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Research Article

THE EFFECTS OF CLAIMED CATEGORIES ON THE RISK OF COLLECTION OF CLAIMS, (CASE STUDY OF BANK MEHR EQTESAD, SARI)

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ABSTRACT
The banks' outstanding claims can be the origin of many financial and monetary crises in the world and create many consequences for the banks, different economic sectors and more extensively for the people of every country. Under the current circumstances, this point is particularly very important following the recent monetary and financial crisis and the relatively high ratio of non-current claims toward granted credits in the state banks. The main goal of the study is to make a model for the effects of claimed categories on risk of collection of the claims in the branches of Mehr Eqtesad bank, Sari and to present the necessary solutions to reduce the claimed risk. For this purpose, the statistical sample consisting of 431 files of credit customers of the bank divided into 230 cases having outstanding balance and 201 cases of the files owned by good customers during the period of 2009 to 2012 were tested using Logit Regression method to study thoroughly the statistical sample. OLS method was then used to study the hypotheses in the statistical sample of outstanding installments. The results of the study for the entire statistical sample using Logit method showed that there is a positive and significant relation between the enquired variables, level of education and the type of guarantor of the credit customer of the bank and the loan installments becoming outstanding, but no significant relation was noticed in the 7 variables of gender, age, job, place of residence, loan amount, reimbursement period and monthly installments. Eventually the results of the study in the first stage using OLS method showed that there is a directelation among the 3 factors of enquiry, loan amount and reimbursement period and rejection/dishonoring**.**

Keywords: *Credit Risk, Claimed Categories, Logit Regression, OLS, Mehr Eqtesad Bank*

INTRODUCTION
One of the most important factors in the economic growth and progress of countries is investment. Financial markets play a principal role in equipping and allocating investment resources to economic activities. Since the capital market in Iran (Stock Exchange Market and Shares) and other non-banking financial networks have not had a considerable growth, banks are considered as the financial mediators of the remarkable part of the financial markets to finance investment (Qalibaf, 2010).
Since the amount of claims of the state banking system in all sectors has increased since 2001, it seems that if there is an uncertainty felt in the banking system and unsustainable conditions by the people saving their monies and they have to find a better way to protect their savings, they try to take their deposits out of banks. In addition, since banks grant a major part of the customers' deposits as credits, if the credits are not reimbursed in time, the banks will face sudden reduction of resources and in case of the worst scenario; they might even face bankruptcy (Heidari *et al.,* 2010).
In this study, firstly using statistical methods and Eviews software, the collected data were analyzed. To study the hypotheses, two methods were adopted. In the first stage, considering the type of research data, the hypotheses were studied using Logit regression method and then Hosmer-Lemeshow model was used to test the authenticity.
In the next step, OLS method was used to study the effects of the model categories by individual and financial factors such as amount of loan, reimbursement period, amount of monthly installment, gender, job, age, place of residence, level of education, having and not having enquiry and type of guarantor.

Classification of Assets

The granted credits of the bank are classified into four groups according to the instruction no. MB/2823 of 24 February 2007 by the Central Bank of Islamic Republic of Iran considering their quality (according to three parameters of time, customer's financial situation or field of activity) as follows:

1. Current Category: Payment of principal and interest of credits and or reimbursement of the installments is made on due date and at most within 2 months from the due date.

2. Overdue Category: If the date of the principal and interest of credits or date of stopping to pay the installments is overdue for more than 2 months, but delay in reimbursement has not exceeded 6 months.

3. Outstanding Category: If the principal and interest of credits is overdue more than 6 months and less than 18 months and or the date for the payment of installments is over and the customer has not taken any action yet to reimburse.

4. Suspiciously-Received Category:

4.1. Suspiciously-received category, 1. Total principal and interest of credits that are overdue for at least 18 months, but the delay in reimbursement has not exceeded 60 months yet.

4.2. Suspiciously-received category: 2. Total principal and interest of credits that is overdue more than 60 months and the customer have not taken any action to reimburse his debt (Zare, 2013).

