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Measuring Default Risk in Farm and Non-Farm Sector

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Abstract
The purpose of this paper is to measure and analyze the risk associated with farming and non-farming sector and to investigate the liquidity and credit risk relationship. Also to analyze the market for farm and non-farm micro-finance which can be either high or low quality. The only project their borrowers, micro-finance institutions are high or low quality (MFI) because they know whether or not there is adverse selection. MFI is a competitive risk neutral, and they are the borrower's project is only profitable if they are to provide a loan agreement specifying the amount to be repaid. Otherwise, the borrower will default on his contract this. In this Research Qualitative research design is used in which different theoretical models are used to explore the default risk. Credit risk model is used to explicitly account for adverse selection, then a study of adverse selection, loan defaults, and made self-financing. This is a simple review of the existing literature related to the farm and non-farm credit risk. The main finding of this research is that Farming sector is more risky than non-farming for the loans granting.
Keywords: Loans, Default risk, farming, non-farming sector

1. Introduction

Credit risk in agriculture is the largest source of risk for the banks. Banks face number of risk affecting throughout all the businesses. The basic objective of this study is to develop a credit risk model for agriculture loans. This credit risk model reflects features of the agriculture sector, loans and borrowers. It is designed for the consideration given to forecasting and model applicability. To fulfill the overall objectives and this study explains the theory of farm borrowers of default risk. The theoretical model clears the concepts of the model and default theory, assumptions. The model suggest that agriculture loan portfolios needs to be segmented by region, primary commodity and net cash income is the key factor in segmenting credit risk model for agriculture lending. This study suggest two conclusions for credit risk model for agriculture loan; (1) credit risk model should be segmented by geographical location and (2) net cash income is leading indicator to default risk.

2. Literature Review

Crop failure and falling prices were the main factors identified as affecting loan defaults. Nikhade et al. (1994) and Rambabu et al. (1994) Assumed socioeconomic characteristics have a significant impact of credit beneficiary farmers associations and loan repayment performance of the Special Emergency Loan Scheme in Nigeria. Results from the Cobb-Douglas model shows, the loan amount (size), the annual membership of experience, formal education, family size, loan period, farm size, agricultural output, asset values?? And loan interest payments are very important determinants of farmer's credit performance and loan default. Njoku (1997) the beneficiary-level analysis aims to identify the reasons for default were over dues problem. This is the main reason for heavy over dues was found to be responsible. To completely ignore the changes in subsidies, higher household expenditure, projects revenues from the diversion of government policies and inadequate. Puthussery (1999) traditionally, multiple regression, and the couple's econometric model has been widely used to analyze the characteristics of population and socio-economic credit needs of rural families and repayment behavior. (Singh and Balishter, 1991; Nikhade et al., 1994; Zeller, 1995, 1998; Orebiyi, 2002; Abate et al., 2003). Of prepayment risk and credit risk of the accurate measurement results can improve risk management and credit risk of financial institutions to use these events approach. In addition, Basel has been on the bank's capital and the economy faces the risk management of many problems. (Basel Committee on Banking Supervision, 2006) Is to encourage banks to take measures, models and methods for the termination of their supervision of the mortgage. Future business decisions need to risk-sensitive approach by use of bank capital and risk understanding. (Rosengren, 2007) aking into account the agricultural loans, agricultural loans system (FCS) is encouraged by the Agricultural Credit Administration (FCA), the functional constituency regulator to meet the Basel Accords. (Katchova and Barry, 2005). Usually before the repayment of creditor protection Naruneiti risk, prepayment penalties for their loan structure. Specifically, Ag Choice Agricultural Credit Association (ACA), including the four types of prepayment penalties in their loan structure, or no punishment at all. In the past, much of the focus

of agricultural mortgages, has emphasized the assessment of credit risk. Entropy, logit regression, a form of analysis and migration, has been used to obtain estimates of the probability of default. (Stokes and Gloy, 2007; Featherstone et al., 2006; Gloy et al., 2005; Barry et al., 2002; Miller and Ladue, 1989) Some of the more current credit risk modeling software packages in different results. (Katchova and Barry, 2005; Zech and Penderson, 2004). Some people choose the right mortgage loan from a theoretical approach based on termination of evaluation prepayment penalties, mortgage value and the impact of the credit risk assessment. (Brinch and Stokes, 2001; Stokes and Brinch, 2001; Sherrick et al., 2000). Random review of termination of the mortgage problems, suggesting that interest rates are random events in a period of time after the end of the interest. It is important to note that the standard SA method required a non-informative random censoring, ie, review a subject does not provide additional information on the survival time of a subject. (Allison, 1995).

