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Assessing the Effect of Bank Interest Rates on Fluctuations in Overdue Receivables of the Banking Network in Iran

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ABSTRACT

Today, one of the most important tasks of banks in society is to collect stray funds and guide them in various economic sectors. Therefore, due to the dispersion of these funds in the country, the role of collecting such deposits is of particular importance. On the one hand, granting facilities in different economic sectors requires accurate knowledge of these sectors, and on the other hand, in our country, due to the lack of infrastructure such as comprehensive credit information banks that provide accurate and up-to-date information to banks and the lack of institutions Ranking and accreditation of customers, financial and investment consulting companies, credit guarantee companies, etc. has intensified the increase in banks' risk in granting facilities. So much so that today one of the main problems of the country's banking system is past due and overdue receivables of facilities granted and how to receive them. The purpose of this study is to evaluate the effect of bank interest rates on fluctuations in overdue receivables of the country's banking network during the period 1979-59. For this purpose, the method of "self-regression with distributed intervals" (ARDL) has been used. The results show that in the long run, the difference between the interest rate of bank facilities and the interest rate of the unorganized monetary market and country risk has had a significant weak effect on the ratio of banks' overdue receivables. GDP has a significant inverse effect on the ratio of delinquent receivables. Also, the estimation of the long-term model shows the stability of the estimated coefficients so that there is a positive and significant relationship between the ratio of overdue receivables and independent variables of the model such as bank size, customs imports and oil revenues. Also, to ensure the achievement of imbalances in the short run towards long-term equilibrium through the dynamic model in the form of "error-correction pattern" (ECM) was observed, which according to the error sentence coefficient in each period of 0.74 of the lack The short-term equilibrium adjusts the ratio of delinquent receivables to achieve the long-term equilibrium.

INTRODUCTION

One of the most important challenges facing the country's banking system in recent years has been the growing number of overdue receivables. This has become a national challenge due to the bank-oriented monetary and financial market of the country and the banks having about 90% of the country's liquidity. Deferred receivables always have a negative rating for a financial institution. Because it takes some of the resources out of the flow and uses them, and on the other hand, the bank's profitability is reduced in the same proportion and the capital adequacy rate is reduced. The purpose of credit institutions is to maximize the profits and interests of depositors, to regulate the activities of various economic sectors by directing resources to specific expenditures and in the right investment channels. Proper and efficient management is regular and effective management on the management of resources and expenditures, and the correct circulation of resources and expenditures will actually boost the country's economic cycle, including production, but overdue receivables have taken the opportunity to rotate expenditures and use other customers' resources. It reduces the profitability and disrupts the necessary order in providing the liquidity required by the bank. The important issue to be considered in this regard is: Does the increase in the difference between the interest rate of bank facilities and the market interest rate increase the overdue receivables? Corresponding to the research question, we analyze the following hypotheses:

- Increasing economic growth has a positive and significant effect on overdue receivables.
- Increasing national risk increases delinquent claims

- Increasing the difference between the interest rate of bank facilities and the market interest rate increases the overdue receivables.

The thematic literature on interest and delinquent receivables shows that increasing the difference between bank interest rates and informal money market interest rates has a positive effect on delinquent receivables. However, the existence of this relationship has not been confirmed in the long run. This research is causal and correlational in terms of method and is practical in terms of nature. The statistical population studied is the network of banks in the country, including commercial banks and specialized banks. The model independent variables are divided into three general categories called macro variables, banking variables and structural variables.

The model uses Microfit software. The organization of the article is as follows: After the introduction in the first part, in the second part we review the theoretical foundations and in the third part we review the research background. The fourth section is dedicated to presenting and introducing the model. In the fifth section, we evaluate the model and in the final section, conclusions and suggestions are reported.

THEORETICAL FOUNDATIONS

The importance of overdue and overdue claims of banks is such that recently many studies have been conducted by international institutions, including the International Monetary Fund, which focuses on determining the methods and methods by which overdue receivables of the banking system in each country in some way. Reflect the national accounts of that country. According to the fund, overdue receivables can affect all economic sectors of the country, but the most serious effects will be on financial institutions, commercial banks and mortgage institutions that have a large portfolio of loans, which indirectly affect The clients of these institutions, who are the intermediaries of depositors' funds and shareholders, will be affected. In the country's banking system, the growth of non-performing loans (non-performing loans) shows an increasing trend in recent years, so that the ratio of such receivables in the entire network has grown significantly on average.

