

INVESTIGATING THE CLASSIFICATION OF INDICATORS THAT DETERMINE THE CREDIT CATEGORY OF COMPANIES

Sayadporvali alyar, Islamic Azad University, Iran
Saeed Jabarzadeh Kankarloi, Islamic Azad University, Iran
Jamal Bahri sales, Islamic Azad University, Iran
Ahmed Jafarian, Islamic Azad University, Iran

ABSTRACT

Financing decisions play an important role in determining growth, investment and production strategies. Access to low financing costs is one of the economic feasibility obligations in the field of development, and credit plays an important role in obtaining financing. The purpose of this research is to examine the classification of indicators that determine the credit rating of companies in Iran. Rating agencies must pay attention to quantitative and qualitative factors to determine the credit rating. For this purpose, in this research, first, the credit rating literature was examined and the indicators defining the credit rating were extracted in two parts, qualitative and quantitative indicators. Then the opinion of the experts was collected using questionnaires and interviews. Binomial test was used to test the research hypotheses, which takes into account the importance of each of the indicators in determining the credit category, and the Friedman test was used for the superiority of the indicators. The result of the research shows that 10 indicators are the most important indicators that determine the credit rating of companies.

Keywords: credit category; Debt solvency; Binomial test; qualitative indicator; Quantitative indicator
Background of the study

INTRODUCTION

In determining strategies for growth, investment and production, financing decisions play an important role. Access to low financing costs, one of the obligations of economic feasibility in the context of development, credit plays an important role in obtaining financing (Bon ,2006, 3). Credit rating is an expression of the issuer's ability and willingness to fulfill financial obligations in a complete and timely manner (Standard & Poor's, 2011) and includes two types of credit rating bonds, debt rating and issuer credit bonds (issuer). In the classification of debt securities, the probability of default or delay in payment of principal and debt securities is considered, and in the classification of credit issuers (issuers), the evaluation of the overall credit participation is considered (Wang and Vidigaran, 2010, 130). This research seeks to investigate the classification markers that characterize the negative participation. Investors, lenders and analysts of financial stocks use credit ratings as an indicator of the quality of the participation and the risk of the stock. Although credit ratings are not considered recommendations for investors, they act as one of the indicators of stock evaluation. Credit ratings as a solution to information asymmetry and increasing the efficiency of the capital market can be explained and interpreted because of the different motivations of market operators for requesting credit rating, their common statement is to eliminate the information asymmetry in relation to the credit status of an issuer or Debt sheet and increase efficiency of the capital market are also present (Langor, Valangor,1398). Reliability classification can be interpreted as a screening technique that is used to reduce the problems of asymmetric information (Grant ,2005, 513).

Banks use internal ratings to assess creditworthiness, but investors in the capital market rely on ratings provided by rating agencies. Classification Institutions Classification is usually done in two ways—give The first condition is when the participation is significant—There is a request for classification and the second condition is that the institutions of classification without participation take special steps for classification—do This division

into classifications is usually discounted between senior and junior classifications. Senior credit rating agencies are active in both cases, but junior credit rating agencies are more active in the first case (intellectual).1391). Modi's is one of the world's three most trusted institutions, Standard & Poor's Wages exist. Each method is standard—These are functionally self-contained. Nihad Modi's indicator for determining credit participation—High deficiency and sufficiency are subject to evaluation. Nihad Standard & Poor's also examines the business risks and financial risks of creditworthy companies.give Finally, Nihad Fitch, in order to determine the quality of participation, deals with the analysis of indicators of lack of financial and quality of non-financial.—Hi, we will soon witness the existence of such institutions through the management of Islamic research and development. Because the Tehran Stock Exchange Organization has realized the existence of the necessary institutions. This is the real need—There are criteria that can be used to determine reliable participation. These indicators are used in every environment and every class—Yes, they will be different. Therefore, this research is for the first time in the form of a scientific work-Interest extraction is one of the most important indicators determining the level of credibility in Iran.

