



Determinants of loan approval decision for micro small and medium scale enterprises (MSMEs) while obtaining credit facilities

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Abstract

Micro, Small and Medium scale Enterprises (MSMEs) form the back bone of the Indian Economy. They need strong financial support from external sources like banks to run their business profitably, thus external source of fund is a critical success factor of MSMEs. The purpose of this article is to identify the determinants of the loan approval for MSMEs by banks while obtaining credit facilities. A questionnaire survey is conducted among the Micro Small and Medium Scale Enterprises. A sample of 152 respondents were collected to understand the loan approval process and the major determinants of loan approval. The sample respondents were selected based on convenience sampling method and the data was analyzed using simple percentage analysis, average and range analysis method and Logistic Regression. The major factors that determine loan approval for SMEs are Credit rating of the organization, business experience of the MSMEs and Loan to value (LTV) ratio. The relative importance of each factors were found in the research study and suggestions were provided based on the findings. The article provides an enhanced view about the determinants of business loan approval for MSMEs and offers a solution towards better understanding about the loan approval process.

Keywords: credit for MSMEs, loan approval, MSMEs

1. Introduction

The growth of Micro, Small and Medium scale industries in India determine the growth of the nation. As per the reports of Central Statistical Office (CSO) these Small and Medium Scale Industries contribute nearly 37.54% to the Indian GDP. The Union Ministry of Micro, Small and Medium Enterprises has extended a continued support for the development of MSMEs in India by introducing new schemes and credit policies.

The Micro, small and medium scale industries have minimal financial strength when compared to large scale private and public enterprises. Hence external sources of funds like bank loan will leverage the performance of MSMEs. These external sources of fund can serve as capital budgeting funds or working capital funds for the MSMEs to run their business. The process of Loan approval in a bank is depicted in the Figure 1.

The banks in order to provide loan to the MSMEs rely on the third party credit rating agency to know about the credit worthiness of the organizations. Credit Rating Information Services of India Limited (CRISIL) is following a rating scale for SME, which will help the bankers to identify the credit worthiness of the organizations.

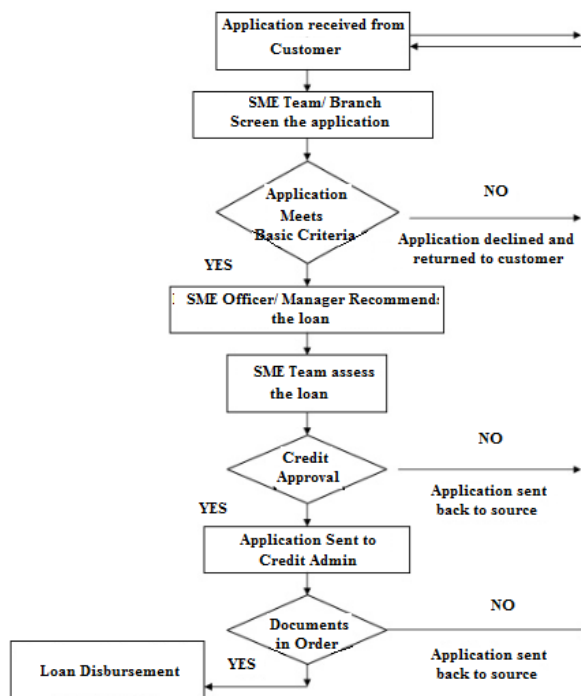


Fig 1: Figure showing loan approval process for MSMEs

Thus MSMEs are rated in a scale of SME 1 to SME 8 with SME 1 being the highly safe organization to provide bank

loans and SME 8 being the highly risky organization and has low credit worthiness. This classification has made the job of the banks so easy, to decide whether to provide loan to the applied MSME or not. But the credit rating is one among several determinants of Loan approval process. Several other factors like relative business experience of MSMEs, Loan to value ratio, MSMEs share of investment, etc., has their own influence on determining the loan approval or rejection. This article will deal with the determinants of the loan approval process of an MSME and find the relative importance of each of the factors.