One of the important items in the assets column of any bank is the receivables account. In recent years, the Central Bank has diversified its demand headings and divided them as follows:

Current category: Payment of principal and interest on the facility or repayment of installments has been made at the due date or the maximum is due from the due date of the previous month.

Past due date: More than 2 months have passed since the original and interest of the facility or the termination of installments, but the delay in repayment has not exceeded 6 months. In this case, only the overdue amount of the facility will be transferred to this category.

Deferred category: The principal and interest of the facility that is more than 6 months and less than 18 months from the date of maturity or the date of cessation of installments and the customer has not yet taken action to repay the credit institution. In this case, the overdue balance of the facility is transferred to this floor.

Suspicious category: All the principal and interest of the facility that has passed more than 18 months from the due date or from the date of interruption of payment of their installments and the customer has not yet repaid his debt.

Regulatory, regulatory and credit policy framework:

The existing standards in granting banking facilities can be divided into three categories as follows:

WING COMMITTEE STANDARDS

The International Bank for Reconstruction and Development (IBRD) Banking Supervision Committee, in its recommendations entitled Credit Risk Management Principles, lists seventeen principles in five headings:

A. Creating a suitable environment for credit risk control.

B. Acting under an appropriate accreditation process.

C. Maintaining a proper method of credit management, evaluation and care.

D. Ensuring adequate controls over credit risk.

E. The role of inspectors.

In the form of these seventeen principles, this committee has provided very useful recommendations to banks and financial institutions, which, if implemented, will greatly reduce credit risk.

Basic Rules and Criteria for Granting Facilities

In the credit system based on the law of interest-free banking operations, because the bank's resources are mainly "owned" by depositors and the bank, as a lawyer and trustee of the people provides these resources to applicants, so it is appropriate to respect Islamic rights and justice. Credit brokers should be diligent in using resources as prudently as possible and reducing potential risks. To this end, credit criteria and standards that are inspired and derived from the values that govern society and the goals of the banking system, are introduced as follows:

- Reliability and reliability;
- Technical capability and competence;
- Financial capacity and credit elasticity;
- Collateral or credit.

Methods of Reviewing and Evaluating Credit Applicants

Basically, the formation of credit for customers occurs when people start their monetary and financial activities with the bank and the bank, after examining the performance, personality and capacity of people during the deposit period, proceeds to their credit and readiness. He declares himself to be credited with them, which is obviously directly related to his good reputation and timely fulfillment of his obligations, and banks and financial institutions use a variety of tools and methods to identify this important issue. Obviously, credit decision makers, using these methods and correct and accurate evaluation of credit applicants, will be able to validate customers and correctly determine whether or not to pay credit, determine the amount, duration and type of contracts. Also, the amount and quality of documents in the request to comment and then with proper and continuous monitoring of the granted credits, reduce the risk of non-fulfillment of obligations by customers to a minimum.In this section, we will mention 3 methods.

- Method Five C
- Method Five P
- LAPP method

Factors affecting overdue receivables can be divided into two categories: external factors and internal organizational factors. External factors that are beyond the control of the bank and are more affected by economic factors include: micro and macro economic factors, political factors and structural factors. Factors within the organization that mostly refer to internal regulations and management errors include: interest rates on facilities granted, the volume of loans granted, the size and volume of the bank, and so on.

In recent years, several studies have been conducted on the effect of these variables on the volume of overdue receivables which we will discuss in the next section.

Research Background

In order to study the study background of the present study, the necessary studies were conducted in two dimensions of foreign and domestic studies. In this section, we first deal with foreign studies, then review domestic studies.

Khamraj et al. (2009) have examined the banks of Guan country. Large banks have also been shown to be less effective at screening credit customers than small banks.

