JRSSEM 2022, Vol. 01, No. 7, 759 – 766
E-ISSN: 2807 - 6311, P-ISSN: 2807 - 6494

ANALYSIS OF THE INFLUENCE OF SUBMARINE OPERATIONAL CAPABILITIES ON THE STATE OF DETERRENCE

Timbul Haryanto AR[1*]
A. Octavian[2]
Romie O. Bura[3]
[1,2,3]Indonesia Defense University
e-mail: toni197637@gmail.com[1], amarulla.octavian@idu.ac.id[2], romiebura@idu.ac.id[3]
*Correspondence: toni197637@gmail.com

Submitted: 26 January 2022, Revised: 5 February 2022, Accepted: 16 February 2022

Abstract. Indonesia is an archipelagic state whose territory lies in a cross position between two continents and two oceans. So that Indonesia has the authority to maintain the security of its maritime territory, starting from regulating its shipping lanes to maintaining sovereignty in all of Indonesia's sea areas. Indonesia's threats have been identified as coming from neighboring countries, namely Malaysia, Singapore, Thailand, and China. Increasing escalation in the South China Sea area, Efforts to support Indonesian territorial security, submarines currently owned must be able to become a deterrent against potential threats both from within and from outside and be able to operate in all Indonesian waters. The hypothesis in this study is if the operational capability of the submarine increases the country's deterrence system. The methodology used is descriptive quantitative using software SPSS 25 and Microsoft Excel 2013 with data analysis techniques using multivariate correlation. The effect of submarine operational capability on the country's deterrence is 86.6% that implies submarine operational capability has strong influence.

Keywords: operational capability; deterrence; SPSS

DOI : 10.36418/jrssem.v1i7.95

INTRODUCTION

The Unitary State of the Republic of Indonesia (NKRI) is an archipelagic country with 80% of the sea and an area of 5,800,000 km2 with a coastline of 80,791 km stretching across two continents, namely the Asian continent. The Australian continent, and is located between two oceans, namely the Indian Ocean and the Pacific Ocean (Stuut, Temmesfeld, & De Deckker, 2014). So that Indonesia has the authority to maintain the security of its maritime territory, starting from regulating its shipping lanes to maintaining sovereignty in all of Indonesia's sea areas. Indonesia as the largest archipelagic maritime country in the world (Rochwulaningsih, Sulistiyono, Masruroh, & Maulany, 2019), should strengthen its ability to secure a very wide territorial waters, in order to ensure the security and safety of shipping in all waters of Indonesian jurisdiction which is a form of our responsibility as an archipelagic country (Nurdin & Grydehøj, 2014). Indonesia's threats have been identified as coming from neighboring countries, namely Malaysia, Singapore, Thailand, and China. Several disputes that have occurred between Indonesia and these countries (Dipua et al., 2020), especially in the territorial waters have influenced Indonesia's perspective on threat priorities and the development of defense strategies.

The geographical constellation of Indonesia (Neilson, Wright, & Aklimawati, 2018), which has a large sea area and an archipelagic state, has implications for the emergence of geopolitical and geostrategic challenges. The South China Sea (SCS) is a very vital area for the Government of Indonesia, this is because in the region there are many instruments and a realistic spectrum, such as state sovereignty, economy, politics, and the military. In terms of sovereignty, there are several countries that claim their territory in the South China Sea (Dupuy & Dupuy, 2013). From a political point of view, the SCS will always be the object of the relevant country's strategic policies to be able to influence the dynamics of the region. Another problem is the Indonesian maritime boundary with Australia. The legal status of the maritime boundary between Indonesia and Australia has not been ratified or ratified (Forbes, 2014). Both countries have determined the boundaries of the exclusive economic zone but have not determined the consequences for their violation.

The Indonesian Navy currently has 4 submarines of the U-209 type with a diesel-electric propulsion system. This is an effort to support Indonesian territorial security. With the submarines currently owned, they must be able to become a deterrent against potential threats both from within and from outside and be able to operate in all Indonesian waters that have the potential for conflicts of interest and sovereignty (Dipua et al., 2020). The magnitude of the effect of this deterrence depends on the ability and number of submarines owned. Each submarine is expected to operate in all waters of special concern and vulnerable areas.

This study is aim to define the influece of submarine operational capabilies on the state of deterrence so that can be used as refferances to increase the quality and

DOI : 10.36418/jrssem.v1i7.95

quantity of submarine.

