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Aprendizaje sobre el papel del capital de mercado en la mejora del sistema de crédito de los bancos para el conocimiento de la producción y el empleo

Learning about the role of market capital in improving the credit system of banks for knowledge of production and employment

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Abstract
The main objective of this study is to promote learning about the role of the capital market in improving the credit performance of banks in order to develop knowledge of its operation and support in production and employment. For this purpose, econometric analysis of the time series in the period from 1993 to 2018 was used. For examination of the role of the capital market, the total index of Tehran Stock Exchange was taken into consideration. As a conclusion, it can be argued that the total index of Tehran Stock Exchange as a capital market index has a positive and significant effect on the credit performance of banks' credit system in order to support production and employment.

Keywords: Capital market, credit performance, credit system of banks, production, employment, learning, knowledge

Resumen
El objetivo principal del presente estudio es impulsar el aprendizaje acerca del rol del mercado de capitales en la mejora del desempeño crediticio de los bancos a fin de desarrollar el conocimiento de su funcionamiento y el sustento en la producción y el empleo. Para ello, se utilizó el análisis econométrico de las series de tiempo en el período de 1993 a 2018. Para examinar el papel del mercado de capitales, se tomó en consideración el índice total de la Bolsa de Valores de Teherán.

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Como conclusión, se puede argumentar que el índice total de la Bolsa de Valores de Teherán como índice del mercado de capitales tiene un efecto positivo y significativo en el desempeño crediticio del sistema crediticio de los bancos para respaldar la producción y el empleo.

Palabras clave: mercado de capitales, desempeño crediticio, sistema crediticio de los bancos, producción, empleo, aprendizaje, conocimiento.

Introduction

Nowadays, banking is considered as one of the most important sectors of the economy. Banks and financial and credit institutions, by organizing and directing receipts and payments, facilitate trade and commerce and expand markets, leading to economic growth and prosperity. By equipping savings and directing them towards production and commercial firms, banks and credit institutions have, firstly, turned stagnant and possibly destructive economic capital into productive factors, and secondly, have driven other factors of production (especially human resources which are either unemployed due to lack of capital or work in a low productivity) towards full employment with high productivity. The banking system, as the operational instrument of monetary policy, is the executor of a government's economic decisions to achieve the goals of development plans and economic growth. At the same time, with the contraction and expansion of bank credits and transfer of funds from one sector to another, not only economic stabilization at the macro level will be achieved, but also the economic sectors will be adjusted (Farahani et al., 2015).

Proper interaction and communication between financial and production systems in any country will be one of the most important factors for economic growth and development. Banks, as the main part of the financial system (basic banking system), play the main role in financing the manufacturing, trade and consumer and even government sectors. In Iran, given the national economic structure and for such reasons as failure of development of capital markets and other non-banking and contractual networks, financing the real sectors of the economy has been the responsibility of national banking network. Unfortunately, this sector has not been very successful in achieving such a mission (Ahmadi et al., 2016). At present, the continuity of activities and the survival of most banks in Iran are dependent upon governmental support. The high reserves of banks and the missed granted facilities or arrears of banks indicate the lack of appropriate models for measuring the credit risk as well as inappropriate risk management systems in the banking network. The higher a company's stock is distributed among a larger percentage of shareholders, the lower risk will be expected (Zulma-Barrail, 2020).

Background

Norouzian (2017) in a study entitled "The role of banks' credit system in supporting production and employment in the framework of Islamic banking" investigated the role of corporate governance, the necessity to establish a favorable credit rating system and credit risk management in improvement of the credit system of banks and supporting the production and employment. The method of their research was descriptive-analytical and library resources and relevant conducted researches were used to collect data. Their results showed that the banking system, as one of the most important and fundamental sectors of a society's economy in the form of financial markets, plays an important role in economic activities. Proper performance and functioning of banks and reform of the credit system of Iranian banks in granting facilities will solve the major financial problems of the manufacturing sectors, leading to entrepreneurship.