BASIC THEORETICAL RESEARCH- RATINGS ARE VALID

Investors, lenders, and financial analysts use credit ratings as an indicator of company quality and risk.—do Credit ratings were used as one of the evaluation indicators—do Credibility criteria can be explained and interpreted as a solution for asymmetry of information and the efficiency of the capital market. Timely cancellation—In early or modern security, the problem is that it becomes more prominent—Representation. This is indicative of the fact that before investors invest, the information is less than the quality of a publisher and market.—They have, while the publisher itself has more complete information. Therefore, it is possible to choose a safe investment option—spent—Do it efficiently—Ash is better than one sheet of paper. Agreed for a while—Unless there is information about the quality of an instrument that is considered to be a good deal, there is no secret information. Later", after a tool or a publisher has discovered itself first—However, the problems became apparent—However, sometimes a publisher can take covert actions—E performance that has a negative effect on the return on the final investment (Langor and Langor,1398). Frictions created by hedges in the marketplace provide value-added opportunities for bearers of quality risk.—do These valuable opportunities can reduce the information asymmetry between the issuer and the investor by providing credit ratings.—hi commercial—Residents who provide loans to borrowers and supervise them—do (same source).

Rejection—Bandi—Credibility, a statement of the issuer's ability and willingness to meet financial obligations in a timely and complete manner (Standard & Poor's,2022). Credibility levels play a role in the dependence of information on the dominance of information asymmetry in the process of information exchange. This position is rejected—Bandits are called «information asymmetry». One of the most important problems in the rights of investors is that they are informed about the events that take place in their participation, that is, there is information asymmetry between the external investors and the internal control of the participation. Therefore, this space is the space in which the institutions have performed the credit rating and economic evaluation—Afrainanda. The target institutions are rejected—The clause is that it will be returned—Yes, make up for the lack of information for investors with proven returns (Langor and Langor,1398).

Other statements are pending—Bandi Musisaat Rada—Decentralized appropriation of resources contribute to the economy (Marcia et al.,2014).

Users

From a participation perspective, credit rating is of great practical importance because it affects the participation's cost of debt, financing structure, and the ability to continue operating the participation (Gray et al., 2010).2006, 340). For firms with high creditworthiness, it facilitates market entry with ease and lower financing rates (Kumar et al. ,2003, 95).

The credit rating literature states that ratings serve two purposes from a capital perspective. Confirms the financial terms of the current participation for the investors (initial cancellation) and announces changes in the previous financial terms of the participation (revocation of changes) (Pon Chan) ,2008,798). Credit ratings are valuable to investors as long as they do not need to spend additional costs for research or monitoring publishers (Salampur, 1385, 43).

Risk assessment is reliable

The word risk, especially in financial markets, is often associated with the potential loss of an investor. Credit risk is the possibility of issuer default, which is related to non-payment of interest or principal obligation. In financial markets, investors are often interested in measuring risk participation before deciding on the level of investment. by decadeIn the 1980s, the demand for information related to risk analysis has increased greatly and many methodologies have been developed based on this demand (Marcia et al., 2014, 185).

Credit ratings are used by investors to assess the risk of creditworthy borrowers (Juliania et al ,2014,1402). Risk credibility is an important issue for any participation at any time period. Financial institutions including banks participated in credit rating to reduce credit risk (ASDI). et al.,2013, 89).

The role of credit ratings in financial markets

Naqsh is another classification of reliability in the performance market. This map focuses on the topic of how credit ratings contribute to market operations and how they have a particular impact on market participants. Basically, rating reduces an investor's ability to make better judgments than others. In this scenario, the classification as an equalizer Acts in the capital markets and helps the investors to be in the same conditions (Adelson ,2012, 2). The main task of proper credit rating from the financial perspective is to help strengthen the efficiency and transparency of capital markets by reducing the information asymmetry between borrowers and lenders. ,2005).

RESEARCH BACKGROUND

There are reliable classification institutions in the world, and as a result of the investigation, classification is done based on real data. Most of the research conducted on classification reliability has focused less on factors that change the facility of data submission→do However, all credit rating agencies acknowledge that credit rating is derived from a number of factors. Table 1 Further, the investigation is presented in two parts, internal and external. After studying the research literature (including previous research and reliability classification), this research has focused on quantitative variables and qualitative variables.

