '09.04'</td>
<td>Tonnage '09.04'</td>
<td>Tonnage '09.04'</td>
<td>Tonnage '09.04'</td>
<td>Tonnage '09.04'</td>
</tr>
<tr>
<td>Tankers</td>
<td>5,192</td>
<td>208</td>
<td>1,667</td>
<td>143</td>
<td>49</td>
</tr>
<tr>
<td>Bulk carriers</td>
<td>6,795</td>
<td>126</td>
<td>2,947</td>
<td>459</td>
<td>225</td>
</tr>
<tr>
<td>Container carriers</td>
<td>4,773</td>
<td>506</td>
<td>1,084</td>
<td>105</td>
<td>100</td>
</tr>
<tr>
<td>LNG carriers</td>
<td>338</td>
<td>33</td>
<td>73</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>LPG carriers</td>
<td>1,137</td>
<td>84</td>
<td>146</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Car carriers</td>
<td>778</td>
<td>34</td>
<td>226</td>
<td>13</td>
<td>17</td>
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<tr>
<td>Cargo ships</td>
<td>4,028</td>
<td>124</td>
<td>528</td>
<td>74</td>
<td>63</td>
</tr>
<tr>
<td>RoRo Reefer</td>
<td>1,352</td>
<td>71</td>
<td>66</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24,393</td>
<td>1,186</td>
<td>6,737</td>
<td>807</td>
<td>477</td>
</tr>
<tr>
<td>Ratio to current tonnage</td>
<td>100%</td>
<td>(5%)</td>
<td>28%</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>

( ) = percentage of total

(Sources: “Lloyd’s Shipping Economist” and Clarkson Research Services; cancellations estimated by MHI based on information in domestic/overseas trade journals)
2. Shipbuilding & Ocean Development
Business Environment

2) Shipping industry

<New ship completions & completion forecasts>

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction completions</th>
<th>Completion forecasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
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<tr>
<td>2015</td>
<td></td>
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</tbody>
</table>

<Before Lehman shock>
Soaring demand for new ships → Rising ship costs → New shipyards / Substantial expansion of construction capacities
Entry in 2010 into era of mega-competition

<After Lehman shock>
End of new negotiations/Cancellations/Delivery deferral requests → No new orders/Fund shortages/Risks of bankruptcy
Shift from period of coping with abundant orders on hand while waiting for recovery in new orders, to era of mega-competition after recovery in orders

Order deferral/cancellation risks
Oversupply

Situation of Korean shipbuilders
- 2 bankruptcies, 2 confirmed withdrawals, 4 in rehabilitation
- Paying attention to surplus capacity adjustments at industry leaders that had undertaken significant expansion of construction capacity

Situation of Chinese shipbuilders
- Thanks to support from local governments, no shipbuilder bankruptcies
- Paying attention to trends at large-scale shipbuilding bases of state-owned shipyards and state-owned shipping firms

Negotiations after Lehman shock
- Korea: No new negotiations on commercial ships at Big 3 (Hyundai Heavy, Samsung Heavy, Daewoo Shipbuilding & Marine Engineering)
- China: Thanks to policy of shipping and building ships domestically, orders have been placed by domestic shipowners. The Chinese government is also giving financial support to attract export ship orders.
- Japan: Overall, no new negotiations in commercial ship area
3) In wake of cancellations of new ship constructions and ship charters, buyers are turning to redundant ships

• Having adverse impact on prices of newly constructed non-high value-added specialized ships, such as tankers and bulkers

4) Steel and other material cost trends

• Shipping steel plates

  In 2008, price increase by approx. JPY 30,000/ton YoY (approx. JPY 100,000/ton-level)

  • Japan ⇒ Korea: Original settlement on $700/ton; further price-lowering negotiations under way

  • China ⇒ Korea: Reported to be $500-550/ton

  • Korea domestic (POSCO, Dogukuk Steel): 820,000 won/ton (ca JPY 62,000/ton: reported on 5/21)

  • Japan: Concrete negotiations not yet under way; 2010 prices also stalemaled

• Prices of materials other than steel

  Aluminum: LME $3,000/ton in July 2008 ⇒ down 50% at start of 2009, currently $1,500/ton

  Copper: JPY 900,000/ton in 1H 2008 ⇒ down to JPY 400,000/ton at start of 2009, currently JPY 500,000/ton

  Oil products (crude price): $130/BBL in July 2008 ⇒ down to $40/BBL in early 2009, currently $60/BBL

  Others: In 2009, holding at year-earlier levels, showing signs of leveling off

• The few projected negotiations on commercial ships are expected to generate fierce competition.