Khoran and Karimzadeh (2014) in a study entitled "Consumer Behavior in Selection of Banks and Financial and Credit Institutions" stated that today the increased number of banks and other financial institutions has created a competitive environment in financial markets to attract customers. On the other hand, such incentives as the implementation of Article 44 of the Constitution, enhancement of the privatization climate and subsequently increasing the number of private banks, the entry of foreign banks (e.g. Iran-Europe Commercial Bank, Islamic Region Cooperative Bank, Future Bank and Standard Chartered Bank) to domestic financial markets and probable decreased number of banks customers due to the government's new approach (i.e. reducing the interest on deposits by banks), will intensify the competitive environment in the future. The fierce competitive environment in financial markets has led banks to try to identify ways to gain more market share from consumer banking services as well as retain their current customers.

In addition, unlike in the past, due to the current competitive environment, bank customers decide based on their information and needs, their tastes and customers have been completely different, they have more choices and are difficultly satisfied. As a result, banks are required to identify the consumers' behavior and needs in order to retain their customers and gain a greater share of the market. Hence, their study aimed to guide the managers of financial institutions to target the cost of resources available to them and to increase their share of the consumer market in banking services by prioritizing the factors influencing the choice of banks and customer loyalty. This work was a survey study and its statistical population was composed of customers of governmental and private banks and financial and credit institutions in Mashhad city. Accordingly, sampling was performed using cluster-random sampling method. The results of the research, which are based on statistical tests, show that the way employees are treated and the fees and banking interests have the greatest impact on consumer behavior in choosing a bank. As a result, banks and bankers need to focus their resources and attention on improving these factors in order to improve their position in the existing competitive market through the solutions presented in the study of Khoran and Karimzadeh (2014).

For the other hand, Golbazkhanipour (2013) conducted a study entitled "Evaluation and determination of optimal resources structure and indicators of financial performance of banks using non-parametric approach". This study was an experience of using the integrated model of fuzzy hierarchical analysis process and Data Envelopment Analysis (DEA) in evaluating the performance of banks listed on the Tehran Stock Exchange. The research originally tried to identify final input and output indicators to evaluate relative performance of banks listed in Tehran Stock Exchange using Fuzzy Hierarchical Analysis Process. Then, by collecting relevant information, it measured the efficiency of these units using DEA non-parametric evaluation technique. .

In addition, beside these cases, the sensitivity analysis of each input and output as well as the complete ranking of banking units were undertaken using cross-efficacy evaluation. Their results showed a significant difference between banks in terms of relative efficiency. Thus, banks can use the experience of efficient banks, including employment of educated, committed and polite personnel, better training of personnel, proper use of modern management methods, customer orientation and real respect for the clients, diversification of banking services and up-to-date use of information technology and technologies related to the banking industry, bringing themselves closer to the relative efficiency border.

Shawalpour and Ash'ari (2013) undertook a study entitled "Investigating the Impact of Credit Risk on Bank Profitability in Iran". In this paper, the effect of credit risk was examined on the profitability of Iranian banks. To measure credit risk, the ratios non-current facilities to total facilities and bad debts provision to all facilities were taken into consideration. Profitability was also measured using the two ratios return on assets and equity returns. The research sample included fifteen banks and credit institutions under the supervision of the Central Bank of the Islamic Republic of Iran during the period 2003-2009. The results showed a significant negative relationship between credit risk and bank profitability. The relationship can be described in such a way that with increased credit risk, cost of banks will increase, thus their profitability will decrease. Based on the results of this research, it can be concluded that the managers of the banking system should control the credit risk of the group under their management in order to increase their profitability.

Ashraf Ahmadian (2012) in a study entitled “Credit Risk Management, the challenge of advancing financial security in the Iranian banking system”, they carried out a model formulation to reduce gaps between the banking system and the private sector in terms of financial security, examining the challenge from the banking system perspective on one hand and economic firms on the other hand. They finally provided operational solutions to reduce the gaps between the banking system and the private sector in terms of financing (improvement of the financing process).

