

## Decision Support System Analysis of Productive Financing Using Analytical Hierarchy Process (AHP) Method (Case Study of Sharia Business Unit of Bank Sumut)

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### Article Info

#### Article history:

Received July 13, 2023  
Revised August 4, 2023  
Accepted October 20, 2023

#### Keywords:

AHP Method  
Decision Support System  
Funding

### ABSTRACT

This study aims to analyze and find out about the decision support system used to assist in analyzing potential productive financing customers using the Analytical Hierarchy Process (AHP) method in the Sharia Business Unit of Bank Sumut. The method that researchers use in this research is the descriptive qualitative method. Data collection was carried out through interviews with the financing division of the Sharia Business Unit of the Bank of North Sumatra and documentation. The data collected by the author of the analysis is descriptive analysis. The results found and obtained in this study are Decision Support Systems that can be used to assist in the process of analyzing data on prospective productive financing customers when applying for financing, namely by analyzing the 5C principles (Capital, Character, Capacity, Collateral, and Condition of the economy). The application of the AHP method to the Sharia Business Unit of Bank Sumut can provide the best solution in determining the feasibility of providing financing.

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### INTRODUCTION

A bank is a financial institution that in its implementation carries out several activities in financial services such as circulating currency, supervision of currency, a place for storing money and goods and securities, providing loans for financing, and so on. A bank is a financial institution that in its implementation carries out several activities in financial services such as circulating currency, supervision of currency, a place for storing money and goods and securities, providing loans for financing, and so on. The types of financing there are consumptive and productive.

Based on its needs, productive financing is divided into 2, namely working capital financing and investment financing. When providing financing to customers, there are separate criteria for banks to provide financing, one of the most important criteria in financing is the financing analysis where in this case the financing analysis is used by Islamic Banks to make decisions to approve or reject financing decisions to customers, and also this analysis becomes a reference for Islamic Banks in believing the feasibility of the customer's financing application. No exception for Bank Sumut Sharia Business Unit, in the distribution of financing, Bank Sumut Sharia Business Unit will see and conduct an assessment in advance of the customer concerned whether the customer is eligible to receive financing that will be distributed by the Sharia Business Unit of this North Sumatra bank or not. From this examination, a decision-making process that is carried out manually emerges and there is a dominant role and subjectivity in customer selection. Customer.

As is known that the Sharia Business Unit (UUS) is a work unit located at the head office of a Conventional Bank which in its implementation applies Sharia principles and also functions as the parent office of Sharia branch offices and Sharia units (Wirosa, 2009). In its implementation and implementation, Bank North Sumatra's Sharia Business Unit has various products in productive financing, namely Corporate Construction Working Capital Financing, Syndicated Financing, Sharia Current Account Working Capital Financing, General Working Capital Financing, Civil and private Multipurpose Financing, Corporate Financing, Investment Murabahah Financing, Umrah Bailout Financing, and Financing Line Facility. Based on the report, in 2021, the amount of productive financing at Bank Sumut Sharia Business Unit is IDR 333,240,957,514 with the amount of NOA (Number Of Accounts) amounted to 1,232 this number decreased from the previous year, in 2020 the amount of productive financing amounted to IDR 430,762,124,243 with the amount of NOA of 1,630.

At the time of financing distribution to customers, Bank Sumut Syariah has applied standards to accept or reject the financing risk by applying the 5C analysis principle, where this principle consists of Character, Capacity, Capital, Condition Of Economy (current economic conditions that affect the customer's business) and Collateral (Customer guarantee to bear risk) and also apply the Four Eyes Principal analysis principle. The analysis mentioned above is an analysis that will determine which prospective customers are eligible for financing or not. When the feasibility analysis criteria have been determined, then the weighting and assessment of prospective customers will be carried out in the financing

The decision support system is a system that can assist banks in making accurate and targeted decisions and SPK can solve various problems, including determining customer eligibility in receiving productive financing. This SPK can assist financing managers in making decisions, improve data processing, speed up the process, and can improve the quality and service of the Sharia Business Unit of Bank Sumut in providing financing (Sugianti & Soma, 2020).

In this study, researchers used the method of the Analytical Hierarchy Process (AHP). AHP is the relevant method used to explain the above procedure. AHP is a decision support model developed by Thomas L. Saaty which in decision model describes complex multi-factor or multi-criteria problems into a hierarchy that is described so that the problem will look more structured and systematic the AHP method is also often used as a method for solving existing problems (Supriadi, 2018). AHP is a mathematically based procedure suitable for the evaluation conditions of qualitative attributes that can be mathematically quantified in a comparative set. This method is a comprehensive decision-making model by takes into account qualitative and quantitative matters where this decision-making model tries to cover the shortcomings of the previous model. This method also allows to structure of a system and environment into interacting components and then unify them by measuring and regulating system fault components (Saaty, 2008).

