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Exploration of Premium Factors for Passenger Vessel in Indonesia

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***Abstract*— The premium of Indonesian marine insurance is one of the issues for maritime players in Indonesia, particularly for passenger vessels. Indonesian government also released some policies as a part of positive initiatives to bring Indonesia to the next level of maritime involvement in the world, however, the insurance side as the main risk protection of maritime operation is not positioned as the main part to be discussed. Marine insurance is the key to managing the overall risk of the passenger vessels during the operation. In fact, in Indonesia, insurance studies still have a gap in their application, particularly for the marine insurance industry and for passenger vessel insurance. The underwriter has difficulties in assessing the real risk of Indonesian passenger vessels while the shipowners do not put safety as their top priority in managing the business. This research aims to solve two main problems in Indonesian passenger vessel insurance; the first one is to identify the problems of Indonesian passenger vessel insurance and the second is to explore and identify the premium factors of Indonesian passenger vessel insurance. The study found that the big claim ratio reported over the years, the lack of marine insurance underwriters' ability to assess the risk, the lack of marine insurance capacity, and the premium war are the main problems faced by Indonesian passenger vessel insurance players. Accordingly, this paper is also revealing several premium factors for Indonesian passenger vessel insurance; including the vessel type, GT, claim record, years of built, trading area, extent of insurance coverage, vessel condition, as well as the moral hazard from the owner and the crew.**

Keywords— passenger vessel, marine insurance, risk management, premium, insurance, premium factors.

I. INTRODUCTION[1]

Indonesia, a maritime country which consists of about totalling more than eighteen thousand islands and having a large area of the sea. Indonesia is also known as the largest archipelago in the world with total area of the sea four times bigger than its land are with total 7,9 million square of sea territory as released by Consulate General of The Republic of Indonesia in Canada [1]. This condition causing the marine logistics system in Indonesia is keep growing year by years for some reasons [2]. As the consequences of the government concerns on maritime Industry, the total operational activities within the marine industry are running in every minute, and every second. The busy operation of Indonesian maritime industry is shown by the data released from the port of Tanjung Priok, Jakarta. The data released that the total departure and arrival of the vessels in 2022 is increasing as compared to the previous year in 2021 [3]. Even though there is a reduction due to the pandemic of Covid-19 during 2020 and 2021, however, the operational activities in 2022 showed the positive result [3]. Additionally, the statement from Indonesian National Shipowners Association (INSA) is also supported by the release from International Monetary Fund (IMF) and The World Bank that was projecting the national economy of Indonesia would positively grow by 5% and 5,1% in 2023, while Bank Indonesia and Indonesian Financial Ministry projected the national economy of Indonesia would positively grow within 4,6% until 5,3% in 2023 [2]. Furthermore, INSA predict that the above condition will increase operational activities in the national maritime industry for all the board vessels, including container vessel, general cargo, tug, and barges, tanker, as well as the passenger vessel [2].

The data and the facts as explained above is showing the dilemma for the Indonesian maritime

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industry. The potential of the business is not aligned with the solution of the problems faced by the stakeholders of Indonesian maritime industry. One of the main businesses that could support the sustainability of the industry is the marine insurance. However, the research related to this field needs more interest to explore. This research is aiming to open the awareness of both academic and practical perspectives toward marine insurance by exploring two main problems; first is the exploration of the problems faced by Indonesian passenger vessel insurance; and the second is the exploration of the premium factors for passenger vessel in Indonesia.

This paper will begin the discussion by identifying the problems causing the marine insurance challenges in Indonesia. The explanation on how the insurance structure in Indonesia as well as the claim handling process will causing the problems faced by the industry. Additionally, this paper will also focus to explain how the identified problems could also affect the premium formulation in Indonesian passenger vessel insurance. Accordingly, this paper will also exploring the premium factors for Indonesian passenger vessel insurance by obtaining data from interview with the expert in marine insurance. This interview process might be the crucial aspect to enrich this research and contribute the rare research on marine insurance premium factors model [41].

A. Indonesian Passenger Vessel Insurance Premium Problems

The insurance premium is becoming the important topics to be discussed because it is reflecting the sustainability of the insurance business [36]. Describing the different point of view between Indonesian marine insurance structure and international marine insurance structure, this research conclude the main point that the phenomenon faced by Indonesian marine insurance industry is centralised into four issues; the lack of understanding of the underwriter to assess and define the risk profile, the lack of local capacity, the unmanaged loss record, as well as the inability to formulate the appropriate premium rate. Further studies are indeed required to having deeper understanding and finding the best solution for Indonesian marine insurance industry's problems and phenomenon. The risk assessment model and form must be formulated to capture the real risk profile of Indonesian vessels prior to the policy attachment. Unfortunately, the limited expert in marine risk assessor and surveyor become the main contributor problem toward this phenomenon. The inability of marine insurance underwriter to capture the risk is also becoming the other issues when the available capacity is not placed for marine insurance, but for other business line.

The ignorance from the assured/ vessel owner to ensure the fitness of their vessel during the operation is becoming the other challenge to manage the loss ratio in Indonesia. The loss ration increasing year by year is also impacted by the low premium collected due to the absence of ability to formulate the marine insurance premium appropriately.

