

▶ Basic Approach to Risk Management

MOL faces a variety of risks in its worldwide operations. For the following types of risks explained in the below chart, the respective division in charge takes steps to mitigate risks, including identifying risk amounts, reducing risk exposure with hedges, and transferring risk through insurance and other means, in accordance with defined rules and processes in each division. The situation of risk management in each division is periodically reported to the Executive Committee, where information is centrally managed and necessary decisions and responses are made. For new investment decisions, the division responsible for assessment identifies risks and evaluates

them as needed with the relevant division, and then the decision-making process starts. Depending on the importance of the project, the Investment and Finance Committee discusses the matter prior to deliberations by the Executive Committee to dive deeper into the risk and summarize key points of discussion. Matters of utmost importance are put on the agenda of the next Board of Directors' meeting after deliberate discussion by the Executive Committee. Risk management is emphasized in making decisions, such as making it a rule to discuss the matter based on a summary sheet of potential risks.

Major Risks in Business Operations

Risk	Responsible division	Key management rules and guidelines
Operational risks	Marine Safety Division Sales divisions, Insurance Team	Manuals for each ship management company based on international rules
Shipping market fluctuation risks, customer credit risks, and country risks	Corporate Planning Division Sales divisions	Total Risk Control Market risk management rules
Exchange rate, interest rate, and bunker price fluctuation risks	Finance Division (exchange rate, interest rates) Bunker Business Division, Sales Divisions (bunker prices)	Market risk management rules
Climate change risks	Environment & Sustainability Strategy Division Sales divisions	MOL Group Environmental Vision 2.1 TCFD, CDP
Cybersecurity risks	MOL Information Systems, Ltd.	ICT security rules ICT security standards
Natural disaster and epidemic risks	Secretaries & General Affairs Division, Marine Safety Division All divisions	MOL BCP summary
Group governance risks	Corporate Audit Division Division responsible for Group company management	Group company management rules Internal audit rules
Risks related to human rights and supply chains	Environment & Sustainability Strategy Division Human Resources Division	Declaration of Harassment Prevention Compliance rules, Rules of conduct Basic procurement policy

▶ Summary of Major Risks and Countermeasures

Risks Associated with Operations of Vessels and Offshore Plants (Maritime accidents, oil spills, piracy, etc.)

Centered on marine transport, MOL operates roughly 800 vessels of various types and offshore plants. As a company that provides social infrastructure, some of the most serious risks we face are damage to ships and cargo or injury to crew members caused by vessel collisions, ships running aground, fires and other accidents, as well as environmental pollution from leakage of cargo oil and bunker oil (oil spills). To prevent accidents from occurring, without regard to owned vessels or chartered vessels, MOL's Safety Operations Headquarters, sales divisions, shipowners (for chartered vessels), and ship management companies work closely together on tangible and intangible aspects of safety, from training and supervising crew members to adoption of safety standard specifications which effectively maintain the safety of our vessels. We also make a variety of preparations to counter the dangers of piracy and

terrorism by providing sufficient training, putting in place precise operational rules, providing support from Head Office, and installing necessary facilities.

Even in the event of an accident that could not be avoided despite our best efforts, involving damage to MOL or related parties, the Company is prepared with insurance policies that have the necessary amount of coverage (general liability insurance, hull insurance, war-risk insurance, loss of earnings insurance) in order to secure adequate funds for any compensation and to avoid a major impact to profit.

To mitigate reputational risk, MOL implements emergency response training once a year for major maritime accidents, responding to the media and disclosing information about the accident. Media consultants are hired when necessary.

▶ For details, please refer to "Value-Added Transport Services" on page 40.

Shipping Market Fluctuation Risks

Another fundamental risk on a par with accidents in the marine transport business is the risk of fluctuations in the shipping market. To prevent excessive market risks, we manage risks by (1) limiting the total amount of risks, (2) dispersing risks, and (3) reducing the amount of risks during each fiscal year.

To limit total risk exposure, we take steps to obtain medium- to long-term contracts with domestic and overseas customers that are highly creditworthy. In addition to narrowing down the portion of the fleet that is exposed to the market, we work to minimize risks by setting vessel charter periods from shipowners to coincide with periods of contracts with customers, thus neutralizing our exposure to market fluctuation. When investing in vessels not allocated under medium- to long-term agreements, we carefully monitor future vessel supply-demand balance and selectively execute such investments.

To disperse risk, we use a portfolio strategy of diverse types of vessels subject to different patterns of market fluctuation. This approach helps us to balance market risk across business units, compensating for peaks and troughs.

Last, we reduce the amount of risks during each fiscal year by using freight forwarding agreements (FFAs) to hedge risk on vessel types such as Capesize bulkers and Very Large Crude Carriers (VLCCs). We secure stable profits by reducing market exposure during each fiscal year.