METHODS

This study uses a quantitative method with a survey design, where the data in this study will be analyzed statistically with the help of SPSS. The result of the statistical data is to find out whether there is an influence between the variables in question. In survey design, researchers describe quantitatively (numbers) several tendencies, behaviors, or opinions of a population by examining a sample of the population (Creswell & Poth, 2016).

The survey design was carried out by distributing questionnaires or questionnaires (Auerbach et al., 2018). Based on the method and design of this research, the research was carried out using theories and concepts as a guide for researchers so that the research was directed. Then phenomena that occur in the field appear and are compared so that problems arise, identify problems and limit problems, by making hypotheses as evidence. Conduct hypothesis testing by distributing questionnaires, analyzing the data obtained with statistics, and after knowing the results are juxtaposed with theories to be analyzed, analyzed and discussed, and finally draw conclusions.

The place of research was carried out at the Submarine Unit of the Indonesian Fleet Command II Surabaya (Bastari, Sukandari, Widjayanto, & Hutabarat, 2020), which consisted of entities related to submarine operations, namely submarine crews and submarine management support staff who served in the submarine unit.

The sampling technique used in this study was proportionate stratified random sampling because it came from a population with experience strata. The number of samples can be determined using the Slovin formula with an error rate of 5%. From a total population of 164 personnel, it can be determined that the number of samples is 84 personnel.

In collecting data the researchers used the following techniques: a) Questionnaires. The research instrument or questionnaire in this study used a Likert scale (Chomeya, 2010), which is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about social phenomena (Pardjono, Sugiyono, & Budiyono, 2015). In this study, submarines can operate strategically in waters that are difficult to detect their presence. The biggest challenge in finding the existence of a submarine is due to its operational environmental factors rather than technological factors which are measured based on indicators: natural factors, protrusion, base and condition of the ship; b) Questionnaire. Questionnaire is an information gathering tool by submitting a number of written questions to be answered in writing by the respondents (Syukri, Rizal, & Al Hamdani, 2019). In this study, it was used to obtain data and information from respondents about operational capability (variable X) with the country's deterrence system (variable Y). Questionnaires were distributed to the personnel of the Koarmada II submarine unit, with a total of 43 statement items, namely 20 items regarding submarine operational

capabilities and 23 items regarding the country's deterrence system.

Based on questionnaire that distributed and answered, the data process is using simple linear regression through SPSS which is data analysis to describe influence of the submarine operational capabilities on the state of deterrence.

RESULTS AND DISCUSSION

A. Simple Linear Regression Analysis Simple

linear regression analysis was used to create a simple equation between the Operational Capability (X) variable and the Deterrence Strength (Z) variable. In addition, this simple linear regression analysis is also used to see the linear relationship between the operational ability variable (Y) and the deterrence variable (Z). Below is paired data for X and Y variables. The results of simple linear regression analysis of variables X against Y with the SPSS program, can be seen in table 1 below:

Table 1. Simple Linear Regression Test Results for Operational Ability (X) on Resilience (Y)

Coefficients[a]								
Model		*Unstandardized Coefficients*		*Standardized Coefficients*			*Collinearity Statistics*	
		B	Std. *Error*	Beta	T	Sig.	*Tolerance*	VIF
1	(*Constant*)	56,228	2,418		23,254	0.000		
	Operational Capability	0.543	0.049	0.774	11.056	0.000	1,000	1,000

a. *Dependent Variable*: Deterrence

Source: processed by researchers using SPSS

The simple linear regression formula is Z = a + b4Y. Z is an effect variable, a is a constant, b is a regression coefficient, and X is a causal variable. Based on the results of the regression test in Table 1, Y is the Deterrence variable, a = 56.228, b = 0.543, and Y is Operational Ability. So the form of a simple linear regression equation is Y = 56,228 + 0,543X.

B. Correlation Coefficient Analysis Correlation

Coefficient analysis was used to determine the level of closeness of the relationship between the Operational Ability (X) variable and the Deterrence Power variable (Y). The results of the correlation coefficient between the variables X to Y, the calculation of the correlation coefficient of the variables X to Y with the SPSS program can be seen in table 2 below:

Table 2. Correlation Coefficient between Operational Capability (X) against(Y)

Correlations			
		Deterre nceDet errence Power	Operational Ability
Pearson Correlation	Powerdesist	1.000	0.774
	Operational capability	0.774	1.000
Sig. (1-*tailed*)	Deterrence		0.000
	Operational Capability	0.000	
N	Deterrence	84	84
	Operational Capability	84	84

Source: processed by researchers using SPSS The

Relationship between Operational Capability and Deterrence can be seen from the value of Sig. In Table 2 the significant value is known to be 0.000 < 0.01. This means that there is a positive and very significant relationship. Meanwhile, to find out the magnitude and strength of the relationship between the Deterrence (Y) variable and the Operational Ability (X) variable, it can be seen in the Pearson Correlation line where the relationship between the two variables is 0.774 so it can be said that there is a strong relationship or correlation.

