MARINE INSURANCE AND THE POLAR CODE

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Abstract

Climate change and technological enablers are contributing to increased shipping in Arctic waters. Sea ice extent in the Arctic region during 2016 was below what was typical of past decades and on 7 March 2017, Arctic sea ice reached its maximum extent for the year, the lowest in the 38 year satellite record [1]. This in light of growing demand for the Arctic's natural resources, increasing cruise and adventure tourism, exponential population growth, and the quest for more efficient shipping routes feeds the growing global interest in the Arctic. As activity increases so will the risks to people, the environment, and shipping. In basic terms, risk means uncertainty. Insurance is one way to transfer risk from the vessel operator to the underwriter and its practice dates back to Lombardy, Italy around 1250AD [2]. Insurance premiums are high when there is uncertainty, minimal empirical data, a lack of accepted industry standards and best practices, and a lack of regulatory oversight. Risk mitigation measures producing fewer insurance claims will lower insurance premiums. The Polar Code, a risk mitigation measure, came into effect on 1 January 2017, as a means to address and protect against the significant risks to people, shipping, and the fragile ecosystems in Polar regions. From a regulatory perspective, the Polar Code deals with navigation, ship design and equipment, education and training, search and rescue, and environmental concerns. A key element of the Polar Code is the requirement for a ship specific Polar Waters Operational Manual detailing how the ship personnel will respond to a worst-case scenario in light of the anticipated conditions for the planned voyage. Under current rules, vessels operating above 72 degrees north had to agree on a separate policy with its insurer with unique conditions negotiated for each vessel and voyage. Protection and indemnity (P&I) liability insurance is compulsory for Arctic trade. P&I policies generally do not include trading limits. However, P&I Club rules generally require members to notify the Club if a ship is to perform an Arctic voyage on the basis that this can represent an alteration

of risk. The Club needs to assess whether and on which conditions it may agree to cover the risks involved, and its member will have to provide a full risk assessment for planning a safe voyage. Hull and Machinery insurance generally excludes Arctic waters as a trading area unless prior permission is obtained from the insurer. Assureds are expected to have a well-prepared and equipped ship and competent crew to perform a safe voyage. An insurer insures against the risks that its assureds encounter in their trading activities. These risks are based on an evaluation of the probability that the insurer will have to pay a claim. In the past, a small cohort of well-prepared, specialized, and experienced operators having only minor incidents has performed Arctic voyages. Insurance challenges will arise when less experienced players enter the market. The Polar Code aims to level the playing field.

Keywords: Marine Insurance, Risk, Polar Code, IMO

Introduction

Global attention towards the Arctic is increasing, especially in the exploitation of its waters and hence in maritime transportation. Some of the main drivers of this increase include a decline in the coverage and thickness of multi-year ice, longer open water periods during the Arctic summer, increase in demand for renewable and non-renewable resources in the area, improvements in technology, potential gains in business efficiency via shorter shipping routes, and population growth of native and non-native people requiring greater consumer choice and more services. Regardless of the global growth in interest, the Arctic remains a very challenging environment in which to safely and effectively operate as it is a remote, isolated, geographically vast, sparsely populated, environmentally sensitive, climatically harsh, poorly charted and meagerly serviced region with extensive periods of total darkness and waters that are ice covered or ice-infested.

On a global comparison, Arctic shipping is relatively small. In 2014, Arctic shipping comprised 9.3% of global shipping traffic with most of this comprising of fishing vessels and passenger vessel expeditions in the Svalbard region of Norway [3]. In light of the small volume of cargo ships operating in Arctic waters there is consequently far less statistical information on losses from which to base insurance premiums. In addition, the cost of doing business in remote and unpopulated Arctic regions is significantly greater than in more accessible and highly populated southern regions. The most common type of marine occurrence, both globally and in the Arctic, is grounding [4]. Dispatching a tugboat or salvage resources from southern latitudes to tow a grounded vessel or remove a shipwreck in

the Arctic will be of substantial loss. Further, environmental cleanup cost in the Arctic are on average ten times more expensive than in southern waters [4]. These risks and others associated with Arctic shipping add to the potential for significant financial loss and therefore are captured and reflected in much higher insurance premiums than similar operations in southern waters. The basic tenet of insurance is that the premium shall commensurate with the risk.

The Polar Code identifies ten hazards having potential to elevate levels of risk during polar navigation [5]: ice, topside icing, low temperatures, extended periods of darkness and daylight, high latitude, remoteness, potential lack of experience, potential lack of suitable emergency response equipment, severe weather, and sensitive environment.

