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A Study on the Relationship between Financial Performance and Credit Risk: A Case Study of Maskan Bank Iran

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A B S T R A C T

Credit risk is one of the most important risk generation factors in the banks and financial institutions. Credit risk can be defined as the unexpected events that usually occur in the form of a change in the value of assets or liabilities. The financial health of banks and credit financial institutions plays an important role in growth, development and stability of countries' economic. The main objective of this study is to investigate the relationship of capital adequacy, and assets quality with credit risk; the case study of Maskan bank. To verify the research hypotheses, multiple regression test has been used. The results of the hypotheses testing show that there is a significant relationship between capital adequacy, assets quality, and credit risk.

Keywords: Capital Adequacy, Assets Quality, Credit Risk.

INTRODUCTION

In today's competitive environment that the stability and survival of organizations depend on the shareholders' decisions quality, evaluation of the performance is of considerable importance and will play an important role in improving the performance of organizations. Suitable and sufficient capital is one of the necessary conditions to maintain the health of the banking system. Therefore, each of the banks and credit institutions should keep an appropriate ratio between capital and risk existing in its assets to ensure the stability and constancy of its activities. The main function of is to protect the bank against unexpected losses, and to support depositors and creditors. Due to the protection the ratio creates against incurred losses, maintenance of sufficient capital commensurate with the risks involved, is the main source of public trust in any bank in particular and the banking system in general. Accordingly, this necessity has been stressed in the monetary and banking law of Iran, as well. In Article 14 of this Law, the ratio of capital to assets types has been explicitly mentioned. Therefore, this study seeks to examine the relationship between capital adequacy, assets quality and credit risk; the case study of Maskan bank.

Literature Review

Saunders and Cornett[1] on a research have found that the health of private financial institutions is a function of various factors such as asset quality, liquidity situation, capital,

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quality management, market sensitivities and earnings. These factors affect different kinds of risk of private financial institutions. If they are not managed in a consistent manner, they will exert negative effects on the health of private financial institutions.

Rahmani and Heidari[2] on a study examined the relationship between capital adequacy ratio and financial variables in Iran banking system. They found that there is a significant relationship between the variables of profitability ratio, the ratio of deposits to loans and the ratio of credit risk and the capital adequacy ratio.

Mahmoudvand and Mohammadi[3] have reviewed the capital adequacy alongside of the risk of facilities non-collection in banks and financial institutions. The research results suggest that the bank capital is sufficient to cover potential losses in the facilities portfolio of Iran Melli Bank, Tuyserkan central branch. In addition, risk concentration in the facilities portfolio of Tuyserkan city is low. With respect to individual analyzes, some of the facilities granted in designated areas by the models, do not apply.

Pasiouras[4] in an article titled ″estimation of technical efficiency and scale of commercial Greek bank″, studied the impact of credit risk and international operations, by considering the explanatory variables and parameters of banking risk, such as default loans ratio as the variables put in DEA method. He tried to explain the relationship between risk and efficiency in the banking industry and realized the significant relationship between these two categories.

Theoretical Bases and Research Hypotheses

Capital adequacy ratio is one of the most important ratios to measure the performance health and financial stability of any financial institution, and especially banks. Due to the features the banks have and as they are obliged to refund the depositors' main deposit to them, they must have adequate capital to cover the risk arising from their activities. The banks should also ensure that damage is not transferred to depositors. As such, banks must always have minimum optimal capital to cover their operational risks. According to the Basel Committee rules, minimum required capital must be 12% of risk-weighted assets. Risk-weighted assets refer to the risk of each asset according to the nature of the asset and the extent of the risk associated with it. According to the regulations of the Central Bank of the Islamic Republic of Iran, the minimum optimal capital adequacy ratio is 8 percent for Iranian banks. Although the phenomenon of risk and ways to deal with it in a comprehensive risk management framework are significant and under consideration for all institutions and organizations, this set of rules (rules of the Basel Committee) is of vital importance to banks, credit institutions and insurance companies.

