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RISK ASSESSMENT FOR CREDIT: A SURVEY OF LOGIT MODEL

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Abstract: *Lack of timely repayment of the facilities is one of the biggest concerns of managers, shareholders and society and expectation of repayment of the facilities in due date is a major objective of the banking system and also Sarmaye bank. The purpose of this study is to evaluate the relationship between credit ratings and risk of non-payment facilities of customers of the Sarmaye bank by descriptive and analytical methods. In this way, information collected from 225 experts of Sarmaye Bank by a questionnaire, as well as 328 cases of bank credit and was analyzed using SPSS software version 20. The results of the analysis of the data using a logit model to carry out the questionnaire variables showed that among 20 variables, 15 variables correlated with credit risk and entered into regression stepwise that Wald test showed effectiveness of 9 variables of mortgage, repayment duration, credit history, contract amount, returned check record and the financial policies of the government, economic situation, and doubtful debts on credit risk. The results show that among 20 variables, 13 variables significantly correlated with credit risk that ten variables of credit repayment duration, customer income, inflation, economic status, returned check history, number of children, and type of government fiscal policy, customer credit history, overdue and doubtful debts were effective on credit risk using Wald test .The results of comparison of data from the questionnaire and check list indicate that the 7 variables of repayment duration, returned checks, type of the government's fiscal policy, economic status, credit history, doubtful and overdue debts are identical in both instruments.*

Keywords: *credit rating, the risk of non-payment, logit model, Sarmaye Bank. JEL classification: G31, G11, C15.*

1. INTODUCTION

The banking industry is an important pillar of the economy of any country and has a determinant role in economic development and growth because provides diversified financial and credit services and can be cited as a driving force, accelerator, bringing balance and order to economy.Looking at banks history suggests that these institutions in addition to the money role, bear responsibility of the financial transactions in internal and external trade and after founding and formation, they have been faithful to people and made monetary transactions easy

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and have a significant impact on the economy .Therefore, the development and improvement of banking activities particularly giving facilities with efficient structure, plays a major role in the development of the economy and the banking industry. Granting facilities is among the most important and valuable bank assets and a major part of bank income can happen from granting facilities, but the flow of money and capital in the community put the financial institutions besides different risks which one of them is credit risk (Asli, 1390:3). Credit risk has importance and sensitivity in the monetary and credit institutions in this respect that used resources to grant facilities, in fact regarded as debt of financial institution to shareholders, people and banks. In the absence of flowing the cycle, both the credibility and repay the debt of bank will undermine. On the other hand, it is important that in the balance sheets of financial institutions,credit facilities considered as term debts and deposits of individuals as immediate liabilities.This means that the collection of term debts would be impossible in the short term, but repayment is required immediately and in the event of such circumstances, the institution faced with bankruptcy. Mobilizing and allocating investment resources for economic activities and the subsequent development of the economy happen through financial markets. The bank credit market is part of it. On one hand, success in this important case requires the effective development of banking activities, and efficiency of banks in the new age is the requirement for the success and continuity of operations for numerous banks in the new competitive environment. In other words, the success of banking operations not only guarantees viability of the bank in the long term, but the country's economic growth and development will result.Overdue resources through granting bank facilities to high risk people not only threaten the bank life, but the effective allocation of resources to the productive sector of the economy will be stopped. (Arab Mazar, 1386:80). Banks as intermediaries in the process of development of financial services play a key role. Hence, for a more effective role in financial markets (including money and capital market) have to establish liaison with various shareholders, customers, employees, suppliers, buyers, internal and international financial institutions and other existing and active institutions in the financial markets within and outside the country. The necessity of this relationship is how to have active, efficient and effective interact and also more understanding of stakeholders and banks from each other. (febozi, *et al.*, 1389).Bank resources which a major part of it consisted of people savings are national capital, it is obvious that correct supervision and guidance to the economic activities through the efficient system of allocation of credit in the banking industry is essential.Banks can allocate their resources effectively and optimal when have an effective system of risk assessment of their clients in the time of granting facilities. Edward (1995), many countries in this area have used a variety of strategies and approaches (kao, 1994). In Iran, according to the Islamic banking system and granting loan in the framework of Islamic contracts to real and legal customers, credit risk assessment has increasing importance which has

been affected by several variables such as the economic situation of society, personality traits of customers, etc.

The reasons for the assessment of credit risk are as follow:

(A) Credit risk is the most important factor in bank failures.

