PREDICTION OF LATE INSTALLMENT PAYMENT BASED ON INTEGRATION MODELING CLUSTER ANALYSIS AVERAGE AND WARD LINKAGE WITH SURVIVAL ANALYSIS (CASE STUDY: HOUSE OWNERSHIP LOAN BANK X CUSTOMERS)

Avida Zahra\textsuperscript{1} and Adji Fernandes\textsuperscript{2}

\textsuperscript{1}Brawijaya University Faculty of Mathematics and Natural Sciences
\textsuperscript{2}Brawijaya University

April 29, 2022

Abstract

Cluster analysis is an exploratory analysis that is used to group objects into several clusters, which clusters have different characteristics. Survival analysis with Extended Cox regression is used when there is a time-dependent predictor variable so that the proportional hazard assumption is not met. This study integrates the two methods. The variables used are Collateral, Character, Capacity, Condition, and Capital (5C), Credit Collectability, and Credit Payment Time. The 5C variable has many indicators. The data used is secondary data obtained from a bank. The purpose of this study was to compare the Extended Cox Regression model based on the integration of Cluster analysis on Ward, and Average linkage with Survival analysis using the Extended Cox Regression method. The results showed that the integrated cluster model in Ward Linkage-based Extended Cox regression was the best method with two clusters formed and the smallest mean squared error value of the model, which was 0.265.

PREDICTION OF LATE INSTALLMENT PAYMENT BASED ON INTEGRATION MODELING CLUSTER ANALYSIS AVERAGE AND WARD LINKAGE WITH SURVIVAL ANALYSIS (CASE STUDY: HOUSE OWNERSHIP LOAN BANK X CUSTOMERS)

Avida Zahra\textsuperscript{1}, Adji Achmad Rinaldo Fernandes\textsuperscript{2}

\textsuperscript{1,2}Department of Statistic, University of Brawijaya, Malang, Indonesia

Correspondance

Department of Statistic, University of Brawijaya, Malang, Indonesia

\textit{Email: avidazahra1@student.ub.ac.id}

Funding information

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors
Abstract. Cluster analysis is an exploratory analysis that is used to group objects into several clusters, which clusters have different characteristics. Survival analysis with Extended Cox regression is used when there is a time-dependent predictor variable so that the proportional hazard assumption is not met. This study integrates the two methods. The variables used are Collateral, Character, Capacity, Condition, and Capital (5C), Credit Collectability, and Credit Payment Time. The 5C variable has many indicators. The data used is secondary data obtained from a bank. The purpose of this study was to compare the Extended Cox Regression model based on the integration of Cluster analysis on Ward, and Average linkage with Survival analysis using the Extended Cox Regression method. The results showed that the integrated cluster model in Ward Linkage-based Extended Cox regression was the best method with two clusters formed and the smallest mean squared error value of the model, which was 0.265.

Keywords: Cluster Analysis, Survival Analysis, Extended Cox Regression, Integration, Credit Collectability.

INTRODUCTION

Current research is growing along with the increasing need to solve problems in life. One of the current human needs is a place to live (Solimun and Fernandes, A.A.R., 2017). One of the policy schemes provided by the government to meet housing needs is the House Ownership Loan (KPR) program. In law No. 10 of 1998 concerning Banking, the bank is mentioned as a business entity that collects funds from the public in the form of savings and at the same time distributes them to the public in the form of credit and or other forms to improve people’s living standards. Sri and Solimun (2019), Investment is known as one of the basic pillars of economy in every society. One type of credit offered by the bank is a Home Ownership Loan (KPR). KPR is one of the credit services offered by the bank to customers to meet the housing needs of the community with a financing scheme up to a certain percentage of the house price. Incorrect determination of credit payment terms and incorrect assessment of the customer’s ability to pay credit will cause problems for the bank. Implementation of corporate governance within the company will determine the company’s management practices and decision-making (Purbawangsa et.al., 2019). The company’s ability to create “value added” is necessary especially in winning the competition in the market (Kirono, et.al., 2019). This is because credit payments made by the debtor are late or not in accordance with the stipulated time. Sumardi, S. and Fernandes, A.A.R. (2018) managing the finances and risks of an organization is very necessary. Risk mitigation that can be done by the bank is to determine the right policy regarding KPR lending. One of the efforts that can be made to make it easier for the bank to make decisions is to classify bank X customers of KPR based on the 5C variables (character, capacity, capital, collateral, condition) and credit collectibility and identify factors that affect the length of time for each group of customers in paying installments at bank X. These two objectives can be achieved by integrating Cluster analysis with Survival analysis using the Extended Cox regression method. Fernandes, A. A. R. and Solimun. (2017) Statistics is the science that processes data from collection to interpretation.