C. Analysis of the Coefficient of Determination

Analysis of the coefficient of determination R Square is used to find out how much the value of Operational Capability (Y) affects Deterrence (Z). The results of the coefficient of determination between the variable Y to Z, the calculation of the coefficient of determination of the variable Y to Z using SPSS can be seen in Table 3 below:

Table 3. Coefficient of Determination between Operational Capability (X) against Deterrence (Y)

Model Summary [b]				
Model	R	R *Square*	*Adjusted* R *Square*	Std. *Error of the Estimate*
1,	774[a]	0.866	0.594	2.448

DOI : 10.36418/jrssem.v1i7.95

a. *Predictors*: (*Constant*), Operational Capability

b. *Dependent Variable*: Deterrence

Source: processed by researchers using SPSS

R Square value or coefficient of determination will be converted into percent. In Table 3 the R Square value is obtained at 0.866 or 86.6%, meaning that the Operational Ability (X) variable affects the Deterrence Power (Y) variable by 86.6% while the rest is influenced by other variables not calculated in this study.

D. Hypothesis Testing This

Discussion consists of two hypotheses, namely H0 the variable Operational Ability (Y) does not have a direct positive effect on Deterrence (Z). While H1 the Operational Ability variable (Y) has a direct positive effect on Deterrence (Z). The hypothesis test provisions are if tcount > ttable then H0 is rejected. This shows that operational capability has a direct and significant effect on deterrence. Meanwhile, if tcount ttable then H0 is accepted. This shows that operational capability has a direct and significant effect on deterrence. Based on table 4.46, the value of tcount is 11,056 and ttable is at a significance level of 5% and degrees of freedom (df) = n-2 = 84-2 = 82 so that a ttable of 1.661 is obtained. So, based on these calculations, it is obtained that tcount = 11.056> ttable = 1.661, which means H0 is rejected and H1 is accepted. So it can be concluded that Operational Capability (Y) has a direct and significant effect on Deterrence (Z).

KRI's operational capabilities in waters are faced with vulnerabilities that often occur, including violations, geological conditions consisting of thousands of islands and shallow straits, extreme weather and limited state defense budget conditions. Therefore, it is very necessary to have the right KRI and ready to face these challenges and obstacles in order to make the deterrence power of the Indonesian state. (Arimbo, Suparno, Ahmadi, & Krisdiono, 2021).

Based on the results of the study, the correlation coefficient of operational ability variables (X) together has a strong and positive relationship with deterrence (Y) of 0.884. The results of the coefficient of determination of operational ability (X) contributed 86.6% to deterrence (Y). In addition, testing the hypothesis also shows that there is a direct and significant effect and operational capability with deterrence as shown in the results Fcount = 127,534 > Ftable = 2,179, meaning that Sewaco, platform, base and operational capability together have a direct positive effect on deterrence.

The results of this study support the deterrence theory above that operational capabilities include natural factors, protrusion, base and ship conditions. Diving can affect the country's defense system. The results of the study are also in line with previous research conducted by (Arimbo et al.,

2021), which explains that there is a direct effect of submarine operational capability on deterrence.

CONCLUSIONS

Analyzing the relationship between external, internal and operational factors of submarines on the deterrence of the national defense system. The multiple regression equation for the variable X with Y is Y = 56.228 + 0.543X. The correlation coefficient factors for the operational capability variable (X) affect the Deterrence (Y) of 0.931. The results of the operational capability determination coefficient (X) contributed 86.6% to the Deterrence (Y) of which the remaining 14.4% was influenced by other variables. In addition, testing the hypothesis also shows that there is a direct effect of operational ability (X) with deterrence (Y) which is shown in the results of Fcount = 127.534 > Ftable = 1.663 which means that operational ability has a direct positive effect on deterrence.