Table 1 BACKGROUND OF INTERNAL AND EXTERNAL RESEARCH RESPECTIVELY				
The most important findings and results related to the research	Research methodology	Research title	Author(s) (year of research)	row
The role played by credit rating institutions requires serious attention to wealth discounting accounting practices, standards, and standards used by them.	Traffic	Institutional Financial Rating Credit; Accusations and demands. Participation Classification Credential Evidence	Ahmadi, Musa (1396)	1
They designed the expected reliability loss model by using the analysis hierarchy technique and with the help of the innovative approach.WASPAS) proposed better strategies to remove the obstacles in the	Analysis Hierarchical Fuzzy Techniques	Classification of Challenges of Implementation of Credit Model Expected in Iran Banks in Cross-Sectional Form	Rezai and Wadigaran (1398)	2

implementation model of credit risk in Iran's banks.				
Results marked 95% of the classifications are done correctly	The Topsis Valgorithm Neural Network	Classification of reproduction companies in Tehran Stock Exchange	Amiri and Biglari Comi (2013)	3
Eight indicators affecting credit risk are short-term loans to total assets, short-term loans to net sales, ratio of total debt to total assets, proposed business, past repayment, equity to total assets, current assets to fixed assets and rate of return on selected assets. Shad	Analysis of fuzzy data regression logistic and neural network	Risk management, fiduciary analysis in banking systems, regression analysis, logistic regression, and neural networks	Ebrahimi and Daryabar (1391)	4
They examined three financial indicators and concluded that all indicators are significant at the satisfaction level of 95%.	Dissolve cover data	Classification of trusted customers in the legal sector industry using cloud data analysis	well and slavery (1391)	5
Financial and non-financial variables included in 27 explanatory variables were investigated using two models of data analysis using a synthetic approach (financial and non-financial). Finally, according to the results obtained from the factor analysis and the judgment of the experts, eight indicators were selected as the final indicators covering the financial and non-financial dimensions.	Dissolve cover data	Designing Model Classification Credit Clients Legal Commercial Banks	Safari et al.1390)	6
By using 10 Indicators of Deficiency and Deficiency are used to classify credit participation	Dissolving cover data	Rating of credit companies accepted in Tehran Stock Exchange	Puroli Aliyar et al.1401)	7
It was observed that only accounting ratios were introduced under the title of Nikol Sharmati.	Delphi Fuzzy Methodology	Model for Peshbani Nicole participates in Bourse Oraq Bahadar Tehran	Balu and Ahmad Vand (1399)	8
For evaluation, five financial ratios, current ratio, debt ratio, ratio before interest before deduction of interest, finance to cost, net interest to total assets, net interest to sales were used.	Modeling and modeling	Validation of legal clients of small and medium-sized banks using the validity and reliability model	Ra'i and Roosh (1391)	9
And it came to the conclusion that there was no pattern of variation in the balance of capital Trust company Yes, summer Absent from 1985 to 2002. After 2002, it is conservative.	Multivariate Regression and Correlation	Structural Changes in Credit Rating Standards from 1985 to 2007 for US Companies	This is (2016)	10

The capital market has given importance to Chinese companies and the influence of the stock price is considered to be negative.	Statistical regression logistic regression	Classification of domestic and international credit agencies	Chiang Vipakra (2017)	11
Downgrading of countries with high ranking will spread to high and low-ranking teenagers, while low-ranking teenagers will have less influence on high-ranking teenagers.	Multivariate regression	Impact of Level Ratings and Convergence Ratings on the Impact of Overarching Actions	Forever and ever (2018)	12
Credit rating is a cost-effective way to finance participation, and high credit rating reduces information asymmetry.	Descriptive	The role of credit rating agencies in fixing the gaps And financial participation is small	Magnificent (2019)	13
Marked that CSP indicator correlation is used to predict rank reliability. Participation with high CSP has low risk and consequently high reliability.	Multivariate regression	The effectiveness of collective participation and environmental performance in predicting credit ratings	Durflitzo Degran (2020)	14
The results and indicators are classified according to the reliability criteria assigned to each participant using high-accuracy high-accuracy features and if-know rules.	Setham Hi Rules Fuzzy Algorithm Genetics	Reliability analysis using fuzzy adaptive rule-based systemsOh	Hajk(2012)	15
A proposed model for validation using 29 Market, Accounting, and Industry Performance Indicators The modern demand model has a higher probability than the marginal model.	Semiparametric Probability	Predictive ranking of credit issuers using a semi-parametric approach	Wang et al (2010)	16
Check mark 48% of the studies have focused on the developmental constructs of the modern classification system without assessing the underlying constructs.	Dissolving content	Elements of classification: A systematic review and further investigation	Abrahand and Chandani (2021)	17
Profitability has a positive relationship with reliability and pyramid has a negative relationship. Capital intensity is significant. Lack of participation	Regression logistic regression	Application of latent data analysis in discriminant validity	Marcin (2013)	18

