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Agricultural Sector Financing and Challenges for Bankers

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Abstract
The paper is a part of extensive research in the area of vegetable supply chain and aims at the constraints faced by bankers in credit of agricultural loans. The core objective behind this is to know the credit distribution among the different players of agricultural sector and to determine the effect of categories of loan applicants upon the factors responsible for the approval of agricultural loans. The study is descriptive in nature and is carried out with the logic of the support of the Reserve Bank of India (RBI) to agriculture driven Indian economy based on banker's opinion. As per the study it is found that banks need to make the process easier for farmers as well need to develop a communication link to always make them update with the information about the developments taking place with support of banks.
Keywords: Bank, Agriculture, Loan, Credit, Bankers, Demand.
JEL classification: B21, C25, C35, C42, G21, G23, Q14.

I. Introduction

No one can deny the importance of financial institutions in any developed or developing economy and these financial institutions not only ease the credit flow in the economy but also enhance the productivity by revitalizing the investment (Richard, 2011). Agricultural production in India is mostly driven by credit support and can help farmers to grow more providing this financial input compared to non-financial inputs. Though the green revolution supported the implementation of non-financial inputs (fertilizers and seeds) for the growth of agriculture sector but the development and changing scenario, agricultural financial institutions are now changing their mode of operation by providing limited financial inputs depending upon the assessment of the credit requirements of a farmer. Economic growth in any country is not possible without a sound financial sector (Rajaraman and Visishtha, 2002).

Agricultural credit support as financial input has been increased compared to past years and the amount disbursal system has also grew up then too agriculture sector has been affected by the inefficiencies of financial institutions leading to the risk of viability and sustainability of operations of such institutions itself. As per the statistics of Indian Economy Report 2002-2003, the Indian agriculture system is very and the same is with the legal system, not allowing the financial institutions to play freely. India is already a very large producer of fruits and vegetables and supports of financial institutions can lead to the prosperity and economic growth, reversely poor financial support will be a reason for the destruction of agriculture sector will cost the economic growth of the country and to the whole world in the sense of fulfilling the food demand (Khan and Senhadji, 2001).

The contribution and the impact of banking is limited in agriculture sector especially in rural area where even "microfinance revolution" has less influence in those areas due perhaps to low return. Consequently, many financial institutions turn to other sectors for businesses. Even though the financial institutions may exist in rural areas, their service and capacity is very limited in assisting and fulfilling farmer's needs and demands. Nowadays, financial institutions play a major role in empowering agriculture sector or sometimes give a "jumpstart" to small farmers, yet the nature of the business involves seasonality and stagnation, beside other factors, gestation period, which consequently affect the return on investment and impede the cash inflow. Compared to other sectors, generating cash flow and the profitability is low in agriculture and in order for agriculture borrowers to show genuine cash flows, they need longer loan terms, lower installment and less frequent payments. For those reasons, banks may turn away to other business activities such as trades and services for more stable returns and lower risk. This has also considerably impacted the business transactions between agriculture and other sectors and accordingly decelerated the economic activities in rural areas (Klein et al. 1999; Hoellinger, 2004). Unlike conglomerate financial institutions in urban areas where their scope of business is very wide, rural banks activities are limited. To remain solvent, manage the risk and have strong capital base, banks need to maintain highly diversified portfolios with negative covariance, which they need to include non-agriculture business activities as well. Once and for all, agriculture is a sensitive sector and susceptible to government interferences via subsidization and various government provisions; however, in recent decades those government assistances have reduced considerably.

Unlike metropolitan financial services, the rural banks have fewer financial instruments to offer and the demand for other than borrowing for agribusiness is limited. In addition, many rural land owners have issues with title and/or trust deed and any case of default on the loan would make it very difficult for lenders to repossess, transfer ownership or foreclose on the land. In other words, lenders can give loans to those farmers based on their credit worthiness or future sells of the crop. Perhaps hedging and crop insurance may give another

layer of protection against default on the loan, yet those instruments are rarely witnessed in rural areas

II. Literature Review and Theoretical Background

Toward the 1980s, the strains imposed by the state-led model of agricultural development and finance became increasingly visible. Directed lending programs showed poor results as they were inefficiently managed, generally ineffective (failing to reach poor farmers), and unsustainable because of loan losses (Yaron *et al.,* 1997*)*. The agricultural development bank's business model of financing only one sector (agriculture, and often only a few crops) contradicts the principles of risk management in banking (diversification), and the bank's association with government reinforced the farmer's impression that repayment was optional.