There are several studies related to Cluster integration with Survival analysis using the Extended Cox regression method, some of which are Kurniawan, et al., (2015) entitled "Survival Analysis With Extended Cox Model About Durability Debtor Efforts On Credit Risk". This study applies the survival analysis method to motorcycle loan data using the Extended Cox model. The results prove that the variable loan period, total income, and final graduate education which has a dependence on time have a significant effect on the risk of failure to pay. Previous research on Cluster analysis was conducted by Ulinnuha and Veriani, 2020 by comparing 3 linkages (Complete, Average, and Ward), getting the results that the Ward linkage is the best method compared to the other two. The previous research that has been described has not discussed the grouping of KPR customers based on the 5C aspects and credit collectibility also has not discussed the factors that affect the length of time customers pay installments at a bank. Even though research on this is needed by the bank to determine policies regarding the credit period and the number of funds issued for KPR submitted by a customer.

This study aims to classify bank X KPR customers based on the assessment of the 5C variable and credit collectibility by integrating Cluster analysis with survival analysis using Extended Cox Regression to model
the probability of a customer’s length of time in paying loan installments and to find out the factors that influence it. The order of this integration process is Cluster analysis which has produced several groups followed by survival analysis using Extended Cox regression. In general, there are two cluster analysis methods, namely the hierarchical method and the nonhierarchical method. The two methods have differences that lie in the number of clusters. In the hierarchical method, the number of clusters is not determined at the beginning of the analysis process, while in the nonhierarchical method the number of clusters is determined at the beginning of the analysis process. According to Supranto (2004), in the hierarchy, three methods can be used to determine the number of clusters, namely Ward, Complete, and Average Linkage. The measure between objects (distance) used is the Manhattan distance. This measure is used because it has the advantage that Agusta (2007), Manhattan distance can detect it well. Better detectability is required to produce output that visualizes data optimally.

Cluster analysis is exploratory in that the results cannot represent the data in the field, so further analysis is needed to find out more about the data being analyzed. the model needed in this case so that the survival analysis was carried out using the Extended Cox regression method. Vice versa, if only the survival analysis method is used, then the bank cannot explore the characteristics of the customers first by grouping them so that the policy is the same for all customers. This is not a good thing to do because the results used are too general. The output of the integration of these two methods is expected to enable the bank to work effectively and efficiently in determining customer loan policy.

Survival analysis is an analysis of data obtained from records of the time an object has reached until a certain event occurs which is known as a failure event (Inayati and Purnami, 2016). Survival analysis consists of several approaches, namely parametric, semiparametric, and nonparametric methods. The method that is often used in nonparametric survival analysis is the Kaplan Meier method followed by the Log Rank test (Kleinbaum and Klein, 2005). According to Fernandes, (2016), one of the analyzes that can be used to determine the relationship between the length of time until an event occurs and other variables that influence it is hazard regression analysis. Meanwhile, the semiparametric model that is often used in survival analysis research is the Cox proportional hazard model which has a proportional hazard assumption. This assumption is an assumption where the value of the hazard ratio is constant over time. The hazard ratio is an influence that can be seen in the form of a comparison of two objects with different conditions (Aini, 2011). Often time can cause changes in the hazard ratio, so it is necessary to test the proportional hazard assumption. If these assumptions are not met, then an alternative method is needed to model the probability of resistance test, one of which is the Extended Cox regression which modifies the Cox proportional hazard model. This method is used when there are predictor variables that depend on time so that the proportional hazard assumption is not met.

The last step of this research is to compare the integrated model of cluster analysis with Ward-based Extended Cox Regression, and Average linkage with Manhattan distance and survival analysis model without integration where the selection of the best model can be seen from the smallest Minimum Squared Error (MSE) criteria.