2. Need for the study

MSMEs are the back bone of the nation and employs over 400 million people of the nation. A developing nation like India should have proper economic balance, these Micro, Small and Medium Scale enterprises have the potential to balance the nation’s economy through employment generation and profitability. For a successful MSME, the source of fund plays a critical role, these MSMEs are not as financially stable like multinational organization and they need external sources of funds from the banks. If there is a proper understanding about the credit approval process and the factors that determine the credit approval, the ease of getting loans for MSMEs will get enhanced, the current study attempts to explore the determinants of loan approval for MSMEs.

3. Research Objectives

The objective of the study is

- To identify the factors that determine the Loan approval for Micro, Small and Medium Scale Industries while obtaining credit facilities from banks.
- To identify the relative importance of each of the factors that determine loan approval from banks.
- To provide suggestions to MSMEs about the strategies to be followed before applying loan.

4. Literature Review

Petersen *et al.*, (1994) [11] has identified the benefits of lending relationship through his aspherical study. The article analyzed the relationship between a firm and its creditors through availability of credits and cost of funds to the firm. The authors finally concluded that the lending relationships are more valuable than what was assumed to be its original value and appear to operate more through quantities rather than prices.

Ogujiuba, K.K *et al.*, (2004) [10] has critically analyzed the risk averse behavior of the banks in funding Small and Medium Enterprises of Nigeria. The credit crunch of Small and medium enterprises and their financial stability was analyzed vis-à-vis the commitment of the bankers to provide loans. The article suggest that a strong macro-economic environment is necessary in Nigeria to support the growth of Small and medium enterprises.

Lam R *et al.*, (2006) [6] in the article titled “SME Banking Loyalty a qualitative study in Hong Kong” investigated the loyalty of the SME customers with their banks. The authors found that perceived service quality and length of business relationship have a strong association with loyalty of the business customers.

Bankers have limited information about the MSMEs. They have to strictly believe in the audited financial reports of the organization but there may be certain mismatches in what is there in book of records and reality. New business and startup ventures are even more opaque when compared to the other established MSMEs as they do not have any historical track records and hence there may be an information asymmetry, in this situation, the bankers have to believe in the integrity of the firm to provide credit facilities on the other hand the bankers can also seek help from the third party, that is credit rating agencies to better understand the credit worthiness of the firm. The credit rating agencies will analyze the internal and external risk associated with the MSMEs and rate them accordingly. These ratings may have an impact on Loan Approval Decision,

H1: Credit rating of the MSME has a strong positive relationship with the Loan Approval decision.

The Micro, Small and Medium Enterprises Development Act, 2006 aims at facilitating the promotion and development and enhancing the competitiveness of micro, small and medium enterprises and for matters connected therewith and incidental thereto. The Act provides for a statutory consultative mechanism at the national level with wide representation of all sections of stakeholders, particularly three classes of enterprises i.e. micro, small and medium enterprises, and with a wide range of advisory functions. The Act also contains enabling provisions for notification of schemes/programs for micro, small and medium enterprises, progressive credit policies and practices, preference in Government procurements to products and services of the micro and small enterprises and mechanisms for mitigating the problems of delayed payments to micro and small enterprises.

Table 1: Table Showing the Classification of MSMEs

Class/Category	Manufacturing	Service
Micro Enterprises	Investment up to Rs.25 lakhs	Investment up to Rs.10 lakhs
Small Enterprises	Investment above Rs.25 lakh and up to Rs.5 crore	Investment above Rs.10 lakh and up to Rs.2 crore
Medium Enterprises	Investment above Rs.5 crore and up to Rs.10 crore	Investment above Rs.2 crore and up to Rs. 5 crore

H2: Size of the MSMEs has a strong positive relationship with the Loan Approval decision.