Agricultural development banks disbursed loans based on assumed needs rather than demand, neglecting portfolio quality, non-farm rural incomes, and other financial services, such as payments, savings and insurance. Farmers, often forced into cooperatives, borrowed for the wrong reason — namely to get cheap credit — and not because of viable business opportunities. In 2010, microfinance in India came under fire for "loan sharking" and some politicians called on borrowers to default. In Bangladesh, interest rates are now capped after a political row (Meyer, 2010*)*.

In the last few decades we can see many banking failures in all over the world (Brownbridge and Harvey, 1998), and due to these banking failures many banks have been closed by regulatory authorities (Brownbridge, 1998). These banking failures negatively affect the economy in many ways, firstly these banking failures causes banking crisis by harming the banking sector, secondly it also reduces the credit flow in the country which ultimately affects the efficiency and productivity of the business units (Chijoriga, 1997; Brownbridge and Harvey, 1998). According to Brownbridge, (1998) many empirical researches have shown that most of the time banking failures or banking crisis are caused by non-performing loans. The rural credit was always a challenge and borrowers were forced to be dependent on money lenders. In the lack of governance structure for these money lenders, they charge high interest rates and borrowers never come out from burden of debt. It is the age old saying that "a farmer born in debt, lives in debt and dies in debt" should be the major concern of rural credit to break the excessive reliance of borrowers on money lenders.

The change in the process of financial establishment has also passed through a remarkable journey, and has witnessed the tortuous process of change in substituting the institutional credit for informal money lending channels. Calvin Miller (Miller, 2004) describes 12 constraints on rural finance, and classifies these into four groups: (A) Vulnerability constraints: Systemic or covariant risk (the same type of risk occurring at the same time), Market risk (fluctuation of prices), Credit risk (lack of collateral). (B) Operational constraints: Low investment returns (rural capital turns over slowly, low profit margins, seasonality results in uneven cash flow), Low investment and assets (weak safety net), Geographical dispersal and low population densities. (C) Capacity constraints: Weak rural infrastructure, Low level of training and technical capacity of the rural population, Social exclusion (cultural, linguistic) affects market and financial integration, Limited institutional capacity (weak support systems). (D) Political and regulatory constraints: Political interference (subsidized and/or directed credit from state-owned banks, debt waivers, and interest-rate caps), Regulatory constraints (land tenure laws, banking laws, arbitrary taxation).

Credit is one of the critical inputs for agricultural development. The importance of agricultural credit is further reinforced by the unique role of Indian agriculture in the macroeconomic framework along with its significant role in poverty alleviation. However, the inadequacy of credit to agriculture is often a hotly debated topic in India. The persistence of money lenders in the rural credit market is still a major concern. To be successful, Jacob Yaron (1994) postulates that rural financial institutions must fulfill two basic objectives of financial self-sustainability and substantial outreach to the target rural population.

III. Research Problem

The remarkable feature of agricultural credit extension in India is the widespread network of Rural Financial Institutions (RFIs). It is equally true that the share of small farms in total credit appears to be falling to a certain extent. Assessment of challenges with agricultural lending for bankers: - Are higher levels of credit supporting larger farmers to become more productive? Or in the lack of finance by the banks small farms are becoming unviable? Or, the banks are being more risk averse and hence reluctant to lend agricultural sector?

IV. Research Objectives

- To know the internal credit distribution among the different players of agricultural sector.
- To determine the effect of categories of loan applicants upon the factors responsible for the approval of agricultural loans.
- To know the effect of demand for agricultural loans on banks credit standard for the approval of agricultural loans.

V. Methodology Used

The study is descriptive in nature and for this purpose both the sources of data has been used i.e. primary source of data and secondary source of data. The main conclusion of the research is drawn on the basis of data collected from primary source. The study is carried to understand the steps taken by Dr. Raghuram Rajan as Governor of Reserve Bank of India (RBI) and agriculture driven Indian economy needs to draw the banker's opinion on this.