• In new negotiations, little chance of winning unless price is quite low or company has quite outstanding technologies in energy conservation, environmental friendliness, etc.
3. FY2009 Earnings Outlook

- Extremely severe environment surrounding commercial ship orders -

- Launch of “Challenge 09” – company-wide special measures – toward securing profits in 2009 and 2010
- Secure volume of work for 2012 and beyond

Order Receipt
- Ship order planned: 8 (-10 YoY) (JPY billion) 271.3 120.0

Net sales
- Ship delivery planned: 25 (+2 YoY) (JPY billion) 240.1 240.0

Operating Profits
- (JPY billion) 11.0

- Continuation of demand decrease amid global recession
- Continuation of strong yen trend
4. Outline of FY2009 Measures

Promotion of “combined management” of special measures to secure profits in the short term, and measures for strengthening operations toward future negotiations

“Challenge 09”: Weather the crisis through company-wide determination in the face of challenging times

(1) Production process reform activities
   Elimination of waste and improvement of productivity in all processes by end of 2010: from Commencement of inquiries/negotiations → Contracts → Design → Construction → Delivery

(2) Strengthening and acceleration of manufacturing innovation promotion activities
   Promotion of standardization/sharing through modular design (MD)
   Improvement and strengthening of SCM under way

- Restructuring of business strategies -

1. Securing orders for specified projects leveraging differentiation in fuel-cost and environmental measures
2. Initiatives to attract orders for special ships and maritime products leveraging the company’s total capabilities
3. Strengthening of order receipt/development response capability and cost competitiveness
5. Company-wide Special Measure “Challenge 09”

Cost reduction activities

- **Accelerate productivity enhancement through production process reforms**
  1. Promotion of high-precision manufacturing (high-precision production planning, high-precision work instructions, high-precision construction technology)
  2. Thorough elimination of waste and promotion of improvements through 3D-MATES

- **Accelerate manufacturing innovation activities**
  1. Innovations in standardization/sharing (MD Project)
     - Development of "root ship" (drawings content fixed rate: 80%)
     - Best practice activities (in common at 3 locations)
  2. Supply chain innovations
     - Promotion of VE collaboration activities through formation of SCM promotion teams
     - **Concentration of painting work for steel outfiltings (higher painting quality and lineup)**
  3. Product reliability innovations
     - Strengthening of quality control system through supplier quality caravans
     - Continued implementation of better finished product activities (evaluation meetings, patrols, review sessions)

- **Review of resources**
  1. Approx. JPY 8 billion in capital investment – centered on upgrading of superannuated facilities – originally included in the 2008 Business Plan will be postponed until next year.
  2. Hiring plans and R&D investments will go forward in line with the 2008 Business Plan.

- **Promotion of purchasing availing of strong-yen merits**
  1. Expansion of overseas procurement
  2. Renegotiation reflecting most recent business period’s exchange rates and steel prices

VE = Value engineering

Ootao Paint Center (Nagasaki)
Start of operations: April 20, 2009
6. Restructuring of Business Strategies
(Headquarters Business Plan)

1) Market outlook and order strategies

1-1) Regular commercial ships

Except for specified projects*, demand for new ship constructions will be sluggish through the near term.
- Focus on eco-ships (fuel, environment) and safety
- Focus on good, inexpensive ships while monitoring material cost trends
  * Focus on ownership by customers and cargo owners of their own corporate and state-owned ships
    (domestic utility company, overseas customers, etc.)

1-2) Ocean development

- Seabed resource development projects are firm; in particular, projects to develop sea-floor hydrothermal ore deposits are going forward.
  (research vessels, drill ships, resource exploration mother ships, resource exploration facilities)
- New demand is expanding for FLNG** for use in developing medium-scale natural gas fields.
  ** floating LNG liquefaction and storage facilities

1-3) Defense and coast guard vessels

- No major changes
- Under supplementary budget, temporary increase in coast guard vessels

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</thead>
<tbody>
<tr>
<td>Regular commercial ships</td>
<td>71.7</td>
<td>78.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Specified projects</td>
<td>42.0</td>
<td>75.0</td>
<td></td>
</tr>
<tr>
<td>Ocean development</td>
<td>213.7</td>
<td>120.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Governmental</td>
<td>285.4</td>
<td>300.0</td>
<td>55.0</td>
</tr>
</tbody>
</table>

<Order Receipt>

*JPY billion**
6. Restructuring of Business Strategies (Headquarters Business Plan)

2) MHI’s future business plans

2-1) Over the next several years, significant demand for container ships or PCTCs can be anticipated. The company will shift focus to specified projects (including special ships) and, further on, ocean development business.