The loan-to-value (LTV) ratio is a financial term used by lenders to express the ratio of a loan to the value of an asset purchased. The term is commonly used by banks and building societies to represent the ratio of the first mortgage line as a percentage of the total appraised value of real property.

H3: Loan to Value ratio of the MSME has a strong positive relationship with the Loan Approval decision.

The asymmetric flow of information from MSMEs to the bankers lets the bankers in a state of dilemma whether to approve or reject loan for MSMEs. This leads the bankers to seek more information from the MSMEs, one of the reliable information for the bankers can be relative business

experience of the MSMEs. If the MSMEs have adequate business experience chances of bankruptcy or default are very minimal.

H4: Relative Business Experience of the MSME has a strong positive relationship with the Loan Approval decision. Share of investment of an MSME indirectly influences the commitment of the shareholders to run the MSMEs successfully. The shareholders or the investors will have better affection towards the organizations if they have engaged their hard earned money in to the organization and will strive hard to take the money from the business by offering their blood, toil, tears and sweat. Thus it is was hypothesized as an important determinant in the loan approval decision,

H5: MSME’s Share of Investment has a strong positive relationship with the Loan Approval Decision.

5. Materials and Methods

A questionnaire survey was conducted among 152 Micro, Small and Medium scale Enterprises who had applied for Loan from Banks. The MSMEs are selected on the basis of Convenience sampling method.

The collected responses were divided in to two parts, namely training data set and test data set. The initial 40% of the sample respondents were classified as training dataset and a logistic regression model was created. The model was then tested with the help of the remaining 60% of the collected sample respondents and the predictability of the model was evaluated using R Square Value, ROCR Curve, True Positive Rate (TPR) and False Positive Rate (FPR) analysis.

6. Analysis

The goal of logistic regression is to find the best fitting model to describe the relationship between the dichotomous dependent variable and a set of independent predictor variables. Logistic regression generates the coefficients of predictor or independent variables to predict a dependent binary outcome, the logit regression also calculates the standard error and significance level of the independent variables to validate the desired model.

Table 2: Table Showing the Regression results and significance value of the Model

Coefficients	Estimate	Standard Error	Probability (> z) / Sig Value
Intercept	-2.604	1.559	0.0951
Credit Rating	0.2121	0.098	0.00308**
Firm Size	0.0153	0.380	0.42
Loan to Value	0.0868	0.015	0.006**
Business Experience	0.0602	0.033	0.02*
MSME’s Share of Investment	0.027	0.238	0.04*

*- Significant at 0.05 level **- Significant at 0.01 level

For convenience of analysis, the samples collected were divided in to training data set and test data set. The training data set was used to find the estimates of predictor variables, the estimates of all the predictor variables was found to be significant except the firm size. The above table represents the

results of logit regression with coefficient of estimates, standard error and significant value. The R Square value of the model was found to be 0.73 which indicates that 73 percent of variance in the dependent variable Loan approval or rejection is determined by the predictor variables.

The Logit regression model obtained from training data set was analyzed using test data set. The accuracy of the model was found to be 84 percent which is a good representation of precise prediction. The other indicators of accuracy used in validation of the Logit model are True Positive Rate and false positive rate. For a good model, the true positive rate has to be as high as possible and the false positive rate has to be as minimum as possible. The true positive rate and the false positive rate of the model was found to be 0.895 percent and 0.259 percent respectively which implies that the model has very high predictive relevance.

To estimate the relative importance of the determinants of loan approval, the average and range analysis method was employed. The respondents are asked to rank order the factors that determine the loan approval decision in a 10 point scale with scales ranging from 1 to 10, from the collected samples, the data was analyzed using average and range method, the rationale behind the average and range analysis method and the results of the same was shown in the below table.

Table 3: Table Showing the Classification based on Median and Range

		Range	
Average		Below Median	Above Median
	Above Median	Highly Essential	Essential
	Below Median	Ignore	Periodic Review

From the above table it is clear that the factors with average score above median and range below median are classified as highly essential factors, whereas average below median and range below median are considered to be the least important factors and can be ignored.