AHP is used to determine which prospective debtors are eligible to receive financing by considering the criteria determined by the bank. The criteria that become the basis for banks to make decisions on whether or not to provide financing to customers are seen from the customer's credit status, then business productivity, guarantees, and collectibles. Although the selection of prospective customers is entirely determined by the bank after its analysis, the decision support system will display global priorities from the highest to the lowest of the prospective customers, making it easier to make decisions about financing.

The dependence of the AHP method is basically on the main input where the main input is an expert so in this case it involves the legitimate subjectivity of the expert besides that it also does not mean the expert gives an erroneous judgment. At Bank North Sumatra, this Sharia Business Unit is only a mathematical method without submitting statistics so that there is no limit to trust in the correctness of the documents formed. The AHP method requires participation from parties who know the real problems that exist, especially in building a hierarchy of problems. If in taking multiparticipant problems there are very extreme differences, then AHP cannot be applied immediately and efforts need to be made to unite opinions/problems.

#### Problem Statement

Based on the background of the problem that has been described, the formulation of the problem to be studied is:

1. What is the decision support system that can be used in the process of analyzing prospective customer data when applying for financing?
2. What are the main criteria for decision-making using the Analytical Hierarchy Process method?

## RESEARCH METHOD

This research uses a qualitative approach in the form of a case study. The qualitative approach is the most suitable method to use. Cresswell defines qualitative research methods as an approach to exploring and understanding a central phenomenon and to understand that central symptom, researchers interview research participants or participants by asking general and broad questions (Raco, 2010).

This research uses an approach aimed at maintaining the integrity of the object of research. The collected data is studied as a whole whose purpose is to develop in-depth knowledge about the object under study. Qualitative research, among others, is descriptive, the data collected is more in the form of words or images than numbers. Thus, qualitative descriptive research is research that intends to make a descriptive picture to understand phenomena about what is experienced by research subjects such as behavior, perception, motivation, action, and others (Meleong, 2010).

The measuring instruments used to reveal this research are interviews and documentation. The type of data used is qualitative data, that is, data presented in the form of verbal words, not in the form of numbers. Data sources in research are subjects from which data can be obtained through primary and secondary data

## **RESULTS AND DISCUSSION**

### **Decision Support System for Financing with AHP Method at the Time of Financing Application**

Based on the research that has been done, the results can be said that the Decision Support System can be used to assist in the process of analyzing prospective customer data in applying for financing by first selecting customer data who will apply for a loan using the 5C principle, where this principle is used to find out whether the customer is eligible or not given a loan and to avoid unwanted problems such as customers who unable to pay by the predetermined due time.

In this activity, the bank digs deeper information about the customers who will be given the financing by collecting information about prospective customers, both about the company and the condition of the company to be given the financing. Extracting this information is usually done by surveys or interviews with the recipient of the loan, looking at the customer's financial statements, seeing the customer's financing footprint, and seeing the smooth running of the finances, this information can be in the form of interviews or asking for written material directly to the person concerned. The information must have an overview of the condition of a prospective customer's business regarding the size of the business, the amount of financing requested, the purpose of using the fee, the location of the business, guarantees and letters, and equipment owned. The financing application form is usually done to prospective customers to find out the information needed by the bank. Both the data that has been collected in the form of interviews, and written, internal banks are then processed in project introduction reports.

The data analysis process carried out by the bank is in the form of collecting 5C data by covering legal aspects seen from the documents both from business establishment and business licenses, financial aspects seen from the financial statements, management aspects seen from how the company is doing whether it already has a strong organizational structure or not, collateral aspects seen from the assessment carried out by the operational division, The technical aspects seen from the company's process in making its business both start from production and how sales and product flow or process, marketing aspects seen from the SWOT analysis seen from how the customer's sales target during the financing period to be provided. the stages in providing financing are identification of files (administrative requirements), surveys (on business and collateral belonging to customers), and assessment of collateral based on internal assessments (below market prices) at this survey stage the completeness of files must be completed (if there are deficiencies at the time of filing administrative requirements), Financing Committee Meeting to determine whether the financing is feasible or not to be given, and the last is the process of disbursing funds.