Sampling Plan

The present study has been conducted in the state of Odisha of India. The sample for the study comprises of 80 respondents are from the banks operating in Odisha engaged in agricultural financing. For banker's selection, judgmental sampling of non probability sampling method is used and selection is done with the consideration of geographical and resource limitations. Principal demographic characteristics like address, age, gender, designation and level of income of the respondent (bankers) are taken into consideration.

Methods of Data Collection

A self prepared structured survey questionnaire is used including questions about socio-economic status of the respondent. The survey questionnaire got tested for validity, reliability (Cronbach's Alpha= .963), practicability. In the questionnaire different scales of measurement are getting used such as nominal and scales. The reliability values for the seven factors are presented respectively from the first to the seventh as .737, .689, .896, .712, .865, .756, .425 and the overall is .963 for the questionnaire. Further the individual value of Cronbach's Alpha for seven factors has shown in Table I below.

Table I: RELIABILITY ANALYSIS

Factor No.	Factors	Cronbach's Alpha
Factor 1.	Bank's credit standards as applied to the approval of agricultural loans changed past three months.	.737
Factor 2.	Factors affected your bank's credit standards as applied to the approval of agricultural loans past three months.	.689
Factor 3.	Bank's conditions and terms for approving agricultural loans or credit lines changed past three months.	.896
Factor 4.	Demand for agricultural loans at bank changed past three months.	.712
Factor 5.	Factors affected demand for agricultural loans at bank past three months.	.865
Factor 6.	Factors affected your bank's credit standards as applied to the approval of agricultural loans next three months.	.756
Factor 7.	Demand for agricultural loans change at bank next three months.	.425
Overall for the questionnaire		**.963**

Tools and Techniques used for data analysis

The data collected through the instrument are entered into SPSS data sheet for further processing. The software package SPSS has been used to carry out the analysis based on the techniques like Reliability analysis, t-Test, Paired Sample t-Test, ANOVA and Regression is used for the interpretation of result.

VI. Data Analysis and Interpretation

The demographic backgrounds of the sample respondents in five parameters are presented in Table II to understand the customer profiles i. e., city location, age, education, gender, designation and monthly income. A total of 80 respondents participated in the survey whose responses are finally analyzed. It is observed from the table below that Puri district of the study has the highest contribution with managers (41.3 %). Mid age respondents (below the age of 40 years) constitute the majority of sample (42.5 %). The proportion of young employees is the lowest (8.8 %) in the sample. This shows that most of the banks have very mature and aggressive persons for sanctioning the loan. Again, the representation of the females (38.7 %) is smaller in the sample as compared to males (61.3%). Designation-wise analysis revealed that entry level managers (37.5 %) dominate the sample compared to others. Similarly, the mostly respondents (43.8 %) are in the salary band of Rs. 2 lakh to Rs.4 lakh.

Table II: RESPONDENT'S PROFILE

Parameters		Frequency	Percentage
Location	Bhubaneswar	25	31.3
	Puri	33	41.3
	Balasore	22	27.4
Age	18 years to 30 years	7	8.8
	31 years to 40 years	34	42.5
	41 years to 50 years	29	36.3
	51 years and more	10	12.4
Gender	Male	49	61.3
	Female	31	38.7
Designation	Executive	14	17.5
	Entry level manager	30	37.5
	Mid level manager	23	28.8
	High level manager	13	16.2
Yearly income	Up to Rs.2 lakh	16	20.0
	Rs.2 lakh to Rs.4 lakh	35	43.8
	Rs.4 lakh to Rs.6 lakh	20	25.0
	Rs.6 lakh and more	09	11.2
Total		**80**	**100**

One sample t-test is applied to find the significance difference among the variables of the Factor 3 as shown in Table III below. The four different conditions namely margin, non interest rate charges, size of the loan and collateral requirement for loaning by the banks are considered on five segments of agricultural loan as per this study namely overall loan to agriculture, loans to agricultural enterprises, loan to large farms, loan to small farms and loans to small farmers. Among the twenty items only one item, i.e. non interest rate charges on overall loan to small farms is not significantly varying, otherwise the analysis shows that rest of the nineteen items are highly significant, i.e. the different conditions to sanction the loan significantly vary across the segments of agricultural loans.