MATERIALS AND METHODS

Research History

Ranani *et al.*, 2010 in their study under the title of "study of the effective factors on non-reimbursement of agricultural credits in Bank Keshavarzi, Isfahan province studied the effective factors on non-reimbursement of loans in branches of Bank Keshavarzi of west Isfahan province and presented operational solutions suitable for collecting the outstanding claims using Probate and Logit model. The results showed that the younger the loan recipients are, the better performance they show to reimburse the loans. The granted loans to the agricultural sector and side industries were also reimbursed better. Also the smaller the loan was, the better the loan recipients performed to reimburse it. In addition the rate of lower interest provided better conditions for the loan reimbursement. Asadi in 2012 conducted a study to investigate and measure the credit risk of natural customers of bank Tejarat using regression Logit and CSM scoring model. For this purpose, 442 files of the natural customers from 2002 to 2011 who received credits were used. In this study, following review of the credit files of each of the samples, 12 variables explaining the issue was assessed and the final model was fitted according to these variables. Also to assess the degree of effectiveness of the explanatory variables, the final effect on these variables was calculated. Then to achieve the relation between each of the different credits and the credit risk, each of them were tested separately.

The obtained possibilities of fitting the models from each of the different credits separately showed that there is a significant relation between the type of credits and credit risk. The results also showed that the variables of age, amount of loan, rate of bank interest in positive direction are the effective factors on possibility of rejection/dishonoring (credit risk) and have no significant relation with the possibility of rejection/dishonoring of other variables. Amiri Arjomandi assessed the effective factors on credit risk of customers of Bank Saderat using Logit method in 2013 in his study. The results indicated that there is a positive and significant relation between the customers' assessment and obtaining credit code before payment of loan and the state of loans becoming non-outstanding. Also the researcher showed that there is a positive and significant relation between the amount of received security from customers and obtaining credit code before payment of loan and the state of loan becoming non-outstanding. The researcher's results also showed that there is a positive and significant relation between the amount of received security from customers and the state of loan installments becoming non-outstanding. But there was no significant relation among the variables of gender, average turnover, and amount of credits. Eventually the paid loans to the customers were studied separately in two forms of loans of credit sale and civil participation plan and the results showed that there is a significant relation between sale loan on installments to assess customers and the type of received security of customers, but there is no significant

relation between the average turnover in loans of civil partnership plans and the rest of the research variables.

Karabulut et al in 2007 conducted a study on the effects of unlimited deposits insurance on outstanding loans due to the outstanding claims. In 1994, due to the financial crisis, the Turkish Government implemented a plan to insure the deposits with a fixed rate and its result was financial crisis. The author used Chow Test in the above study and in this way found out that in 1994, intensive structural changes occurred in outstanding loans. He, using OLS estimation showed that the insurance of unlimited deposit in Turkey created outstanding loans through damaging the efficiency of allocation of deposits. Oladeebol and Oladeebo in 2008 conducted a study using the relevant information of 100 farmers and 10 villages in two areas using simple random method and found out through descriptive statistics and regression analysis of OLS that factors such as age, education and experience of the farmer as well as size and type of activity could be considered as effective factors to reimburse loans. O. Adem et al in 2012 studied the loan risk in Kenya. They selected and studied the raw information of the customers such as gender, age, marriage, job and loan term in the commercial banks in Kenya. The results of their study showed that the male customers had the chance of rejection/dishonoring of loans by 1.91% and the younger customers by 1.48% and that there is a significant relation between unmarried customers who had higher chance of rejection/dishonoring of their loan in comparison with married customers with term of installments.