and opportunities has a positive relationship with reliability.				
The relative debt relationship is negative.	Test effect indicators are highly reliable	Predictive Rating Papers Borrowing using Lajit	Kamastra et al (2001)	19
They concluded that neural network provides better classification of participants than other methods.	Tapasis and the nervous system	Abandoned credible reproductive participation using high quality standards	Amiri and Biglari Comi (2013)	20

RESEARCH METHODOLOGY

The present research in terms of the approach, the naturalistic research, the purpose of the research, practical research, the nature of the research, the lack of data, the identification method, the descriptive method, and the post-event research (ali-comparative). This investigation is conducted to obtain information about the existence of relationship between variables (Dianti,1394).

For this approved literature classification was included–The credit rating is superior and the studies conducted in this field are considered and the most important indicators affecting the credit rating are included.23 markers were extracted. Markers–That's enoughThey were classified into 6 classes and 7 classes according to table 2

Table 2 MARKERS ARE HIGHLY EFFECTIVE AND RELIABLE		
The most effective indicators determining reliability		
Risk market industry	Factors Industry	Qualitative indicators
Diversified geographic industry	Operational environment	
Capacity surplus industry	Competitive situation	
Stock market	Quality management	
Financing policies	Leadership participation	
Board size		
Separation of Managing Director from Board of Directors		
Managing Director		
Relative to non-executive members of the Board of Directors		
Rotational Institutional Auditing	Environmental accounting	
Original or subsidiary		
Annual adjustments		
Rosh Kurdish present black		
Investment accounting method	Markers are lacking	
Returning assets		Relative profitability
Current liabilities and assets		Relative liquidity
Operating cash flow would be due tomorrow		Covering Relatives
Cash flow would be operationally independent		
Fixed assets with ownership rights		Relative performance
Office pyramid		Structural relations
High debts and accumulated assets		Capitalism
Relative to the owner		
Percentage change in fixed assets		Accounting figures

Due to the fact that he was born in Iran—There is no formal classification of reliability and most of the indicators that have been determined from the literature review are based on the environment outside of Iran.—E was prepared and specially submitted for the expert's attention. These experts include risk managers and some credit managers of banks and credit rating consulting companies, consultants of the Tehran Stock Exchange and some people outside the banks or the capital market in this field. The questionnaire is designed in such a way that experts should answer three areas. First, the researcher should measure the importance of the indicators that determine the reliability of the spectrum⁵. Specify the letter, then in the case of qualitative indicators, confirm the proposed reduction of indicators or suggest indicators, and finally, in each group of indicators, if they think that another indicator should be added, it will be mentioned.

Finally²⁷. Questionnaire submission and examination. Cronbach's alpha coefficient was used to check the reliability of the questionnaire. Likert scale test is ordinal because values are calculated from 1 to 5 and therefore two-item test is used to test hypotheses. For each of the indicators that characterize the research, the following hypotheses exist.

The amount of research found in the table 3 Has come

Table 3 CRONBACH'S ALPHA COEFFICIENT OF THE QUESTIONNAIRE		
Cronbach's alpha coefficient	Number of experts	Quantitative Questionnaire
989/0	27	23

A two-sentence test compares two groups. If the significance level is less than 5% means that the ratio of two groups is not equal and it is obligatory. The Likert scale of the questionnaire is marked as 1 to 5. 1 is an indicator of unimportance in determining reliability, and 2 is low importance, 3 is not significant, 4 is important, and 5 is essential in determining reliability. Therefore, the indicators are in the determining level of reliability that are important or important from the point of view of experts. That is, three options (equal 6/0=5/3) are in the factor rejection hypothesis. The results are divided into two groups according to each of the indicators. The first group includes distinctions 1, 2, and 3, and the second group includes distinctions 4 and 5, that is, important and important. If the probability of the first group is more than 6/0, the hypothesis is confirmed and the indicator is not considered as a reliable factor in the opinion of experts Table 4.

