Journal of Agricultural Science; Vol. 5, No. 6; 2013
ISSN 1916-9752 E-ISSN 1916-9760
Published by Canadian Center of Science and Education

Loan Repayment Performance of Public Agricultural Credit Agencies: Evidence from Jordan

Ali AL-Sharafat[1], Tala Qtaishat[2] & Mohammed I. Majdalawi[2]

[1] Department of Agricultural Economics and Extension, Faculty of Agriculture, Jerash University, Jerash, Jordan

[2] Department of Agricultural Economics and Agribusiness, Faculty of Agriculture, The University of Jordan, Amman, Jordan

Correspondence: Ali AL-Sharafat, Department of Agricultural Economics and Extension, Faculty of Agriculture, Jerash University, P.O. Box 311, Jerash 26150, Jordan. E-mail: Bkhitan2@yahoo.com

Received: December 31, 2012 Accepted: February 25, 2013 Online Published: May 15, 2013

doi:10.5539/jas.v5n6p221 URL: http://dx.doi.org/10.5539/jas.v5n6p221

Abstract

The agricultural production process in many developing countries has been negatively impacted by poor loan repayment. Most of public credit agencies in such countries suffer from this critical problem. This study aimed at evaluating the loan-repayment performance of public agricultural credit agencies. The Agricultural Credit Cooperation (ACC) in Jordan was chosen to be investigated. To achieve its goals, the study delved into the determinants of loan-repayment performance among ACC borrowers. Data from ACC sources for the period of Financial Year 1960 to Financial Year 2011 (52 years) were analyzed. Simple descriptive statistics tests and regression techniques were conducted. Factors related to the accessibility of farmers to credits, to the collection performance of ACC, and to the administration performance of ACC were included in the analysis. The results of the study revealed that the repayment rate of the investigated public credit agency (ACC) was 0.92, indicating a high level of repayment performance and a low default rate (0.08). The positive effects of the volume of loans borrowed, volume of loans repaid number of borrowers, number of credit agency staff, and borrower experience were the most important factors related to this result. Sufficient and strict controls as well as monitoring are required. Outreach to beneficiaries should be improved to enhance repayment performance. To avoid the burden of provisioning on agricultural credit agencies, legal actions and guarantees should be taken against loans defaulters. Introducing a reward system for those individuals who pay on time will be helpful in enhancing repayment performance.

Keywords: public agricultural credit, loan, repayment performance, repayment rate, default rate

1. Introduction

Depending on its production, in a developing country such as Jordan the agricultural sector assumes greater importance. The public agricultural credit activities are a major factor in determining the trends of this production. It is more useful to examine the validity and viability of public agricultural credit agencies as agricultural development instruments.

A critical problem most public credit-lending agencies face is poor loan repayment. This problem has negatively affected agricultural producers who need to obtain capital for their operations (Njoku & Obasi, 2001). Several studies investigated the importance of the credit facilities in less-developed countries. These studies concentrate on the effects of providing a large amount of money in the form of agricultural loans on the agricultural sector growth (FAO, 1996; Adams & Graham, 1981; Gonzalez, 1977; Pischke, 1980). An efficient utilization of agricultural credit is necessary to enhance the agricultural sector's productivity and, hence, the national economy (Yasir et al., 2012).

Public agricultural credit activities in many developing countries suffer from the problem of a high incidence of default rate among borrowers. Many of these credit agencies are inefficient or heavily subsidized to remain in business. In order to understand the reasons behind this problem, it is crucial to evaluate the agricultural credit agencies based on borrowers' repayment performance. It is important to accomplish this evaluation because a low repayment rate will reduce the volume of loanable funds to offer other borrowers, create a longer time for loan recovery and lower profitability (Timothy & Olatomide, 2010). Loan-repayment performance is largely affected

by factors related to the borrower, the firm itself, the loan, and the lender. Among these factors, many studies concentrate on the borrower as the core of the problem. Most of these studies stated that, when the loan is not paid, it might be a result of the borrowers' unwillingness and/or inability to repay (Greenbaum & Thakor, 1995; Hoque, 2000; Colye, 2000; Ozdemir & Boran, 2004).