METHODOLOGY

The study methodology is inductive – deductive. It is an applied one in terms of the objective, and descriptive, correlation type, regard to the method of data collection. This is a post-event study which reviews the relationship of capital adequacy ratio, and asset quality with credit risk in Maskan bank during the period 2002-2013.

VARIABLES AND RESEARCH MODEL

Dependent Variable:

Credit risk

Independent Variables:

- ✓ Capital adequacy
- ✓ Asset quality

Control Variables:

- ✓ Bank Age
- ✓ Bank size

$$C.R_{i,t} = \beta_0 + \beta_1 C.A_{i,t} + \beta_2 A.Q_{i,t} + \beta_3 AGE_{i,t} + \beta_4 SIZE_{i,t} + \varepsilon_{i,t}$$

Credit risk (C.R): In general, the following four traditional indices are widely taken into consideration to determine the credit risk for banks. In this study, the first and second indices are used:

• The ratio of past due, overdue and doubtful receivables to granted facilities

The higher the ratio, the higher the credit risk of institutions.

• The ratio of past due, overdue and doubtful receivables to assets

The increase of this ratio in two sections would be a sign of increased in credit risk.

Capital adequacy ratio (C.A): It is calculated through the ratio of base capital to risk weighted assets. In accordance with the bylaws of capital adequacy ratio of the state banks and non-state banks in Iran banking network, this ratio should be at least 8%. Therefore, in this study, the variable of capital adequacy ratio is a binary variable or zero and one variable. The banks whose capital adequacy ratio is at least 8% opt number one, and if the index is less than 8%, number zero is chosen.

Asset quality (A.Q): Asset quality in financial institutions is associated with their financial performance. The value of the facilities of a bank depends on the value of its records liquidity. While the value of its investment depending on market value. Banks have to use stable assets in their portfolio to maintain the quality of their assets and they should consider appropriate resources and scheduled plan to compensate for the reduction in their value.

Asset quality is the sum of the ratio of past due receivables to total assets of banks.

Bank Age (AGE): It is calculated through the natural logarithm of bank activity period from the date of establishment license issuance to the given period.

Database size (SIZE): It is determined by calculating the natural logarithm of total (operational and non-operational) assets of the bank at the end of each year.

RESULTS

The information of this section represents the characteristics of the studied variables. Descriptive statistics of variables are shown in Table 1:

The study on descriptive statistics results of the research dependent variables showed that the mean of the ratio of past due, overdue and doubtful receivables to grant facilities has been the highest mean (0.006). Also among the independent variables, capital adequacy ratio has had the highest mean (0.636).

Table 1. Descriptive statistics of research variables

Variable	Mean	Max.	Min.	Standard Deviation	Skewness	Elongation
Y1	0.006	0.011	0.002	0.003	0.276	1.831
Y2	0.005	0.009	0.001	0.003	0.269	1.600
X1	0.636	1	0	0.505	-0.567	1.321
X2	0.005	0.009	0.001	0.003	0.263	1.590

Y1	The ratio of past due, overdue and doubtful receivables to granted facilities
Y2	The ratio of past due, overdue and doubtful receivables to assets
X1	Capital adequacy
X2	Asset quality

Reference: Research findings

Note: Due to the fact that there is a severe linearity between control variables and independent variables, the control variables were not used to test the hypotheses.

There is a significant relationship between the ratio of capital adequacy and credit risk (the ratio of past due, overdue and doubtful receivables to granted facilities) in Maskan bank. Reviews on the statistics t value (-6067) of capital adequacy show that at 5% error level, it has a negative (reverse) and significant impact on the dependent variable of Y_1 (the ratio of past due, overdue and doubtful receivables to granted facilities). Thus it can be stated that H_0 hypothesis is rejected at the confidence level higher than 95%. This means that **there is a** significant relationship between the ratio of capital adequacy and credit risk (Y_1) in Maskan bank.

There is a significant relationship between the ratio of capital adequacy and credit risk (the ratio of past due, overdue and doubtful receivables to assets) in Maskan bank.