B. Premium Calculation Model

There are a lot of studies of premium calculations, however, the previous studies are focused on non-marine insurance premium. The concept of premium calculation might be similar between other insurance products. The different part should be in the contributor factors of premium calculation. The premium is considering several factors as the expected contributive factors (ECF) and Basic Premium (BP) to determine the multiplicative premium equation (MPE) [40] [47]. In Indonesian Financial Regulator (OJK) the premium is also considered by the total calculation of basic premium and the policy or underwriter cost.

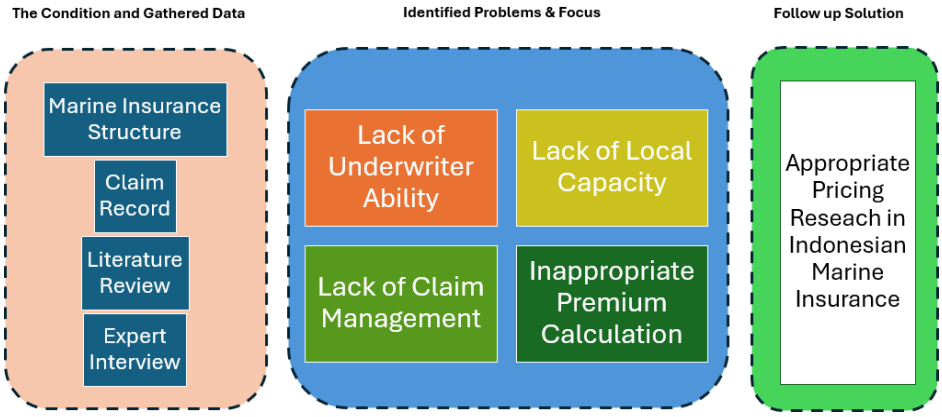


Figure 1 Marine Insurance Problems & Focus in Indonesia

$$MPE = BP \times (Expected\ Contributive\ Factor)$$

MPE *: Multiplicative Premium Equation*
BP *: Base Premium*
ECF *: Expected Contributive Factor*

Upon having the calculation of MPE, the score should be considered as one of the portions of Fundamental Insurance Equation (FIE) which conclude the premium amount to be applied for one policy cover.

$$FIE = MPE + LAE + UWE + UWP$$

FIE *: Fundamental Insurance Equation*
MPE *: Multiplicative Premium Equation*
LAE *: Losses Adjustment Expense*
UWE *: Underwriter Expense*
UWP *: Underwriter Profit*

The final premium (FIE) shall also consider several factors aside to the MPE, including the losses of adjustment expense, the underwriter expense as well as the underwriter profit. As mentioned earlier, this research would focus on the exploration on problem faced by Indonesian passenger vessel insurance and the exploration of the premium factors (ECF) identified in Indonesian passenger vessel insurance premium.

II. METHOD

This research aims to explore the initial discussion of the problem to formulate the proper premium for Indonesian passenger vessel insurance. This paper is using qualitative method to explore the literature as well as conduct the interview with the expert in marine insurance to obtain the point of views to solve the problem of this paper.

A. Problem identification and problem formulation

The main problem of this research is to identify the problems causing the improper premium calculation of the Indonesian passenger vessel and to identify the premium factors for Indonesian passenger vessel insurance. The premium problem and premium factors are identified by conducting the series of interviews with the marine insurance expect both domestically and internationally as well as by reviewing the literatures.

B. Literature

This research is also exploring the literature review in relation to the premium calculation discussion, particularly in marine insurance field. However, the literature review process revealed that there is a lack of research that focus on marine insurance premium calculation. This limitation makes this research to be more important to be pursued and enrich the literature study for this marine insurance field [40]. Additionally, the confidentiality of the premium formulation for the insurance company is also becoming another challenger to conduct the research in the field [42]. However, the sharpness of the analysis in marine insurance premium is the main requirement that need to be ensured since the beginning of underwriting process of marine insurance [43].

The discussion of marine insurance premium model or calculation is indeed rare, particularly for the passenger vessels as the main potential business of Indonesian marine industry. According to Knapp and Heij, the maritime risk exposure can be assessed properly to formulate the concept of monetary value at risk which consider the potential claim amount to be converted to the premium level [44]. However, the formulation of marine insurance is not simple, the insurance company might not be able to release the low- risk contributor with the higher premium for the sake of compensation to the higher risk [45] [58].