Unstable prices or agricultural inputs and outputs, interest rates, and the borrowers' social relations and responsibilities may influence the credit repayment-performance of the lending agencies. The negative effect of these factors may lead to the failure of these agencies (Mohammed, 2005). According to this situation, lending agencies should categorize the borrowers as good borrowers and bad borrowers. Monitoring the borrowers will aid in making sure that they are using the loans for the right purposes meaning that they can pay back their loans (Stiglitz & Weiss, 1981). Looking at the borrowers' past record is another criterion to determine if the borrower is likely to repay the loan or not (Greenbaum & Thakor, 1995). Borrowers with no training related to their agribusiness have a higher possibility to default (Roslan & Zaini, 2009). The lending firm characteristics may also affect their repayment performance. (Oke et al., 2007; Nannyonga, 2000; Arene, 1992). A firm's Poor management procedures may contribute to most of the default. The design of the loan, access methods, screening methods, and incentives to repay may largely affect the lending agencies repayment performance (Hulme & Mosley, 1996). The loan volume may be another issue to discuss. Awunyo (2012) stated that the larger the loan size, the lower the probability of repayment default. A Poorly designed lending program and improper implementation may lead to defaults (Copisarow, 2000). To minimize the loan default in the process loan repayment, both the borrowers and the institutional characteristics are important and should be taken into account (Derban et al., 2005).

In Jordan, the Agricultural Credit Cooperation is a major formal source of agricultural credits. Farmers are its main target group. The total value of the loans provided to farmers through this cooperation by the end of 2011 was nearly 500 million Jordan Dinars (JD), which is around 700 million US Dollars (USD); (1 JD = 1.4 USD) and benefited nearly 215,000 farmers (ACC, 2011). The amount of the loans introduced to the farmers by ACC has increased in recent years, but the number of loans, on the other hand, has decreased despite the increased values (Rashrash, 2004).

The present study is an attempt to assess the repayment performance of the public agricultural credit agencies as well as the repayment performance of the borrowing farmers who has received agricultural loans from these agencies. Jordan's Agricultural Credit Cooperation (ACC) is the agency studied. The study also tries to investigate some important factors related to loan repayment performance. Drawing lessons from the ACC's experience and making recommendations are other objectives for the study.

2. Materials and Methods

2.1 Data

To achieve the goals of this study assessing the repayment performance of public agricultural credit agencies as well as the repayment performance of the loanee farmers, secondary sources of information were the main data sources. Due to the availability and accessibility of required data from their reliable sources, these secondary sources were preferred. It is difficult to collect primary data from all borrowers who received loans from Jordan's Agricultural Credit Cooperation (ACC) over a long time of more than 50 years (since 1960). Hence, secondary data based on annual reports from the Agricultural Credit Cooperation (ACC) were the main source of data applied in this study. Meanwhile, other secondary sources such as the Department of Statistics (DoS), the Ministry of Agriculture (MoA), and the Agricultural Directorates (ADs) in the governorates were helpful. These available sources confirmed data for the period of Financial Year 1960 to Financial Year 2011 (52 years). Because a broad range of farm sizes and enterprises was included, the data gave a good representation of the borrowers' characteristics throughout Jordan. Table 1 shows the main credit related items of the ACC since 1960. Loans are in Jordanian Dinars (1 JD = 1.4 USD).