Khoshsima et al., (2012) conducted a study entitled “The effect of credit, operational and liquidity risks on the efficacy of the Iranian banking system.” The main purpose of this study was to investigate the relationship between efficiency and risk in the Iranian banking industry. In their study, for the evaluation efficacy, ranking the banks, selecting the optimal model and then identifying the effect of credit, operational and liquidity risks on the efficacy of the banking system, one parametric approach with economic basis and one non-parametric approach with mathematical optimization basis were employed. In this regard, 15 banks were investigated as a statistical population of the research during the years 2005-2010. The research findings show the difference between the two parametric and non-parametric methods in evaluating the efficacy ranking of banks, with the relative superiority of the parametric method (parametric SFA) compared to non-parametric method (non-parametric MEA). Findings also indicated a significant relationship between credit, operational and liquidity risk and efficacy in the Iranian banking system.

In her master’s dissertation, Armashi (2011) examined the relationship between customers’ credit risk and some financial and demographic variables. After the model estimation, the following results were confirmed: the variables gender, income, type of residence, marriage, age and job status of customers are effective on the possibility of the facilities repayment, however, the income has a negative effect. Furthermore, the variables loan amount and repayment period were found to be ineffective in the study sample.

Ovi et al. (2020) looked for an answer whether the business cycle and income diversification are important for capital buffer and banks' credit risk. They examined the relationship between the business cycle and income diversity with capital buffers and banks' credit risk. For example, banks from the Association of Southeast Asian Nations (ASEAN) region from 1998 to 2018 using 2,847 annual observations. They recognized that ASEAN region banks are reacting aggressively in regulating their capital buffer levels and credit risk. They found the benefits of diversifying incomes through which the banks can reduce their credit risk by achieving capital savings while facing the recession. Our results support the Basel III Agreement. However, the revealed relationships are somewhat adjusted to the quality of supervision, competition, and the stage of business cycle faced by banks in the ASEAN region.

Castro (2013) implemented a study entitled "Macroeconomic Determinants of Credit Risk in the Banking System: The Case of GIPSI". In this study, the relationship between macroeconomic progress and bank credit risk in Greece, Ireland, Portugal, Spain and Italy, which have recently been affected by adverse economic and financial conditions, was examined. The findings showed that all the political criteria which can be used to promote growth, employment, productivity and competitiveness, and to reduce public and foreign, are very necessary to be implemented in order to create stability in their economy.

Da Silva and Divino (2013) undertook a study entitled "The Role of Banking Regulation in a Credit Risk and Liquidity Shock" in Brazil. Their findings indicated that the credit risk is periodic and the default risk depends on structural features. Accordingly, banking policymakers can reduce output fluctuations by setting policies to improve financial stability and efficacy.

Felamini et al., (2009) conducted a study entitled "Factors affecting the profitability of commercial banks in South African countries". They examined the factors affecting the profitability of banks in 41 different countries. Their sample included 389 banks. The research results showed that credit risk and bank size are the most important factors affecting the profitability of banks.

Finally, can be mentioned the study of Kosmidou (2008), who carried out a study entitled "The determinants of banks' profit in Greece during the period of EU financial integration". Using a linear regression model, he investigated the impact of credit risk on profitability of Greek banks over the years 1990-2002. The sample he examined included 23 banks. To measure profitability and credit risk, Kosmidou selected respectively the indicators return on assets ratio and bad debts provision ratio. The results of his research indicated a significant negative relationship between credit risk and bank profitability. The result is consistent with the hypothesis that increased credit risk reduces the profitability of banks, thus, banks can increase their profitability by effectively controlling and monitoring credit risk.

Theoretical foundations

The growth and development of a country depends on the optimal use of available resources and facilities and the correct and principled use of the country's capital resources to meet human needs and wants, including increased production, income, employment and welfare of society. For this purpose, it is usually tried to achieve this goal using various policies and executive tools in development plans. In this regard, monetary and credit policies have a special place, and economists consider the development of an appropriate monetary and credit system to be the key to the success of development plans. The use of credit, whether in new investment or in current working capital, leads to increased production and thus entrepreneurship and job creation (Norouzian, 2017).