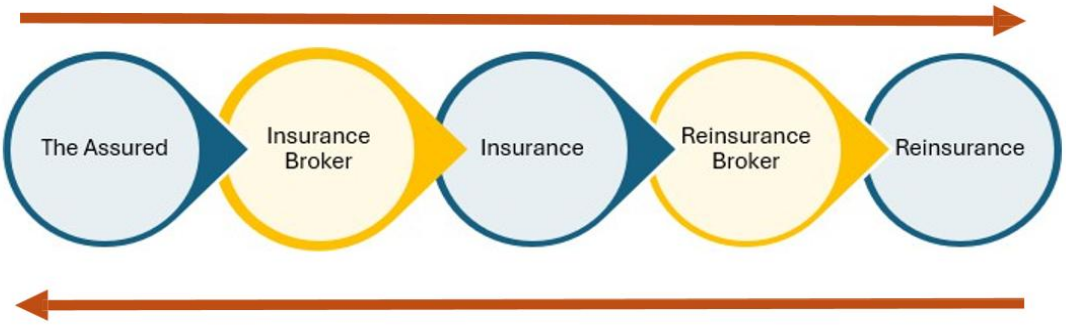
Previous research mentioned that the price of the insurance premium might be determined by two factors, the total amount of the claim and the claim record for the several years ago [46]. The historical data might be processed using several analyses including the general linear model. However, the challenge of defining the correct contributor factors to the premium is also required [47]. The risk of maritime operation could be assessed from the likelihood and the consequence of each risk event during the operation [48] [56]. Meanwhile, the parameters of the assured are also contributing to the calculation of the premium by the underwriter [49] [50] [57]. The development of business behaviour and revolution are impacting to the requirement of the insurance underwriter to adjust the process of risk assessment and define the proper insurance rating [51] [52]. The insurance company itself tries to calculate the premium by considering the potential market and pooling the risk into the syndicate [53] [54] [55].

III. RESULT AND DISCUSSION

A. Indonesian Marine Accident and Claim Report

Claim report is one of the main factors considered as the premium factors [24]. The problem that might happen is that the premium as produced within an insurance year is too competitive and not compensate the claim cost. The gap between premium produced and the recorded claim becoming big question on whether the premium strategy of the marine insurance has been properly discussed and formulated, moreover, the study of premium model

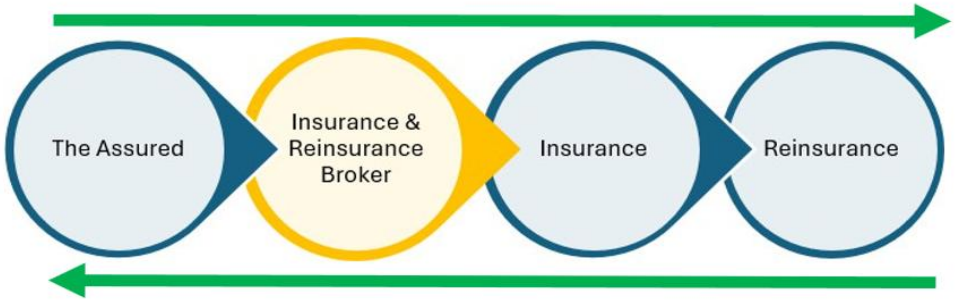
Indonesian Insurance Structure: The flow from the ASSURED to the reinsurance
The issues: Underwriter information gap, utmost good faith to reveal the material facts including claim record and vessel condition, time zone different, bank transaction problems, notification gap.



Indonesian Insurance Structure: The flow from the REINSURANCE to the assured
The issues: Underwriter information gap, higher commission cost, time zone different, claim handling procedure and delay, bank transaction problems, claim approval gap, premium prejudice, claim prejudice.

VERSUS

International Insurance Structure: The flow from the ASSURED to the reinsurance
the issues: Rich underwriter information, the integrity to reveal the material facts including claim record and vessel condition, speed up notification and confirmation for the potential delay in information and transaction.



International Insurance Structure: The flow from the REINSURANCE to the assured
The issues: Rich underwriter information, lower commission cost, quick claim handling procedure and response, swift claim approval and payment, optimal risk capacity.

Figure 2. Indonesian Insurance Structure Vs. International Insurance Structure

in insurance field is also limited [40].

The big potential of maritime business in Indonesia is having the contrast condition with the accident and claim record of the industry. Indonesia recorded the negative data in respect to marine accident and claim report. The big accidents happened for the last 10 years as the nightmare for the related players in the business, including the shipowners and the insurances [4]. The maintenance requirement as well as the standard operational during voyage even may not ensure that the operation risk to the vessel may be managed well. The shipowners still have a mindset that the cost for vessels improvement and maintenance is not the investment, while only as a "cost". Therefore, they are not allocating the best portion to the maintenance and vessel's improvement [5]. According to KNKT data in 2021 [6], there was an accident to Ro-Ro passenger vessel of BAHARI INDONESIA on 21 July 2021 at 14.57 LT.

The vessel was in voyage from Tanjung Priok to Pontianak. After some investigation is carried out, it was revealed that there was a fire sourced from the cargo hold of passenger cars and accommodation. Another accident data is TAMPOMAS II which onboarded 1054 passenger and 82 crews in 25 January 1981. The TAMPOMAS II claim is the nightmare which become the bad experience so far for Indonesia. The Ro-Ro is sunk in Masalembo, Java Sea with total victim of 143 passengers and 288 other passengers reportedly missing. The cause of the accident is reportedly complex, as said by Saputra

[7], the vessels was caught in bad weather and there was some leakage on the hull of the vessels. Another rumour is that the passenger act improperly during the voyage, such as smoking in the vessel's prohibited deck and causing the fire to reach the machinery room immediately.

The accident toward passenger vessels in Indonesia is dominated the record. The reason behind this condition us because when the accident happened, all media release the news and make it viral. The interest from all parties is caused by the human factor as the main carrier of the vessel [5] [60]. Aside to the passenger vessels, the accident toward other type of vessels is also dominated, such as tug and barge, general cargo, container and tanker. As the released by Komite Nasional Keselamatan Transportasi (KNKT) in 2023, there are 13 accidents recorded in 2022. On 11 February 2021, there was a fire accident to vessel GEMILANG PERKASA ENERGI when docking at shipyard of PT. Barokah Galangan Perkasa [6].