Table 1. Main credit-related items of the ACC since 1960

Year	Volume of loan borrowed (JDs)	Volume of loan repaid (JDs)	Number of borrowers	Number of staff
1960	457680	80500	4242	115
1961	470196	150718	2000	127
1962	1036306	150028	2688	158
1963	902802	473896	2938	197
1964	833471	707835	3333	215
1965	1206990	869414	2049	214
1966	1293935	636221	2147	213
1967	675440	695608	1331	182
1968	747458	573021	1350	217
1969	467328	922153	833	217
1970	437705	500556	886	215
1971	710019	606248	1616	206
1972	1439351	1031623	1213	207
1973	1843519	1078099	2448	207
1974	2139375	1509987	1617	214
1975	3190479	2351309	1633	216
1976	2792022	2074318	1029	223
1977	2366753	2267215	815	221
1978	3224883	2794577	705	221
1979	3466360	2707104	1450	213
1980	4855184	3473554	740	211
1981	6793872	4241738	889	218
1982	6287454	4426914	937	240
1983	5605485	5235767	956	215
1984	5467559	5718727	1438	224
1985	7930299	5916410	1910	234
1986	5682638	5508608	1453	229
1987	5145023	4298174	1913	226
1988	4750785	3942975	1865	227
1989	4954498	5375840	1687	230
1990	7404847	6216038	4745	237
1991	10527668	6511604	3133	255
1992	32388507	7505174	7952	264
1993	18909314	12010890	8759	302
1994	14307265	12337558	4989	350
1995	19345227	15236697	6391	379
1996	21188319	18242230	7627	400
1997	16797331	19876409	6174	402
1998	19680900	18726206	7248	419
1999	27368944	22978324	10003	424
2000	20891375	24667207	8260	423
2001	13376951	20737899	4166	417
2002	17199522	19452318	4669	442
2003	13206155	22151404	3854	443
2004	10991096	23196712	3761	443
2005	16266946	26258937	4462	455
2006	19387065	27800000	4809	474
2007	20777039	27123474	5038	479
2008	25488470	32168543	5130	487
2009	24930487	26385876	4748	501
2010	24082721	27600000	5268	480
2011	28613085	30800000	5321	480
Total	501204103	518133836	176618	

Source: ACC, 2011.

2.2 Analytical Framework

Simple descriptive statistics, correlation determinations, and regression techniques were used in the data analysis for this study. To test the differences between the mean volume of credit borrowed and the mean volume repaid, Students t-test was used. The Ordinary Least Square (OLS) method of regression was used in estimating the relationship between the repayment rate and the predictor (explanatory) variables. The predictor variables were chosen according to their importance to the repayment process. Results of many studies investigating repayment performance considered these factors critical in determining the credit agency's repayment performance level (Yasir et al., 2012; Greenbaum & Thakor, 1995; Hulme & Mosley, 1996; Derban et al., 2005). The variables considered in our study include the volume of loans borrowed from the ACC (X_1); the volume of loans repaid to the ACC including ACC profits (X_2); the number of borrowers (X_3); the number of ACC staff members (X_4), the borrower's age (X_5), and the borrowers' farming experience (X_6). The volume of loans borrowed from the ACC and the number of borrowers are variables related to farmers accessibility to credits offered by the ACC. The volume of loans repaid to the ACC is a variable related to ACC collection performance. The dependent variable is the repayment rate (volume of repaid loans divided by the volume of loans given by the ACC). The volume of loans per ACC staff member and the number of borrowers per ACC staff member are variables derived from X_1, X_3, and X_4. These two variables are related to the ACC's administrative performance and they were not included in the regression model to avoid a multicollinearity problem that is mostly the result of including a variable that is computed from other investigated variables.

The regression model is specified explicitly as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots.. + \beta_6 X_6 + e$$

Y = repayment rate (volume of repaid loans divided by the volume of loans given by the ACC).

X_1 = volume of loans borrowed from ACC.

X_2 = volume of loans repaid to ACC.

X_3 = number of borrowers.

X_4 = number of ACC staff members.

X_5 = borrower's age.

X_6 = borrower's farming experience of borrower.(the word borrower`s should be omitted).

e = error term.

β_o, β_1, β_2, …, β_6 are regression parameters to be estimated.

3. Results and Discussion

In general, agricultural credit has an indirect effect on production through providing the financial resources to overcome a lack of inputs so that farmers can effectively engage in the agricultural production process. The process of offering loans to farmers, along with the repayment of these loans, is actually subject to many factors that may prevent agricultural credit agencies from being efficient in providing the needed financial resources to farmers. The repayment performance of any agricultural credit agency may be negatively affected by these factors, meaning that the agency will not be able to perform its job efficiently as part of the process of agricultural development. This study investigated some factors that are strongly related to the repayment performance of a public agricultural credit agency in Jordan (the ACC). The effects of factors related to the farmers' accessibility to credits offered by agricultural credit agencies, the collection performance of agricultural credit agencies, and the administrative performance of agricultural credit agencies were investigated.