Table 4: Showing Average and Range of Determinants

Determinants of Loan Approval	Average	Range
Credit Rating	9.11	4
Firm Size	3.62	3
Loan To Value	7.33	6
Business Experience	8.32	6
MSME's Share of Investment	6.68	8
Median	7.33	6

Table 5: Table Showing the Classification of Determinants based on Median and Range

		Range	
Average		Below Median	Above Median
	Above Median	Credit Rating (I)	Loan to Value, Business Experience (II and III)
	Below Median	Firm Size (V)	MSMEs Share of Investment (IV)

From the 2 X 2 matrix that was listed above the relative importance of the factors was analyzed it was found that Credit rating of the MSMEs was the highly essential factor for

loan approval decision. Loan to value and Business experience was found to be the next important factors of loan approval whereas size of the firm was found to be the least important factor for loan approval decision making.

7. Findings

Table 6: Table Showing the Classification of Determinants based on Median and Range

Hypothesis	P Value	Decision (Supported/ Not Supported)
H1	0.00308	Supported
H2	0.42	Not Supported
H3	0.006	Supported
H4	0.02	Supported
H5	0.04	Supported

From the above table it was clear that the Hypothesis H1, H3, H4, H5 are supported which means that credit rating of the MSMEs, Loan to value ratio, relative business experience of the MSMEs and MSMEs share of investment has a strong positive influence on Loan approval decision. Whereas the hypothesis H2 is not supported, that is the firm size does not have a strong positive relationship with the loan approval decision.

Receiver Operating Characteristic (ROC) curve summarizes the model’s performance by evaluating the tradeoffs between true positive rate and false positive rate. ROC summarizes the predictive power for all possible values. The Area Under Curve (AUC), referred to as index of accuracy or concordance index, is a perfect performance metric for ROC curve. Higher the area under curve, better the prediction power of the model. The ROC of a perfect predictive model has TPR equals 1 and FPR equals 0. This curve will touch the top left corner of the graph. Below is a ROC Curve of the Logistic Regression model of Determinants of MSMEs loan approval. The area under the curve was found to be 0.84 which is a high accuracy rate.

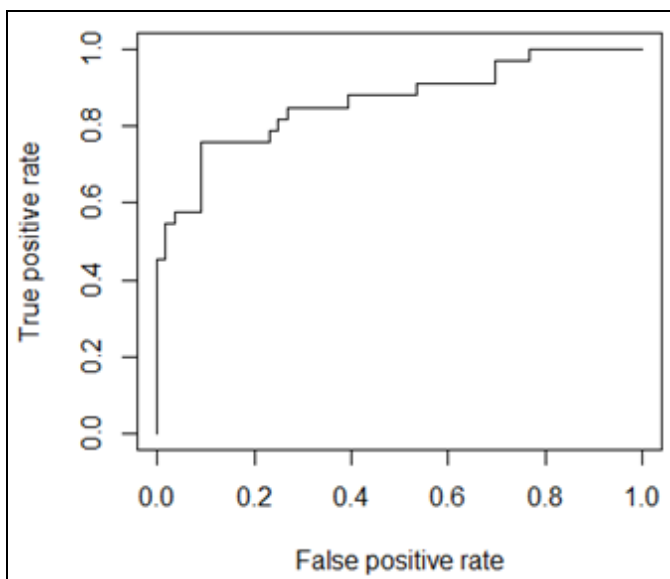


Fig 2: Showing the ROC curve of the fitted model.

8. Suggestions

The MSMEs can make use of the formulated model to predict the loan approval decisions before applying for loan in the banks. The MSMEs thus can have a self-assessment and prioritize what has to be improved from their end before the loan process. The model has an impact on the bankers as well. The banks can ask for the information as depicted in the logistic regression model and can decide on loan approval for the MSMEs. Thus the banks can enhance their predictive power and it is not necessary for the banks to rely on Credit rating score alone. They can also test the other determinants of the loan approval process.

