An Analysis Of The Authority Captain To Safety Shipping In Indonesian Ships

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ABSTRACT: The captain is the supreme leader on ship who has the authority and responsibility on the shipping to ensure the safety and security of ships, crews and cargo during the voyage. The research was conducted at Soekarno Hatta Port of Makassar, Tanjung Perak Surabaya, and Tanjung Priok Jakarta. This research aims to determine the influence of the authority of the captain to the safety of the ship flagged Indonesia. This research is a quantitative type with a survey approach using descriptive methods and inferential analysis. The results of this research indicate that the authority of the captain greatly affects the safety of the ship, the higher the authority of the captain the higher the safety of the voyage. The influence of the captain's authority over the safety of the ship is shown by the correlation coefficient value of 0.879 and the contribution of the captain's authority for the safety of the ship is 77.2%.
KEYWORDS: Safety, shipping, authority, captain

I. Introduction

The occurrence of ship accidents in Indonesia is dominated by 3 main factors, namely; human, technical, and natural [1,2,3]. According to the shipping court in general the cause of ship accident 78.45% (human error) 9.67% (technical error), 1.07% (weather), 10.75% (weather & technical error) [4.8].

The Government has passed the shipping law No. 17 of 2008 Article 17 paragraph 2 covering ship safety, prevention of ship pollution, shipbuilding, line of ship and loading, welfare of crew and passenger health, ship legal status, safety management and pollution prevention of ships as well as ship safety management [5,14]. The safety management system is the system required under the Safety of Life at Sea (SOLAS) regulation set forth in the International Safety Management Code (ISM Code) [6,7,10,12,13]. A company and ship must be certified against the ISM Code prior to its operation.

Stakeholder at the operational level of shipping i.e; Syahbandar, the owner of the ship and the captain. All three are called the trident trajectories of shipping. Those who make decent decisions or do not ship to sail. To ensure the safety of the voyage to support the smoothness of sea traffic, it is necessary to have a skilled, capable and skilled crew. Every ship that will sail must be manned by a crew who has an understanding of the safety of a minimum of enough shipping to perform his duties on board based on his position [6]. Safety of sailing on a ship is inseparable from the condition of the seafarers in addition to the skills possessed by a sailor in operating a ship that is seaworthy. Another thing to note is the speed and determination of taking emergency measures on board [7]. The captain is the highest ship crew on board and has the authority and responsibility in accordance with the Laws. This study intends to analyze the captain's authority over the safety of shipping on ships.

II. Research Methods

This research was conducted in three ports in Indonesia, namely; Soekarno Hatta Makassar, Tanjung Perak Surabaya, and Tanjung Priok Jakarta. This research is a quantitative type [9] using the survey approach to 64 respondents. The analysis used is descriptive methods and analysis of regression test inference. Inferential analysis consists of data normality test, data linearity test, and linear regression test and correlation test. The linearity of the regression test formula is:

$$Y' = a + bX \qquad \qquad \text{...(1)}$$

Explanation:
Y' : predicted value
a : constants or when the price is X = 0
b : regression coefficient
X : independent variable values
While the correlation test using simple correlation formula

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}} \qquad \qquad \text{...(2)}$$

r_{xy}: the product moment correlation between x_1 with Y

III. Results

Variant of The Captain Authority

Instruments about the authority of captain developed into four indicators, namely; company policies, certified and qualified crew, ongoing maintenance and repair, and completeness of ship documents [15]. Each indicator consists of several items of positive statements, the total number of statements for the authority of the captain as much as nine items. The summary of descriptive methods of the authority variable of captain is described in Table 1.

Table 1. The authority of the captain

Statistics		
N	Valid	64
	Missing	0
Mean		40,21
Median		41,00
Mode		41,00[a]
Std. Deviation		2,95
Minimum		31,00
Maximum		45,00

Multiple modes exist. The smallest value is shown
Source: Analysis Results, 2017

Table 1 illustrates the results of the data analysis for the authority variable of the captain with a mean score of 40.21, median value 41.00, the mode value of 41.00, the standard deviation of 2.95 with the minimum score of 31.00 and the maximum score of 45.00.
For the distribution of respondents' answers regarding the authority of the captain is described in Table 2.