3.1 Main Credit-Related Items

Figure 1 shows the development of loans offered to borrowers (dark line) and the loans repaid to the ACC since 1960. Table 2 shows the repayment rate, or the percentages of repaid loans to borrowed loans (R/B), since 1960 for the ACC. Figure 2 shows the development of the repayment rate since 1960.

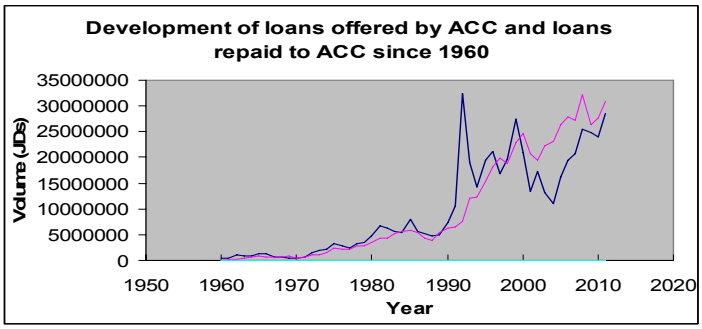

Figure 1. Development of loans offered by the ACC and loans repaid to the ACC since 1960

Source: Based on data from the ACC's annual reports.

Table 2. Repayment rate (R/B) since 1960

Year	R/B (%)	Year	R/B (%)	Year	R/B (%)	Year	R/B (%)	Year	R/B (%)
1960	18	1971	85	1982	70	1993	64	2004	211
1961	32	1972	72	1983	93	1994	86	2005	161
1962	14	1973	58	1984	105	1995	79	2006	143
1963	52	1974	71	1985	75	1996	86	2007	131
1964	85	1975	74	1986	97	1997	118	2008	126
1965	72	1976	74	1987	84	1998	95	2009	106
1966	49	1977	96	1988	83	1999	84	2010	115
1967	103	1978	87	1989	109	2000	118	2011	108
1968	77	1979	78	1990	84	2001	155	Average	0.92
1969	197	1980	72	1991	62	2002	113		
1970	114	1981	62	1992	23	2003	168		

Source: Calculated by the researchers using data from the ACC's annual reports.

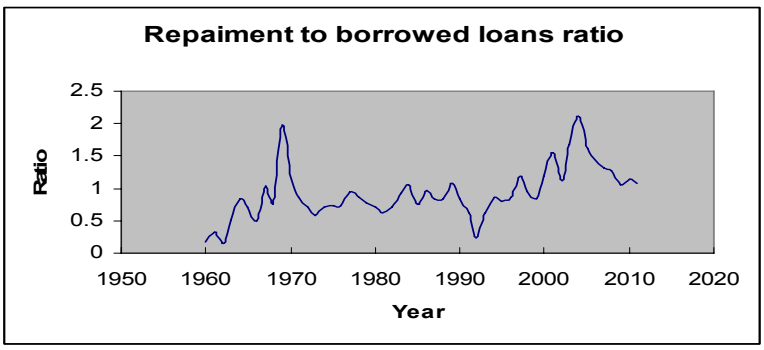

Figure 2. Development of the repayment rate since 1960

Source: Based on data from the ACC's annual reports.

As shown in Figure 1 (see Table 1), the volume of loans offered by the ACC to the borrowers increased from 457,680 JDs (1 JD =1.4 USD) borrowed by 4,242 farmers in 1960 to 28,613,085 JDs borrowed by 5,321 farmers in 2011. The increase in the offered loans is nearly 62% while the increase in borrowers for the same period is nearly 25%, indicating that the average volume per beneficiary is higher in the later operational years of the ACC compared to the earlier years. The small increase in borrowers compared to the loans' volume increase is a crucial factor in determining the repayment performance of an agricultural credit agency. This situation seems to be good

in the ACC's case according to the results presented in Table 2. This goodness may be attributed to the experienced staff, good logistic facilities, and better efficiency with respect to both coordination and performance. The repayment rate will surely go up under such circumstances.

On the other hand, the volume of repaid loans increased from 80,500 JDs in 1960 to 30,800,000 JDs in 2011. The highest volumes of repaid loans were recorded in the last 20 years because most ACC loans were long-run loans and needed more than 20 years to be paid. Political and Middle East area related factors might be reasons for low repayment rate in certain years (1967 and 1973).