2-1-1) Regular commercial ships

① Regular commercial ships (LNG / LPG carriers, VLCC, large-size ferries)

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<tbody>
<tr>
<td>PCTC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-size</td>
<td>5%</td>
<td>Over 15%</td>
<td>About 15%</td>
<td></td>
</tr>
<tr>
<td>Medium-size</td>
<td></td>
<td></td>
<td>About 15%</td>
<td></td>
</tr>
<tr>
<td>Container carriers</td>
<td>10 – 15%</td>
<td>Over 15%</td>
<td>10 – 15%</td>
<td>Over 20%</td>
</tr>
<tr>
<td>LPG carriers</td>
<td>0%</td>
<td>Over 10%</td>
<td>About 6%</td>
<td></td>
</tr>
<tr>
<td>LNG carriers</td>
<td>-5 – 0%</td>
<td>Over 10%</td>
<td>About 8%</td>
<td></td>
</tr>
</tbody>
</table>

【Specific initiatives】
- Hull form development and improvement of screw propellers
- Efficient pump operation by use of inverter
- Reduction in frictional resistance by air lubrication
- Comprehensive performance improvement program (Eco-ship) jointly with shipowners (outfitting of photovoltaic panels, etc.)

- Adoption in module carrier for NYK Line (slated to go into service in spring 2010)
- Wilhelmsen’s PCTC (slated to go into service in spring 2010)
6. Restructuring of Business Strategies (Headquarters Business Plan)

2-1-1) Regular commercial ships

Participation in big projects in Russia

- One of world’s largest gas fields
- Targeting ownership of large volume of state-owned ships, including domestic construction of LNG ships
- Focus on safety in icy ocean waters
- Propulsion: 2 axes/UST
  - Continuous tank cover

Giant demand for LNG carriers

Technical support (technological cooperation in modernization)

Superiority of MOSS type

Restored value of turbine as main propulsion system (comparison to DFE main propulsion) Performance differentiation

Aiming for large volume of LNG carrier orders
2-1-2) Cruise ships

- Project to develop new type of cruise ship

  - After Lehman shock, negotiations on passenger ships came to a halt; negotiations on new ship constructions are also on hold for the time being

⇒ In preparation for recovery in the cruise market, development is under way of a new type of next-generation passenger ship
6. Restructuring of Business Strategies (Headquarters Business Plan)

2-1-3) Ocean development

① Initiative to develop hydrothermal ore deposit-related facilities (mining mother ship, mining machine)
   • Testing phase (through 2013) ⇒ Preparations toward commercialization

② Making FLNG a mainstay of ocean development operations

- Large-scale gas field (>5Tcf)
- Medium-scale Gas field (0.5-5Tcf)

NG \rightarrow LNG

More than 300 fields in the world

Tcf: Trillion cubic feet (1 Tcf is equivalent to 2 million ton/year x 10 times)

Challenging the market with the superiority of MOSS-type ships (in terms of safety and low cost) and total integration capability
6. Restructuring of Business Strategies (Headquarters Business Plan)

2-1-3) Ocean development

③ Offshore wind turbine
- Development of new business through comprehensive capabilities, in collaboration with power systems

(onshore wind turbines + ship/marine technology)

2-1-4) Repair and remodeling ships

Initiatives into high value-added ship business
- Repair operations at Yokohama were shifted in December 2008 to direct oversight by business headquarters. Centered on the headquarters, business operations encompassing sales and technology together are now under way.
  1) Swift response to business opportunities of all kinds in general ship repairing
  2) Developing high value-added ship areas such as repair of passenger ships and conversion of special ships.

2-1-5) Defense/coast guard ships

- Steady receipt of orders thanks to overwhelming technological strengths
6. Restructuring of Business Strategies (Headquarters Business Plan)

2) MHI’s future business plans

2-2) Strengthening of response capability to orders and development, and strengthening of cost competitiveness

Strengthening of organization and operation of Shipbuilding & Ocean Development Business HQs

- Strengthening of organization and operation of design functions
  - Amid the severe environment caused by dramatic changes in the new ship market environment, the company will seek strategically stronger organization and operation in
  - Headquarters directly overseeing engineering groups encompassing some 700 engineers (excluding roughly 350 involved in general merchant ship design response and warships)

- Strengthening of other organizations and operations
  - Strengthening of horizontal consolidated works of sales, construction, materials, quality assurance and organization and operations

<table>
<thead>
<tr>
<th>Number of staff</th>
<th>Headquarters</th>
<th>Nagasaki Shipyard &amp; Machinery Works</th>
<th>Shimonoseki Shipyard &amp; Machinery Works</th>
<th>Kobe Shipyard &amp; Machinery Works</th>
<th>Yokohama Ship Repair Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>1,050</td>
<td>20</td>
<td>590</td>
<td>140</td>
<td>290</td>
</tr>
<tr>
<td>HQs total</td>
<td></td>
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</table>

Strengthening of both order receipt/development response capabilities and cost competitiveness