LITERATURE REVIEW

1.

CLUSTER ANALYSIS

According to Hair, et al., (2014), Cluster analysis is multiple variable technique that has the main goal of grouping objects based on the similarity of their characteristics. The characteristics of objects in a cluster have a high degree of similarity, while the characteristics between objects in another cluster have a low degree of similarity (Mattjik and Sumertajaya, 2011). The process of completing the Cluster analysis can be done by grouping the data which can use two methods, namely the hierarchical method and the nonhierarchical method. Several hierarchical method algorithms include the average linkage and ward linkage methods. In
the average linkage method, the distance between two clusters is considered as the average distance between all members in one cluster and all members of other clusters. The distance from one cluster to another is calculated by equation (2.1):

\[(2.1)\]

Which:

\[: \text{Average distance between Cluster AB dan Cluster C} \]
\[: \text{Distance between object i in Cluster (AB) and object k in Cluster C} \]
\[: \text{Total object in Cluster (AB)} \]
\[: \text{Total object in Cluster C} \]
\[i : \text{Number of object}, ? : 1, 2, 3, \ldots, n \]

While the ward linkage method is a method of forming clusters based on the loss of information due to merging objects into clusters (Johnson and Winchern, 2002). The sum of squared errors (ESS) was used as the objective function. Two objects will be combined if they have the smallest objective function among the possibilities. The purpose of the ward method is to minimize the variance within a cluster and maximize the variance between clusters (Supranto, 2004). The ESS value is presented in equation (2.2).

\[(2.2)\]

Which:

\[: \text{object value-i in Cluster-j} \]
\[p : \text{The number of variables} \]
\[n : \text{The number of objects in Cluster form} \]

**SURVIVAL ANALYSIS**

Survival analysis is a collection of statistical procedures in which the variable of interest is the time (T) until the specified event occurs. In survival analysis, the probability distribution of T can be expressed in three ways, namely through the survival function S(t). At time t = 0 then S(t) = S(0) = 1 which is interpreted as the start of the test where none of the objects get the specified event and the probability of survival of an object is worth one. At time t = then S(t) = S([?) = 0, meaning that if the test period increases to infinity then in the end there will be no object that can survive so the chance of survival of an object will approach zero. Through the probability density function, and the hazard function. One of the analyzes that can be used to determine the relationship between the length of time until an event occurs with other influencing variables is hazard regression analysis (Fernandes, 2016). If it is related to the survival function, then the hazard function is as follows.

\[(2.3)\]

Because of , so

\[(2.4)\]

With integral of get equation (2.5) above.

\[(2.5)\]

then exponentiated, then the equation (2.6) is obtained

\[(2.6)\]

because the cumulative hazard function is
So, from equations (2.6) and (2.7), the relationship is obtained, namely:

According to Pourhoseingholi, et al., (2007), there are 3 models to analyze the relationship of a set of predictor variables with survival time, namely models with parametric, nonparametric, and semiparametric approaches. The model with a parametric approach to survival analysis assumes that the survival time distribution follows a certain known probability distribution. For example lognormal, exponential, and Weibull distributions. The model with a nonparametric approach uses the Kaplan-Meier method to estimate and graph the probability of survival as a function of time. Meanwhile, the model with a semiparametric approach uses Cox PH regression, Stratified Cox, and Extended Cox. The model can describe the effect of covariates on survival. Fernandes, et al., (2014), the basis of the extended cox is a regression method that it can be called extended cox regression.

Fernandes, et al., (2019), when the data has certain characteristics so that it cannot use a parametric or nonparametric approach, a semiparametric approach can be used. One method that can be used is if there is a time-dependent predictor variable so that the proportional hazard assumption is not met by using Extended Cox regression. time-dependent variables are defined as variables that can change at any time depending on time (Kleinbaum and Klein, 2012). In the extended model cox variables that depend on time must be interacted with the time function gm(t). The Extended Cox regression model is formed in equation 2.9.

\[
\text{Which:}
\]

: Regression extended cox function
: Basic hazard function
: Variable parameters that meet the assumption of PH
: Parameters that meet the assumption of PH
: Variable parameters that do not meet the assumption of PH
: Parameters that do not meet the assumption of PH
: Time function