(B) Measuring the credit risk by prediction of non-repayment credit losses and to establish a logical relationship between risk and return allow the optimization of the combination of credit portfolio, pricing asset anddetermining the economic capital of banks to reduce capital costs and maintain a competitive ability and provide relative advantage for banks and credit institutions.

(C) In the system of usury after paying loan, the relationship of the bank with money stops, regardless of the type of economic activities, bank requires the principal and interest for money, so with the enough warranty, there is no need to carefully assess the client. While in the Islamic banking system, the bank is a partner in facilities recipient in economic activities. Therefore, it is important to evaluate the ability of customers to repay. Therefore, it is essential that the banking industry be diligent in order to design appropriate systems for measuring credit risk of customers to grant facilities and the system will have necessary efficiency and effectiveness when provides the appropriate criteria for client evaluation before lending. Such that bank facilities allocated to the appropriate clients. In the view of bank, customers are appropriate to be allocated credit who invest received facilities in different economic sectors and return them to banking system timely. Lack of timely repayment of loans indicates that the recipient has not been successful in operation of received facility. In other words, the efficiency of utilization of the facilities has been lower than bank interest, so he faced with problems in the due date of repayment. So the facility will become bank non-current debts. In addition to interfering in the country's banking system; it brings problems to bank in the long run. What is important for the banking system and consequently for each country is thatbefore lending to customers their ability in repayment should be measured .Now in the country's banking system and Sarmaye bank, absence of timely repayment is one of the biggest concerns of managers, shareholders and society. Due to the lack of a suitable system for assessing the risk of the customer and granting facilities, the country banking system and also this bank, faced with many problems including credit assignment problem, the inability to repay the lending of the central Bank and increasing facilities more than repayments and many other problems. One way to solve this problem, is to manage credit risk, credit risk management is a process during which losses from loan defaults, is calculated during business cycle and credit risk measurement and the

repayment ability are among credit risk management tools. Therefore, in this research, we are going to study one of the ways to quantify and measure credit risk and thus its proper management, i.e, the use of Logit Scoring model an D also to answerwhether logit model has the potential to estimate the credit risk of the applicants of facilities and relationship with non-current debts in Sarmaye bank?

MATERIAL AND METHOD

Parametric statistical techniques are often used in research. If certain statistical requirements met in the model and the data, the performance of techniques is effective, but if the model or data violate requirements, results are not reliable. Logit is a conditional possibility model, which specifies that each observation belongs to a particular group. Logit has less statistical limitations and despite distinction analysis, it is not necessary that the data be normally distributed, or the covariance matrix of groups be equal (Saidi and Rahmani, 1387: 85- 43).

Logit model presented in this article is as follows:

$$L_i = Ln\left(\frac{P_i}{1-p_i}\right) = Z_i = B_1 + B_2 X_i$$

In this model, Pi is the likelihood of timely payment of the loan and Pi-1 probability of no timely payment of the loan and will be calculated as follows:

$$P_i = \frac{1}{1+e^{-z_i}}$$

The above log (Li odd ratio logarithm) is linear in comparison with parameters and the amount is obtained after estimation of coefficient from the maximum likelihood method. Thus, by the estimation of coefficients, the model can be produced that each of the coefficients shows the variable value of odd logarithm in favor of default to repay (per independent change unit). By he calculated probability of default in repayment, customers can be classified.

To assess credit risk associated with non-current debts of the bank, following cases would be studied:

Past due debts size) B+1á) = Consumer credit risk

Overdue debts size) B+1á) = Consumer credit risk

Doubtful debts size) B+1á) = Consumer credit risk

In regression, logit estimated as the multivariate regression of independent variable coefficients. But how they act is different. In multiple regression, the

smallest sum of squares is used. In this method, the square sum, the difference between actual and predicted values of the dependent variable drops to minimum.Because of the nonlinear function of Logit, maximum likelihood method is used. The estimation method of coefficient is similar to usual regression in many respects.Logit model fitted based on actual data. Actual data related to dependent variable were assigned zero and one based on the phenomenon happened or not.