Providing financial facilities is one of the important activities of the banking system. In order to grant facilities, the degree of validity and repayment power of the recipient of the facility (the facility amount + interest) must be determined. Therefore, one of the important aspects in the process of granting facilities by banks is a realistic estimate of the possibility of non-repayment of facilities by customers in order to take the necessary measures and decisions to prevent or deal with possible losses. Be considered. Some of the benefits of using credit rating models correctly and implementing a validation process as a help to increase liquidity in the bank are better decision-making in terms of granting facilities and increasing confidence in facility repayment (Safari et al., 2010).

Although it is difficult to define credit, it is a concept that all traders have a common understanding of it. Credit is granted by the creditor and is given by debtors; in other words, credit represents the amount of money that will be paid in the future and since the expected payments are likely to not be done, there is a credit risk. Therefore, credit risk can be potential losses such that the debtor rejects to repay the credit or he/she has no financial ability to repay timely and completely (Armashi (2011).

Credit risk is somehow a form of risk from the opposite party; in other words, it is a risk that the opposite party will not act in accordance with its contract or commitment. This may be due to either failure to provide goods and services or due to non-performance of the committed loan or failure to repay the amount borrowed in full and on time (Asgharpour, 2003).

By simultaneously studying the effectiveness of the banking sector development on capital structure and the way of affecting capital structure on the performance of companies, it will be possible to not only determining the direct effect of banking development on capital structure and determining the direct effect of capital structure on firm performance, but also to indirectly analyze effect of banks development on the firms performance (through capital structure) (Yavari et al., 2017).

As a matter of fact, economic growth and development are not possible without a slight increase in the “capital” as one of the factors of production. Accordingly, since it is not possible for all individuals (natural and legal) for various reasons to be able to use personal monetary facilities and resources in all their activities to meet their needs, and also the receipts and payments of economic units rarely match, thus, they will have to turn to financial and credit institutions, the most important of which are banks, to use the necessary facilities and resources. With their credit operations, banks provide the means of transferring resources from people who are not willing or directly able to participate in economic activities to those who need capital to undertake economic affairs, and thus increase the country’s production. As production increases, so does the level of employment in society, and on the other hand, with the increase of goods and services in a balanced economy, the conditions for price reduction will be provided. Thus, the importance of granting facilities, both in opinions of the recipient and grantor of the facility as well as those of depositors and ultimately in terms of the overall economy of society, will be specified.

Methodology

This research was conducted in Iran in the period 1993-2018 (26 years). The present study is considered as an applied work in terms of purpose and of correlational type. The data was also extracted from the Central Bank. It should be noted that, econometric analysis was performed by time-series method. In any science, the collected statistics related to a variable that is to be predicted and available in past time periods are called time-series. A time series is a set of statistical data that is collected at equal and regular intervals. The statistical methods employing such statistical data is called time-series analysis methods. Below table represents the variables of present study:

Table 1
Variable of present study

Variable	Indicator	Variable type
Credit performance of banks	CR	Dependent
Production	PR	Independent
Employment	EM	Independent
Capital Market	TEPIX	Mediator

In this study, fitting the regression model was done using the least squares method. The following table summarizes the fitting of the regression model.

Table 2
Results of fitting the regression model

Response variable= banks' credit performance			
Independent variables	Regression Coefficients	Statistics t	Sig
Constant (α)	-71.93	-2.04	0.05
Production	0.001	72.22	0.000
Employment	1.91	5.01	0.000
Capital Market	0.0008	8.70	0.000

Statistics F=6459.3 Sig=0.000
Durbin-Watson Statistics= 2.43 Coefficient Of Determination=0.99