Table 2. Distribution of Respondents' Answers

		Category	Frequency	Percent	Cumulative Percent
Valid	9-20	Low	0	0	0
	21-32	Medium	1	1,6	1,6
	33-44	High	63	98,4	100,0
	Total		64	100,0	

Source: Analysis Results, 2017

Table 2 shows the low category of 0%, medium category 1.6% and for the highest category there were 98.4%. The acquisition provides an illustration that the authority variable of the captain has been in the high category.

Safety Variables of Cruise Ship
The results of a descriptive analysis of variable shipping safeties are described in Table 3.

Table 3. Ship Safety Variables

Safety of Shipping		
N	Valid	64
	Missing	0
Mean		35,79
Median		36,00
Mode		35,00[a]
Std. Deviation		2,66
Minimum		30,00
Maximum		40,00

Multiple modes exist. The smallest value is shown
Source: Analysis Results, 2017

Table 3 above compiles the results of data analysis with mean value of 35.79, median value of 36.00, mode, value of 35.00, standard deviation of 2.66 with minimum score of 30.00 and maximum score of 40.00. The distribution of respondents' responses to the safety of sailing is described in Table 4.

Table 4. Distribution of Respondents' Answer

In total					
		Category	Frequency	Percent	Cumulative Percent
Valid	8-18	Low	0	0	0
	19-29	Medium	0	0	0
	30-40	High	64	100,0	100,0
	Total		64	100,0	

Source: Analysis Results, 2017

Table 4 shows the low and moderate categories obtained by 0%, and the high category is 100%. The acquisition provides an illustration that the cruise safety variable of the ship has been in the high category.

Inferential Analysis
a. Test Data Normality
Normality test data is done to determine the type of statistics to be used. The results of the normality data analysis of both variables can be seen in Table 5.

Table 5. Test of Normality of Authority Data of Captain and Work Safety

Tests of Normality						
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
The authority of the captain	0,135	64	0,105	0,959	64	0,031
Safety of ship cruises	0,101	64	0,171	0,957	64	0,025
Lilliefors Significance Correction						

Source: Analysis Results, 2017

According to *One Sample Kolmogorov Smirnov* the data are stated to be normally distributed if the significance is greater than 5% or 0.05. Table 5 shows significantly for the captain's authority of 0.105, and for ship safety variables with a significance of 0.171. So it can be concluded that the data distribution of both variables is normally distributed with the significance of each variable greater than 0.05.

b. Test Data Linearity
The data linearity test is intended to know the linear relationship between variable X (authority of the captain) with variable Y (cruise ship safety).

Table 6. Test of Linearity of Safety Data on Ship and Authority of Captain

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Safety of ship cruises * The authority of the captain	Between Groups	(Combined)	354,900	11	32,264	18,344	0,000
		Linearity	344,794	1	344,794	196,035	0,000
		Deviation from Linearity	10,106	10	1,011	0,575	0,027
	Within Groups		91,459	52	1,759		
	Total		446,359	63			

Source: Analysis Results, 2017

Table 6 shows the significance value at a linearity of 0,000 which is much smaller than α = 0.05 so that between the authority of the captain and the safety of the shipping there is a linear relationship.

c. Linear Regression Test

Hypothesis testing on the influence of the captain's authority on the safety of ship by using simple regression analysis. The hypotheses were tested:

Ho : There is no significant influence between the authority of the captain to the safety of the ship.
Ha : There is a significant influence between the authority of the captain to the safety of the ship
Ho : $\rho = 0$
Ha : $\rho \neq 0$

The influence of the captain's authority over the safety of shipping based on simple regression analysis is described in Table 7.

Table 7. Regression Analysis of Authority of Captain

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,980	2,199		1,810	0,015
	Authority of the Captain	0,791	0,055	0,879	14,508	0,000
Dependent Variable: cruise ship safety						

Source: Analysis Results, 2017

Table 7 shows that t_{count} is greater than t_{table} (14,508> 1,671) or a significance value of 0,000 < 0.05, the result indicates that H_0 is rejected and H_a is received by the regression equation y' = 3.980 + 0.791X.

d. Correlation Test

Correlation analysis is used to determine the closeness of the influence between the authority of the captain to the safety of the ship. The results of correlation analysis can be seen in Table 8.