INTEGRATION OF CLUSTER ANALYSIS WITH SURVIVAL ANALYSIS

Integration of cluster analysis with survival analysis using extended Cox regression based on a dummy variable approach. Dummy variables are included in binary variables that can change qualitative variables into quantitative ones. Usually, the analyzed qualitative variables assume a value of 1 or 0 (Santoso, 2001). In this study, cluster analysis aims to group objects so that between groups are heterogeneous and between objects in each group are homogeneous. Furthermore, survival analysis was performed using Extended Cox regression. Then the parameter estimation of the Cluster integration model was performed with survival analysis using Extended Cox regression. The integration of cluster analysis with survival analysis using Extended Cox regression is used to determine the factors that affect the length of time a group of customers can pay for a KPR. The dummy variable in this study is the number of clusters formed minus one.

The cluster integration model in survival analysis using Extended Cox regression is written in equation (2.10).

\[
\text{(2.10)}
\]

For example, if the research variables used are 3 variables with 1 variable that does not meet the PH assumption and the number of clusters is 2 clusters, then 1 dummy is formed. The integrated cluster model with survival analysis using Extended Cox regression can be written as in equation (2.11).
Common model :

(2.11) 

Cluster 1 \((D=0)\)  

(2.12) 

Cluster 2 \((D=1)\)  

(2.13) 

DETERMINING THE BEST MODEL

Determination of the best integration model using Mean Squared Error (MSE). According to Gujarati (2006), MSE is a method that plays a role in activating the best model by squaring each error or error. Then add up and divide by the observed data. One of the characteristics of a good model is that it has the smallest MSE. The MSE value can be seen in the equation (2.14) below.

(2.14) 

Which,

: Actual data 
: Forecasting data 
: The number of data 
: The number of variables

RESEARCH METHODOLOGY

The data used in this study is secondary data 5C (Character, Capacity, Capital, Collateral, and Condition), credit collectibility, and credit payment time (time). The sample used is 300 bank X customers who are House Ownership Loan (KPR) customers. This research uses the help of R Studio software. The steps of this research are as follows.

1. Determine the research variables used and prepare the data.  
2. Testing the proportional hazard assumption.  
3. Perform cluster analysis using the hierarchical method to get the number of groups using two methods, including average, and ward linkage.  
4. Matrix Formation of the Dummy variable by using the formula for the number of clusters minus one.  
5. Integrate Cluster analysis with survival analysis on each linkage.  
6. Perform survival analysis with Extended Cox Regression. The integration model of cluster analysis and survival analysis uses extended Cox regression as follows.  
7. Perform survival analysis with the Extended Cox Regression model without being integrated with Cluster analysis. The model formed is as follows.  
8. Finding the best model from the third model formed by comparing the MSE and selecting the minimum MSE.  
9. Interpret the best-resulting model.

RESULTS AND DISCUSSION

1. Testing Proportional Hazard Assumption

PH assumption testing is done by Global Test. So that the results are obtained as in Table 4.1. below.