Table 4 THE RESULTS OF THE TWO-SENTENCE TEST IN THE TABLE4 IS MARKED				
Level of significance	Potentially observed	The number		
000/0	1/0 9/0	2 23	Group I Group II	Risk market industry
145/0	5/0 5/0	13 14	Group I Group II	Diversified geographic industry
250/0	5/0 5/0	14 13	Group I Group II	Capacity surplus industry
000/0	1/0 9/0	2 25	Group I Group II	Stock market
000/0	0 1	1 25	Group I Group II	Financing policies
095/0	7/0 3/0	20 7	Group I Group II	Board size
250/0	5/0 5/0	14 13	Group I Group II	Separation of Managing Director from Board of Directors
250/0	5/0 5/0	14 13	Group I Group II	Managing Director
309/0	7/0	18	Group I	Relative to non-executive

	3/0	9	Group II	members of the Board of Directors
542/0	6/0 4/0	16 11	Group I Group II	Rotational Institutional Auditing
387/0	6/0 4/0	15 12	Group I Group II	Original or subsidiary
145/0	5/0 5/0	13 14	Group I Group II	Annual adjustments
309/0	7/0 3/0	18 9	Group I Group II	Rosh Kurdish present black
309/0	8/0 2/0	21 6	Group I Group II	Investment accounting method
000/0	1/0 9/0	2 25	Group I Group II	Returning assets
000/0	3/0 7/0	8 19	Group I Group II	Current liabilities and assets
000/0	0 1	1 26	Group I Group II	Operating cash flow would be due tomorrow
000/0	1/0 9/0	2 25	Group I Group II	Cash flow would be operationally independent
542/0	6/0 4/0	16 11	Group I Group II	Fixed assets with ownership rights
000/0	0 1	0 27	Group I Group II	Office pyramid
000/0	1/0 9/0	4 23	Group I Group II	High debts and accumulated assets
000/0	2/0 8/0	6 21	Group I Group II	Relative to the owner
250/0	5/0 5/0	14 13	Group I Fall II	Percentage change in fixed assets

The results of the two-jumla test are marked 23, 10 indicators play a role in determining the reliability of participation. Indicators of geographical diversity of the industry, excess capacity of the industry, separation of the managing director from the board of directors, stability of the managing director, annual adjustments, proportion of non-executive members of the board of directors, rotation of the audit firm, original or subsidiary, method of rotation of assets, fixed assets and ownership rights and percentage. The change in assets is not significant and the indicators of the size of the management team and the accounting methods of the investments, although they are meaningful, are not considered to be reliable because of the confirmation assumption.

Then, the indicators that determine the reliability are evaluated by the experts with the Farid test. This test deals with the classification of their views on these indicators Table 5.

Table 5 COMPARATIVE LEVEL OF SIGNIFICANCE INDICATORS USING AZMOUN FARID MIN
The number 27
Give the quantity statistics 034/744
Degree of freedom 9
level of significance 000/0

Considering that the level of significance is lower than 5%, so the indicators do not have the same priority in determining the reliability level and the higher the average rating of each indicator, the more important it is in determining the reliability level. Further results of Friedman are given in table 6.

marker	Average grade	Interference between markers
Risk market industry	41/48	7
Stock market	19/57	2
Financing policies	Jul-52	3
Returning Assets	Nov-51	4
Current liabilities to assets ratio	Aug-37	10
The flow of the final operation will be given tomorrow	76/50	5
Cash Flow Operating Independent Debt	Sep-47	9
Long-term debt compared to long-term deposits	May-48	6
The financial pyramid	Mar-58	1
Relative to the owner	35/47	8

The results indicate; the top indicators determining creditworthiness are financial pyramid, stock market, financing policies, return on assets, operating cash flow to total debt, long term debt to total assets ratio, industry risk market, ownership ratio, and debt to asset ratio. Dwell

CONCLUSIONS AND RECOMMENDATIONS

Ranking companies by introducing the top companies in the industry, determine their position in the competitive environment based on indicators. This causes, on the one hand, the weaker participations to assess their distance with the superior participations and to modify appropriate strategies to reach them. On the other hand, superior participation with defined programs and appropriate strategies is self-sustaining—wash up in addition to these cases; the provision of information also provides a suitable opportunity for investors to make appropriate investments. The collection of these cases has led to increased competition in the market and increased competition in the market also has benefits that can generally be said to lead to the development of society.1383).

