

Identify and Prioritize the Factors Affecting the Validation of Bank Customers Using AHP (Case Study: Melli Bank of Mazandaran Province)

Maghsood Shalafi¹, Mohammad Hadi Asgari PhD²

¹M.A of Government Management, Chalus branch, Islamic Azad University, Chalus, Iran

²Assistant Professor, Department of Business Management, Tonekabon branch, Islamic Azad University, Tonekabon, Iran

Received: November 21, 2014

Accepted: January 25, 2015

ABSTRACT

Purpose of this research is to identify and prioritize the factors affecting validation of banks' customers using AHP method in the Melli Bank of Mazandaran province.

The present research methods is Quantitative and qualitative. The studied statistical universe consists of the whole managers, experts of branches/sections and those who are in charge of credits of Melli Bank of Mazandaran province in the current year of 2013-2014, numbering 567 individuals. Considering research type and using purposive sampling method, 40 individuals out of the specialists/experts were selected in order to enforce the research.

In order to study the research's questions, made-by-researcher questionnaire of factors influencing validation of bank's customers, which has 32 items and is in form of matrix in two columns of (i) and level of (j), has been used.

In order to analyze the data statistically and to present a model for management of factors affecting validation of banks' customers, process of hierarchical analysis (AHP) has been used.

Research findings show that the model of identification and management factors affecting the validity of bank clients includes eight main components (Available potentials in the applicant 0/306037, personal factors 0/162375, general conditions of economy 0/15550, financial factors 0/139125, situation of profitability of the bank's activities 0/12875, precedent of the past payments 0/127875, flow of cash moneys 0/127625, received documentations from applicant 0/11025) according to sequence of priority and preference. And these factors are interacting with each other.

KEY WORDS: Factors affecting validation of bank's customers, process of hierarchical analysis.

1. INTRODUCTION

Evaluate the performance of most countries shows that investment and economic development level are closely related. Namely, those that their model are efficient in capital allocation to the different economic sectors, often their result of economic development and social welfare are higher.

Mobilizing and allocating resources for investment in economic activities carried out by the financial market that the credit market is a part of this market. This is done as the role of banks in the financial market by giving credit to its customers; so one of the important issues is, evaluate credit risk (the probability of customers' negligence in the repayment of the credit facilities).

Measuring this risk among the risks that banks are facing in the wide range of their performance, has the special place. What that might bother many bank, are loans that has not paid by the customer or a delay in payment of them; that due to its large size, it may even lead to the failure of a bank; that according to the latest statistics by the end of 2009 is about 415 trillion Rials (Dahmarde & et al, 2012).

Validation of bank customers or predictions about the financial situation of companies that are applicant of credit facilities from banks is one of the duties of bank' credit sector. It is important because it influences on the two main role of banks, namely mobilization and allocation of resources. If banks have been successful in allocating resources and with proper validation and optimization techniques reduce their credit risk; on the one hand can better use of existing investment opportunities and on the other hand, applicants are also able to supply additional credit facilities and their financial needs (Shariatpanahi & Hashemi, 2009).

Interoperability between supply and demand in the resources and banking facilities, Manage and reduce outstanding receivables and freedom from central security system is one of those issues that reveals the necessity of implement a scoring system and validate in the banking system over other issues. So these institutions are forced to establish an efficient system to do this important work to lending operations in

today's competitive markets would have the required efficiency and speed and to minimize the possibility of the return of the principal and interest of granted loans (William & Markez, 2008).

In this study, the researcher says that several factors should be considered in the bank customers' validating and that many factors are involved in the procedures and results of the validation. This study seeks to identify and prioritize the factors affecting bank clients' validation.

2. LITERATURE REVIEW

Validation of customers, who are receiving loans and facilities, is a natural process in the banking system. Based on the experience of developed countries in the field of the validation of bank customers by the validation centers, it can be said these centers provide advice to banks, for being aware of the customers' situation in the banking system, and their ability to pay. Even there are apparent widespread corruption in the banking system of government and even private banks that people who are doing this job, with the their relationships, are referred to applicants of loans, and provide loans for applicants from the banking system by receiving a percentage of the loan (Ghanbari, 2013).