Table 4.1. Testing Proportional Hazard Assumption
<table>
<thead>
<tr>
<th>NO.</th>
<th>INDICATOR OF VARIABLE</th>
<th>GLOBAL TEST VALUE</th>
<th>CONCLUSION</th>
<th>NO.</th>
<th>INDICATOR OF VARIABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X111</td>
<td>0.990</td>
<td>Meets the assumption of PH</td>
<td>14</td>
<td>X323</td>
</tr>
<tr>
<td>2</td>
<td>X112</td>
<td>0.990</td>
<td>Meets the assumption of PH</td>
<td>15</td>
<td>X33</td>
</tr>
<tr>
<td>3</td>
<td>X12</td>
<td>0.980</td>
<td>Meets the assumption of PH</td>
<td>16</td>
<td>X34</td>
</tr>
<tr>
<td>4</td>
<td>X21</td>
<td>0.560</td>
<td>Meets the assumption of PH</td>
<td>17</td>
<td>X351</td>
</tr>
<tr>
<td>5</td>
<td>X22</td>
<td>0.240</td>
<td>Meets the assumption of PH</td>
<td>18</td>
<td>X352</td>
</tr>
<tr>
<td>6</td>
<td>X23</td>
<td>0.160</td>
<td>Meets the assumption of PH</td>
<td>19</td>
<td>X353</td>
</tr>
<tr>
<td>7</td>
<td>X241</td>
<td>0.110</td>
<td>Meets the assumption of PH</td>
<td>20</td>
<td>X354</td>
</tr>
<tr>
<td>8</td>
<td>X242</td>
<td>0.110</td>
<td>Meets the assumption of PH</td>
<td>21</td>
<td>X36</td>
</tr>
<tr>
<td>9</td>
<td>X251</td>
<td>0.430</td>
<td>Meets the assumption of PH</td>
<td>22</td>
<td>X37</td>
</tr>
<tr>
<td>10</td>
<td>X252</td>
<td>0.670</td>
<td>Meets the assumption of PH</td>
<td>23</td>
<td>X411</td>
</tr>
<tr>
<td>11</td>
<td>X31</td>
<td>0.150</td>
<td>Meets the assumption of PH</td>
<td>24</td>
<td>X412</td>
</tr>
<tr>
<td>12</td>
<td>X321</td>
<td>0.670</td>
<td>Meets the assumption of PH</td>
<td>25</td>
<td>X5</td>
</tr>
<tr>
<td>13</td>
<td>X322</td>
<td>0.390</td>
<td>Meets the assumption of PH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in Table 4.1 above, all variables meet the PH assumption, except for one variable that does not meet the PH assumption, namely the X353 variable which has a global value (0.040) less than 0.05. This indicates that the X353 variable is a variable that depends on the timing of mortgage payments. So when making the Extended Cox regression model, these variables need to interacted with time.

4.2. **Cluster Analysis**

4.2.1. Number of Clusters Determination

Determination of the best number of clusters using a dendogram. The following are the results of the cluster on each linkage method.

*Ward Linkage* method

The dendogram formed is shown in Figure 3.1. the following.

![Cluster Dendrogram](image)

**Figure 4.1**

The number of members of each cluster according to Figure 4.1, the use of the Ward linkage method is 215 customers in cluster 1 and 85 customers in cluster 2.

*Average linkage* method
The dendogram formed is shown in Figure 4.2. The number of members of each cluster is shown in Figure 4.2. The use of Average linkage method is 271 customers in cluster 1 and 29 customers in cluster 2.

4.3. Regression Extended Cox Model

The Extended Cox Regression Model which is formed without being integrated with Cluster analysis is as follows.

The MSE value of the extended cox regression model equation is 0.330.

4.4. Cluster Integration with Dummy Variables with Survival Analysis Approach

4.4.1. Integrated cluster model in Extended Cox Regression Based on Ward Linkage

The ward linkage method produces 2 clusters that separate each data set optimally. Then the model formed is like the following equation.

A low cluster \((D_1 = 0)\) can be seen in the following equation.

A high cluster \((D_1 = 1)\) can be seen in the following equation.

The MSE value of the integrated cluster model equation in the extended cox regression is 0.265.

4.4.2. Integrated cluster model in Extended Cox Regression Based on Average Linkage

The Average linkage method produces 2 clusters that separate each data set optimally. Then the model formed is like the following equation.

A low cluster \((D_1 = 0)\) can be seen in the following equation.

A high cluster \((D_1 = 1)\) can be seen in the following equation.

The MSE value of the integrated cluster model equation in the extended cox regression is 0.307.

4.5. Selection of the Best Linkage from Minimum MSE

Selection of the best linkage by choosing the smallest MSE value. Comparison of MSE values of the three models.
Table 4.2. Comparison of MSE

<table>
<thead>
<tr>
<th>Model</th>
<th>MSE Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox Extended Regression Equation Model</td>
<td>0.330</td>
</tr>
<tr>
<td>Extended Cox Regression Equation Model based on Ward Linkage</td>
<td><strong>0.265</strong></td>
</tr>
<tr>
<td>Extended Cox Regression Equation Model based on Average Linkage</td>
<td>0.307</td>
</tr>
</tbody>
</table>

Ward Linkage-based Extended Cox Regression equation model has the smallest MSE value, so this model is the best model. The Mean Squared Error value is 0.265. So, the model is considered to be very good to describe the model.