The accident caused the three workers being the victims and loss of material significantly. The investigation is still going on until now while the series of allegations toward the cause of the accident is the unsynchronized between the safety system and working procedure at the shipyard during the shipyard operation. Another example of accident in marine industry in Indonesia is MV AMAR who got fire in 2006 during her voyage from Kandla, India to Tiongkok. The total claim was reaching USD 4,000,000 [5]. The claim reports as detailed above showing that Indonesian flag vessels appeal to high risk during the operation, even when the vessels are put on the shipyard. Multiple factors are indeed causing the accident, however, the archive data and study toward these matters are still very limited. The research on marine insurance is also limited while the other focus on insurance research in general not in particular for marine insurance.

B. Indonesian Marine Insurance Structure Vs. International Marine Insurance Structure

There are a lot of differences between Indonesian and International marine insurance application, including the structure, the regulations as well as the procedure. This phenomenon causing the distinctive condition between Indonesian marine insurance industry comparing to the international market might be easily identified. One of the different is the structure, in Indonesia, the players within marine insurance are regulated as the general insurance activities and operation by Otoritas Jasa Keuangan (OJK) and the Ministry of Financial Republic of Indonesia. Insurance Industry is consisted by the main players of insurance and reinsurance, as well as the supporting parties including broker insurance, broker reinsurance, and adjuster. The operational standard and procedure of marine insurance players in marine insurance industry must comply with Government Regulation No. 40 Year of 2014 of Insurances as well as the detail OJK regulations. In Indonesia, the main supporting parties in the insurance industry are direct broker insurance and the reinsurance broker. According to the data of OJK in the data released by AAUI [8], there are at least 155 total direct broker, and 41 reinsurance brokers registered in OJK. Unlike the players composition of Indonesian insurance industry.

The figure below describes how the flow of Indonesian marine insurance structure, from the assured as the policy holder until the reinsurance as the party that is liable to cover the risk. Due to the OJK regulation, the direct broker insurance might not directly access the negotiation to the reinsurance. The direct broker must only liaise with the insurance to get the capacity. This condition causes extra time to get the capacity to cover a vessel risk as requested by the assured. The other problems that happen due to this structure is the different procedure and portfolio from different parties. For example, the inquiry come from the big direct broker and the capacity may be only provided by medium size of insurance. The risk is special risk that is very limited insurance companies want to involve. Therefore, the medium insurance company comes to the reinsurance broker without strong bargaining power. This condition causing the strong bargaining power from the direct broker might not be a beneficial to get the strong capacity because the direct broker might not come directly to the reinsurance broker or to the reinsurance.

In international market, there is no distinction between direct broker insurance with reinsurance broker. As consequences, the flow system of international market is more effective and efficient than the Indonesian market. In international market, the broker may easily communicate with ceding (direct insurance) and reinsurance market to obtain the capacity. It is concluded that in international market, the direct broker and reinsurance broker roles are managed by the one and only intermediary, name "Insurance Broker" causing the more effective operation since the same parties might connect several insurance and reinsurance at the same time to fulfil the capacity [9]. In international market, the insurance broker might present the risk profile they obtain from the shipowner/ the assured directly to the insurance or reinsurance; and expect for the response immediately from the insurance or reinsurance. The

insurance broker is also having the direct commission to the reinsurance and insurance causing the cost of intermediaries is cut than using the different parties as the intermediaries. In contrary, if we are talking about the insurance structure in Indonesia, Indonesian financial regulator, OJK divide the function, and the license granted to the direct broker and reinsurance broker to ensure the operational activities within the industry might be managed well.

However, in practical phenomenon, the distinction between direct broker insurance and reinsurance broker will only increase the "intermediary cost" and make the presentation of the risk to become bias due to some communication failures such as the inability to represent the information, understanding the data, underwriting the risk; and causing the miss-coverage to the risk with insufficient premium formulation [10]. The local broker just shows the surface level of the risk information without having the clear understanding on the risk of the vessels. In contrary, the lack of understanding of local cedant (underwriter) also make the process of placement from the direct broker happens without deep discussion and follow up survey onboard the vessels.

Additionally, the total premium of Indonesian market which is also accommodated by international market is not representing the real risk profile of Indonesian market. The reinsurance who put the capacity to reinsurance broker to Indonesian ceding (direct insurance) might not be aware the real risk they face by giving insufficient premium rate to the vessels. The lower premium will only pool the small amount of total premium from the overall Indonesian marine insurance account. Therefore, when the claim happens, the loss record from Indonesia will be significantly high. This problem is the focus that this research aims to identify in the first stage of research. Some of the following research shall be explored to prove that the premium discussion on Indonesian marine insurance is the important aspect and discussion to be solved by the academics approach as well as by the practical approach.