In this study, the type of research is applied as far as the goal is concerned and considering the nature of the issue, descriptive method based on the existing information in the files of the recipients of the credits was used. On the other hand as in this study, survey methods and also field study methods such as running question and answer sessions with the officials of the credit sector of the bank and study of the files of the natural persons in the selected branches were used, it could be expressed that the current study is a descriptive and quantitative research according to the nature and method of the collected data. The statistical society of this study is all the customers of Mehr Eqtesad bank of Sari from 2009 to 2012 who used the credits of this bank. Since the bank like other institutions has a set of frameworks and restrictions to make the information available and the information of the customers is considered as confidential, in this study the sample was selected under the supervision of the branches of Mehr Eqtesad bank of Mazandaran province and only five branches out of ten branches existing in Sari issued permissions for this purpose. Since it was not possible to study all the files during this time span and as the minimum volume of sample in descriptive-quantitative research is 100 people or 100 units (an introduction to the research method by Mohammadreza Nia, 2008), the samples that represented the characteristics and traits of the statistical society were selected. In this study 431 credit files out of the five coordinated bank branches were studied out of which 230 had outstanding balance and 201 were the files of the good customers from 2009 to 2012. The extracted information out of the files of customers of the relevant bank who were natural persons showed high validity. In the first step, considering the type of research data, Logit regression method was used to study the hypotheses. Then Hosmer-Lemeshow authenticity anticipation model was also used. In the next step, the classified effects of the model were studied and considering the type of data, the credits that had outstanding balance were separated and the effect of 10 effective factors on the amount of debt and risk using OLS method was studied.

Independent Variable

In the current study, the independent variable is an individual and financial characteristic which is measurable in form of 0 and 1 and consists of 10 factors of age, gender, job, place of residence, level of education, enquiry, type of guarantor, loan amount, reimbursement period and the amount of installment.

Dependent Variable

In this study, the dependent variable is considered as follows:

The customers in this study are divided into two groups. The first group is the customers who pay their installments in a timely manner and do not have outstanding installments at the time of determining the file so that the customer is called a 'good customer' and the second group is comprised of the credit customers of the bank who have not paid their installments on time and or collection of their claim seems suspiciously-received and are defined as 'bad customers' in the study.

In this study, dependent variables were analyzed through two tests. In the first stage the good and bad customers were studied for code zero and one using Logit method and in the second stage, bad customers of the total statistical sample group for risk categories were separated and assessed separately using OLS method. The dependent variable in this method is the amount of delayed installments that was entered into the model.

-To analyze the data, the conceptual model of the study was defined, thus since in this study, two statistical methods of Logit and OLS are used, the two models were prepared where the first model changes by Logit and secondly by OLS considering the type of dependent variable data.

Y=f(x1,x2,x3,x4,x5,x6,x7,x8,x9,x10)

X1	Amount of credits
X2	Reimbursement period
X3	Monthly installments
X4	Gender
X5	Job
X6	Age
X7	Place of residence
X8	Education
X9	Enquiry
X10	Type of guarantor
Y	Loss or absence of loss

Descriptive Statistics of Data

The descriptive statistics of research variables are presented for the entire statistical sample in table 1.

Table 1: Descriptive statistics of the data

	Risk	Loan amount	Reimbursement period	Amount of installment	Gender	Job	Age	Place of residence	Education	Enquiry	Type of guarantor
Average	0.533643	80042923	42.13921	3261596.	0.800464	0.682135	0.468677	0.737819	0.721578	0.772622	0.459397
Mean	1.000000	70000000	48.00000	2200000.	1.000000	1.000000	0.000000	1.000000	1.000000	1.000000	0.000000
Maximum	1.000000	2.00E+08	84.00000	3623000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Minimum	0.000000	10000000	2.000000	218750.0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Criterion deviation	0.499447	44399572	15.34045	3377603.	0.400116	0.466188	0.499598	0.440332	0.448743	0.419626	0.498928
Total	431	431	431	431	431	431	431	431	431	431	431

Inferential Statistics

In this section the outcomes of the model estimation and test of main hypothesis are presented. As it was expressed in the former chapters, the main goal of this study is to make model of the effects of claimed categories on the risk of collection of the claims in the branches of Mehr Eqtesad bank of Sari. Considering the type of data in this study, it was tried to use Logit statistical tests to study the research model. Thus upon presentation of the Logit regression model, fitting of the final model was studied and eventually Hosmer-Lemeshow test was used to verify the authenticity of the model anticipation. Further on, the coding of research was summarized and their outcome was presented.