Therefore, they are located at the top and bottom of the chart.What is regarded in using this model, primarily is obtaining the probability of failure to repay the loan received by the individuals and next, extracting the end effects of each explanatory variables.The ultimate effect of the change in the probability rate of occurrence in the dependent variable in each unit is increase in the explanatory variables. In this study, the dependent variable is the client's failure to pay its debts and using the logistic model we have:

$$6 = 1/\beta x) = \frac{1}{1 + e \times P(P'x)} P)$$

$$\frac{SP}{SX_2} = f(\beta x)\beta_2$$

The ultimate effect of X_2 obtained by following equation:

The ultimate effect of variable X_2 is implicitly dependent to the variable itself, by the numerical value of the distribution density of Logit (Maddala, 1983). To test the hypotheses in logit regression, Coefficient, Variable, standard deviation of regression variables and Std. Error, z-Statistic, probability of corresponding value or the same value (p is the p-value) are used and tests of p-value less than /05 are significant. Hypothesises of this study are tested by logit regression model.

(Credit risk)R = β0+ ßmΣm + Σxhm + Σxsize

The overall shape of proposed model is as follows:

Y = F (X1, X2, X3, Xn)

In this model, y is the response variable and determines the applicant status which entitled to the discrete character, and X effective variables in desired function. Also different variables (X), such as occupation or age or other variables are scored and rated.

Research variables

Input variables of model

1. low facility to inflation rate X1

2. fiscal policy of government x2
3. Returned Check X3
4. Credit history X4
5. Marital status X5
6. Monthly income X6
7. job of applicant of Facilities x7
8. current assets X8
9. The current status of the mortgage X9
10. Education level of applicant X10
11. working of applicant spouse X11
12. amount of loans X 12
13. time of repayment X13
14. amount of received loans
15. age X15
16. type of records and the number of guarantors X16
17. economic situation X17
18. Children number X18
19. The current state of the mortgage X19
20. Non-current receivables

Output variables

Creditworthy clients (with low credit risk)

Unworthy clients (with a high credit risk)

The research population includes:

1. All non-current records in the Sarmaye Bank branches in the country, which are over 2360 cases.
2. All experts of facilities in Sarmaye bank branches in the country, totaling 540 people. To obtain the sample size in this study, the following formula is used.

1. The first sample is related to the sample of employees as follows.

In The following formula:

N: The population of 540

Z: Confidence level 1/96=95%

P: The risk of payment /5

Q: Non-payment risk of /5

D: Is the potential efficiency of /05

$$n = \frac{NZ^2pq}{Z^2pq + (N\_1)d^2} = \frac{540 \times 3.84 \times 0.25}{3.84 \times 0.25 + (539) \times 0.0025} = \frac{518}{2/3} = 225$$

So, the number of samples in the first formula (non-Current records) estimated for employees are 225.

2. The number of samples of non-current records (past due, overdue and doubtful) is as follows.

$$n = \frac{NZ^2pq}{Z^2pq + (N\_1)d^2} = \frac{2360 \times 3.84 \times 0.25}{3.84 \times 0.25 + (2359) \times 0.0025} = \frac{2245}{5/85} = 328$$

So, the number of samples in the first formula for the population (non-current records of the bank) estimated 328.

Data collection tools

In this study, two tools were used to collect data.

Questionnaire

The questionnaire is to assess the Sarmaye bank experts view toward investigation of the causes of non- current and risks of facilities records which is researcher made and has 2 parts, the first part includes experts demographic characteristics and part 2 ,25 questions by 5 choices of Likert range.

Check List

Check list of current research is to collect information on cases of payment non-current facility records to customers that evaluated demographic and other characteristics such as the number of customers and returned check history, marital status, income, reputation, creditworthy, property and assets, mortgage, etc..

DISCUSSION AND RESULTS

Observed characteristics description

Conclusions from the descriptive tables indicate that in the study of gender of employees, among 225 subjects, 140 (62/2%) male and 85 (37/8%) female

participated that selected in the proportion of the statistical community, the results will not have any effect on the results. However, the ratio of male to female employees is not equal in Sarmaye bank, primarily due to the type of tasks and responsibilities the number of male employees is higher.

According to age, evaluation results show that 31 to 40 years (39/3 percent) have the highest frequency and 61 to 70 years (1/2 percent) the lowest rate, which estimates relatively young age.

This shows that the banks in terms of human resources are not in trouble now. The study of the educational level of employees suggests that among 225 people, (52/4 percent) are those with bachelor's degree and (/9 percent) with diploma.