Table III: ONE-SAMPLE t-TEST

Items	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Margin on overall loan to agriculture	-7.097	79	.000	-.73	-.93	-.52
Margin on loans to agricultural enterprises	8.219	79	.000	1.10	.83	1.37
Margin on loan to large farms	9.556	79	.000	.86	.68	1.04
Margin on loan to small farms	5.992	79	.000	.38	.25	.50
Margin on loans to small farmers	-7.097	79	.000	-.73	-.93	-.52
Non interest rate charges on overall loan to agriculture	9.556	79	.000	.86	.68	1.04
Non interest rate charges on overall loan to agriculture enterprises	9.556	79	.000	.86	.68	1.04
Non interest rate charges on overall loan to large farms	9.556	79	.000	.86	.68	1.04
Non interest rate charges on overall loan to small farms	1.414	79	.161	.11	-.05	.27
Non interest rate charges on overall loan to farmers	9.556	79	.000	.86	.68	1.04
Size of the overall loans to agriculture	9.576	79	.000	.74	.58	.89
Size of the loans to agricultural enterprises	9.556	79	.000	.86	.68	1.04
Size of the loans to large farms	-7.794	79	.000	-.76	-.96	-.57
Size of the loans to small farms	6.434	79	.000	.67	.47	.88
Size of the loans to farmers	8.219	79	.000	1.10	.83	1.37
Collateral requirements for overall loans to agriculture	5.992	79	.000	.38	.25	.50
Collateral requirements for loans to agricultural enterprises	5.992	79	.000	.38	.25	.50
Collateral requirements for loans to large farms	-7.957	79	.000	-.77	-.97	-.58
Collateral requirements for loans to small farms	5.992	79	.000	.38	.25	.50
Collateral requirements for loans to farmers	9.556	79	.000	.86	.68	1.04

The Factor 4 and Factor 7 constituted the outcome on the basis of paired sample t- test, where the variables are studied in two distinct conditions, one three months before and the other one is about the expectation of three months later, after the joining of Dr. Raghuram Rajan as Governor of Reserve Bank of India(RBI) in October, 2013. The five pairs observed as Pair 1- "Demand of Overall loans to agriculture", Pair 2

– "Demand of Loans to agricultural enterprises", Pair 3 – "Demand of Loans to large farms", Pair 4 – "Demand of Loans to small farms", and Pair 5 – "Demand of Loans to farmers". All most all the pairs significantly vary compared to three month before and the expectation of three months later of October. Comparatively the fourth pair of the analysis is not so significantly varying related to loans to large farms at a level of 1%, as given in the table IV below.

Table IV: PAIRED SAMPLES t- TEST

Pairs		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Overall loans to agriculture - Overall loans to agriculture	-.30	.933	.104	-.51	-.09	-2.875	79	.005
Pair 2	Loans to agricultural enterprises - Loans to agricultural enterprises	1.82	1.533	.171	1.48	2.17	10.651	79	.000
Pair 3	Loans to large farms - Loans to large farms	-1.40	1.249	.140	-1.68	-1.12	-10.027	79	.000
Pair 4	Loans to small farms - Loans to small farms	.30	1.084	.121	.06	.54	2.476	79	.015
Pair 5	Loans to farmers - Loans to farmers	.24	.661	.074	.09	.38	3.215	79	.002

Regression analysis technique is applied on the Factor 5 and Factor 2 to find the effect of independent variable (Factor 5, i.e. Demand for agricultural loans at bank) on dependent variable (Factor 2, i.e Bank's credit standards as applied to the approval of agricultural loans). The calculated adjusted R square of .662 gives an understanding that the independent variables constituting Factor 5 altogether explain only 66.2 % of the dependent variable, Factor 2, as shown in the Table V.

Table V: REGRESSION MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.816(a)	.667	.662	.28994

a Predictors: (Constant), Demand for agricultural loans at bank.