After the recent crisis, the banking system have considered more precise and control in the payment of the loans to applicants. For example, already in the UK with 10% of the total amount of residential units, Applicants could get a loan from the banking system for the rest of it and residential units are purchased. But this cultivar has now risen to 50%, for being assured of repayment; but in Iran, on the one hand, our banks are the government banks and on the other hand, relations are governing the regulations. Most credit institutions depends to known institutions that their activities are mainly in the field of commerce, dealers, import and smuggling thus, in the present circumstances it is not possible to use the validation system such as other countries (Khosh jahan & Golpasand, 2013).

Among the risks that banks are facing to them, credit risk (the risk of inability to pay) has particular importance. One way of quantifying and measuring credit risk and thus its proper management, is customer validation and use of credit scoring models. The models are based on quantitative measures (eg, financial information) and non-quantitative measures (such as the characteristics of the social character), the features and functionality of previous loansto predict the future performance of loans with similar characteristics (Marshal & et al, 2010).

The reasons for the importance of assessing credit risk can be mentioned the following:

a- Credit risk is the most important factor in bank failures.

b- Measurement of credit risk and anticipate the risks of non-repayment of credits and establish a logical relationship between risk and return provides the possibility of optimizing the composition of the credit portfolio and asset pricing and determining the economic capital of banks in order to reduce capital costs, and maintaining competitive power and a comparative advantage for banks and credit institutions (Shariatpanahi& et al, 2011).

c-In usury system after the loan, the bank communication with money stops and the bank regardless of the type of economic activity, invites the principal and interest of its payment; so with the enough guarantee, there is no need for a detailed assessment of the client. While in the Islamic banking system, bank is facilities receiver partner in economic activity. Thus, with respect to domain- proxying resources is very important to assess the client's ability to repay (Arab Mazar & Roeintan, 2010).

Generally, credit risk measurement techniques can be divided into two main groups:

Nonparametric credit scoring models

- Mathematical programming
- Classification tree
- Nearest neighbor model
- Analytical Hierarchy Process
- Expert System
- Artificial Neural Networks and Genetic Algorithms

Parametric credit scoring model

- Linear probability model
- Audit analysis model
- Logit model
- Probit model

Credit institutions and banks should be given the complexity of economic activity and the environment around them, select appropriate models to assess clients' credit ratings (Taghavifard & Nadali, 2012).

3. Previous Research

Rambadli & et al (2012) with the aim of assessing the value of loans which granted to agricultural cooperatives by Cooperative Bank of America, during the years (2012-2008), introduced higher levels of liquidity for cooperatives, the higher ratio of the value of net income to the average value of the assets of the cooperative, higher sales returns of cooperative and less productive diversity as the most important factors affecting the acceptance of applications for credit.

Morris (2012) in a study to investigate the cause of overdue in India explained that the rapid increase in lending by the banking system to respond to the pressures of government lending will lead to defaulting borrowers. He knows defaulted on lending to profitable investments, negligent in marketing, linking the demand for credit granting with the amount of production, inappropriate policy for lending, very large or very small loans, improper use of loan, ineffective supervision, indifference bank management in claiming of loan and lack of responsibility sense and necessary discipline in some borrowers as the main reasons of default in repayment of loans.

Francisco Louzada and et al (2012) in a study have analyzed the performance of "simple Logit regression model" and "Logit regression model with dependent mode for sample selection" "And these two models are applied to the simulation data. In this study, they are looking for disproportionate sampling in the credit assessment models.

Diken (2011), in the field of use audit analysis method, have taken action in order to evaluate the factors of companies failure, by using 14 financial ratios as independent variables and also evaluating the performance of companies using the same model.

Shariatpanahi & Hashemi (2013) in a study entitled "A model for validation bank customers in the mining industry. "In this study, they have discussed prediction the recipient companies' default on loans and credit facilities by using multivariate discriminate analysis model. The results, based on information of those firms that received credit and facilities from Industry and Mine banks, showed that among of the 17 selective ratio, the 5 of them have the greatest power in order to separating groups of companies as Defaulting and non-Defaulting and ROA ratio is inversely related to the probability of Defaulting and companies that have greater net profit, are more successful in the repayment of loans and credit.