Table 2: Summary of coding of research variables

Dependent variable		
Outstanding=1 Not outstanding=0	y	Claimed risk
Independent variable		
Continuously, the amount of credits was added.	X1	Amount of credits
Figure and the duration of installments were continuously added.	X2	Reimbursement period
In form of continuous figure for the amount of monthly installment	X3	Monthly installments
Male=1 Female=0	X4	Gender
Free=1 Employee=0	X5	Job
Under 35 years=1 Over 35 years=0	X6	Age
Urban=1 Rural=0	X7	Place of residence
Holder of secondary education certificate and under that (non-university degree)=1 Associate's degree and higher (university degree)=0	X8	Education
Not having enquired before grant of loan=1 Receiving the enquiry=0	X9	Enquiry
Miscellaneous or from market=1 Employee=0	X10	Type of guarantor

RESULTS AND DISCUSSION

Data Analysis

In logistic regression, there are several independent variables upon which the possibility of each of the dependent dual-status variable levels could be calculated. In other words, logistic regression and independent variables could calculate the possibility of occurrence of each of the dual-status quality variable levels. To study the effective factors on rejection/dishonoring, 431 files of the customers of the bank as the total studied observations and also 10 effective factors on rejection/dishonoring or acceptance/honoring of the installments were studied as the model variables.

Logic Model Test

Dependent variable is the probability of rejection/dishonoring (risk) and this variable changes if the above factors change: 1=outstanding and 0=not-outstanding. As it was said in the current study, the dependent variable is considered in form of a dual variable (0 and 1) (0=not-outstanding and 1=outstanding). To access the most suitable model, model fitting on different variables was conducted for several times.

As it is noticed in table 3:

One of the existing criteria to study the model significance (that all the coefficients are not zero) is the LR statistic probability (this statistic is used to study the significance of Logit Regression Model). The amount of the statistic is equal to 07 and 140 and the LR statistic probability is equal to 0. The result of the LR statistic show that the H0 is rejected based on all the coefficients to be zero at 99% level and the outcome of regression was estimated to be significant.

In Logit models, there are no R^2 and McFadden stands for it. The amount of McFadden statistic changes between zero and one and measures the model fitting well.

The figure calculated by McFadden R^2 is 0.23 that shows that for insurance of the identified variables only 23% risk of delay is applied to payment of its installments to that bank and the rest of the factors could be the result of items other than the above variables.
Considering the level of the statistic of the above table, the variables of the level of education, enquiry prior to the payment of credits and the type of guarantor is significant. Although the variables of the amount of credits, the reimbursement period, monthly installments, gender, job, age and place of residence are not significant at the certainty level of 90%, due to their theoretical importance, they have not been eliminated in explaining the customers' behavior regarding rejection/dishonoring or acceptance/honoring of the model.

Table 3: Final results of estimation of Logit regression model of suggested model

Probability	Test of hypothesis	Significance coefficient	Z statistic	Criterion deviation	B coefficient	Dependent variables	
0.1819	Non-confirmation	Insignificant	-1.334806	4.05E-09	-5.40E-09	Amount of credits	X1
0.8872	Non-confirmation	Insignificant	0.141820	0.012353	0.001752	Reimbursement period	X2
0.0647	Non-confirmation	Insignificant	1.846998	9.11E-08	1.68E-07	Monthly installments	X3
0.8503	Non-confirmation	Insignificant	-0.188712	0.293781	-0.055440	Gender	X4
0.8384	Non-confirmation	Insignificant	-0.203893	0.289894	-0.059107	Job	X5
0.1633	Non-confirmation	Insignificant	1.394168	0.240788	0.335699	Age	X6
0.0913	Non-confirmation	Insignificant	1.688834	0.268603	0.453625	Place of residence	X7
0.0175	Confirmation	Significant	2.377063	0.288936	0.686819	Education	X8
0.0000	Confirmation	Significant	6.500078	0.313066	2.034956	Enquiry	X9
0.0000	Confirmation	Significant	6.592962	0.253840	1.673554	Type of guarantor	X10
0.0000			-4.272845	0.765239	-3.269748	Fixed B coefficient	C

Number of jobs	431
McFadden R-squared	0.235205
LR statistic	140.0739
Prob (LR statistic)	0.000000