Risk identification methods

The Arctic presents many hazards and risks to maritime transportation and thus effective risk management is a vital component of safe and successful business operations. To help drive the need for risk management, the International Maritime Organization (IMO), through its International Safety Management (ISM) Code, requires owners and operators to "assess all identified risks to its ships, personnel and the marine environment and establish appropriate safeguards"[6]. To expand on the work of the IMO in the area of risk management, a Formal Safety Assessment (FSA) concept has been developed and credited with prompting numerous initiatives and regulatory changes [7]. The goal of the FSA is to predetermine need so that measures can be established in an attempt to prevent tragedy. The FSA methodology has several of the characteristics common to many risk management approaches and is a five-step process with feedback loops. The steps include hazard identification, risk assessment, risk control options (RCOs), cost-benefit assessment (CBA), and decision-making recommendations [7]. While the FSA methodology is not without its critics, it is felt that with appropriate application tailored to numerous challenges, it is a suitable risk management tool for use in Arctic maritime transportation [4].

Risk definitions and financing

Risk management definitions relevant to Arctic shipping and insurance:

Risk - potential variation in outcomes;

Operational Risk – the possibility of loss due to business, operational, credit, hazard (accidental), and reputational risks;

Operating Risk – the possibility of loss due to the malfunction or breakdown of existing technology or support systems;
Hazard (Accidental) Risk – the possibility of loss arising from property, liability, net income, and human resource loss exposure;
Loss Exposure - anything that presents a possibility of loss;
Loss - an outcome that reduces an organization's financial value;
Risk Financing - obtaining funds to pay for or offset an organization's losses.
Frequency – the number of occurrences of a loss over a specific time period, usually an annual basis; and
Severity – the size of losses in terms of the dollar amount that must be paid to recover the losses.

The funds to pay for or offset an organization's losses can come from internal or external sources. An example of an internal source would be cash. An example of an external source would be insurance. Property-casualty insurance is commonly used as a method to transfer hazard risk rather than retain it [8]. In the maritime sector, such insurance would typically fall under hull and machinery (H&M), protection and indemnity (P&I), and cargo insurance [2, 8].

Assessing the risk

As stipulated by The Chartered Insurance Institute [9], the principle risk assessment factors taken into account when underwriting a navigating hull risk and determining a rate to charge the vessel include three main areas:

1) Vessel factors:
    a) type and tonnage of vessel;
    b) trade type the vessel is involved in and trading area(s);
    c) classification society in which the vessel is entered including any changes;
    d) flag of vessel for registration;
    e) type of machinery including main, auxiliary and refrigeration;
    f) repair costs particular to vessel type and its trade;
    g) underwriting experience of similar vessels;
    h) age of vessel; and
    i) loss record of the particular vessel.

2) Ownership and management:
    a) claims experience of owner and manager;
    b) crew experience and nationality; and
    c) owner's operating history.

3) Insurance factors:
    a) conditions of insurance being sought;
    b) valuation of vessel for insurance purposes; and
    c) level of deductible.

Ice navigation management systems

Ice is one of the most challenging impediments to managing Arctic navigation. Like all management requirements, a system of measurement is needed before successful management can occur. To minimize risk of damage to vessels, navigation in the Canadian Arctic is controlled by two ice monitoring systems, the Zone Date System and the Arctic Ice Regime Shipping System (AIRSS). Similar to AIRSS is the Polar Operational Limit Assessment Risk Indexing System (POLARIS). POLARIS has been developed as a risk mitigation tool to accompany and strengthen the Polar Code. The Zone Date System consist of the Canadian Arctic divided into 16 shipping safety control zones in which vessels are permitted to navigate depending on the time of year and the vessel's ice strengthening [10]. Typically, Zone 1 is the most challenging to navigate in terms of ice while Zone 16 is the least challenging. AIRSS combines information on the observed ice conditions and the vessel's capability in ice to generate a class-dependent ice multiplier (IM) and subsequently an ice numeral (IN). The vessel can only proceed in the existing ice regime if the calculation results in a zero or positive ice numeral. POLARIS is similar to AIRSS with the addition of potential speed limitations. It uses a risk index value (RV) that helps determine a risk index outcome (RIO). Depending on the value of the RIO, a vessel may be permitted to proceed with or without a speed limitation or it may not be permitted to proceed at all [11]. All three systems are risk mitigation tools to help prevent the vessel from becoming stuck in or damaged by ice.

Findings

As part of the research for the paper, four Canadian Arctic shipping operators were interviewed to inquire on the impact that the Polar Code is or may have on insurance

premiums for their Arctic vessels. The four companies are well-established Arctic operators, have been working in Arctic waters for decades, and are cognizant of the hazards identified in the Polar Code. The operators include Fednav, Coastal Shipping, Desgagnes, and Nunavut Eastern Arctic Shipping (NEAS). Vessels belonging to these companies are required to operate under stringent Canadian regulations, namely the Shipping Safety Control Zone Order, Arctic Shipping Pollution Preventions Regulations, and Navigation Safety Regulations that are pursuant to the Arctic Water Pollution Preventions Act [12]. The Act and its regulations provide guidance on what is required for vessels to operate in the Canadian Arctic and consequently provides insurance underwriters with a level of confidence and comfort when deciding on insurance policy conditions and calculating premiums. The consensus from the open-ended interviews concluded that the Polar Code has no immediate impact on current insurance conditions and premiums. The rationale being that these companies have been working in the Arctic region for decades, long before the Polar Code. These companies have significant experience, well established operating procedures, and subjected to a very stringent Canadian regulatory regime. They also reported they are finding it easier to secure insurance coverage that is less restrictive than previous policies.