Khosh Jahan & Golpasand (2013), in a study titled "A model for validation bank customers using the fuzzy approach "validation of clients including major issues in today's world, which has been the subject of discussion for banks. Mathematics using various models such as regression calculates the probability negligence or non-default in payments and they are ranking customers according to it. In this paper has been presented a new approach for validating customer; the presented approach is based on fuzzy logic, that facts are examined not as zero and one, but in a gray range of realities, The input of the fuzzy system is variables of 5c and its output is classification of customers based on their creditworthy.

4. Research Questions

The main question:

- What are the factors affecting the validation bank customers?

Sub-questions:

1. How is the weight of any options for factors affecting the customers' validation?
2. How much is the weight of each criterion?
3. How much is the rate of inconsistency index for paired comparisons matrix of this system?
4. Do prioritize the factors affecting the validity?

5. RESEARCH METHODOLOGY

5-1- Research methodology and data collection methods

The type of this research is quantitative and survey. The present study is applied research in terms of overall objective. In terms of the environment, it is a field research; in terms of awareness about the variable under study is descriptive; in terms of chronology for data collection is prospective. In terms of time frame for the selection and study subjects is cross-sectional. In terms of types of collected data is qualitative and in terms of criteria for research design is non-experiential and descriptive. In this study, the researcher made questionnaire was used. The questionnaire consists of 8 main components and 32 sub-components; so four sub-components were determined for each component that the experts should answer to the questionnaire based on their preferences about the components and their relationships with each other.

5-2- population and sample

The study sample consisted of managers, experts and credits officials of the National Banks in the Mazandaran province in the year 2013-2014 with 567 people. Also the sample size in this study comprises 40 members of the community who were selected by purposive sampling.

5-3- The method used for data analysis

In the present study, AHP method is used in order to identify and prioritize the factors affecting customer validation and determining the priority and the importance and the relationship between them and finally, providing a model for optimal customer validation, which is done using Expert Choice software.

6- Statistical analysis and hypothesis testing

- How much is the weight of each customer validation criteria?

Table 1. The final weight of the main constituents

Main constituents	Weight of each Sub-components
Cash Flow	0.127625
Potential of the applicant	0.306037
Past payment history	0.127875
Documents received from applicant	0.11025
General economic conditions	0.15550
The profitability situation of the Bank's activities	0.12875
Personality factors	0.162375
Financial factors	0.139125

As can be seen the component of the applicant's potential with importance and preferred of 0.306037 is the best choice and then the second select is the component of personality factor with preference and importance of 0.162375 and the component of general economic conditions with preference and importance of 0.15550 is the third component and the main component of financial factors with preference and importance of 0.139125 is the fourth component and the main component of the profitability situation of the Bank's activities with preference and importance of 0.12875 is the fifth component and the main component of the past payment history with preference and importance of 0.127875 is the sixth component and the main component of the cash flow with preference and importance of 0.127625 is the seventh component and the main component of the documents received from applicant with preference and importance of 0.11025 is the last component.

- How much is the rate and inconsistency of the matrix of paired comparisons for this system?

Inconsistency rate is a tool to calculate and show in the direction of compatibility and to what extent we can trust the results of the priority. If the inconsistency rate is less than 0.1, the compatibility of our comparison is true. In this study, the rate of compatibility for all parameters are within the acceptable range (Compatibility rate of Cash Flow factors: 0.046, the components of applicant's potential: 0.066, the components of past payment history: 0.055, the components of documents received from applicant: 0.04, the components of general economic conditions: 0.028, the components of the profitability situation of the Bank's activities: 0.088, the components of personality factors: 0.057, the components of financial factors: 0.031, Components of the main component: 0.0037).

- What is the conceptual model to identify and prioritize the factors affecting bank customers' validation?