Kevin Greenidge & Tiffany Grosvenor (2010) examined Barbados banks and concluded that there is a positive and significant relationship between the real interest rate of the previous period, the annual growth of loans and the size of the bank with the volume of overdue receivables. While studies in other countries on the relationship between bank size and the volume of overdue receivables show the opposite.

Hashemi Nodehi (1998) in his dissertation entitled "Investigating the causes of overdue receivables and past maturity of housing bank facilities during the period 1376-1656" has studied on the housing bank and the results indicate that the lack of executive system in line with network development , Has increased the volume of overdue receivables. Inflation, the difference between the interest rate of bank facilities and the market interest rate has led to delays in customer payments to the bank.

Farahbakhsh Mohammadi (2001) in her dissertation entitled "Study of the relationship between credit information and overdue receivables of the bank (Case study of Bank Melli Iran)" has studied Bank Melli Iran, credit work experience with the bank, the ratio of applicant capital to Facilities granted, liabilities

to other banks and returned checks were examined and significant relationships were found between them.

Baradari (2007) in his dissertation entitled "Study of the situation and factors affecting the emergence of overdue receivables and presenting desirable solutions to prevent it in Bank Saderat Iran based on the Moral Hazard model (case study of Bank Saderat of Tehran Province)" studied Bank Saderat Iran And while examining the impact of two categories of factors descriptive variables of customers and credit information in volume.

Rezaei Sirous (2008) in his dissertation entitled "Credit and facility insurance and its effects on reducing the amount of overdue receivables of banks" examined five major European banks and the inverse and significant relationship of credit insurance with the volume of receivables Deferred has realized.

Deferred receivables have examined the effect of moral hazards through the benefits of non-repayment of loans in comparison with the rate of credit from unorganized monetary markets and have proved its direct relationship.

PRESENTING AND INTRODUCING THE MODEL

In this study, two simple linear regression models tested by Taron Khamraj in 2009 and Kevin Greenwich-Tiffany Grosonor in 2010 were used. In these two models, the relationship between the ratios of overdue receivables with some independent variables such as: GDP growth, bank size, annual loan growth, interest rates and some other variables are examined. One of the innovations of the present study is that three general categories of variables are examined (of course, these variables were selected based on basic articles and experimental studies):

- Macro variables
- Banking variables
- Structural variables

In the group of macro variables were variables such as GDP, customs imports and oil revenue.

In the group of banking variables, variables such as bank assets, the difference between the interest rate of bank facilities and the interest rate of the informal money market were included.

In the group of structural variables, the country risk variable entered the model.

It should be noted that after estimating several models, four models were technically accepted.) Was accepted as the final model.

L = f (LGDPN, LSIZE, DR, RISK, LM, LR)(1)

Therefore, the main model (1) of this study is as follows:

$$L_t = \beta_0 + \beta_1 L_{t-1} + \beta_2 LGDPN_t + \sum_{i=0}^{1} \gamma_i LSIZE_{t-i} + \sum_{i=0}^{1} \theta_i DR_{t-i} + \beta_3 RISK_t + \sum_{i=0}^{0} \delta_i LM_{t-i} + \beta_4 LR_t \quad (2)$$

So that L ratio of overdue receivables to the volume of granted facilities, LGDPN logarithm of GDP without oil, LSIZE logarithm of banks' assets, DR difference between interest rate of bank facilities and interest rate of unorganized monetary market, RISK country risk, LM logarithm of customs import, LR logarithm Is oil. The period of this study is from 1979 to 2008. Data related to the above variables (except country risk data) have been extracted from the website of the Central Bank of the Islamic Republic of Iran and economic reports and balance sheets of the Central Bank of the Islamic Republic of Iran (different years). To calculate the country risk, data related to the amount of returned checks have been used, the data of which are extracted from the report of monthly economic indicators (different years). Figures 1 and 2 show the movement trend of some variables of this research during the desired time period.

This variable decreased by 22.38% in 1979 and maintained its downward trend until it was reduced to 38.8% in 1988. From 1988 onwards, this rate increased and in 1990 it decreased to about 23.8%. In 1991 and 1992, it faced a decrease of about 26 percent per year and in 1993, it decreased to about 23.7 percent. In 1994 it was reduced to 31.17% and in 1995 to 39.7%. In 1996, it had a significant increase and decreased by 24.15%. This upward trend continued until 1999, so that in 1999 it was reduced to 17.89%. In 2000, it decreased significantly and decreased to 42.12%. From

2000 onwards, it experienced mild fluctuations and in 2008, it reached its highest decrease during the period under study, ie 43.1%.