C. Marine Insurance Claim Ratio in Indonesia

Indonesia is well known as the one of highest marine claim ratio in Asian Pasific, this information is aldo validated by the Liberty Insurance, Beazley, QBE, Canopious, Markel, GAIC, and MSFCIL in Singapore
[9] [11] [12] [13] [14]. According to the data from Indonesian General Insurance Association (AAUI) the marine insurance industry is only mentioning the marine hull and marine cargo which involved under general insurance premium increase of 16,6% from 2021 record compared to 2022 record [8]. There is no clear data showing the claim ratio of marine insurance in Indonesia. However, the total claim ratio for general insurance is also increasing of 26% in 2022. While according to the data from international market in March 2023, the total claim ratio for Indonesian Marine Insurance is more than 130% in 2022 [15]. According to the London P&I Club [15], the total claim record for their account in Indonesia during 2022 is about 70% for the P&I product. Therefore, the international market has the decision to carefully underwrite the marine business from Indonesia as well as applying the highest standard of safety prior to the attachment of the risk by requiring the survey condition to the vessels prior to the inception of policy date.

D. Indonesian Marine Insurance Expert Point of View

Indonesian insurance expert thinks that the problems faced by Indonesian marine insurance industry is focused on the premium war that happened since 2015 until now [5]. The phenomenon started when the QBE insurance try to disturb the market by offering the very competitive premium rate for Hull & Machinery product in 2015. The existing premium rate is about 1% of the total sum insured while at that time, QBE may offer the rate of 0,3% - 0,5% of the total sum insured. The bulk of vessels come into their capacity without the appropriate selection toward the risk of the vessels [16]. The marketing running for about three years until it becomes the boomerang in 2018 for QBE with total loss ratio of 400%. The insurance collapse and the market are hampering. Surprisingly, the lack of understanding of Indonesian underwriting in terms of formulating the appropriate premium for marine insurance, causing the same failure happened to the other insurances in the following years up to now.

The unavailability of risk assessment toward the vessels prior to the insurance attachment is also becoming another issue faced by marine insurance industry in Indonesia. The fact that Indonesian loss record that is dominated by the operational risk, causing the importances to understand the vessel condition prior to the insurance attachment. Moreover, even if the vessel must be put on the dry dock for the regular maintenance, the assured as the owner of the vessels also not be aware to choose a proper shipyard. The assured is even trying to be delaying the docking period due to several reasons, including the unavailability of docking space, which only causing the insurance becoming more concern to assess the risk of Indonesian vessel [38] [59].

Additionally, when the repair is completed, there are some obstacles from the shipyard to meet the standard quality of the repair to cope with the limited repair time, including but not limited to the limited of operational equipment, the process of delivery, as well as the lack of supporting equipment [39] [61]. Unfortunately, the lack of understanding to assess the risk causing this problem to become unsolved [17] [18] [19]. Furthermore, the complex problems in Indonesian local insurance procedure and application causing the local underwriter to have no understanding on underwrite the risk. The local underwriter is not focusing their interest to marine insurance terms, while running the other general insurance product, such as property all risk and motor vehicle. The government regulation is also not focused on attracting the marine insurance industry in Indonesia. There is no premium calculation guidance to maintain the capacity from local and invite the international market to join the field.

E. International Marine Insurance Expert Point of View

The international market focus on the importance of underwriter ability to define the premium rate for Indonesian marine insurance market. In 2019, Baione and Biancalana researched the importance of premium formulation to accommodate the risk appeals to the insurance objects. According to the previous study, the premium is something to accommodate the load of claim amount. The loaded premium is always expected to cope with the loss amount to provide some margin for the insurance company to run the business [21].

Additionally, the study is also revealing that the miss- understanding on the risk profile will lead to the deterioration of the financial result [21]. However, as also considered by several previous research and studies, there is no fix computation or model to define the formulation on premium as it is also largely debated by both practitioners and academics actuaries [20] [21]. Talking about the non-life insurance, as what called as the general insurance, including the marine insurance, the premium formulation is concerned on the ability to define the risk margin that could be calculated by mean of a specific risk measurement of total loss (profit) random variable. Furthermore, the premium formulation is essentially based on variability measure of loss. This study is also in line with the interview result that the Author conducted with the Managing Director of one of international Brokers, Mr. SS and the Director of Marine of London based Insurance broker, Mr. PH in Singapore
[22] [23].

According to the Werner and Modlin, within the research study of Baione and Biancalana [21], the process of premium calculation is proposed as a ratemaking process. Ratemaking is a process to define the proper formulation to accommodate the risk/ the potential loss. The ratemaking process is through on a collective and also applicable on an individual or segment level. The ratemaking of non-life individual insurance risk is frequently calculated by the multiple regression models that consider several rating factors.
While Baione and Biancalana revealed the study on the premium principle based on a quantile risk measure.

The process starts with the decomposition of the cost of potential and realization of the claim [21]. The previous research by Baione and Biacalana compared several approaches on the study, including the multiple regression models, the generalized linear model (GLM) and quantile regression (QR). Those study proved that the approach of multiple regression models is able to calculate a risk margin via quantile for each individual premium. This study is also considering those risk factors as the attribute of the assured [21]. As revealed by Wu, the concept of premium formulation is using the method of Poisson-Gamma mixture models. The research adopts the concept from credit risk management to be applied in insurance industry [24]. The application of the study is the number of credit-risk events that is occurred in the beginning of a year far less than that at the end of the year. The study is focussed to extend Poisson-Gamma mixture model, which is a random variable, to its dynamic model (i.e., stochastic process), who is called as Poisson-Gamma mixture process in that research [24].