And can be acknowledged that the Sarmaye bank employees regarded with high levels of education which is important in terms of responding to the questionnaire. Regarding the work history of 225 studied cases ,7 to 8 years (59/6 percent) accounted for the highest frequency .In terms of marital status, most of those surveyed were married (88/4 percent), regarding organizational position the most employees are working in charge of banking (35/6 percent).

Description of research variables nature and test

In this part of the research hypotheses are tested. The hypotheses are tested using Logit regression model, which can be divided into 2 parts of quantitative and qualitative factors in order to perform hypotheses. In regression models with respect to the p-value amounts, we decided whether to approve or reject the null hypothesis. If the p-value is less than significance level of /05, the null hypothesis is rejected, otherwise the null hypothesis is accepted.

Research hypotheses test

First hypothesis is as follows: there is no relationship between credit rating and risk of non-payment facilities of Sarmaye bank customers. There is a relationship between international rating and risk of non-payment facilities of Sarmaye bank customers. To test this hypothesis, the two-parts of the questionnaire and check list used seperately.

$$Logit = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \beta 10X10 + \beta 11X11 + \beta 12X12 + \beta 13X13 + \beta 14X14 + \beta 15X15 + \beta 16X16 + \beta 17X17 + \beta 18X18 + \beta 19X19 + \beta 20X20$$

A - To test the questionnaire information, we first enter the quantitative factors to regression model, which includes 20 variables.The results of data analysis using a logit model for the implementation of variables in the questionnaire showed that among 20 variables, 15 variables shown in table (29-4) were correlated with credit risk which entered into the regression step by step and 5 variables were excluded from the model.

According to the results of the test statistics (Omnibus), Table 1 that fits the whole model, according to the p-value obtained for the chi square that equals to zero (p-value ≤ 0.05) , H0 is rejected and the result shows that the regression equation is generally significant.

Table 1
Omnibus Tests of Model Coefficients

		Chi-square	*df*	*Sig.*
Step 1	Step	53.625	13	.000
	Block	53.625	13	.000
	Model	53.625	13	.000

Pseudo R2 rate in Table 2, which is equal to the determination coefficient in normal regression model and consisted of determination coefficient Cox and Snell equal to /21 and determination coefficient of Nagel kerke equals to /32 , shows that the factor of creditworthy and unworthy customers is equal to 21% and 32% by the change of independent variables of the model, in other words, the changes of the dependent variable explained by the independent variables .

Table 2
Model Summary

Step	*-2 Log likelihood*	*Cox & Snell R Square*	*Nagelkerke R Square*
1	184.742[a]	.212	.325

Goodness of fit test

To test goodness of fit in logit regression in table 3, Hasmr-Lamshu test was used. The null hypothesis is a good test of the model fit. The following table shows Hosmer – Lemeshow statistics for this model. With respect to the p-value which is 0.21 and greater than the error level of 0.05, the null hypothesis is accepted and therefore the model is well fitted.

Table 3
Hosmer-lemeshow test

H-Lstatistics	*DF*	*p-value*
1.017	8	. 21

In table 4 that shows the accuracy of creditworthy and unworthy accounts by agreement, it is clear that among 175 unworthy, 169, i.e., 96/6% also among 50 creditworthy, 21, i.e., 42/4% and overall 84/4% are specified correctly.

Table 4
The study of model prediction accuracy

observed		*predicted*		
		Unworthy	*Creditworthy*	*Correct percent*
Customer status	Unworthy	169	6	96.6
	Creditworthy	29	21	42.0
Total percent		84.4	27	198

Wald test index listed in Table 5 shows that in the /05 level of error in this study, 9 variables of mortgage, repayment duration, credit history, contract amount, returned check and type of politics, economy, overdue and doubtful debts, have the greatest effect on the dependent variable.

Table 5
Wald test

	B	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*
Security type	-.336	.292	1.323	1	.250	.715
mortgage	-.728	.297	6.022	1	.014	.483
Repayment duration	-.470	.286	3.712	1	. 041	.625
education	.010	.303	.001	1	.975	1.010
Credit history	.037	.363	6. 312	1	.014	1.038
Contract amount	-.860	.373	5.312	1	.021	.423
Month income	.308	.267	1.328	1	.249	1.361
Returned check history	.039	.224	5. 282	1	.021	1.040
Applicant occupation	-.299	.260	1.326	1	.250	.742
Marital status	-.026	.244	.011	1	.916	.975
Government policy	.305	.249	3.507	1	. 042	1.357
Children number	-.264	.251	1.105	1	.293	.768
economy	.245	.291	5.707	1	. 024	1.277
Overdue debts	.431	251	4.420	1	.018	1.44
Doubtful debts	.381	.307	3.840	1	.020	.619
Constant	5.920	1.890	9.814	1	.002	372.302