4.6. The Best Model

The best model is obtained from the Ward Linkage-based Extended Cox Regression Equation Model. The following are the average indicators in the low and high clusters that are formed.

Table 4.3 Average Score of Each Cluster

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Cluster 1:</th>
<th>Cluster 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Cluster</td>
<td>High Cluster</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$X_{12}$: Long time in residence (Year)</td>
<td>8.635</td>
<td>7.700</td>
</tr>
<tr>
<td>$X_{22}$: Education (Year)</td>
<td>15.390</td>
<td>15.740</td>
</tr>
<tr>
<td>$X_{33}$: Age (Year)</td>
<td>39.220</td>
<td>39.980</td>
</tr>
<tr>
<td>$X_{34}$: Credit term (Year)</td>
<td>10.690</td>
<td>12.800</td>
</tr>
<tr>
<td>$X_{34}$: RPA (Instalment Income Ratio)</td>
<td>2.218</td>
<td>2.676</td>
</tr>
<tr>
<td>$X_{36}$: Work experience (Month)</td>
<td>41.990</td>
<td>142.200</td>
</tr>
<tr>
<td>$X_{37}$: Number of Family Dependents (Person)</td>
<td>1.493</td>
<td>1.235</td>
</tr>
<tr>
<td>$X_{5}$: Loan to Value</td>
<td>82.530</td>
<td>81.060</td>
</tr>
</tbody>
</table>

The model that is formed from the variables that affect the length of time customers pay mortgages significantly in the high cluster is as follows.

Kaplan Meier Curve for Marriage Status of KPR bank X customers from customer data classified as high cluster as follows.
Figure 4.3. Kaplan Meier Survival Curve High Cluster Customer Marital Status

From the picture above, it is clear that the chance of survival or customers fulfilling obligations with married status in paying KPR is 0.216 higher than the chances of survival or customers fulfilling obligations with unmarried status in paying KPR, which is 0.102. While the model in the low cluster is as follows.

Kaplan Meier Curve of Marriage Status of KPR Bank X customers from customer data classified as a low cluster as follows.

Figure 4.4. Kaplan Meier Survival Curve Low Cluster Customer Marital Status

From the picture above, it is explained that the chance of survival or customers fulfilling obligations with married status in paying KPR is 0.213, higher than the chances of survival or customers fulfilling obligations with unmarried status in paying KPR, which is 0.113.
5. CONCLUSION

The best model is the integrated cluster model in the ward linkage-based extended Cox regression with the smallest MSE value of the other models, which is 0.265. There are two best clusters formed, namely the low cluster and the high cluster. The best clusters formed are low clusters and high clusters. In the low cluster, the coefficients of the SHGB Guarantee Document (X111), Joint Income (X31), Number of Family Dependents (X37) are negative, so that if this value increases, it will increase the chances of customers in the low cluster paying a mortgage with a longer payment period determined by the bank (customers do not fulfill obligations). While the coefficient of Education (X22), Divorced Marital Status (X251), Marital Status (X252), Credit Term (X33), Installment Income Ratio (X34), Work Experience (X36), and Loan to Value (X5) are feasible positive, meaning that the higher the coefficient, the greater the opportunity for customers in the cluster to pay mortgages with payment times faster than the time set by the bank or not exceeding the time limit determined by the bank (customers fulfill obligations). While in the high cluster, the coefficients of the SHGB Guarantee Document (X111), Divorced Marital Status (X251), Joint Income (X31), Credit Term (X33), and Number of Family Dependents (X37) are negative. So, it can be said that if the coefficient value increases, it will increase the chances of customers in high clusters paying for mortgages with a longer payment period than that set by the bank (customers do not fulfill obligations). While positive coefficients such as Education (X22), Marital Status (X252), Installment Income Ratio (X34), Work Experience (X36), and Loan to Value (X5) have the meaning that the higher the coefficient value, the greater the coefficient. the opportunity for customers in the high cluster to pay KPR with payment times faster than those set by the bank or not exceeding the time limit determined by the bank (customers fulfill obligations).

ACKNOWLEDGMENT

The authors express their sincere gratitude to all parties involved and have assisted in the process of preparing this journal. Hopefully, this journal can be useful for readers.

CONFLICT OF INTEREST

This research does not have any conflicts of interest.

REFERENCES