In this study we tried to describe the steps needed to reach a conceptual model as follows:

1. Build Hierarchy
2. Giving the ability of decision making to model
3. The paired-comparison of criteria and sub-criteria to determine their importance in the decision-making
4. Synthesis and conflation to choose the best option
5. The sensitivity analysis
6. Doing operations to ascertain the compatibility of criteria
7. The correct completion of the appropriate model as a model for the organization people



7. Conclusions and findings

In the final model, the components of applicant's potential were determined as the most effective factor in the validation of bank customers; and the component of (product diversification) is the most effective component of this factor. In fact, this result indicates that applicant's features and capabilities, could create more dynamic in his economic unit, and continuation of his activities in the market and as a result, revenues and profits and increase the borrower's ability to pay its obligations. In the field of the findings of the present study, only Mahmoudi & Sharifi (2013) and Mensah (2006) and Own (2008) almost found similar results and acknowledged the potential and capacity of the borrower and the type of activity and management weakness in business is the cause of the lack of repayment of loans.

This study also showed that personality factor with preferences and importance of 0.162375 is the second important factor influencing on validation of bank customers; that the component of (Czech return) with the preference of 0.3817 is the most important component of this factor. In fact, it can be concluded that Checking Individual history, in fulfillment of personal obligations, such as payment of diverse cost as water and electricity, etc, not Czech return, Using bank facilities, timely fulfillment of obligations and a total review of all personality traits especially Czech return history and the applicant's unpaid debts, can be very effective in correct validating of customer. The results of the study corresponded with Dahmardeh & et al (2012), Mohtashami & Eslami (2012), Kim & Son (2008). In all these studies, the applicants' Czech returns history is a good criterion for validation of them.

Also the results of hierarchy process analytic showed that Component (general economic conditions) with preference and importance 0.15550 is the third component that is effective on bank customers' validation; that the component (public welfare) is the best component of this index. It can be assumed that several factors affect business and economic activity that these effects can be positive and stimulate economic activity, or negative and can cause a recession. However, general economic conditions, changes in tax rates, services rates, improve social welfare and public health, economic situation, inflation, particularly the general welfare, impact on applicants' economic performance and its profitability and will be very useful in customers' validation.

Also the results suggest that financial factors with preference and importance 0.139125 are the fourth affecting risk on bank customers' validation; and the component (sales and profits of last year) with the preference 0.2932 is the best components of this index. In fact, this result suggests that financial and economic situation of the applicant, ownership of financial assets and sales and profit and applicant's financial performance of the last year, is good indicator to predict his ability to pay its obligations, and will have an important role in the customer's validation. This result is consistent with the findings of Shariat Panahi and Hashemi (2013), Fisher (2009), Altman (2010), Behr et al (2010). The researchers also stated in their studies that the ratio of income and benefit, and in general, applicant's financial situation is affecting on the assessment and validation of him.

Also the results showed that the main component (the profitability of the bank's activities), with preference and importance 0.12875, is the fifth major component affecting customer validation that the component (increasing the share of bank participation contracts) is the best component of this index. It can be stated that banks' participation in profitable economic projects and lucrative investment and the issuance of bonds which are set participatory, especially loans to projects which the Bank will be partner in the profits of their, can be effective in assessing clients. In this field no study has found. Only Morris (2012), in his researches suggests that failure of banks in lending to profitable and participatory investments and inappropriate lending policies is the major causes of defaulting on their loan repayments.

Also the results of hierarchy process analytic showed that the main component (Past payment history), with preference and importance 0.127875, is the sixth major component affecting customer validation that the component (Promise to pay obligations) is the best component of this index. Accordingly, it can be assumed that Applicant has played its obligations on time, in the past and was committed to pay. Fulfillment of obligations, insurance coverage and profitability of activity, are the confirming of the applicant's current payment. This result is consistent with findings of Wiegandm (2003), Kim & Soun (2008), and Vigano (2011). These researchers also found in their studies that past payment history, and treatment of applicants committed in the past, played a significant role in the validation of its clients.

Also the test questions showed that the main component (Cash Flow), with preference and importance 0.127625, is the seventh major component affecting customer validation that the component (equalization of received and resources with expenditure and payments) with preference 0.32425 is the best component of this index. It can be assumed that the liquidity is the key factors in the validation of clients and business activities; because the corporation or an individual can perform its current obligations and liabilities with the liquidity. This finding is consistent with studies of Behr & et al (2010), Shirinbakhsh & et al (2011). Also these studies were diagnosed that the liquidity of the applicant and the proportion of receiving, Pay, and expenses, are important in the credit assessment of the applicant.