The signs of the gained coefficients from fitting show the type of relation between each variable and the probability of being outstanding in payment of installments. There is a positive relation between the variables of level of education, prior credits payment enquiry and type of guarantor as estimated by table 4.3 and the probability of installments being outstanding. For example, it could be said that in the quality variable of level of education, the more the level of education moves toward secondary education and lower, the probability of having outstanding installments to be paid increases. There is a positive relation between the prior loan payment enquiry and the installments becoming outstanding. It means that the more a model moves toward not receiving an enquiry about the customer's situation (becoming closer to

one), the probability of installments becoming outstanding increases and eventually the more the model moves toward the type of market guarantor, the higher the probability of paid credits becoming outstanding will be.

Tests to Anticipate the Authenticity of CSM Model

To assess the credit and authenticity of the model, the division of the sample into two sets of educational and testing data is used. The authenticity of classification or separation of the test data in the classes is the criterion to assess the credibility and authenticity of the model. In this study, the reciprocal assessment was used when repeated by 10 times. This assessment method divides the set of data into 10 parts and selects each time 90% of the data as the set of educational data and 10% of them as the set of testing data and assesses the precision degree of classification. This process happens 10 times and as a result it is taken from all the degrees of average precision and is presented as the final precision model. Using this method, there will be no concern about the selection of two sets of educational and testing data to be of random type.

In this research, considering LR statistic whose amount of probability is zero, it could be concluded that the conducted regression model is significant.

Another test is used to show the goodness of fit, Hosmer-Lemeshow test was conducted by EViews software. This test compares the expected fitted amounts with the actual amounts of each group (number of groups is considered to be equal to 10).

Considering the table 4.4., it is noticed that the amount of Hosmer-Lemeshow statistic is 26.21 and its probability amount is 0.68 (K2 with 8 degree of freedom) and since it is more than 0.05, thus the H0 is accepted and therefore we conclude that the obtained variables of expression power have the degree of outstanding risk of claims. Hence, the above test shows that the model fitting is satisfactory.

Table 4: Andrews test to anticipate the authenticity of the model

Goodness of Fit test	
431	No of observations
10	No of groups
26.21	Amount of Andrews statistic
0.68	Probability level

Estimation of the Model of Claimed Categories by OLS Method

To estimate the classified pattern of the model in the bank, OLS is used and in its way all the outstanding loans of the statistical sample are separated and are put in the list of data as the dependent variable and the non-outstanding loans are eliminated from the list of statistical sample.

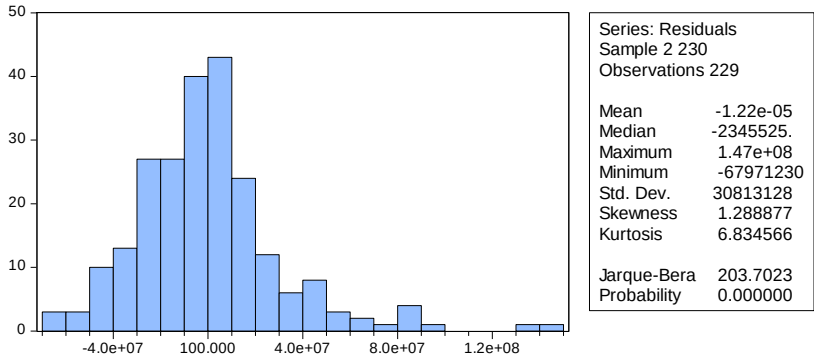

Figure 1: Test of normality of remnants of estimated model

The independent variables in this method including the amount of credits, reimbursement duration, monthly installments, gender, job, and age, place of residence, education, enquiry and type of guarantor are entered into the model

Normality of Error Sentence

One of the studied hypotheses in ordinary OLS method is the normality of distribution of the remaining amounts of estimation. However, in regression fitting, when the goal is fitting of amounts, abnormality of distributing the remaining amounts has no effect on the outcomes of estimation. Table 4.1 of Histogram test of remnant sentences and Jarque-Bera statistics for normality is presented in addition to a set of simple descriptive statistic of remnant sentences.