Despite the existence of three international credit rating institutions, some countries have permanently established institutions for rating credit companies in order to be able to classify companies according to local conditions.

Unfortunately, there is no formal external credit rating system in Iran, but the need for it is foreseen in the laws of stock exchange and securities. However, the determination of the credit rating of the company requires the completion of studies and the creation of a coherent database, which is a prerequisite for the real rating in Iran.

This research has initially extracted the reliability indicators in the form of a library. Institutions are ranked among the best in the world and studies conducted have been considered as indicators—high deficiency should also be considered qualitatively. Then, through exploratory interviews with experts and through

questionnaires, they have determined the indicators that determine the reliability in the environment of Iran. Research results indicative 23 indicators are specified that their priority in determining the rank should not be the same. This research is not similar in Iran and the world. There are credit rating institutions in the world, and as a result, researchers do not need to determine the rating, but consider the effective indicators of the credit rating. Including Dur Fletner and others (2020) by integrating performance measures of collective participation (CSP) into a risk-reliability model for the years 2003 to 2017, the rate of improvement of reliability predictors through multivariate regression analysis and their analysis showed that CSP indicator integration is reliable for negative. Balo Ahmed Vand (1399) Nicole, participation in unpleasant phenomena throughout the life of every economic enterprise, using data from a sample consisting of 100 companies from selected industries in the stock market and Tehran, using empirical studies, Delphi and fuzzy methods, factors and potential indicators. Effectively identified Nicole participation. Finally, it was "observed that only" the accounting ratios introduced as the motivation of corporate defaults and other indicators including market indicators, macroeconomic indicators, non-financial indicators and interest rate indicators, do not have a map in predicting this event in the Tehran stock exchange. This research has also considered the indicators of accounting ratios as an indicator of reliability. According to the fact that the reliable markers differ according to the political, social and economic conditions of each child, the opinion of the experts in this field can be helpful to provide a model that is based on the environment of Iran. The number of experts in this field is very less and the researcher has tried to discover the views of most of these experts. After the reliability indicators are determined, the participants can be ranked using mathematical or statistical models that require research.

REFERENCE

- Abad, P., Alsakka, R., & ap Gwilym, O. (2018). The influence of rating levels and rating convergence on the spillover effects of sovereign credit actions. *Journal of International Money and Finance*, 85, 40-57.
- Khazaei, A. H., & Farahanifard, S. (2021). The Potential Impacts of Credit Rating Agencies on the Islamic Republic of Iran's economic performance. *Journal of Iran's Economic Essays (JIEE)*, 18(35), 193-224.
- Ahmadi, Moussa (2016) Financial institution credit rating; Requirements and prerequisites of Burhan Credit Rating Company
- Amiri, M., & Biglari Kami, M. (2013). Credit Rating Companies with Multi-Criteria Decision Making Models and Artificial Neural Network Model. *Journal of basic and applied scientific research*, 3(5), 536-546.
- Asadi, Elahe; Toriki, Leila and Dae Karim Zade, Saeed (2013). Ranking of stock exchange companies from the viewpoints of banks and financial institutions with improved AHP.DEA. *Journal of Social Issues & Humanities* 1(5). 88-93
- Aysun, A. (2016). Structural shifts in credit rating standards. [www. Researchgate. Net](http://www.researchgate.net).
- Bello, Qasim, Ahmed Vand, Maitham (2019). A model for predicting the default of a company in the Tehran Stock Exchange. *Journal of Experimental Accounting Research*, 10(36). [In Persian].
- Bone, R. B. (2010). Determinants of corporate ratings in the oil industry: The Repsol-YPF case. *REAd-Revista Eletrônica de Administração*, 16(1), 70-90.
- Daneshvar, Shahram, (2012), the use of MOSAT classification increases the transparency of the market, *Dunyai Ekhtaz newspaper* 322800. [In Persian].
- Dorfleitner, G., Grebler, J., & Utz, S. (2019). The Impact of Corporate Social and Environment Performance on Credit Rating Prediction: North America versus Europe. *Journal of Risk (Forthcoming)*.
- Dayanti Dilami, Zahra (2014). *Research method in accounting*, first edition, Adalat Novin Publishing. [In Persian].
- Ebrahimi, Marzieh and Daryaber, Abdullah (2011). Credit risk management in the banking system - data coverage analysis approach, logistic regression and neural network, *Investment Knowledge Quarterly*, 2.35-62 [In Persian].
- Gray, S., Mirkovic, A., & Raganathan, V. (2006). The determinants of credit ratings: Australian evidence. *Australian Journal of Management*, 31(2), 333-354.
- Grunert, J., Norden, L., & Weber, M. (2005). The role of non-financial factors in internal credit ratings. *Journal of banking & finance*, 29(2), 509-531.
- Hájek, P. (2012). Credit rating analysis using adaptive fuzzy rule-based systems: an industry-specific approach. *Central European Journal of Operations Research*, 20, 421-434.
- Hwang, R. C., Chung, H., & Chu, C. K. (2010). Predicting issuer credit ratings using a semiparametric method. *Journal of Empirical Finance*, 17(1), 120-137.