Next, Jarque-Bera Test and histogram were used to get informed of the normality condition of the fitted model residuals. Jarque-Bera Test is a distribution of chi-square is the degree of freedom of two. If this statistic is less than 5.7, it can be concluded that the statistical distribution is normal according to the table of chi-square. Also, Jarque-Bera Test uses the following formula to check the normality:

$$JB = n \left\{ \frac{(Skew)^{\text{٢}}}{\text{٦}} + \frac{(Kurt - \text{٣})^{\text{٢}}}{\text{٢٤}} \right\}$$

Where:

SKEW: Coefficient of Skew

KURT: Coefficient Kurtosis

N: Degree of Freedom

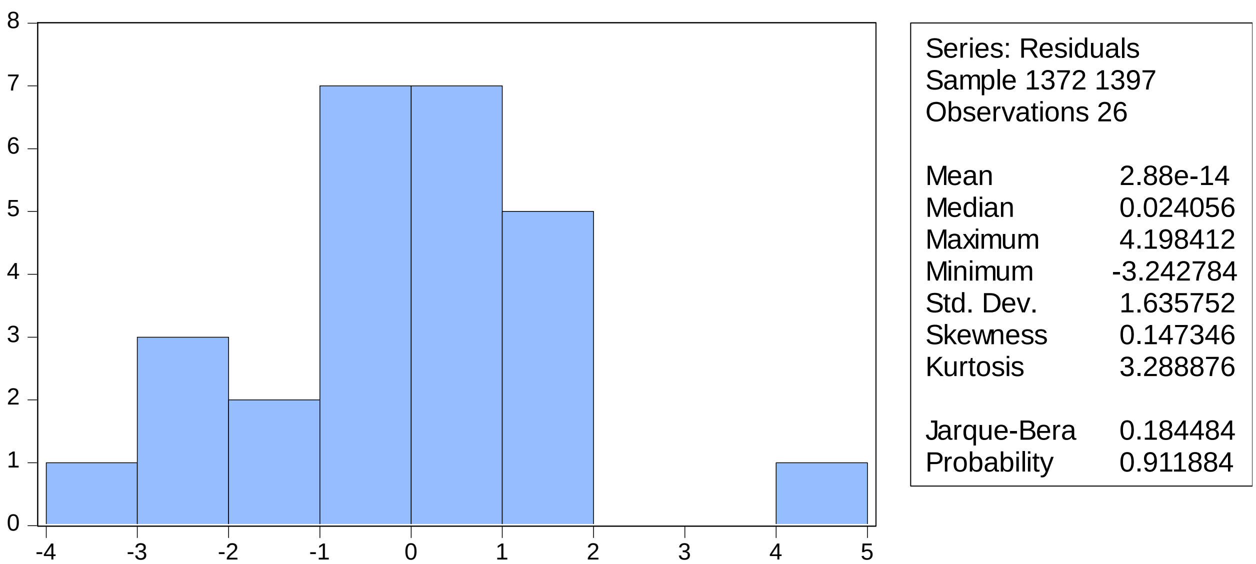
Table 3

Jarque-Bera Test results for the model

Residuals of regression model	Test statistics	Significance	Result
	0.18	0.92	Normality of residuals

As it can be seen in Table 3, the significance level of Jarque-Bera test is calculated to be greater than α = 0.05, thus with a confidence level of 95%, residuals distribution is normal. Figure 1 shows the histogram of the regression model residuals.

Figure 1. Histogram of the regression model residuals



As shown in Figure 1 above, the regression model residual is symmetric and bell-shaped, indicating that the residual distribution of the regression model is normal. Statistical F was also used to investigate the significance of regression model. The T-test was also used to evaluate the significant effect of variables on the dependent variable. The following table summarizes the results of the serial auto-correlation test:

Table 4
Serial auto-correlation test results

Test	Resulted statistics	Sig	Result
Serial auto-correlation test	1.01	0.37	Impossibility of serial auto-correlation

According to the results reported in the table above, the model lacks statistical problems. Therefore, the results of this research are reliable. For the other hand, and according to the fitted regression model, in the following table (Table 5), the effect of different variables on the credit performance of banks is examined and reviewed.