Reviews on the statistics t value (-6831) of capital adequacy show that at 5% error level, it has a negative (reverse) and significant impact on the dependent variable of Y_2 (the ratio of past due, overdue and doubtful receivables to assets). Thus it can be stated that H_0 hypothesis is rejected at the confidence level higher than 95%. This means that there is a significant relationship between the ratio of capital adequacy and credit risk (Y_2) in Maskan bank.

Table 2. Results of the first hypothesis test (capital adequacy)

Independent Variable	Dependent Variable	Y_1	Y_2
Capital Adequacy	Adjusted determined coefficient	0,782	0,820
	Statistics t	-6,067 (0,000)	-6,831 (0,000)
	Test Result	Rejection of H0	Rejection of H0
* As the amount of Durbin Watson has been obtained less than 1.5, the variable AR (1) was added to the model and the model was estimated. The numbers in parentheses are the significance at 5% level.			

Reference: Research findings

There is a significant relationship between asset quality and credit risk (the ratio of past due, overdue and doubtful receivables to granted facilities) in Maskan bank.

Reviews on the statistics t value (23913) of asset quality show that at 5% error level, it has a positive and significant impact on the dependent variable of Y_1 (the ratio of past due, overdue and doubtful receivables to granted facilities). Thus it can be stated that H_0 hypothesis is rejected at the confidence level higher than 95%. This means that there is a significant relationship between the ratio of asset quality and credit risk (Y_1) in Maskan bank.

there is a significant relationship between asset quality and credit risk (the ratio of past due, overdue and doubtful receivables to total assets) in Maskan bank.

Reviews on the statistics t value (127633) of asset quality show that at 5% error level, it has a positive and significant impact on the dependent variable of Y_2 (the ratio of past due, overdue and doubtful receivables to assets). Thus it can be stated that H_0 hypothesis is rejected at the confidence level higher than 95%. This means that there is a significant relationship between the ratio of asset quality and credit risk (Y_2) in Maskan bank.

Table 3. Results of the second hypothesis (asset quality)

Independent Variable	Dependent Variable	Y_1	Y_2
Assets Quality	Adjusted determined coefficient	0.983	0,999
	Statistics t	23,913 (0,000)	127,633 (0,000)
	Test Result	Rejection of H_0	Rejection of H_0
* As the amount of Durbin Watson has been obtained less than 1.5, the variable AR (1) was added to the model and the model was estimated. The numbers in parentheses are the significance at 5% level.			

Reference: Research findings

CONCLUSION

In this study, the relation of capital adequacy and asset quality with credit risk in Maskan bank has been reviewed. To achieve this goal, first the previous research was studied and explained. Then, based on the theoretical foundations two hypotheses were developed and tested. The results of hypotheses testing suggest that statistically there is a significant relationship between the ratio of capital adequacy, asset quality and credit risk. The results of the first hypothesis based upon "there is a significant relationship between the ratio of capital adequacy and credit risk in Maskan bank" are consistent with the research results of Rahmani and Heidari (2007) that "there is a significant correlation between the ratio of credit risk and capital adequacy ratio" and Sanders and Cornet (2004) on "the impact of capital adequacy ratio on different kinds of financial institutions risk".

The results of the second hypothesis that "there is a significant relationship between asset quality and credit risk in Maskan bank" are consistent with the research results of Saunders and Cornet (2004) that "there is a significant correlation between asset quality and credit risk".

The research findings draw the attention of banks and financial and credit institutions towards the capital adequacy and asset quality, regard to credit risk in the direction of increasing the efficiency of Iran banking system. To this end, the following recommendations will be practical:

- ✓ The banks and credit institutions are recommended that they always establish an appropriate proportion between their capital adequacy and credit risk and pay attention to asset quality. Because the lack of attention to the above mentioned points will lead to the acceptance of costs higher than market typical price for financing.

Investors and financial analysts are recommended that pay attention to the factors such as capital adequacy and asset quality as a measure to evaluate the credit risk of banks in making their financial decisions.

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