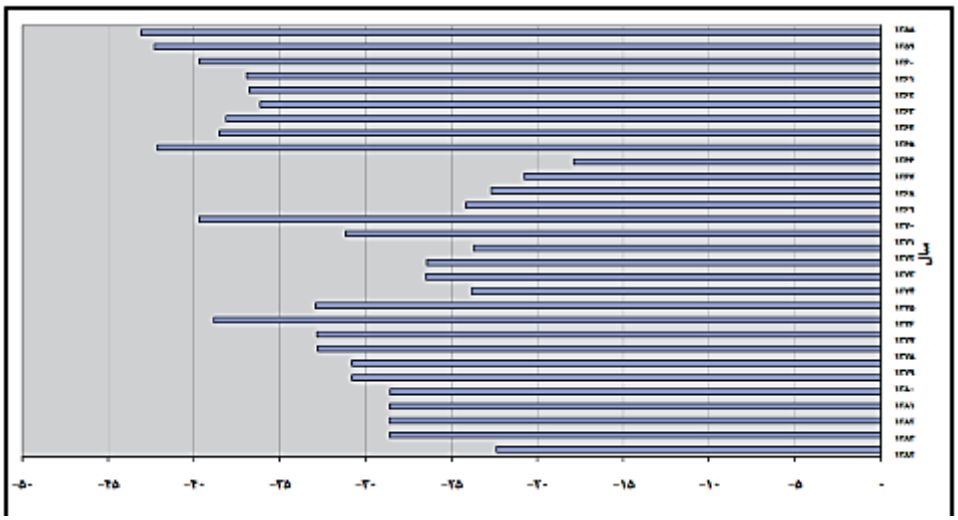

Figure1. *The difference between the interest rate of banking facilities and the interest rate of the informal market (Source: Central Bank of the Islamic Republic of Iran)*

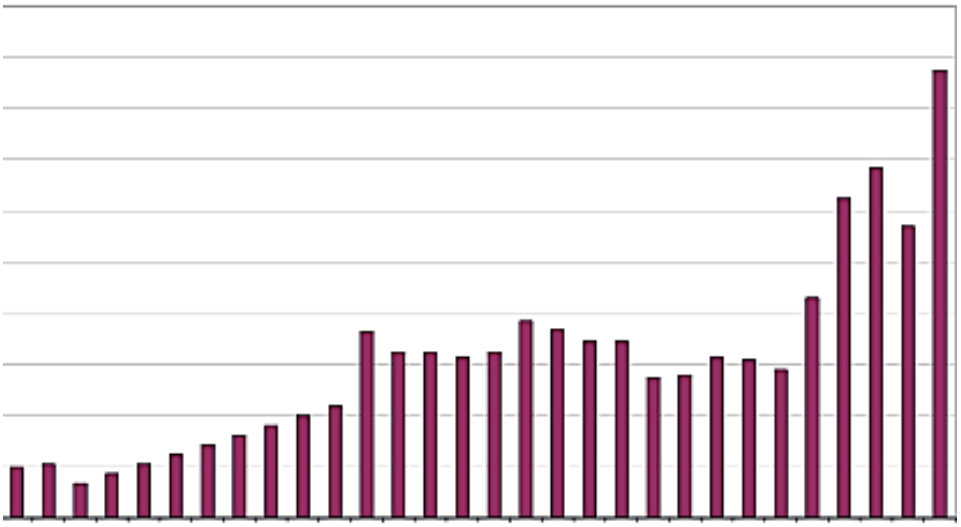

Figure2. *Proportion of overdue receivables to the volume of bank facilities (Source: Central Bank of the Islamic Republic of Iran)*