- Jiang, X., & Packer, F. (2017). Credit ratings of domestic and global agencies: What drives the differences in China and how are they priced?.
- Jollineau, S. J., Tanlu, L. J., & Winn, A. (2014). Evaluating proposed remedies for credit rating agency failures. *The Accounting Review*, 89(4), 1399-1420.
- Keller, T. (2006). *The role and function of rating agencies*. Press & Communications CH-4002 Basel, Switzerland E-mail: publications@bis.org Fax:+ 41 61 280 9100 and+ 41 61 280 8100 This publication is available on the BIS website (www.bis.org), 39.
- Kohi Hassan and Rooh Elah Gholami (2012) Credit rating of legal clients in the industrial sector using the Data Envelopment Analysis (DEA) model, *Quantitative Studies in Management* 3, 115 [In Persian].
- Kumar, K., & Haynes, J. D. (2003). Forecasting credit ratings Using ANN and statistical techniques. *International journal of business studies*, 11(1), 91-108.
- Langohr, H., & Langohr, P. (2010). *The rating agencies and their credit ratings: What they are, how they work, and why they are relevant*. John Wiley & Sons.
- MAHMOUD, A. H., & GHAYOURI, M. A. (2011). CREDIT RATING IN TERMS OF FINANCIAL ABILITY TO PAY THE PRINCIPLE AND INTEREST ON DEBTS, USING DATA ENVELOPMENT ANALYSIS TECHNIQUES (CASE STUDY: COMPANIES LISTED IN TEHRAN STOCK EXCHANGE).
- Marcin, T. (2009). *Application of Data Envelopment Analysis in Credit Scoring* (Doctoral dissertation, Master's Thesis in Financial Mathematics, Technical Report).
- Murcial, F. C. D. S., Dal-Ri Murcia, F., Rover, S., & Borba, J. A. (2014). The determinants of credit rating: Brazilian evidence. *BAR-Brazilian Administration Review*, 11, 188-209.
- Poon, W. P., & Chan, K. C. (2008). An empirical examination of the informational content of credit ratings in China. *Journal of Business Research*, 61(7), 790-797.
- Rai Reza and Bouzarsarouosh (2013) Validation of legal customers of small and medium banks using logit and probit models. *Economic research quarterly (Iranian Islamic approach)* - 44, 131-145 [In Persian].
- Safari Saeed, Ebrahimi Shaghaghi, Marzieh and Tahiri Fard, Morteza. (2013) Designing a credit rating model for legal customers in commercial banks using data coverage analysis; A comparative study of financial and non-financial indicators, *Economic Sciences Research Journal* 12, 13-40[In Persian].
- Salimpour, Maryam. (2015) A look beyond the performance of credit rating agencies, *New Economy Journal* 4 (113), 42-58204[In Persian].
- Shankar, S. (2019). *The Role of credit rating agencies in addressing gaps in micro and small enterprise financing: The Case of India*. In *Unlocking sme finance in asia* (pp. 72-87). Routledge.
- Ratings, S. P. G. (2019). *Guide to credit rating essentials: What are credit ratings and how do they work*. Standard & Poor's Financial Services LLC, 1-22.

Received: 21-Jun-2024, Manuscript No. AEJ-24-15093; **Editor assigned:** 24-Jun-2024, PreQC No. AEJ-24-15093 (PQ); **Reviewed:** 09-Jul-2024, QC No. AEJ-24-15093; **Revised:** 14-Jul-2024, Manuscript No. AEJ-24-15093 (R); **Published:** 21-Jul-2024