In addition to interviewing Canadian shipping companies, a London based marine insurance broker, working with Canadian shipping interest in the Arctic, was interviewed with respect to the impact of the Polar Code on insurance. A summary of the interview highlighted that underwriters have limited sources of knowledge as relatively very few ships operate in the Arctic. Consequently, underwriters do not have the history, knowledge or experience to assist them. However, they realize that in light of the various and numerous differences in the relatively small number of Arctic ship operator, a “one size fits all” pricing scale would not be effective. For example, Fednav Ltd. operating all year round in hostile climates and having vast experience and knowledge as opposed to a Far East operator calling to the Arctic for the first time should be considered a higher risk and would attract a higher premium and restrictions/subjectivities in coverage. Further, during the last decade the insurance market has softened. Consequently, coverage has become considerably easier to find and underwriters are under pressure to reduce rates and not impose restrictions. With the combination of low freight rates and a soft market, the appetite to enforce new codes has been limited. In summary, although underwriters and various committees located in London are cognizant of the Polar Code, market conditions have resulted in very little reaction, as

they are not in a position to move and rely heavily on ship owners to adhere to regulations.

Risk mitigation

Institute Warranty Limits (IWL) 1976, American Institute Trade Warranties 1972, and the International Navigating Conditions (INC) 2003 are similar risk mitigation tools used by insurance underwriters. All three, based on commercial, climatic and political conditions, provide geographical boundaries and dates, which wholly or partially restrict vessel movements [13, 14]. As illustrated in Figure 1, except for Western Europe, much of the area north of approximately 52°N is restrictive. Primary hazards for the Arctic, north of 70° North Latitude, as per the INC 2003 are: a) ice – November to March, b) fog – worst June and July, and c) reefs – depths of 4 metres of less [15]. In 2003, the IWL were revised, in light of climate change and current political conditions, and referred to as the International Navigating Conditions [13, 14, 15]. When calculating an insurance premium for a vessel, coverage to navigate in a Warranty area requires an additional premium. The additional premium is specific to the Warranty area and date, and based on gross registered tonnage (GRT) plus percentage on insured value [9]. For vessel having an ice class (IC) notation, the additional premium may be reduced by 70% for IC 1, 30% for IC 2, and 15% for IC 3 [9].

Figure 1. International Navigational Restriction Limits. Source: [14]

As per Lloyd's Market Association [15], vessels granted permission by their underwriters to operate inside of the excluded areas shall be fitted with and adhere to the following:

1. Two independent marine radars
2. A GPS receiver
3. GMDSS
4. Weather facsimile
5. Gyrocompass with latitude correction capability when North of 70°
6. Fully operational and manned by qualified personnel
7. Appropriate navigational charts corrected up to date, sailing directions and pilot books
8. Shall adhere to all pilotage requirement, traffic regulations and controls established by coastal authorities.

Typically, a vessel seeking to be 'fixed' in the charter market would look to secure insurance coverage with a minimum premium and consequently having full Institute Warranties restrictions. If the vessel was subsequently 'fixed' and required to operate outside of Institute Warranties as per the Charter Party, it would seek additional insurance coverage and pass the associated cost onto the Charterer.

Conclusion

The Polar Code is an important step forward in mitigating the risks associated with polar navigation and consequently helping to ensure its goals of safety and reducing the potential for environmental pollution. The Code takes a goal-based standards framework and as such does not prescribe exactly how to achieve the goals [16]. How a vessel operator achieves the overarching goals of safety and pollution prevention will be depended on numerous variables such as vessel type, operating area in the Arctic and time of year. Consequently, a Polar Waters Operational Manual (PWOM) is to be tailored for each vessel. The PWOM is to be used by the owner, operator, master and crew to help support the decision-making processes during normal operations and emergencies. The PWOM shall also include a collection of risk-based operational procedure specific to the vessel's area of navigation and operations. The functioning of the PWOM is similar to the ISM Code in that it identifies risks that the vessel may expect to encounter and must plan to prevent or mitigate such risks. These risks will be associated with the hazards noted in the Polar Code. With respect to prudent, diligent and experienced Arctic operators, the intent of the PWOM will have already been met in Part

A-1.2 of the ISM code [6]. Consequently, the Polar Code appears to have no immediate impact on insurance coverage and pricing for seasoned Arctic operators.

Further research needs to be carried out with respect to interviewing novice Arctic operators and those planning to commence operations in the Arctic for the first time. This will allow for a comparative analysis. Further, additional interviewing needs to be conducted with a larger cohort of marine underwriters both experienced and inexperienced with Arctic operations.

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