Another premium formulation method is also introduced by Yeo et al who focused on the premium study for motor insurance in Australia [25]. The study is providing the combination of the data mining and mathematical programming in order to determine the premium on the automobile insurance policy holders. The methodology used to prove the premium formulation is the approach of a non-linear integer programming formulation. The study revealed that the approach could conclude the data mining framework which consists of three components including but not limited to the classifying policy holders into homogenous risk groups and predicting the claim cost of each group using k-means clustering; the determining the price sensitivity (propensity to pay) of each group using neural networks as well as the combining the results of the first two components to determine the optimal premium to charge [25]. There are at least 13 (thirteen) variables were used as the

input for the research clustering model including the policy age, gender, sum insured, and area of vehicle [25]. However, the variable in marine insurance must be different with non-marine insurance.

The discussion above showing that the interview by the expert in marine insurance could enrich the literature study toward premium factors. The literature studies focus on the general aspects of premium factors, including but not limited to the claim record, extent of the coverage, and the insurance expense (underwriter expense). Meanwhile, the interview with the experts could reveal more details premium factors including the condition of the vessels, the owner's concern to maintain their vessels, crew operation safety, and other technical factors. The expert give more practical factors that directly attached to the passenger vessel's operation risk and shall be the crucial premium factors to be considered by the underwriters.

F. The Claim Process in Indonesian Insurance

The ability of claim handling is also having a direct impact on the loss record of the industry. It is a challenge to avoid the stigma from the international market toward Indonesian insurance, particularly for passenger vessels, that the claim process in Indonesia has a long procedure. The insurance might not decide to conclude the claim, causing the claim payment is also delayed. According to the interview with the surveyor [26], the claim procedure in Indonesia will be initiated by the notification of the claim from the client to the broker. Accordingly, the broker will ask the client to submit some documents, including the class maintenance certificates, all class documents, all statutory documents, crew lists, logbooks, manual books, and other supporting documents. Moreover, the accident letter from the police is also requested. This condition, causing a discomfort from the assured because the assured needs to spend some cost to only obtain the accident report.

Upon submitting the requested documents, the broker will notify the underwriter and ask for the appointment of the surveyor to reach the casualty site and record the facts as well as the adjuster to check the policy and analyse whether or not the claim is falling under policy liability. Reportedly, some delay in appointing the surveyor as well as the adjuster caused the vessels to become worse and increased the possibility of claim costs. After the surveyor attends to the casualty site, the adjuster will ask for the other documents [27]. However, commonly in Indonesia, the adjuster will ask a bundling of irrelevant documents. Additionally, after the assured submitting the documents, later the adjuster concluded that the claim did not fall under the policy liability. This unfavoured situation causes the assured to become more dissatisfied with the overall insurance claim handling.

In the other situation when the claim is confirmed to be falling under the policy liability, the offering letter to settle the claim is not coming easily to the assured. The are some back-and-forth questions form all related parties, including surveyor, adjuster, as well as the insurance itself. In some urgent situations where the assured needs to decide the problematic cost to secure their vessels, the surveyor or the adjuster or even the broker might not provide the proper assistance to their client. At the end, when the client confirmed the cost to salvage their vessel, for example, when the invoice is submitted to the insurance, the insurance makes any reason to reject that invoice. The insurance sometimes also uses unprofessional reason to rejecting some invoices of some claim notes, for example the unavailability of insurance prior confirmation to the salvage operation. If the claim run well, the local insurance needs more time to ask the reinsurance to transfer the claim fund as the local insurance only holds the small portion of the claim. If the local insurance using the broker reinsurance, they need to liaise with the broker reinsurance first before having the claim recovery from the reinsurance. In fact, this will only cause another delay to the assured. At the end, the assured will receive the offering later in many years after the claim happened.

The figure above is showing the ineffectiveness of Indonesian claim handling process on marine insurance application due to the structure of Indonesian marine insurance industry itself. The claim is something that needs to be assisted and settled immediately without delay. The impact and consequences of the claims will lead to financial loss to the assured as the owner of the vessels.

G. The Ideal Claim Process

For the international market, the claim-handling process is becoming more effective. The insurance structure in the international market where the broker might do multiple roles as direct and reinsurance broker might speed up the process [27]. International insurance as well as the adjuster is also requesting the simple documents that are relevant to the case. For example, the accident report is not requested for the machinery damage claim, or the sailing permit document is not requested for crane damage claim. The adjuster also ensures that all the warranty of the policy has been complied with by the assured before pursuing the claim further, therefore, the is no rejection of the claim after the assured submitting a bundling of the claim documents.