The results presented in Table 2 show that the average ACC repayment rate is 0.92 (1960-2011), indicating good repayment performance. Considering the fact that no agricultural credit agency can have a 100% repayment rate, as this rate is approaching 1, the agency is doing well. Because the rate is away from 1 for some years, the agency has a poor repayment performance. The ACC repayment rate from 1960-1966 is low when compared with the other periods. The repayment rate in other periods is higher. (Above 100% from 2000-2011). This high value of the repayment rate could be attributed to the lack of consistency in the growth performance of Jordan's agricultural sector from 1960-1966 as well as to instability and inconsistencies in agricultural policies, policy implication, and poor monitoring and management during other periods, except those after the year 2000.

Concerning the ACC's administrative performance, on average, the volume of loans per staff member was 28,108.83 JDs, and the number of borrowers per staff member was 11. These low figures compared to agricultural credit agencies in other developing countries indicate that the ACC's administrative performance is good. The lower the two indicators are, the better the administrative performance that, in turn, reflects on the agency's repayment performance. Loan defaults arose from poor management or administrative procedures.

3.2 T-test

T-test could be used to compare statistical differences. It assesses whether the means of two groups of data are statistically different from each other. This analysis is appropriate whenever a comparison of the means of two groups is wanted.

The statistical difference between the mean values of loans obtained (X_1) and the mean amount of loans repaid (X_2) by borrowers is presented in Table 3.

Table 3. Repayment rate (R/B) since 1960

Variable	Mean	Standard Deviation	Degrees of Freedom	t-value	Sig. (2-tailed)
Volume borrowed	9813540.4	9248949.8	51	7.651	.000
Volume repaid	9967358.4	10354951.4	51	6.941	.000

Source: Based on data from the ACC's annual reports.

The results presented in Table 3 reveal that further analysis using a student's t-test at the 5% level of significance showed no significant difference between the mean volume of loans borrowed and the mean volume of loans repaid by borrowers. The implication of these results is that farmers exhibited high loan-repayment performance that will be positively reflected in the credit agency's repayment performance. These results confirm the information presented in Table 2.

3.3 Regression Model

The results for the multiple regression of factors that influence the ACC's loan repayment performance are presented below (Table 4). An evaluation of the model for loan repayment performance showed that the R^2 value was 0.796 (80%) while the adjusted R^2 value was 0.763 (77%). This result means that nearly 80% of the variation in the repayment rate (the dependent variable) was due to the joint effects of the explanatory variables. Regression estimates showed that the volume of loans repaid, the number of staff members, and the borrowers' farming experience prove to be significant at the 95% confidence level. The remaining three variables were not significant at that level. This result shows the importance of considering these variables when planning to analyze the repayment performance of agricultural credit agencies. The signs of the variables in the model were previously expected. Comparisons related to the signs were conducted after model estimation. The positive sign of the borrowed loans coefficient is not in line with the prior expectations for this variable. It was expected to have a negative sign. The positive sign for the coefficient of the volume of the repaid loan, the number of borrowers, the numbers of staff members, and borrowers' farming experience as well as the negative relationship for the

coefficient of the borrower's age with the repayment rate are in line with prior expectations. The signs for the coefficient of independent variables and the significance of these variables are used to determine the impact of each independent variable on the dependent variable. The results presented in Table 4 reveal that all the explanatory variables in the model have a positive effect on the repayment rate, and hence repayment performance, except the borrower's age which had a negative effect. Each 1% increase for the volume of loans borrowed from the ACC; the volume of loans repaid to the ACC, including ACC profits; the number of borrowers; the number of ACC staff members; and the borrowers' farming experience causes an increase of 0.256%, 0.574%, 0.079%, 0.613%, and 0.071% in the repayment rate, respectively. A 1% increase for the farmer's age will cause a 0.047% decrease for the repayment rate.

Table 4. Output of the multiple linear regression model

Variables	Coefficient (B)	t -value	Sig.
Constant	0.922	16.77	0.000
Loan borrowed (X_1)	0.256	1.874	0.337
Loan repaid (X_2)	0.574	4.954	0.000
No. of borrowers (X_3)	0.079	0.559	0.579
No. of staff members (X_4)	0.613	5.481	0.000
Borrower's age (X_5)	- 0.047	- 0.331	0.742
Borrower's Experience (X_6)	0.071	0.505	0.015

Source: Conducted by researchers based on data from ACC annual reports.