In a general view, the ratio of overdue receivables to the volume of facilities granted fluctuated slightly during the first 25 years of the period under review, and increased significantly in recent years. So that in 1979 this ratio was 2% and in 1981 it increased to 2.12%. And in 1982 it decreased again to 1.36 percent. From 1990 to 1983 it had a slight upward trend, so that in 1990 it increased to 4.38 percent. In 1991, it increased significantly compared to previous years and reached 7.3 percent. The ratio has fluctuated up and down since 1992 and reached 5.8% in 2003. It has increased significantly since 2003, reaching 8.6% in 2004. From 2004 onwards, with the establishment of high-yield firms, the volume of overdue receivables from these facilities increased, so that in 2005 it increased to 12.5% and in 2006 it reached 13.7%. In 2007, it decreased by 3.3%. 2%, increased to 11.4% and reached its highest level in 2008, 17.5% during the period under review.

The self-regression with distributed interrupt (ARDL) method has been used to estimate (which is a very important advantage of the ARDL method among its co-integration methods, which does not take into account the fact that the model variables, I (0), I (1) is applicable, in other words, in this method there is no need to divide the correlated variables of degree one and zero.In fact, the ARDL method is used to obtain consistent estimates of long-

term coefficients regardless of I (0) And I (0.) When we do not use the unit root test when the variables are either I (0) or I (1), and because in this study all variables are like this, there is no need to perform a unit root test, but again However, this test is performed and the results are given in Table 5.1.) The following hypothesis is tested to evaluate the stability of the estimated model:

$$\begin{cases} H_0 : \sum_{i=1}^{p} \alpha_i - 1 \geq 0 \\ H_1 : \sum_{i=1}^{p} \alpha_i - 1 < 0 \end{cases} \quad (3)$$

Hypothesis zero indicates the absence of co-accumulation or long-term relationship. To perform the test, the number one of the sum of the coefficients with the interval of the dependent variable must be subtracted and divided by the sum of the standard deviation of the mentioned coefficients:

$$t = \frac{\sum_{i=1}^{p} \alpha_i - 1}{\sum_{i=1}^{p} S_{\alpha_i}} \quad (4)$$

If the absolute value of t obtained is greater than the absolute value of the critical values provided by Benerji, Dolado, and Masters, the null hypothesis is rejected and the existence of a long-run relationship is accepted.

Checking the Reliability or Instability of Pattern Variables

The application of traditional and conventional econometric methods in estimating pattern coefficients using time series data is based on the assumption that pattern variables are stable. A time series variable is stable when its mean, variance, and autocorrelation coefficients remain constant over time. If the time series variables used to estimate the pattern coefficients are unstable, while there may be no relationship or concept between the pattern variables, the resulting coefficient of determination (R2) can be very high, leading to erroneous inferences. It is about the degree of relationship between variables. The presence of unstable variables in the pattern also causes the usual t and F tests to be invalid.

Therefore, in dealing with time series, it is first necessary to check the reliability of the model. For this purpose, we use the generalized Dickey-Fuller unit (ADF) root test. In this method, we compare the ADF test statistic or in fact the calculated t of the desired variable with McKinnon critical values. If the absolute value of the calculated t-statistic is greater than the absolute value of the critical value provided by McKinnon, we conclude that the time series in question is stable.

The results of the ADF test for all model variables are summarized in the follow**ing table:**

Table1. *ADF test results*

Result	McKinnon Critical Values			Statistics ADF	Level or difference	Variable name
	%10	%5	%1			
non-stationary	-2/622989	-2/967767	-3/679322	-2/682508	Level	DR
stationary	-2/625121	-2/971853	-3/689194	-6/219344	The first difference	D (DR)
non-stationary	-2/622989	-2/967767	-3/679322	0/752193	Level	L
stationary	-2/625121	-2/971853	-3/689194	-4/644189	The first difference	D (L)
non-stationary	-2/625121	-2/971853	-3/689194	-1/285120	Level	LM
stationary	-2/625121	-2/971853	-3/689194	-3/582375	The first difference	D (LM)
non-stationary	-3/221728	-3/57424	-4/309824	-2/210254	Level	LR
stationary	-3/225334	-3/580623	-4/323979	-4/925083	The first difference	D (LR)
non-stationary	-3/221728	-3/574244	-4/309824	-2/193550	Level	LSIZE
stationary	-3/225334	-3/580623	-4/323979	-3/855779	The first difference	D (LSIZE)
stationary	-2/622989	-2/967767	-3/679322	-5/739727	Level	RISK
non-stationary	-3/233456	-3/595026	-4/356068	-1/219769	Level	LGDPN
stationary	-3/233456	-3/595026	-4/356068	-5/084895	The first difference	D (LGDPN)