### **Key Criteria for Decision-Making**

Based on the results of the above research and after the collection and weighting of data and normalization of the data above, it can be seen that the criteria used at Bank North Sumatra financing analysis use capital, character, capacity, collateral, and condition of the economy. The main criteria for using the AHP method are as follows:

#### **a. Capital (Modal)**

In the table of the results of this study, it can be seen that the results of this criterion are 0.567, making capital the main point in the level of AHP used, which means that among the 5 criteria that have been processed using AHP, capital is the most important to be analyzed in selecting financing for customers. Capital is the main criterion in making productive financing decisions because this capital is the easiest to measure and see and also has a direct effect on the terms of repayment of financing which is the customer's obligation. The most important thing that can be seen from the analytical aspect is the company's financial statements. Mr. Aulia said that for productive financing the financial statements must be in a stable state and this is very important if you have a defect in previous installment payments and the company is found to have unclear financial statements and does not have an increase and also previous payments are not stable, it is difficult to provide such financing. Capital is a condition of wealth owned by the company it manages. This can be seen from the

balance sheet, financial statements, income statement, capital structure, and profit ratios obtained such as return on equity and return on investment.

b. Character (Watak)

In the table of research results above, it is known that the weighting results of this criterion are 0.234 where the results of this weighting are number 2 in the AHP level used based on expert interviews that have been conducted in this character column, the main point according to informants encountered in this character is payment commitment, this is important in the character because payment commitment is a reflection of the customer's character. Mr. Jauhari said that if the customer has made a good payment commitment, we assume that this customer can be trusted, and when providing refinancing, it will be easier to trust. Mr. Aulia also said that when customers are well committed, to carry out their payment obligations, the bank's risk will also be smaller, therefore every customer who will receive payment is checked first, and the payment trail beforehand.

c. Capacity

In the table of research results above, it can be seen that for the capacity criterion, the weighted result is 0.224 which makes capacity number 3 in this AHP level, where the most important main point in this criterion is based on information from informants that the turnover obtained by customers is the most important thing because from the turnover, it can be seen whether the customer is able or not to pay the installments that become The obligation is when the bank has contracted with Bank Sumut Syariah. Mr. Hendiki explained that this productive financing is productive financing so when you need to be given financing, you must have a turnover that can also cover installment payments because if the turnover is still gray or not by the amount of the financing application, it will be difficult for the bank to process.

d. Collateral (Jaminan)

From the table of results above, it can be seen that collateral weights 0.053 to be the fourth rank of priority criteria for providing financing. Based on the results of research from informants who have been interviewed for this collateral category, the main points that are considered the most important are the ownership of collateral and the authenticity of documents. Mr. Ainal said that the ownership of collateral is the main consideration in determining the eligibility of customers to be given productive financing because collateral is the most important aspect. Mrs. Ayi Siregar also said that how much collateral is given by the prospective customer concerned will pose a risk to Islamic banks and physical or non-physical guarantees are the dominant factors in determining the creditworthiness of customers and other variables are assessment indicators but not the main factors.

e. Condition Of Economy

From the table of results above, it can be seen that the condition of the economy is the last level in this AHP analysis with the number of weighted results of 0.031. Based on information from informants said that this condition was the last because it was complementary when everything else had been fulfilled. The main priority that is considered pailing important is an effort both in the eyes of the law and the government. Mr. Hendiki explained that a good business in the eyes of the law and the government is important because if the business to be financed has complete business illegality, it means that the business has been allowed by law and the government, so it can be said that the business is good and growing because it has fulfilled the business license. The development of the investment business becomes less considered because if the business has obtained legality and is stable in facing the market, the business can be said to be growing.

## CONCLUSION

Based on the results and discussions that have been carried out in this study, the conclusions contained are as follows:

- a. The results of the research conducted are from the results of data processing, it is known that in the criteria for providing productive financing for Bank North Sumatra's sharia business units, the main criteria in making decisions on providing productive financing are Capital criteria, where the weighting results are based on the Analytical Hierarchy Process technique (AHP) obtained the highest result of 0.567. Furthermore, in the calculation of weighting, the second criterion is Character with a matrix value of 0.234 followed by the next criterion, namely Capacity with a matrix value of 0.224. The 4th criterion is Collateral with a breakdown result of 0.053. The last criterion is the Condition Of Ecoomy with a value of 0.031 breaking results.
- b. The most important character sub-criteria are payment commitment, then the intention and responsibility of prospective customers. The most important capacity sub-criterion is the turnover obtained by customers every month and then the ability to pay installments. The most important sub-criteria of capital is the

payment track record of prospective customers and then a steady source of income. The most important collateral sub-criteria are ownership of collateral goods and the authenticity of documents then the marketable level of collateral. The most important sub-criteria of the condition of the economy is business both in the eyes of the law and the government then business stability facing the market.

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