Considering the table of the obtained results from Jarque-Bera test statistic, it is 203.70 with the probability value of 0.00, thus the H0 about the normality of the error sentence is rejected.

Absence of Self-Correlation

Before using the estimated formula for statistical interpretations, it is necessary to study the remnants to check the existence or absence of self-correlation. According to the topics of economy assessment, the existence of self-correlation in the remnants leads to wrong estimations of the criterion errors and consequently the wrong statistical interpretations for the coefficients of the formula. In order to avoid such errors using Breusch-Godfrey test, this issue is studied. The results of Breusch-Godfrey test is shown in the following table:

Table 5: Results of Breusch-Godfrey self-correlation test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.30 5657	Prob. F(2.23)	0.7396
Obs*R-squared	0.880285	Prob. Chi-Square(2)	0.6439

In the above test, H0 is accepted as it is based on absence of self-correlation. The value of the existing probability in the table and the results of the test show the absence of self-correlation in the remnants of the estimated formula.

Absence of Being of the Same Line

The phenomenon of being of the same line usually happens among independent variables of the model and if the state of being of the same line is of intensive type among the variables (complete state of being of the same line), the estimation of the coefficients is not possible, but if the state of being of the same line is not complete, the size of variance – covariance, wider confidence distances and non-significant t ratios are noticed. Hence, considering the outcomes of the estimated model and the significance of the fitted coefficients, the absence of the state of being of the same line could be inferred among the model variables.

Table 6: Results of model estimation using OLS method: Variable dependent on delayed installments

Probability	**t-Statistic**	**Criterion deviation**	**B coefficient**	**Variable**	
0.0000	10.11678	0.051266	0.518643	Amount of credits	X1
0.0018	-3.153244	163191.7	-514583.2	Reimbursement period	X2
0.1901	1.314361	0.697073	0.916206	Monthly installments	X3
0.3029	-1.032647	4851026.	-5009398.	Gender	X4
0.1381	1.488318	5144913.	7657265.	Job	X5
0.6261	0.487927	3859593.	1883200.	Age	X6
0.4410	0.771937	4256994.	3286132.	Place of residence	X7
0.0867	-1.721125	5135353.	-8838583.	Education	X8
0.0714	1.811717	7960134.	14421513	Enquiry	X9
0.6874	-0.402973	3905756.	-1573916.	Type of guarantor	X10
R-squared		0.662281			2.313476
Adjusted R-squared		0.645162		Durbin-Watson stat	
Prob(F-statistic)		0.000000			

Model Estimation Using OLS Method

The Research Model is as Follows:

$T= \beta_0+ \beta_1X_1+ \beta_2X_2+ B_3X_3+B_4X_4+ \beta_5X_5+ \beta_6X_6+ \beta_7X_7+ \beta_8X_8+ \beta_9X_9+ \beta_{10}X_{10}+€$

The collected data are studied considering the above model and the results from the estimation of the experimental model are based on the relation between independent variables and delay in payment of installments using ordinary minimum squares method as in the above table (6):

Table 6 shows that the coefficients of the independent variables are significant statistically and F statistic confirms the overall significance of the regression. On the other hand, R^2 expresses that 66% of the changes in the dependent variable are explained through independent variables model. The amount of Durbin-Watson statistics (2.31) indicates the absence of self-correlation among the remnants of the model.

The obtained model of the research is as follows:

T = 11495623.615 + 0.518642658465* X1 - 514583.189935* X2 + 0.91620523503* X3
(10.11) (-3.15) (1.31)
- 5009397.78129* X4 + 7657264.85361* X5 + 1883199.93062* X6 + 3286131.71876* X7
(1.03-) (1.48) (0.48) (0.77)
- 8838582.81927* X8 + 14421512.6856* X9 - 1573916.0595* X10 + [AR(1)=0.616616468016]
(-1.72) (1.81) (-.40)

As it is noticed in the above model and table 6, there is a significant relation between the amount of paid credits and the delay in reimbursement of installments. The positive coefficient (0.51) indicates that this relation is positive and significant and it shows that considering the change in the amount of loan for one unit, the degree of reimbursement of loan installments to become outstanding or overdue increases by 51%.