Model Estimation

In this section, the estimation results of the model introduced in the previous section are reported. Based on the ARDL method, first the short-term dynamic model is estimated and then using Benarji, Dolado and Master (1992) convergence test (based on t-statistic) the existence of long-term relationship between variables is investigated and if there is long-term

relationship between variables, coefficients are estimated. A long-term relationship is provided. Finally, the correction-error pattern and the ECM coefficient are examined as a sufficient condition for a long-term relationship. The results of estimating the short-term pattern of Model are reported in Table (1).

Table1. *Short-term pattern estimation results (Source: Research Findings)*

Possibility	T Statistics	Standard deviation	Coefficient	Variable
202/0	13390/	18721/0	25067/0	L(-1)
012/0	-8879/2	1385/15	-7181/43	LGDPN
003/0	6543/3-	5456/5	-2652/20	LSIZE
575/0	57359/0	7067/7	4205/4	LSIZE(-1)
005/0	3442/3	5264/6	8252/21	LSIZE(-2)
681/0	41985/0	045174/0	018966/0	DR
534/0	-63700/0	043750/0	-027869/0	DR(-1)
042/0	-2424/2	043641/0	-097861/0	DR(-2)
207/0	3227/1	59331/0	78479/0	RISK
043/0	2234/2	8584/2	3553/6	LM
997/0	0036328/0	8769/3	014084/0	LM(-1)
039/0	2794/2	0974/3	0603/7	LM(-2)
041/0	2521/2	2561/1	8289/2	LR
052/0	1283/2	3392/65	0637/139	C
R-Bar-Squared= 91462/0				
Dw-Statistic= 4410/2				
F-Stat. F (14،13)= 2488/23 [000/0]				
Serial Correlation= 1377/4 [042/0]			F(13،1)= 2542/2[157/0]	
Functional Form= 9428/1 [163/0]			F(13،1)= 96928/0 [343/0]	
Normality= 46603/0 [792/0]			Not applicable	
Heteroscedasticity= 4835/1 [223/0]			F(26،1)= 4546/1 [239/0]	

Due to the fact that in the estimation model, the dependent variable appears intermittently, so we can not use the camera-Watson statistic to check the autocorrelation, and we must use the camera h statistic.

$$h = \rho \sqrt{\frac{N}{1 - N\left[Var(\alpha)\right]}} \quad (5)$$

N = sample size, Var (α) = variance coefficient of variance dependent on interruption and r = estimation of serial correlation coefficient. Using the above equation, the value of h was obtained after performing calculations of -4.4. Based on the value obtained, the hypothesis of non-existence, according to which there is no first-degree negative correlation, is rejected.

According to the above short-term dynamic model, except for the interval-dependent variable and the national risk variable, the other variables are significant at the 5% level. Since the model is estimated logarithmically, all model coefficients represent the elasticity of the dependent variable relative to the independent variables.

The coefficient of the variable is dependent on the interruption is positive and is not significant at the 95% level, although this coefficient is significant at the 90% level.

The sensitivity of the variable dependent on one percent change in GDP is estimated at -43.71 percent. It indicates that for one percent change in GDP, the ratio of overdue receivables to the volume of facilities granted decreases by 43.71 percent. In fact, this variable is a measure of the country's productive capacity. The coefficient of this variable is contrary to expectation and therefore the first hypothesis is rejected.

The coefficient of the logarithm of the bank's assets, which indicates the size of the bank, is -20.26 and shows that there is an inverse relationship between the size of the bank and the ratio of overdue receivables to the volume of facilities granted by banks, but the coefficient of this variable is one and Two periods of delay are positive. Therefore, it can be said that there is no clear relationship between the size of the bank and the ratio of overdue receivables to the volume of facilities granted by banks. (Although this variable was not significant in the first interval).