Table 6
The variables related to the descriptive characteristics of the questionnaire

	N	*Mean*	*Maximum*	*Minimum*	*Std. Deviation*
assurance type	225	4.3111	5.00	1.00	0.82975
mortgage	225	3.6978	5.00	1.00	0.91965
Repayment duration	225	3.8844	5.00	1.00	0.79898
education	225	3.9778	5.00	1.00	0.8369
Credit history	225	4.3467	5.00	1.00	0.69101
Contract fee	225	4.1867	5.00	2.00	0.70127
Monthly income	225	4.3111	5.00	1.00	0.85623
Returned check	225	4.3644	5.00	1.00	0.83483
Applicant job	225	4.5022	5.00	1.00	1.15745
Marital status	225	2.8311	5.00	1.00	1.10515
Government policy	225	3.1244	5.00	1.00	0.72738
Children number	225	2.6133	5.00	1.00	1.03372
Economic status	225	4.2889	5.00	1.00	0.8024
Overdue debts	225	4.2131	5.00	1.00	0.75811
Doubtful debts	225	3.4541	5.00	1.00	0.82451
Valid N (listwise)	225				

Table 7
Describes thevariablesrelatedto the characteristics ofdescriptiveresearchchecklist

	N	*Mean*	*Maximum*	*Minimum*	*Std. Deviation*
Repayment duration	328	1.375	2.00	1.00	0.48486
Marital status	328	1.8293	2.00	1.00	0.37685
inflation	328	1.497	2.00	1.00	0.50075
Economic status	328	1.0915	2.00	1.00	0.28871
Returned check	328	1.4543	2.00	1.00	0.49866
asset	328	350.3963	3000.00	20.00	357.5075
Children number	328	2.3811	5.00	0.00	1.3651
Government policy	328	1.3323	2.00	1.00	0.47176
Contract fee	328	6926.829	20000.00	850.00	3846.558
assurance	328	1.1402	2.00	1.00	0.34777
credit history	328	1.8598	2.00	1.00	0.34777
Overdue debts	328	1.9232	2.00	1.00	0.2766
Doubtful debts	328	1.8255	2.00	1.00	0.3213
Valid N (listwise)	328				

B – To test information of the check list, first enter variables to information into Logit regression model, which includes 20 variables.

Logit = β0+ β1X1 + β2X2+ β3X3+ β4X4+ β5X5+ β6X6+ β7X7+ β8X8+ β9X9+ β10X10+ β11X11+ β12X12+ β13X13+ β14X14+ β15X15+ β16X16+ β17X17+ β18X18+ β19X19+ β20X20

The results of the data analysis using a logit model for the implementation of the check list variables showed that among 20 variables, 13 variables shown in table (35-4) were correlated with credit risk which entered stepwise to regression and 7 other variables were excluded from the model. According to the results of test statistics (Omnibus) in Table 8 that fits the whole model, according to the p-value for chi-square test which equals to the zero (p-value ≤ 0.05), H0 is rejected and the result shows that the regression equation is generally significant.

Table 8
Omnibus Tests of Model Coefficients

		Chi-square	*df*	*Sig.*
Step 1	Step	55.073	11	.000
	Block	55.073	11	.000
	Model	55.073	11	.000

*Pseudo R 2*value in table 9 which is equal to the coefficient of determination in normal regression and consisted of Cox & Snell equals to /15 and determination coefficient of Negell kerke equals to /26, indicated that creditworthy and unworthy customer explanatory factor of Sarmaye bank equals to 15% and 26%, respectively or in other words, dependent variable changes explained by independent variables.

Table 9
Model Summary

Step	*-2 Log likelihood*	*Cox & Snell R Square*	*Nagelkerke R Square*
1	224.984[a]	.155	.269

Goodness of fit test

Logit regression model used to test the goodness of fit using Hosmer-Lamshvo in Table 10. The null hypothesis indicated the goodness of fit. The table below shows the Hasmr- Lmshv statistics for this model. With respect to the p-value which is equal to 0.28 and is greater than the error level of /05, the null hypothesis is accepted and therefore the model is well fitted.