As shown in Table 4, the volume of the borrowed loans has a positive influence on the repayment performance. It was hypothesized to have a negative relationship with the repayment rate. The regression result disagreed with this hypothesis. This result could be attributed to the explanation that higher loans make larger investments with potentially higher returns possible. In other words, larger loan sizes would enhance the beneficiary farmer's access to basic inputs and improved farm-management opportunities, which would lead to higher productivity, reduced per unit cost, and increased income.

The volume of the repaid loans is a very important factor in determining the agricultural credit agencies' repayment performance. The results of this study revealed that the average repayment rate to the ACC was 92%. This high repayment rate may be attributed to the sound lending policy adopted by the ACC that was believed to result in low probabilities of loan default.

The relationship between the number of borrowers and the repayment rate, as indicated by the figures in Table 4, is a positive one. The number of borrowers could be a useful indicator for the credit agency's outreach. The coefficient of the variable was positive, suggesting that the greater the number of people covered, the greater the repayment rate.

The borrower's age is a very important factor in agriculture operations because youths and young adults who are full of vigor are required for production. The average age of the ACC beneficiaries was 48 years. The majority of borrowers were between 30 and 50 years old, an age in which they are considered highly productive and active to practice farm work. In spite of this fact, the older borrowers cannot have a meaningful impact on agricultural production even if they are adequately motivated with the needed credit facilities. The results of this study showed that there is a negative effect for aging on the repayment rate, which is acceptable and true. Based on this result, the agricultural credit agencies should be able to consider the age of borrower when offering loans. Older farmers tend to be conservative and less vulnerable to the winds of change.

As with the borrower's age variable, it is very important to consider the borrower's experience when offering loans to beneficiaries. The average experience of the ACC beneficiaries is 20 years. This experience is reflected in the high repayment rate. Borrowers who have a lot of farming experience exhibit a willingness to adopt new technologies. The result is that there is higher productivity, more revenues, and higher abilities to repay loans.

The administrative performance of agricultural credit agencies is largely affected by the number of staff members introducing services to clients. As shown in Table 1, the ACC has a well-trained and experienced staff. This staff is a major factor for the ACC achieving its high repayment rate. A sufficiently trained staff will result in proper

monitoring and supervision of the credit agencies. Insufficient staff numbers cause lack of supervision and monitoring services. Hence, farmers may transfer their agricultural credit to non-farm purposes.

4. Conclusions

According to the results of this study, the repayment rate of the investigated public credit agency (ACC) is 0.92, indicating a high level of repayment performance and a low default rate (0.08). This result may be attributed to many exogenous and endogenous factors. The volume of loans borrowed, the volume of loans repaid, the number of borrowers, the number of credit agency staff members, the borrower's age, and the borrower's experience were the most important factors related to the credit agencies' repayment performance. All these factors had a positive effect on the repayment performance of the investigated agency, except the age of the borrower that had a negative effect, contrasting the prior expectations. Sufficient and strict controls along with monitoring are required, and outreach to beneficiaries should be improved to enhance the repayment performance. To avoid the burden of provisioning on agricultural credit agencies, legal actions and guarantees should be taken against loans defaulters. Introducing a reward system for those individuals who paid on time will be helpful in enhancing the repayment performance.

Acknowledgments

The authors wish to express their deep sense of gratitude to the Jordanian Agricultural Credit Cooperation, the Ministry of Agriculture, the Department of Statistics staff, and the Agricultural Directorates across the entire country. They would also like to convey thanks to the Faculty of Agriculture at Jerash University as well as the Faculty of Agriculture at the University of Jordan.

References

Adams, D., & Graham, D. (1981). A critique of traditional agricultural credit projects and policies. *Journal of Development Economics, 53*, 153-172. http://dx.doi.org/10.1016/0304-3878(81)90021-3

Agricultural Credit Cooperation (ACC). (2011). Annual Report: Jordan.