Also there is a negative (-514583.2) and significant relation between the reimbursement term in payment of installments and the installments becoming outstanding. It means that the longer the installments are, the shorter the delay in payment of installments will be. Considering the significance level of inquiry, the return results show that there is a positive (14412513) and significant relation between not having enquiry on behalf of recipient of credits and their state of becoming outstanding.

The variables of monthly installments, gender, job, age, education, type of residence, type of guarantor of credit customer are not significant, but they have not been eliminated from the model because of their theoretical importance to explain the customers' behavior regarding rejection/dishonoring or acceptance/honoring.

RESULTS AND DISCUSSION

There is no doubt that one of the effects and consequences of monetary activities of credit institutions is creation of outstanding claims. This is a phenomenon which is one of the important concerns of the banks and other credit institutions and has negative effects on the circulation of resources and applications of the branch so that it is important both from inside and outside the organization. From internal aspect, the operational costs, the operational output, profitability, the degree of service to customers, grading of branches, salary and benefits of the staff and other quality indexes of the branches are affected intensively. From the external aspect, slow circulation of liquidity in the state economy, delayed non-optimal allocation of resources to the production network and industry, lack of employment development and eventually economic recession will be the outcomes (Nataj *et al.,* 2013).

As it was discussed further, the main goal of this study is to investigate the effects of claimed categories on the risk of collection of the claims in branches of Mehr Eqtesad bank in Sari. In this study, the statistical sample consisted of 431 outstanding and non-outstanding files of the variables of level of education, prior credits payment enquiry and type of guarantor that were made significant using Logit method. The obtained results from statistical sample of files of claims or outstanding ones also indicates that the there is a significant relation between the amount of credits, reimbursement period and enquiry using OLS method and the state of granted credits becoming outstanding.

Discussion and Comparison

The results of the two stages in this study are based on effectiveness (in the positive direction) of five variables of enquiry, type of guarantor, education, amount of loan and reimbursement duration on the other five variables (age, gender, monthly installments, place of residence and job) which are non-significant. Ermeshi found out in his study that the variables of gender, income, type of residence, marriage, age and customers' state of employment are effective on the possibility of rejection/dishonoring of credits and the variables of size of loan and reimbursement period are ineffective in the studied sample. Also Jalili, using Logit model found out that the variables of age and education are ineffective on credit situation and there is a significant relation between variables of gender, marriage, credits amount, security, loan duration, job and the customers' credit situation. Also Logit model has a good anticipating capacity that indicates that the common variables of education and age are ineffective on credit risk and the common variable of loan amount is significant as the outcome of both studies.

Panahian and Abyak conducted a study to explain the effects of risk on efficiency of the banks using efficiency calculation and DEA method (coverage analysis of data). They used DEA method in the research model to estimate the efficiency and in this direction the variables (number of branches, volume of bank deposit and total costs) were selected as the posited ones and also the variables of (volume of credits and total income) as the obtained ones. Using DEA model, the technical, management and scale efficiencies of DEA for each of the banks were calculated. Furthermore, the additional amounts of production factors and optimal amounts of the posited and the obtained ones were presented to the banks separately. Also to study the effect of risk on efficiency, a model using the OLS economic assessment model was estimated for the three studied risks according to the selected indicators and the results indicated that there is a significant relation between the ratio of rejected/dishonored credits and the total granted credits as the indicators of credit risk and efficiency.

Thus the Logit model and OLS have a suitable capacity to anticipate the effective factors on credit risk.

Suggestions Considering the Research Outcomes

1. Assessment of each type of customer according to separation of natural persons or legal entities to pay any type of credits and not to pay attention to any type of financial turnover of the accounts of natural persons involved in management of companies according to the principles of accounting (principle to separate personality).
2. To introduce guarantor as an employee by the recipient of the credits could reduce the risk of loans to be collected.
3. More attention has to be paid to grant credits to the individuals that do not have academic education.
4. More attention has to be paid to the customers' income, securities, etc. when granting large amounts of credits to the applicants.
5. Sufficient attention has to be paid to identify the required documents confirming the income of the loan recipient when the credits are reimbursed.

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