Table 8. Correlation of Empowerment of Captain

Correlations			
		The authority of the Captain	Cruise ship safety
The authority of the captain	Pearson Correlation	1	0,879[**]
	Sig. (2-tailed)		0,000
	N	64	64
Cruise ship safety	Pearson Correlation	0,879[**]	1
	Sig. (2-tailed)	0,000	
	N	64	64
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Analysis Results, 2017

In table 8 obtained correlation coefficient value of 0.879. This indicates that the influence of the captain's authority over the safety of the ship is in the very strong category. The contribution between the captain's authority over the safety of the ship can be seen in Table 9.

Table 9. Determinant Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,879[a]	0,772	0,769	1,27990
Predictors: (Constant), VAR00001				

Source: Analysis Results, 2017

Table 9 shows the determinant coefficient value of 0.772, this means the authority contribution of the captain to the shipping safety of the vessel of 77.2% while 22.8% is determined by other variables outside this research.

IV. Discussion

An Overview of the Variables of the Authority of the Captain

Based on the results obtained in Table 2 taken from the results of the distribution of respondents' answers on the variable authority of the captain, indicating that according to the crew member variable is in the highest category with a percentage of 98.4%.

Although the variable authority of the captain is in the highest category. However, related to the recap of answers from both variables (the authority of the captain and the safety of the ship) still get the answer to the low value of the statement item. Results of recording the respondent's answer to the authority variable of captain that is; the answer with the value of 1 (never) 0.35%, the answer with the value 2 (rare) there is 2.26%, the answer with the value 3 (sometimes) there 11.80%, the answer with value 4 (often) 21.35% and the answer with value 5 (always) obtained a percentage value of 64.23%.

The results of the resonant answers on the skill, authority variables related to the ship's equipment (the availability of navigation tools) have met the existing safety rules so that the ship becomes seaworthy.

In relation to the safety indicator of the voyagers on board, the reply was obtained that the officer and the crew had been given sufficient time to adjust to his duties in this case is the introduction of ships and emergency equipment. In addition, all ship personnel communicate effectively in accordance with the language they can understand and carry out their duties relating to the safety management system (SMS) with full responsibility. Furthermore still from the results of a descriptive analysis of table 2 shows that the last indicator (maintenance procedures and inspection to check the maintenance) in the authority variable of the captain is also in the highest category. This means that the company establishes a procedure that ensures that the ship can be maintained in accordance with the applicable regulations. Then perform a system of maintenance plans that include maintenance procedures for all parts of the safety system and conduct inspections to check the implementation of the system.

The above description shows that the four indicators contained in the authority variable of the captain has been done well. Nevertheless, it still needs to be improved to see that there is still a low respondent's answer on the items of the declaration that have been distributed.

Overview of Ship Safety Variables

Based on the results of the distribution of respondents 'answers contained in Table 4 shows that respondents' answers are in the highest category. The answer is that the answer with a value of 1 (never) is 0.35%, the answer with a value of 2 (rare) there are 2.1%, the answer with a value of 3 (sometimes) there are 10%, answer with value 4 (often) there is 18% and the answer with value 5 (always) obtained the largest percentage value is 58%.

Based on Table 4 in relation to company policy, it is described that the majority of ships report to the company regarding the validity of all certificates. This is evident from 50 respondents with good enough answers (grades 4 and 5) and 14 respondents with low answers (score 1,2, 3) to the research questionnaire. The second indicator associated with qualified and certified crews has been well met. Nevertheless, this indicator still needs to be improved because there are still respondents who give low answers. The third indicator concerning ongoing maintenance and ship repair, the company provides support to the ship to perform maintenance procedures for navigation equipment and ship safety equipment and also to report to the company in accordance with existing voting procedures. The last indicator of ship safety variables is the complete ship

document. In this indicator also get different responses from respondents. Some respondents chose low value answers (1, 2 and 3) but most respondents chose high answers (grades 4 and 5). The difference of respondents' answers means that there are still respondents who think that the company only performs supervision in the form of audit regarding ship safety management system.

V. Conclusions And Recommendations

The authority of the captain influences the ship's safety by the regression equation y' = 3.980 + 0.791X. It gives an idea that the higher the authority of the captain the higher the shipping cruise. The influence of the captain's authority over the safety of the ship is shown by the correlation coefficient value of 0.879 and the contribution of the captain's authority for the safety of the ship is 77.2%.

Ship cruise safety variables have been in the high category, but there are still some respondents who have low answers, albeit with small amounts. So there is still need for improvement on these indicators to improve the safety of shipping.

Acknowledgement

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