Credit cards back in business all for agriculture are activities that are non-monetary traditional rural population of Pakistan and even bone. Agricultural credit is an integral part of the process of modernization of agriculture and rural economic and commercial. Brief introduction of the adoption credit is the easiest way to increase agricultural production. Therefore, all major policies of successive governments was to meet the credit requirements of rural Pakistan. The agricultural sector is dependent on changes in trends in life than commercial agriculture and other sectors of the economy for farmers returning seasonal credit. Credit card to get more money they may provide an opportunity to improve living standards. (Vogt, 1978)

According to Farm Loan Act of 1958 (ALA), the provision of credit, to aid in distress and the purchase of seeds, fertilizers, cattle and implementation. (Yusuf, 1984). Credit availability can see the importance of the fact that the average expenditure per hectare, farmers and significantly higher credit, regardless of their level of assets. Expenditure is probably higher input and high productivity growth. (Saeed *et al.*, 1996). The impact of the credit system of agricultural production in Pakistan has been found to be positive and significant. (Iqbal *et al.*, 2003).

A lot of effort has been put into the design of new capital requirements, the Reserve Bank will provide enough to withstand future crises. Loss as a financial institution subject to the most recent turmoil stems from its securities portfolio. (Basel Committee of Banking Supervision (BCBS, 2009a) This assumes "a certain level of risk" is the logic behind the bank, even crisis, in order to maintain profitability, is that you need to take a risk. (BCBS, 2009a, footnote 3, p 3).

Default risk, on the other hand, will always be estimated on the capital horizon of one year. And then balance at the end of the horizon will lead to liquidity risk adjusted portfolio every year several times. Therefore, the annual default rate will be affected. (for details see, Jarrow et al., 1997). There is no other effective and appropriate than a strong and viable cooperative system, to reduce the suffering of the people under the Money Lenders trap other agencies. Valsamma (2005).

That the weak credit system is the key issue in the development of primary agricultural cooperative credit society (PACCS) Maharashtra State. Ambhore (2007) Cooperative sugar mills in Maharashtra is a "development agent" in rural areas, but also other small co-operatives, such as elevators, irrigation, transport, dairy and poultry, agricultural and non-agricultural community booster Centre. Patil and Fagare (2007).

3. Critical Framework

1. Interest rate
2. Liquidity
3. Output
4. Contribution margin
5. Variable cost
6. Loan size
7. Time duration
8. Size of the organization/business
9. Past performance of business
10. Solvency of the borrower
11. Inflation
12. Unexpected factors like
    a. Death
    b. Disability
    c. Earth quake

4. Hypothesis

Following hypothesis for the farming and non-farming sector can be developed on the basis of present data:
H1: Credit risk associated with farm and non-farm sector has inverse relationship with output.
H2: Default risk has a positive relationship with interest rate.

H3: Time duration has a positive relationship with credit risk.
H4: Default risk has a positive relation with loan size.
H5: Default risk has a positive relationship with inflation.

5. Agriculture loan default risk

Analysis identifies for agricultural loan risks and their research applies to mortgages, not intermediate term present in this application. By using a Markov chain model for estimating the probabilities of default risk over time for agricultural mortgage loans. Study find out a path over time for loan duration but uses no exploratory variables to explain loan migration over time (Dressler and Stokes, 2010). For specified our model we also consider the literature on credit risk model of agriculture credit. These studies identify the model and borrower characteristics to be observed while origination so that we should be relevant in predicting loan outcome i.e paid in full or default at the time of termination of loan (Turvey, 1991). A logistic credit risk model is determine the independent variables for the logical credit scoring which is liquidity ratio, anticipated change in contribution margin defined as revenue minus variable costs, return on assets, repayment ratio, loan-to-security ratio, interest rate charged, and secondary variable to indicate a loan used for refinancing.

Study shows that loan default risk decreases with raise in liquidity, return on assets, repayment ratio, loan to security ratio. Loan default increases with the increase of financial leverage, Contribution margin, interest rate, if loan taken for refinancing. Unexpected factors like death, divorce or disability are difficult to forecast. (Turvey and Weersink , 1997).

Gender and race are rarely used characteristics in agriculture lending studies but Escalante directly focuses on impacts of gender and race on loan applications. In logistic equations they determine that gender and race are independent variables with many loan borrowers (Escalante, 2006)

To indicate the relative rate of loan default risk to pay the full amount credit risk models may be use to estimate how long a loan will perform until borrower will be default. Efficient loans are recognized as a transitory or potential outcome that will allow modeling the default and pay in full behavior of modernized loans which is clearly different from non-structured loans. Loan size is important in modeling for the payment in full, time of payment in full increases with the increase of loan amount. Borrower repay is immaterial in all the hazard functions because measurement of repay is only for first seven years. A time-varying measure of repay for agriculture credit is important and shortens payback time for loans (Rodgers et al (2011).

The risk aversion estimates the risk adjusted approach which shows that the most banks are avoid to take risk. The regional heterogeneity in credit risk is present, and this may affect the heterogeneity in effectiveness are detected by credit risk model. Bank risk attitudes are largely not related to the size of the institution and signifying other firms are risk seeking. The market hypothesis shows that firms should be well-organized and it may vary distinctly between other firms.