Table 10
Hosmer-Lemeshow test

H-L statistics	*DF*	*p-value*
7.988	8	.435

Table 11 that shows the accuracy of creditworthy and unworthy in the form of agreement, indicated that among 278 unworthy, 274, i.e. 98/6%, also, among 50 creditworthy, 4, i.e., 8% and overall 84/8% specified correctly.

Table 11
Prediction of model accuracy

observed		*predicted*		
		Unworthy	*Creditworthy*	*Correct percent*
Customer status	Unworthy	274	4	98.6
	Creditworthy	46	4	8.0
		320	8	84.8

Table 12 Wald test factor shows that in the level of /05 error, ten variables of repayment duration, customer income, inflation, economic status, returned check history, number of children, type of government policy , customer credit history, overdue and doubtful debts have the highest effect on dependent variable. And 3 other variables have no effect on the dependent variable.

Logi t = -0.32 + -1.82X1.37 -0.69X1.82+ -1.18X1.49+ 0.99X1.09+51.15X1.45+ 0X6503963+ 0.31X2.38+ 0.86X18.33+ 0X69268293+ 0.57X1.14+ -0.7X1.85+ 0.28X1.92+ -0.34X1.82

Finally logit equation is as follows to obtain information from check list:

Table 12
Wald test

	B	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*
Repayment duration	-1.827	.533	11.748	1	.001	.161
Income	-.697	.448	4.420	1	. 012	.498
inflation	-1.187	.418	8.060	1	.005	.305
Economic status	.996	.502	3.927	1	.048	2.706
Returned check	1.159	.402	8.295	1	.004	3.186
asset	.000	.000	.116	1	.733	1.000
Children number	.318	.179	3.152	1	.046	1.375
Government policy	.860	.451	3.641	1	.049	2.364
Contract amount	.000	.000	1.247	1	.264	1.000
security	.517	.498	1.075	1	.300	1.676
Credit history	-.708	.456	4.416	1	. 012	.493
Overdue debts	.281	.421	3.568	1	.031	1.423
Doubtful debts	.342	.381	4.213	1	.022	2.310
Constant	-.328	1.482	.049	1	.825	.720

The results of secondary hypotheses indicated that:

1. Customer education has an impact on the credit risk of Sarmaye bank.
2. Credit history has an impact on the credit risk.
3. Marital status effects on credit risk.
4. The customer's monthly income effects on credit risk.
5. The number of customer returned check effects on the credit risk.
6. Current assets of customer impacts on credit risk.
7. The job of applicant affects on credit risk.
8. The applicant's current state of mortgage has an impact on the credit risk.
9. Spouse working impacts on the credit risk.
10. Amount received affects on the credit risk.
11. time repayment affects on the credit risk.
12. The applicant's age has an impact on the credit risk.
13. The fiscal policy affects on credit risk.
14. The number of children affects on the credit risk.
15. The low rate of facilities to inflation has an impact on the credit risk.
16. State of the economy has an impact on the credit risk.
17. Types of security and guarantor's impact on the credit risk.
18. The assessed risk and the size of past due debts are directly related.
19. The assessed risk and the size of overdue debts are directly related.
20. There is a direct relation between risk assessment and doubtful debts.

The data from the questionnaire and checklist results shows that both tools in the 7 variables of repayment duration, returned check history, government policy, and economic status, and credit history, overdue and doubtful debts are consistent. Discussion and conclusion of the results of data analysis using a logit model for the implementation of the questionnaire variable showed thatamong the 20 variables studied in the questionnaire, 15 variables were correlated with credit risk which entered in the stepwise regression and 5 other variables were excluded from the model. Wald test shows that the 15 variables entered into the test, 9 variables of mortgage, repayment duration, credit history, contract amount, returned check history and government policy, economy, overdue and doubtful debts have the highest effect on dependent variable i.e., credit risk. Also, in order to implement checklist variables, results indicated that among 20 variables, 13 variables correlated with credit risk which entered stepwise into regression and 7 other variables excluded from the model. Wald test shows the effect of 10 variables of repayment duration, customer income, inflation, economic status, credit history,

children number, returned check history and government policy, economy, overdue and doubtful debts on credit risk and 3 other variables have no effect on dependent variable. Results of comparison of questionnaire and checklist data indicated that both tools are consistent in 7 variables of repayment duration, returned check, government policy, economy, and credit history, overdue and doubtful debts.

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