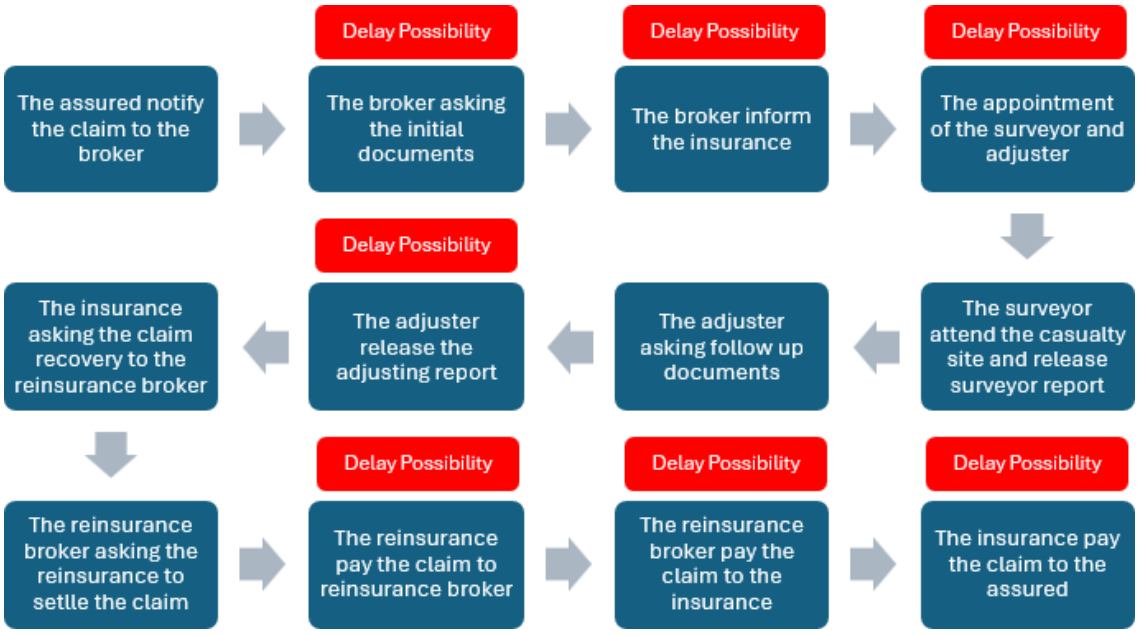


Figure. 3. Indonesian Marine Insurance Claim Process

Additionnaly, the international broker might do back to back communication to the assured, the insurance, as well as to the reinsurance in the sae time without any delay. The broker may do follow up meeting anytime they want to the insurance or the reinsurane and provide the better service to the client compared to the indonesian market that is stricted by the governement roles not to do multiple roles as direct broker and the reinsurance broker.

According to one of the international underwriter [31], the international broker also has the powerful liberty to appoint the surveyor and to appont the adjuster, on the insurance behalf to speed up the process. However, the integrity and the understanding of the claim handling from the international broker is unquestioned. In some example situation when the vessels is sank in 40 m depth, and it is required by the government to remove the wreck to the nearest safest port since the wreck is sank on the voyage lines, the international broker will do 24 hrs services to assist the client directly and contact the alternative salvors in immediate time. In the same time, the international broker might push the insurance to release the agreement on the appointed salvor to rescue the vessel in a soonest possible time [11]. The abaility of international broker to handle and settle the claim in swift time becoming more beneficial rather than direct broker in Indonesia. However, the limitation of Indonesian broker insurance ability to hendle and settle the claim is indeed caused by the structure of the marin insurance industry in Indonesia.

The different claim handling quality between international broker and Indonesian broker becoming other significant issues for international underwriter to assess marine insurance risk coming from Indonesian vessels. The second question of this paper is to explore and identify the premium factors of Indonesian passenger vessel insurance. The interview to the expert is carried out in 2023 to get the answer to this question. Several factors have been identified and considered to be involved as the part of Expected Contributor Factor (ECF) to the premium equation.

The interview result revealed that there are several premium factors identified from the international market to the Indonesian passenger vessel insurance. The international market still considers Indonesia as a big market to be explored. It is also considered that Indonesia is potentially to be one of the top three market production of gross weighted premium for marine insurance in Asian Pasific market. However, the understanding on how to manage the risk of Indonesian passenger's vessel need to be strengthened by the scientific proven research and application. The figure below showing on how the premium contributor factors of passenger vessel premium are identified from the expert of International marine Insurance professionals.

The figure above explains how the marine insurance premium contributor factors is identified from the interview of the marine insurance expert in the international market. The interviewees are the party that have been involved in the industry on the various business unit in the company, including as the