We manage our total amount of shipping market risks with a method we uniquely developed, called Total Risk Control (explained later), to periodically measure and control risks so that it does not become excessive in comparison with shareholders' equity.

▶ For reference, please also see "Risk Management for Business Investments" on page 73.

Exchange Rate, Interest Rate, and Bunker Price Fluctuation Risks

Exchange Rates

While Japanese international shipping company's revenues are mostly in U.S. dollars, some costs and borrowings are on a Japanese yen basis, presenting an exchange rate risk. MOL strives to limit its exposure by dollarizing costs and borrowings. To reduce this risk further, we also flexibly employ foreign exchange hedging to limit profit sensitivity.

Interest Rates

The MOL Group is constantly investing capital to build new ships and replace existing ones. When securing long-term funding for capital investment, in principle we hedge interest rate risk by using fixed-rate loans or interest rate swaps.

Bunker Prices

Bunker costs represent a large portion of ship operating costs, and in the past, price fluctuations had a significant impact on the MOL Group's profits. However, currently, most medium- to long-term contracts with customers contain bunker adjustment factor or bunker price surcharge clauses that have the customer shoulder the risk of bunker price fluctuations. For short-term contracts, we work out freight rates reflecting bunker prices at the time, or employ a formula to adjust freight rates that take into account changes in bunker prices. For the remaining exposure, we work to reduce the risk amount by using bunker forward trading. With these countermeasures, the impact of bunker price fluctuations on profit and loss is now very limited.

Climate Change Risks

By causing more severe weather and sea events, climate change such as global warming can present a danger to safe ship operations. The movement toward decarbonization to combat climate change has the potential to drastically change the business environment for MOL, which requires large volumes of bunker oil and transports various kinds of fossil energy as a main cargo, in the context of higher costs to comply with public regulations and a structural reduction in transport demand.

Under MOL Group Environmental Vision 2.1, which is in tune with these trends, MOL aims to achieve net zero GHG emissions

by 2050. The Company has formulated and disclosed a road map for achieving this goal, and is now in the process of introducing clean alternative fuels and energy-saving technologies while increasing the sophistication of efficient fleet operations. By developing and providing solutions for alternative fuel transportation and low-carbon or decarbonization technology, MOL views this change as a business opportunity as decarbonization stimulates new demand. The MOL Group uses a TCFD framework to visualize its climate change risks and formulate related policies.

▶ For details, please refer to "Marine and Global Environmental Conservation" on page 44.

## Cybersecurity Risks

MOL aims to prevent security incidents by implementing the following measures to counter cybersecurity risks that have increased in recent years. In the event one occurs, we will take steps to minimize any adverse effects.

- (1) Create organization dedicated to cybersecurity, and establish a response system for serious ICT incident (strengthen collaboration across worldwide Group companies, including operating vessels)
- (2) Standardizing regulations, security tools, IoT environment updates, and operations within the Group
- (3) Assess Groupwide cyber risks and execute countermeasures
- (4) Implement e-learning and targeted email training to improve security awareness and literacy of executives and employees
- (5) To quickly gather information, coordinate with National Center of Incident Readiness and Strategy for Cybersecurity (NISC), JPCERT, Tokyo Metropolitan Police Department, Transportation ISAC Japan, and Nippon CSIRT Association
- (6) Other: Build a cybersecurity management system (CSMS) for operating vessels that complies with international rules, strengthen network security with cloud security services, and assess and devise countermeasures for ransomware

► For details, please visit our website.  
<https://mol.disclosure.site/en/themes/199>

## Natural Disaster and Epidemic Risks

To keep vessels operating even in the event of major earthquakes or other natural disasters and to fulfill our social role of maintaining supply chains, we have formulated a BCP manual and introduced satellite offices and backup systems, and also provide ample training. We have completed the distribution of notebook PCs to all executives and employees and put remote working environments in place that use cloud-based tools.

In response to the ongoing COVID-19 pandemic that started at the outset of 2020, in February 2020, MOL quickly launched a response headquarters led by an executive vice president executive officer. We implemented a range of measures to

simultaneously ensure (1) securing the safety of related parties, and reducing the risk of spreading the infection, and (2) fulfilling MOL's mission to serve as social infrastructure. We transitioned to full-time teleworking and rapidly identified any impacts on operating vessels and took necessary measures. As a result, we have successfully maintained business operations without any major disruptions, with the exception of challenges for crew member changes due to restrictions on travel between countries.

## Group Governance Risks

The MOL Group consists of more than 450 companies around the world. To ensure operations are being properly executed at each company, Group companies submit required reports to MOL in a timely manner in accordance with Group Company Management Regulations. MOL adequately ascertains the financial conditions and business risks of these Group companies, and requires them to obtain permission prior to executing important management matters.

To ensure compliance at Group companies, we set rules for

each Group company that are based on MOL's rules, and the officers, employees, and temporary staff of Group companies can report to MOL's Compliance Advisory Service Desks.