Additional analysis output as in the Table VI, gives highly significant F-value of ANOVA, which shows the appropriateness and existence of overall regression model fitness in simple linear form.

Table VI: ANOVA TABLE OF REGRESSION ANALYSIS

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.110	1	13.110	155.944	.000(a)
	Residual	6.557	78	.084		
	Total	19.667	79			

a Predictors: (Constant), Demand for agricultural loans at bank;
b Dependent Variable: Bank's credit standards as applied to the approval of agricultural loans

Table VII gives the value of regression coefficient, which is significant along with significant value of constant term. Hence, the mathematical model formed on the basis of analysis of regression is given by,

$$Y = 1.173 + 0.66X \text{ ----------} \quad (I)$$

Where Y= Bank's credit standards as applied to the approval of agricultural loans.
and X= Demand for agricultural loans at bank.

Table VII: REGRESSION COEFFICIENTS (A)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.173	.190		6.182	.000
	Bank's credit standards as applied to the approval of agricultural loans	.659	.053	.816	12.488	.000

a Dependent Variable: Bank's credit standards as applied to the approval of agricultural loans

To know the variation in bank's terms & conditions for approving agricultural loans or credit lines with respect to different categories of borrowers, Factor 3 is analyzed again with one way ANOVA for the four different conditions namely, bank's margin, non interest rate charges, size of loan, and collateral requirements. The output given in the Table VIII below shows that condition on sanctioning the loan significantly varies for the loan to different categories of agriculture loan applicants.

Table VIII: ONE WAY ANOVA

Parameters		Sum of Squares	df	Mean Square	F	Sig.
Margin on loan	Between Groups	238.683	4	59.671	73.264	.000
	Within Groups	321.714	395	.814		
	Total	560.398	399			
Non interest rate charges	Between Groups	35.278	4	8.820	14.124	.000
	Within Groups	246.659	395	.624		
	Total	281.937	399			
Size of the overall loans	Between Groups	174.563	4	43.641	52.042	.000
	Within Groups	331.235	395	.839		
	Total	505.797	399			
Collateral requirements	Between Groups	117.198	4	29.299	62.128	.000
	Within Groups	186.280	395	.472		
	Total	303.477	399			

VII. Results and Discussion

On the basis of above analysis it is easily visible that altogether all the three objectives of this study could get reached. The first objective was to know the internal credit distribution among the different players of agricultural sector could get analyzed using one sample t-test, which shows that the internal distribution of credit among the different players of agriculture sector varies with the conditions and the loan band is not always the same across categories. The second objective of determining the effect of categories of loan applicants upon the factors responsible for the approval of agricultural loans could get analyzed using one way ANOVA, which shows that conditions on sanctioning the loan significantly varies for the loan to different categories of agriculture loan applicants. In addition to this, it has also been found that almost all the pairs significantly vary within in comparing three month before and the expectation of three months later of October 2013. Comparatively, the fourth pair of the analysis is not so significantly vary related to loans to large farms. The third objective to know the effect of demand for agricultural loans on banks credit standard for the approval of agricultural loans got achieved using regression analysis which shows that bank's credit standards as applied to the approval of agricultural loans is highly dependent upon the demand for agricultural loans at bank.

VIII. Conclusions and Implications

The agricultural sector is unable to fly high in the lack of wings of financial support. Though agricultural sector is doing well and being the most important among the priority sector beneficiaries for lending by the guidelines of Reserve Bank of India (RBI). The research outcome shows the banker's perception is that the bank's performance within last three months has improved and will continue to improve further too. The status of lending scenario for agriculture sector by banks is improving with time. Only the challenge is with the market financing, farmers go to the market financing very frequently. The reason for this can be with the gap in distribution of information regarding the conditions and available facilities for the agricultural participants to get the finance or the ease of getting credit. Banks need to make the process easier for farmers as well need to develop a communication link to always make them update with the information about the developments taking place with support of banks.

The outcome of the research will be a good support for the bankers to know the main challenges faced by most of the bankers in supporting the agricultural sector. Policy makers will get the relevant information to boost the agricultural sector with ease of credit facility. Furthermore research scope is for assessment of information distribution system for farmers by banks.

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