Arene, C. J. (1992). Loan repayment and technical assistance among smallholder maize farmers in Nigeria. African Review of Money and Banking. *A Supplement of Savings and Development Journal, 1*, 64-72. Retrieved from http://www.jstor.org/stable/i23027445

Copisarow**,** R. (2000). The application of micro credit technology to the UK: Key Commercial and Policy Issues. *Journal of Microfinance, 2*(1), 13-42. Retrieved from https://ojs.lib.byu.edu/spc/index.php/ESR/issue/view/153

Coyle, B. (2000). *Framework for credit risk management*. CIB Publishing. London. UK.

Derban, W. K., Binner, J. M., & Mullineux, A. (2005). Loan repayment performance in community development finance institutions in the UK. *Small Business Economics, 25*(4), 319-332. http://dx.doi.org/10.1007/s11187-004-6483-y

FAO (Food and Agricultural Organization). (1996). Rural informal credit markets and the effectiveness of policy reform. *Economic and social markets and social development, Rome* (p. 134).

Gonzalez, V. C. (1977). Interest rate restrictions and income distribution. *American Journal of Agricultural Economics, 59*(5), 973-976. http://dx.doi.org/10.2307/1239874

Greenbaum, S. I., & Thakor, A. V. (1995). *Contemporary financial intermediation*. Forth Worth, Texas, USA: Dryden Press.

Hoque, M. Z. (2000). *Guided industrial credit*. Monash University. Retrieved from http://www.bizresearchpapers.com/Document4.pdf

Hulme, D., & Mosley, P. (1996). *Finance against poverty. Volume 2: Country Case Studies* (pp. 201-232). London, UK: Taylor & Francis Group.

Koutsyiannis, A. (2001). *Correlation Theory in Theory of Econometrics* (pp. 31-43). New York: Replika Press.

Mohammad, R. (2004). *Some features of rural finance in the Near East and North Africa Region-Studies and Remarks* (2nd ed.). Amman, Jordan: Near East North Africa Regional Agricultural Credit Association (NENARACA).

Mohammed, S. F. (2005). The self help groups (SHGs) linkage banking program: concept and practice in Nigeria. *The Bullion, 29*(4), 15-18.

Nannyonga, H. L. (2000). *Determinants of repayment behavior in the Centenary Rural Development Bank in Uganda*. Doctoral Dissertation. The Ohio State University. United States. Retrieved from http://rave.ohiolink.edu/etdc/view?acc_num=osu1224271432

Njoku, J. E., & Obasi, P. C. (2001). *Loan repayment AGF - Agricultural credit guarantee scheme and its determinants under the (ALGS) in Imo State, Nigeria*. Africa Review of Money, Finance and Banking.

Oke, J., Adeyemo, R., & Agbonlahor, M. (2007). An empirical analysis of micro credit repayment in Southwestern Nigeria. *Humanity and Social Sciences Journal, 2*(1), 63-74.

Ozdemir, O., & Boran, L. (2004). *An empirical investigation on consumer credit default risk*. Discussion Paper. 2004/20. Turkish Economic Association, Turkey. Retrieved from http://www.tek.org.tr/dosyalar/O-OZDEMIR-CREDR.pdf

Roslan, A. H., & Zaini, M. (2009). Determinants of micro credit repayment in Malaysia: the case of Agrobank. *Humanity & Social Sciences Journal, 4*(1), 45-52. Retrieved from http://www.idosi.org/hssj/hssj4(1)09/6.pdf

Stiglitz, E. J., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review, 71*, 393- 410. Retrieved from http://www.jstor.org/stable/1802787

Timothy, T., Olatomide, A., & Olowa, W. (2010). Determination of Loan Repayment Potentials of Group Borrowers in Oyo State of Nigeria. *Agricultural Journal, 5*, 12-18. http://dx.doi.org/10.3923/aj.2010.12.18

Von Pischke, J. P. (1980). Rural credit project design, implementation and loan collection performance. *Saving and Development Quarterly Review, 4*(2), 81-91.

Yasir, M., Mukhtar, A., & Muhammad, B. A. (2012). Factors Affecting Delay in Repayments of Agricultural Credit; A Case Study of District Kasur of Punjab Province. *World Applied Sciences Journal, 17*(4), 447-451. Retrieved from http://idosi.org/wasj/wasj17(4)12/6.pdf