This study clarified that submarines can contribute to increasing the deterrence of the country's defense system at sea. Ownership of 4 submarines that exist today can increase a strong deterrence in the face of threats that endanger the country. Indonesia's priority threats, such as border violations in territorial waters, the growing defense power of neighboring countries and other maritime threats raise the urgency of the need for submarines for Indonesia. Submarines have a high maneuverability that serves to spy on the enemy without being noticed, making it very effective to deal with border violations and other maritime threats.

REFERENCES

Arimbo, Tunang, Suparno, Suparno, Ahmadi, Ahmadi, & Krisdiono, Eko. (2021). Model Selection Of Kri Change Of Development To Support The Main Tasks Of Third Fleet Using The Mcdm Integration Method. *Journal Asro-Sttal-International JOURNAL*, *12*(01), 75–87. https://doi.org/10.37875/asro.v12i01.384

Auerbach, Randy P., Mortier, Philippe, Bruffaerts, Ronny, Alonso, Jordi, Benjet, Corina, Cuijpers, Pim, Demyttenaere, Koen, Ebert, David D., Green, Jennifer Greif, & Hasking, Penelope. (2018). WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, *127*(7), 623. https://doi.org/10.1037/abn0000362

Bastari, Avando, Sukandari, Benny, Widjayanto, Joni, & Hutabarat, Dani. (2020). Dynamic Probability Of The Indonesian Archipelago Underwater Defence With Submarine Sonar. *Journal Asro*, *11*(1), 21–31. https://doi.org/10.37875/asro.v11i1.191

Chomeya, Rungson. (2010). Quality of psychology test between Likert scale 5 and 6 points. *Journal of Social Sciences*, *6*(3), 399–403.

Creswell, John W., & Poth, Cheryl N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Dipua, Angkasa, Hermawa, Rommy,

Puspitawati, Dhiana, Harahap, Nuddin, Nurdiansyah, Dickry Rizanny, & Prakoso, Lukman Yudho. (2020). An analysis of the South China Sea conflict: Indonesia's perspectives, contexts and recommendations. *PalArch's Journal of Archaeology of Egypt/Egyptology*, *17*(4), 976–990.

Dupuy, Florian, & Dupuy, Pierre Marie. (2013). A legal analysis of China's historic rights claim in the South China Sea. *American Journal of International Law*, *10*(7), 124–141. https://doi.org/10.5305/amerjintelaw.107.1.0124

Forbes, Vivian Louis. (2014). Indonesia's delimited maritime boundaries. In *Indonesia's Delimited Maritime Boundaries* (pp. 33–63). Springer. 10.1007/978-3-642-54395-1_3

Neilson, Jeffrey, Wright, Josephine, & Aklimawati, Lya. (2018). Geographical indications and value capture in the Indonesia coffee sector. *Journal of Rural Studies*, *5*(9), 35–48. https://doi.org/10.1016/j.jrurstud.2018.01.003

Nurdin, Nurliah, & Grydehøj, Adam. (2014). Informal governance through patron–client relationships and destructive fishing in Spermonde Archipelago, Indonesia. *Journal of Marine and Island Cultures*, *3*(2), 54–59. https://doi.org/10.1016/j.imic.2014.11.003

Pardjono, Pardjono, Sugiyono, Sugiyono, & Budiyono, Aris. (2015). Developing a model of competency and expertise certification tests for vocational high school students. *REiD (Research and Evaluation in Education)*, *1*(2), 129–145. 10.21831/reid.v1i2.6517

Rochwulaningsih, Yety, Sulistiyono, Singgih Tri, Masruroh, Noor Naelil, & Maulany, Nazala Noor. (2019). Marine policy basis of Indonesia as a maritime state: The importance of integrated economy. *Marine Policy*, *1*(8), 103–122. https://doi.org/10.1016/j.marpol.2019.103602

Stuut, Jan Berend W., Temmesfeld, Felix, & De Deckker, Patrick. (2014). A 550 ka record of aeolian activity near North West Cape, Australia: inferences from grain-size distributions and bulk chemistry of SE Indian Ocean deep-sea sediments. *Quaternary Science Reviews*, *8*(3), 83–94. https://doi.org/10.1016/j.quascirev.2013.11.003

Syukri, Icep Irham Fauzan, Rizal, Soni Samsu, & Al Hamdani, M. Djaswidi. (2019). Pengaruh Kegiatan Keagamaan Terhadap Kualitas Pendidikan. *Jurnal Penelitian Pendidikan Islam,[SL]*, *7*(1), 17–34. https://doi.org/10.36667/jppi.v7i1.358