The financial sector of the nation has to provide helping hands to support the MSMEs in India. The business advisory services, business supply and procurement support for MSMEs has to be enhanced. The finance and investment support of the MSMEs has to improvise through Ministry of Small and Medium scale Enterprises. The support needed for MSME can include but are not limited to channelizing finance from banks and financial institutions, involving the usage of private equity and venture capital, project export finance and external commercial borrowings, term loans in local and foreign currency, factoring and forfeiting services, and financing facilities for participating in international exhibitions, NPA settlements and restructuring of stressed SMEs has to be formulated. The Government- MSME interaction has to be more sophisticated with the help of several channels of communication including social media.

9. Conclusion

The study has a number of implications. Accounting reports has its own influence to help the policy makers to make useful business decisions. In India the introduction of GST has eased the financial management systems, the financial information are now transparent to the government, credit rating agencies and other stake holders of MSMEs. This transparency is making the MSMEs more accountable to the external environment and the society. Which in turn demands high financial literacy from the MSME sector. The MSMEs with “better” financial literacy can make use of their accounting skills and accounting information to an improved credit rating than the firms with poor financial literacy. However the research did not suggest that improved financial literacy will lead to improved credit rating but the owners of small firms should take the responsibility for enhancing the financial literacy skills of the MSMEs, leading to better management of the organization. As business and society are connected to each other, they should cooperate to be mutually advantageous.

10. Reference

1. Balasubramanyan L, Berger AN, Koepke MM. How Do Lead Banks Use Their Private Information about Loan Quality in the Syndicated Loan Market, 2017.
2. Beck T, Demirguc-Kunt A. Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & finance*. 2006; 30(11): 2931-2943.

3. Deakins D, Hussain G. Risk assessment with asymmetric information. *International Journal of Bank Marketing*. 1994; 12(1):24-31.
4. Egbuta IC, Gilbert LL. Problems Financing Small Business Enterprises in the Current Economic, Business, and Organizational Environment in Nigeria. *Financial Entrepreneurship for Economic Growth in Emerging Nations*, 2017, 111.
5. Halabi AK, Barrett R, Dyt R. Understanding financial information used to assess small firm performance: An Australian qualitative study. *Qualitative Research in Accounting & Management*. 2010; 7(2):163-179.
6. Lam R, Burton S. SME banking loyalty and disloyalty: a qualitative study in Hong Kong. *International Journal of Bank Marketing*. 2006; 24(1):37-52.
7. Leeth JD, Scott JA. The incidence of secured debt: evidence from the small business community. *Journal of Financial and Quantitative Analysis*. 1989; 24(3):379-394.
8. Mason C, Stark M. What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and business angels. *International small business journal*. 2004; 22(3):227-248.
9. Minnis M, Sutherland A. Financial statements as monitoring mechanisms: Evidence from small commercial loans. *Journal of Accounting Research*. 2017; 55(1):197-233.
10. Ogujiuba KK, Ohuche FK, Adenuga AO. Credit Availability to Small and Medium Scale Enterprises in Nigeria: Importance of new capital base for banks—background and issues. [ideas.repec.org/p/wpa/wuwpma/0411002. Html](http://ideas.repec.org/p/wpa/wuwpma/0411002.html), 2004.
11. Petersen MA, Rajan RG. The benefits of lending relationships: Evidence from small business data. *The journal of finance*. 1994; 49(1):3-37.
12. Rostamkalaei A, Freel M. Business advice and lending in small firms. *Environment and Planning C: Politics and Space*. 2017; 35(3):537-555.
13. Yan Y. Credit Rationing, Bankruptcy Cost and the Optimal Debt Contract for Small Business. *Evolution*, 2017; 5:17.