Also the results suggest that the main component (Documentation from the applicant), with preference and importance 0.11025, is the last major component affecting customer validation that the component (applicant's Education and Expertise) with preference 0.2970 is the best component of this index. It can be assumed that a true understanding of the applicant and detailed information in relation to education, Expertise, competence and person's tact in economic activity, will cause to correct granting of facilities; because the expertise and the education and intelligence can be used to maintain and increase

capital. This result is consistent with the result of Galili & et al (2011), Fisher (2009). The researchers also concluded that person's level of education and Expertise and tact in the economic activity, helps to validation and predicting his ability to pay in future.

8. Limitations and Barriers

- The most important limitation of the present study, is the questionnaire and its formulating.
- Because the questionnaire which was used for data collection was built using AHP method, subjects were not familiar with how to respond to it; then researcher was forced to explain how to score it for all subjects.
- In order to bank customers' validation, this research only were done among management and officials of credits and experts; but it would be better for all bank employees and some prominent scholars in the field of banking also be investigated.
- Another limitation of the study is the lack of knowledge of professionals with analytic hierarchy process.
- Next limits is resource Scarcity of factors affecting bank customers' validation.
- Lack of tightly interrelated study in internal and external background is another restriction.

9. Recommendations based on research findings

- It is suggested to the banks to design a software system to detect and predict their credit risk.
- It is suggested banks to review and improve their strategic planning process and the assessment system with regard to credit risk.
- It is recommended that general economic conditions, inflation, public welfare, unemployment and market conditions are examined at the time of clients' validation.
- It is recommended that the applicant's financial performance in last year, sales and profits and losses during the validation of his clients are examined.
- It is recommended that the cash flows and assets and liabilities are considered in the validation.
- It is suggested that the document information such as movable and immovable property records, financial statements and qualifications to be considered during the validation.

10. Suggestions for Future Research

- 1- The present study has examined the client's validation through Lapp method; attention to some parameters such as 5_p and 6_c could add new index to the problem of validation.
- 2- Financial ratios are the important factors in the individuals' assessment and the validation of them. A separate study to prioritize the various financial ratios can be a valuable aid to the current topic.
- 3- The present study was conducted at the National Bank; it is recommended attention to another example of state-owned and private banks in other province and other financial and credit institutions.
- 4- Two method of (5_p , 6_c) are common in the assessment of bank customers in the form of international; if widely investigated, could rank applicant's facilities; hence, according to the above method can entered new theoretical concepts in validation theoretical literature.

REFERENCES

- Altman E. I. (2008). Financial ratios ratios, discriminate analysis and the predication of corporate bankruptcy, *Journal of finance*, Vol. 23, No. 4.
- Arab Mazar, A., Roeintan, P., (2010), "Factors affecting the credit risk of bank customers: Case Study: Agricultural Bank ", *Economic Essays*, Third year, No.6, PP.80-45.
- Dahmardeh, N., Shahraki, J., seifoldinpour, S., Esfandiari, M., (2012), "bank customers' validation using credit scoring approach: Case Study: bank Sepah branches in Zahedan ", *Journal of Public Administration Research*, Fifth Year, No. 18, PP.152-135.
- Francisco Louzada, Paulo H.Ferreira-Silva, Carlos A.R.Diniz, :On the impact of disproportional samples in credit scoring models: An application to a Brazilian bank data", *Expert Systems with Applications* 39(2012) 8071-8078.
- Jalili, M., Fadaei, M., Koneshlo, M., (2011), "validation of real clients in the banking system", *Journal of Quantitative Studies in Management*, Fourth year, No. 6, PP. 127-150.
- Kim, M.C., & Soun, S.H. (2008). Cresit scoring and rejected instances reassigning through evolutionary computatioin techniques. *Expert systems with Applications*, 24, 433-441.
- Shariat Panahi, M., Hashemi, S., (2009), "A model for bank customers' validation in the bank of Industry and mining", *Journal of Accounting Studies*, No. 21, PP.78-61.