The difference between the interest rate of the granted facilities and the interest rate of the

unorganized monetary market became significant after two periods and its coefficient was obtained after conversion in terms of elasticity to 3.087 percent, indicating that for one percent increase in this difference The ratio of overdue receivables to the volume of facilities granted increases by 3.087 percent. In the sense that the greater the difference, the less incentive the borrower is to repay, and therefore the greater the volume of overdue receivables. The coefficient of this variable is as expected and therefore the third hypothesis is confirmed.

The country risk variable was not significant at the level of 5% or even 10% and shows that this variable has no effect on the ratio of overdue receivables to the volume of facilities granted by banks.

The coefficient of import logarithm variable is 6.35 and shows that for one percent increase in imports, the ratio of overdue receivables to the volume of facilities granted by banks increases by 6.35 percent. In the sense that with the increase of imports, domestic production decreases and the domestic producer suffers, and therefore the volume of overdue receivables also increases. (Although this variable was not significant in the first interval and became significant in the second interval).

The logarithm coefficient of oil revenue is 2.82 and indicates that for one percent increase in oil revenue, the ratio of overdue receivables to the volume of facilities granted by banks increases by 2.82 percent.

The quantitative t-statistic of Benergi, Dolado and Mister (1992) convergence test for estimating model (1) in table (1) is equal to: / 0026174 /. The critical quantity presented by Benerji, Dolado, and Mr. (1992) at the 90% confidence level is -3.86. Therefore, the absolute value of the calculated t-statistic value is greater than the critical value. Therefore, the assumption of no convergence between model variables, i.e, HO hypothesis, is rejected. Therefore, there is a long-run equilibrium relationship between the independent and dependent variables of the model. The results of estimating the long-run pattern of Equation (1) are shown in Table (2).

Table2. *Long-term pattern estimation results (Source: Research Findings)*

Possibility	T Statistics	Standard deviation	Coefficient	Variable
0/029	-2/4298	24/0110	-58/3429	LGDPN
0/020	2/6316	3/328	7/9811	LSIZE
0/148	-1/5319	0/093006	-0/14248	DR
0/172	1/4402	0/72718	1/0473	RISK
0/008	4/2032	4/2639	17/9222	LM
0/068	1/9745	1/9121	3/7753	LR
0/088	1/8370	101/0239	185/5841	C

As shown in Table (2), the results of the long-run model for all variables except the difference between the interest rate of bank facilities and the interest rate of the informal money market are the same as the short-term model.

The estimation results indicate the value of -58.34 for the coefficient of variable GDP. This amount reflects the significant impact of GDP on the volume of overdue receivables in the long run. The logarithmic coefficient of the bank's assets, which indicates the size of the bank, was 7.98 percent and shows that for one percent increase in the bank's assets, the ratio of overdue receivables to the volume of facilities granted by banks increases by 7.98 percent. Find.

The coefficients of the difference between the interest rate of bank facilities and the interest rate of the unorganized monetary market and country risk became meaningless, indicating that in the long run these two variables have no effect on the ratio of overdue receivables to the volume of facilities granted.

The coefficient of the logarithm of imports was 17.92 percent and indicates that for one percent increase in imports, the ratio of overdue receivables to the volume of facilities granted by banks increases by 17.92 percent, which is as expected. In the sense that with increasing imports, domestic production decreases and the domestic producer suffers, and therefore the volume of overdue receivables increases.

The logarithm coefficient of oil revenue was 3.77 percent and shows that for every one percent increase in oil revenue, the ratio of

overdue receivables to the volume of facilities granted by banks increases by 3.77 percent.

The results of estimating the model correction-error of model (1) are presented in Table (3).