With regard to audits, each company has an appropriate internal audit structure, and Group companies in Japan and overseas are audited on a periodical and ad hoc basis by MOL's Corporate Audit Division in accordance with the internal audit rules.

## Risks Related to Human Rights and Supply Chains

As a company with operations around the world, MOL respects the human rights of Group employees and all the people involved in the supply chain. It is essential that we ensure their safety and health, and create environments where diverse human resources can play an active role. MOL's Rules of Conduct for executives and employees include sections about respecting human rights and prohibiting discrimination and

harassment of any kind, and this has been promoted as a theme related to sustainability issues. In addition to satisfying international standards, such as the International Labour Organization (ILO) and Maritime Labour Convention (MLC 2006), MOL strives to maintain even higher levels of standards in this regard.

► For details, please refer to "Compliance" on page 74 and "Social Responsibility" on page 75.

## Risk Management for Business Investments

### 1 Importance of Risk Exposure Management and Introduction of Total Risk Control

Not only can freight rates be extremely volatile, the availability of means such as leasing and chartering vessels allows shipping companies to expand their fleets relatively easily without necessarily being restricted by their balance sheets. This mix of extreme volatility and ease of leveraging means that this kind of business is one wrong step away from taking on too much risk. For the long-term stable operations of marine transport companies, it is of vital importance that a company identifies the total risk exposure it can take and understands the amount of risk it is actually taking, while having a framework for balancing these two factors.

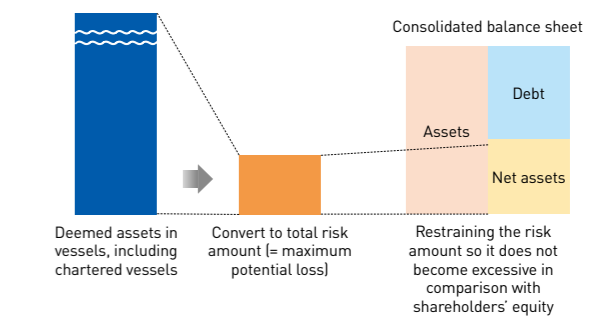
At end of the marine transport boom in the 2000s, MOL failed to cut back on investments at the right timing, anticipating ship tonnage shortages to continue around the world. Having placed a large volume of orders for ships, MOL began to receive these ships, built at a high cost, while the market entered a long-term slump in the 2010s. This continued to weigh heavily on the Company's profits until management decided to make drastic business structure reforms. Learning its lessons from this painful experience, MOL developed and introduced its own risk framework, called Total Risk Control, in 2014 as a set of constitutional guardrails against excessive investment in the future.

### 2 Approach to Total Risk Control

Total Risk Control is a marine transport industry adaptation of the risk management methods widely used by financial institutions. Considerable stressful scenarios (low freight rates, weak vessel sales & purchase market) are applied to the entire fleet at the same time and run for a certain length of time to calculate maximum potential losses. The risks are managed so that the total loss is not excessive compared with shareholders' equity. Basically, this identifies the total exposure to risk taken based on the standard criteria that all debt can be repaid if all owned vessels were to be sold. Under this framework, a Capesize bulker will be assessed as having low risk exposure if it has a long-term contract or a low book value (if owned) or charter rate (if chartered). Conversely, the same Capesize bulker will be assessed as having high risk exposure if it is subject to a short-term market or a high book value (if owned) or charter rate (if chartered). Additionally, we take into account the dispersion effect where the freight and charter market for each kind of ship fluctuate at different times. Companywide risk exposure is calculated once every six months, and the results are compared with shareholders' equity, reported to the Board of Directors, and audited. When Total Risk Control was first introduced, the framework was simple for mainly covering marine transport market risk and vessel sales

market risk. Subsequent revisions have broadened the scope of the framework to include country risk, customer credit risk, and Group company business risk, for a more appropriate measurement of risk exposure.

Diagram of Total Risk Control



### 3 Total Risk Control and Consistent Standards for New Investment Decisions

When Total Risk Control was first rolled out, there was an issue where the profitability benchmarks that the Company uses to make new investment decisions were not directly linked to the system. Through subsequent revisions, the framework was improved so that the funding costs in profitability assessments varies depending on the size of risk exposure, which is calculating based on the current concepts of the system. In other words, internal evaluations of ship investment projects now take into consideration the maximum potential loss in line with the amount of risk associated with the ship and applies equity cost for this portion,

while debt cost is applied in the risk-free portion. In this way, the higher the risk in a ship, the higher the funding cost associated with it, and the investment will not be approved unless profitability are sufficiently high to commensurate with this risk. Based on this approach, investment projects that consume a large amount of Companywide investment leeway (remaining amount of risks that can be added) face high hurdle rates, and projects that require fewer resources face lower hurdles to approval. The framework ultimately leads to an overall portfolio that balances risks against returns.

Diagram of Internal Cost of Internal Funding Cost Based on Size of Risk