The risk adjusted profit approach to estimate effectiveness of much higher estimates of efficiency for agricultural banks which can better than the standard proficiency tests. The estimation of risk aversion levels is given by the risk adjusted come up to specify that banks are significantly risk reluctant. It is doubtful that the mean efficiency levels in the banking industry can essentially low as recommended by the non-risk adjusted cost and profit efficiency test in a reasonable time period. (M.Settlage, V.Preckel, A.Settlage (2009).

6. Non-Agriculture Default risk

Some empirical findings of most developing economies, savings and credit co-operatives to improve the standard of living for its members in providing financial services following the very good and consistent financial institutions brought into the show that millions of citizens (Temu, 1999; Chirwa, 1997). However, the existing literature also pointed out that in rural areas, these farmers associations have been experiencing, including non-credit economy, the scale of the problem of high interest rates and very short-term loans (Chirwa, 1997). Regression analysis was used to identify the variables that have significant bearing on the performance of credit repayment by farmers of the State of Nigeria Bra Kofi Annan. In particular, loans, income, years of experience and the size of a variable level of education and agriculture are significant differences in distance and size of households was found to be not statistically significant (Arene, 1992). Assumptions: from external sources of credit to repay the loan service performance, size, or access to credit and capital duration depends on revenue generated, and credit (Member Capital) Xingneng insiders say members of the repayment, family size and the duration of determined the amount of credit, the revenue generated from the sale of household gender, type of information received income transfers and business diversification. Using standard probabilistic model showed that gender, loans, family members experience and size of the volume and no significant variety, and crop sales, corporate size, diversity, income transfers and the quality of information has significant. Mbata (1994) Repayment behavior of crops, cotton growers aim of the behavior and characteristics, with the non-crops caused by the borrower to repay the loan. Correlation analysis showed that personal characteristics of society, such as education, annual income, the impact of land and irrigation positive behavior patterns of borrowing and

repayment of the borrower. Nikhade et al. (1994) Understanding of the impact on agriculture and non-agricultural credit borrowers on the concept of the borrower's credit purposes, the attitude of farmers studied factors. The results showed that there is negative and significant non-age and borrowers and the relationship between the attitudes of the borrower. It was further noted that the promotion of education, media exposure and contact is considered a significant positive correlation, borrowers and non-borrowers attitude. Rambabu et al. (1994) try to analyze the use of loans, over dues and influencing factors appropriate repayment and over dues. Harikumar (1991) the results showed that socio economic factors do not affect the repayment.

7. Conclusion

SACCOS three loan repayment performance of borrowers is good. This is 80% of the farmers, due to the fact that it had a good credit repayment record. 20 had a bad credit percent repayment record, the rest. This promising collection of loans advanced society, in the field of research largely due SACCOS monitoring system established by the good. These societies, was established relatively recently began offering loans to business people and rural farmers in 2002, they are very efficient in order to achieve their goals. Please note that credit information is also very successful program officials of these societies. Credit and savings model for social behavior under the three studies, therefore, will be replicated to other societies for the benefit of the borrower countries and rural areas should be strengthened. SACCOS operation must include the time required to transmit information of the borrower and appropriate education. Community, by providing various financial products and services to the rural people should worry about measures to improve agricultural production. The SACCOS, this default risk can work to promote the production of forward and backward rural enterprise activities can be minimized. (Malimba et al., 2009) Through mortgage prepayment or default termination is an important issue, taking into account the bank credit portfolio management and performance. Correct understanding and measurement of these events is an important consideration of risk management, especially capital adequacy ratio. More accurate risk mortgage loans and precise, through a more powerful method of measurement will be used for risk management and credit management's future. Analysis of the future need to take into account the definition of default, because of the limited observations can lead to the risk of swelling ratio. Expansion of breach of contract (such as credit quality deterioration, which is 30 days past due 90 days 60, indicators) of the definition may need to include to improve the model results.(Jonathan et al.,2010). We explore the impact of new rules, which will require banks to hold against market, credit and liquidity risk capital reserve account transactions. We found that the incremental credit risk, the gymnasium, the new requirements may be quite large, with the old regulatory capital levels were compared. However, the emphasis on the estimated VaR portfolio of corporate bonds in the current crisis shows that market risk-related losses may be larger, and according to the characteristics of the portfolio, more than ten times as large as in the IRC. Our results are evidence of the Basel Committee does not match. (Varotto, S 2011) Survey, in the administrative jurisdiction of the seat to Monteswar cooperatives have succeeded in changing many of the rural population, who strengthened their material and financial prosperity of the living standard of living. Zhiyu improved living standards of rural life, financial assistance and distribution of agricultural inputs has increased dramatically and that rural people could have been due to cultivate their land, to maximize the use of agricultural science and technology input and HYV seed production. As a consequence, rural people at the grassroots level have been free from pain without the ability to maintain their families (Chakrabarty K. A, 2009).

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