Table3. *Correction-error pattern estimation results (Source: Research Findings)*

Possibility	T Statistics	Standard deviation	Coefficient	Variable
0/010	2-8879/	1385/15	-7181/43	dLGDPN
002/0	-6543/3	5456/5	-2652/20	dLSIZE
004/0	-3442/3	5264/6	-8252/21	dLSIZE1
680/0	41985/0	045174/0	018966/0	dDR
039/0	2424/2	043641/0	097861/0	dDR1
203/0	3227/1	59331/0	78479/0	dRISK
040/0	2234/2	8584/2	3553/6	dLM
036/0	-2794/2	0974/3	-0603/7	dLM1
038/0	2521/2	2561/1	8289/2	dLR
048/0	1283/2	3392/65	0637/139	dC
001/0	-0026/4	18721/0	-74933/0	(1-)ecm
R-Bar-Squared= 57261/0				
Dw-Statistic= 4410/2				
F-Stat. F(17،10)= 9174/4 [002/0]				

Except for the coefficient related to the country risk variable, the rest of the model coefficients are significant. The correction-error coefficient (ECM) is estimated to be -0.74 and is statistically significant. This coefficient indicates that in each period (year) 0.74 of the short-term imbalance, the ratio of overdue receivables to the volume of facilities granted by banks to achieve long-term equilibrium is adjusted.

Concluding and Presenting Suggestions

The purpose of this article is to evaluate the effect of bank interest rates on the fluctuations of overdue receivables of the country's banking network Is. Given the importance of overdue receivables, three hypotheses have been proposed for this study:

Hypothesis 1: Increased economic growth has a positive and significant effect on delinquent receivables.

Hypothesis 2: Increased country risk increases delinquent claims.

Hypothesis 3: Increasing the difference between the interest rate of bank facilities and the market interest rate increases the overdue receivables.

The results of the research indicate that: There is an inverse and significant relationship between the ratio of overdue receivables to the volume of facilities granted and GDP in both short-term dynamic model and long-term model, so the first hypothesis is rejected. No significant relationship was found between the ratio of overdue receivables to the volume of facilities granted and country risk in either of the two short-term dynamic models and the long-term model. The implication is that country risk has no effect on delinquent claims, so the second hypothesis is rejected.

There is a positive and significant relationship between the ratio of overdue receivables to the volume of facilities granted and the difference between the interest rate of banks' facilities and the interest rate of the unorganized monetary market in the short term after two time lags, so the third hypothesis is confirmed.

The model of this research is estimated based on the self-regression method with distributed intervals (ARDL) and using Microfit software. The period of this study is from 1979 to 2008. The results show that during the period under review gross domestic product has a significant inverse effect, bank size has an uncertain effect, the difference between the interest rate of banking facilities and the market interest rate and country risk has a significant weak effect, customs imports and oil revenues have a positive and significant effect. On the ratio of overdue receivables to the volume of facilities granted by banks.

Due to the significant impact of GDP on delinquent receivables, it is necessary to pay special attention to domestic production and imports should not replace domestic products.

Due to the positive and significant relationship between oil revenues and the volume of overdue

receivables, it is recommended to use oil revenues in infrastructure and production to reduce such receivables.

With the increase of oil revenues, economic growth increases and per capita income increases, and due to the dependence of the Iranian economy on oil revenues, the need to finance economic projects from the profits of investors has increased and banks to reduce their profitability with less financial resources. They pay attention to customers' credit risk, and this increases delinquent receivables. Because the goal of banks is to increase profitability, and therefore more emphasis on collecting receivables.

Given the role of the huge difference between bank interest rates and unregulated monetary market interest rates, it is suggested that banks consider a minimum penalty rate to prevent the possibility of misuse of borrowers' facilities so that the bank interest rate plus the rate Delay penalties increase to unregulated monetary market interest rates.

Also, due to the reduction of costs and the refusal of the interested bank personnel to be involved in the collection of receivables, it is suggested to the banks to establish institutions or companies to collect the overdue receivables of the banks. The use of these institutions, in addition to reducing the collection time of receivables, increases the chances of receiving receivables by monitoring the debtors. Since, according to the strict recommendations of regulatory authorities, such as the Central Bank and the Bank Wing Committee are obliged to pay more attention to the creation of comprehensive credit information banks, in the future, access to banks' credit information will be easier and more comprehensive. Therefore, in future studies, it is recommended to consider the estimated model by increasing the sample size of other commercial, specialized and private banks.

It is necessary to carefully follow the recommendations of the Wing Committee of the Bank for International Settlement, which are presented in five different categories.

The implementation of these recommendations can greatly improve the credit quality of banks.

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