Table 5
Effects of the variables studied in regression on banks' credit performance

Variable	Value	Sig
Production	0.0001	***
Employment	1.91	***
Capital Market	0.0008	***

******* Significant with a confidence of above 99%

Due to the significant effects of the variables, all variables have a significant effect on the credit performance of banks. Therefore, the results can be summarized as follows:

- Credit performance of banks has a significant effect on production in Iran.
- Credit performance of banks has a significant effect on employment in Iran.

Finally, it can be surely stated that the capital market plays a moderating role in effectiveness of banks' credit performance on production and employment. Given the findings of present study, the following suggestions are provided in order to support production and employment and thus higher effectiveness of capital market on improvement of banks' credit system performance: review and reform of Iranian banks' credit system, effective monitoring of the central bank to grant facilities and credits, taking advantages of legal opportunities and challenges of the banks' credit system, finding the optimal solutions for the international banking interaction development strategies, employing the practical strategies to strengthen banks' credit resources and paying attention to the role of capital market in improving the banks' credit system performance.

Discussion

In the present study, it was concluded that there is a significant relationship between employment and production with the performance of banks, which is the result of the study of Zohreh Norouzian Ghahfarkhi (2017), a study entitled The role of banks' credit system in supporting production and employment in The framework of Islamic banking was consistent with the results of his study as follows: The banking system as one of the most important and fundamental sectors of society's economy in the form of financial markets plays an important role and place in economic activities. Proper performance of banks and reforming the credit system of the country's banks in providing facilities will solve the major financial problems of the manufacturing sector and this will create jobs (Zohreh, Norouzian & Ghahfarkhi, 2017).

It was concluded that there is a significant relationship between employment and the performance of banks, which is the result of the study of Bagherzadeh and Neghdar (2018), which was a study entitled Deficit of facilities in the ten branches of Bank Shahr on regional employment development. The results of their study were as follows: The results of dynamic estimation of the model with Pedroni technique showed that the long-term positive convergence relationship between the two variables of bank branch facilities and the amount of employment by small, medium-sized enterprises operating in ten regions There is a bank where the city is located (Bagherzadeh and Neghadar, 2018).

There is a significant relationship between employment and bank performance, which is the result of the study by Nasirani et al. (2018). South Khorasan was consistent. The results of their study were that the presence of Mehr Eghtesad Bank in the village or the proximity of the region to Mehr Eghtesad Bank has caused a significant difference in the levels of employment stability in the village. Also, there is a positive and significant correlation between the parameters of the facilities received last year and the levels of sustainability of rural employment. The results of regression analysis also showed that the use of employment facilities of Mehr Eghtesad Bank based on the response of the research audience increased annual income, increased use of mechanized machinery in agriculture, reduced unemployment among rural family members and increased job diversity in rural families. Accordingly, 69% of the changes in the levels of sustainability of rural employment are explained by the above variables (Nasirani et al., 2018).

Also, there is a significant relationship between employment and production with the performance of banks, which is the result of the study of Valizadeh and Amrayi (2017), which is a study entitled The role of agricultural banks in the resistance economy; Production and employment were consistent. The results of their study were as follows: Agricultural Bank credits had a positive effect on employment in the short run and on investment in the long run. Therefore, at least in the short term, using the appropriate credit system can lead to the development of job opportunities in this sector (Valizadeh and Amrayi, 2017).

Conclusion

Nowadays, banking is considered as one of the most important sectors of the economy. Banks and financial and credit institutions, by organizing and directing receipts and payments, facilitate trade and commerce and expand markets, leading to economic growth and prosperity.

In this study Learning about the role of market capital in improving the credit system of banks for knowledge of production and employment was investigated.

For this purpose, econometric analysis of the time series in the period from 1993 to 2018 was used. For examination of the role of the capital market, the total index of Tehran Stock Exchange was taken into consideration. As a conclusion, it can be argued that the total index of Tehran Stock Exchange as a capital market index has a positive and significant effect on the credit performance of banks' credit system in order to support production and employment.

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