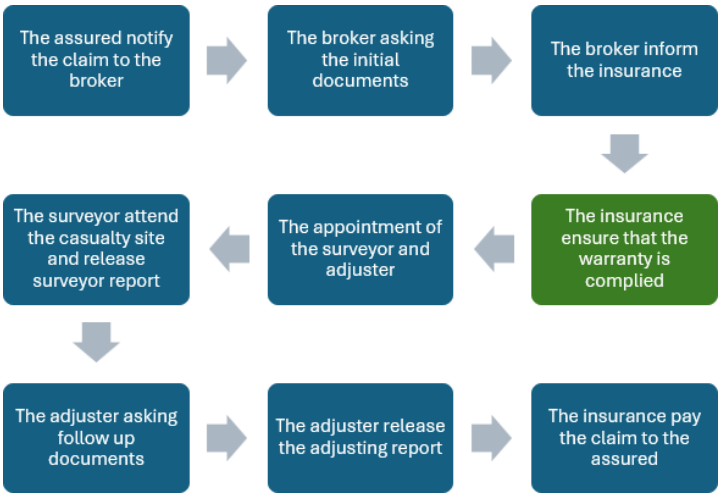


Figure. 4. International Marine Insurance Claim Process

underwriters, claim director, as well as the managing director of the insurance or the broker company. The contributor factors to be considered before the underwriter releasing the premium amount is so various but not limited to the vessel type, GRT, the year of built of the vessel, claim record data, trading area, the extent of coverage given to the vessel, the vessel condition, and the important aspect of the moral hazard of the owner and the crews. For the underwriters in the insurance company, those identified factors shall be considered as the "Risk Contributor Factors" on the calculation of sufficient premium amount. The underwriter needs to calculate on how many vessels to be involved on a pool of total risk exposed before releasing the premium to the market. The company is also considering whether or not the premium amount is absorbed by the market. In the insurance field, this mechanism is called as the process of achieving the "law of large number".

TABLE 1.
MARINE INSURANCE EXPERT INTERVIEW SUMMARY ON PREMIUM FACTORS

Company Name	Position	Premium Factors	Time of Interview
Lockton Insurance Broker (Insurance & Reinsurance Brokers)	Assistant Vice President	1. Vessel Type 2. GT 3. Trading Area 4. Type of Cover	March 2023
Beazley (Insurance)	Senior Underwriter	1. Passenger Moral Hazard 2. Vessel Condition	November 2023
QBE (Insurance)	Deputy Director	1. The Vessel Condition 2. Extent of Coverage	March 2023
Canopious (Insurance)	Director of Underwriter (Asian Pasific)	1. Extent of Coverage 2. Vessel Condition 3. Claim Record	February – March 2023
Markel (Insurance)	Head of Underwriter	1. Extent of Coverage 2. Vessel Condition	March 2023
GAIC (Insurance)	Head of Underwriter	1. Vessel Condition 2. Trading Area 3. Claim Record	June – November 2023
MSFCIL (Insurance)	Deputy Director	1. Extent of Coverage 2. Claim Record	March 2023
The London P&I Club (P&I Club – Insurance)	Claim Director	1. Vessel Condition 2. Claim Record 3. Owner's Moral Hazard 4. Vessel Type	May 2023

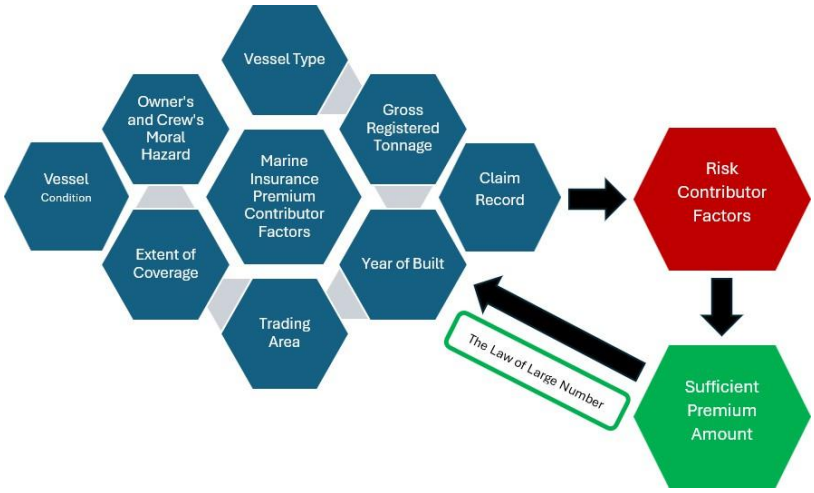


Figure 5. Identified Premium Factors of Indonesian Passenger Vessel

I. CONCLUSION

This paper has answered the research question and conclude that there are four identified problems on the Indonesian passenger vessel insurance industry; they are the lack of underwriter ability to assess the passenger vessel risk, the lack of local capacity to manage the Indonesian passenger vessel risk, the lack of claim handling, and the inappropriate premium calculation.

This paper also answering the second question by revealing that there are several premium factors that contribute to formulating the premium of passenger vessel insurance in Indonesia. The factors are collected from the interview of an international marine insurance expert. The factors are including the vessel's type, GRT, claim record, years of built of the vessel, trading area, the extent of insurance cover, the vessel condition, as well as the moral hazard of the owner and crew. Those factors shall be considered as the expected contributor factors (ECF) for the underwriter to formulate the premium and achieve the law of large number for insurance business.

Further studies are indeed required to having deeper understanding and finding the best solution for Indonesian marine insurance industry's problems and phenomenon. The risk assessment model and form must be formulated to capture the real risk profile of Indonesian vessels prior to the policy attachment. In fact, the limited expert in marine risk assessor and surveyor become the main contributor problem toward this phenomenon. The inability of marine insurance underwriter to capture the risk is also becoming the other issues when the available capacity is not placed for marine insurance, but for other business line. The ignorance from the assured/ vessel owner to ensure the fitness of their vessel during the operation is becoming the other challenge to manage the loss ratio in Indonesia. The loss ratio increasing year by year is also impacted by the low premium collected due to the absence of ability to formulate the marine insurance premium appropriately.

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