# DETERMINANTS OF INDUSTRIAL LOAN REPAYMENT IN ETHIOPIA
## THE CASE OF MANUFACTURING FIRMS IN ADDIS ABABA

## Mengistu Bediye
*Commercial Bank of Ethiopia*

## 1. INTRODUCTION

Lack of financial resources is usually regarded as a major bottleneck to the development of many developing countries. To contain this problem, efforts are made by governments committed to development to allow development projects promoted by both the public and private sectors to have access to credit funds procured both locally and from abroad.

Credit has long been recognised as one of the important tools that supports the success of a business venture. This success is, in turn, believed to contribute towards economic development. However, the existence of credit facilities alone does not necessarily result in supporting economic development unless otherwise it is accompanied by the existence of factors conducive to the efficient utilisation of credit funds. For instance, a loan has to be repaid if the objective of making loanable funds available to those who want them for productive purposes on continuous bases is to be met.

What makes a borrower repay loan put to productive use? There are a number of factors that can explain the loan repayment behaviour of a borrower. Knowing these factors greatly helps financial institutions in recovering the loans they extend. Recovering loans extended will no doubt contribute to the profitability as well as financial sustainability of any financial institution the strength of which is believed to foster economic development.

The purpose of this paper is to look into the lessons that can be drawn from the loan repayment performance of manufacturing firms in Addis Ababa which is known for hosting most of (about 65%) the Country's manufacturing firms. Specifically, the study investigates the factors determining the rate of recovery of long-term loans extended to manufacturing firms by taking the case of Addis Ababa and to highlight the implications for investment and development. In relation to this area of study, it is possible to say that the Ethiopian literature is thin. Hence, this study is also expected to narrow the gap in the literature.

## 2. BACKGROUND

The Development Bank of Ethiopia is a state-owned bank. The Bank underwent various transformations in the past five decades to finally take its present form. In 1945, the Agricultural Bank of Ethiopia was established which was later renamed in 1949 as the Agricultural and Commercial Bank of Ethiopia. This bank again underwent some restructuring and came out as the Development Bank of Ethiopia in 1951. The restructuring continued and in 1970 a merger between the Development Bank of Ethiopia and the Ethiopian Investment Corporation (established in 1963) resulted in the formation of the Agricultural and Industrial Development Bank, Share Company which was later in 1979 re-established as the Agricultural and Industrial Development Bank (AIDB) as a fully state-owned development bank. It is this bank that became the present Development Bank of Ethiopia following the 1994 Regulations of the Council of Ministers providing for the Bank's establishment and the transfer of all rights and obligations of the AIDB to the Bank.

Although different in name, the predecessors of DBE were engaged in extending agricultural, industrial, or both types of loans. The DBE also extends short-term, medium-term and long-term loans mainly to agricultural and industrial projects (manufacturing firms). Owing to the political setting in which it used to operate during the reign of the former government, the Bank gave more attention to loan disbursement rather than to loan collection as most of its clients were either state-owned enterprises or co-operatives organised in line with socialist principles. Loan recovery rates during this time did not matter much because loan granting was not based on project financial or economic viability for many of the clients with the visible exception of private sector borrowers.

In the wake of the reforms following the fall of the previous regime, however, the Bank had to work in conditions where the role of market forces and the private sector gained more attention and thereby made efficient loan recovery a decisive instrument for staying in business. Besides, in an attempt to improve the Bank's financial position and credibility in the eyes of international lending agencies, the government assumed the responsibility of collecting huge amount of loans that had remained uncollected during the previous regime. Loan recovery is now, therefore, regarded as the most important factor affecting the profitability of the Bank. That is why, this study is geared towards investigating the factors affecting this important objective of the Country's sole development bank.

## 3. LITERATURE REVIEW

In this literature review, some works on agricultural and micro-enterprise credit performances have also been touched upon to note some of the similarities between the repayment behaviours of agricultural and industrial borrowers. The rationale for this is that there could be a number of small-scale industrial borrowers who could also

be similar to micro-enterprise operators in terms of type and scale of operation. For instance, there are a number of borrowers who received loans from DBE for the purpose of establishing small-scale oil mills, grain mills, metal workshops, wood workshops, etc. These kinds of activities are also undertaken by micro-enterprise operators on the same scale. The difference they have from DBE borrowers might be only in not having a licence. Those small-scale borrowers who managed to get DBE loans are those who took the pain of passing through all the procedures to obtain licence and who offered collateral that could be registered (the collateral could be either their own property or third party property or both). Most of the manufacturing borrowers of DBE in Addis Ababa are small-scale manufacturers. It is, therefore, more informative to review some studies on micro-credit repayment performances.

The review of the studies on agricultural credits serves the purpose of entertaining a variety of ideas that guide the process of choosing variables for an industrial loan repayment study in a predominantly agrarian economy. Besides, DBE uses quite related techniques of appraisal to screen creditworthy borrowers of both agricultural and industrial loans. Hence, the repayment behaviour of agricultural loan borrower might, to a limited extent, provide some indications, as to what variables to consider as a starting point in studying industrial loan repayment. In addition, many of the industrial borrowers of DBE are of small-scale and dependent on agricultural producers. That is why some studies on agricultural loan repayment performances have been included in this review.

Various studies have been conducted in different developing countries regarding credit performance in terms of loan repayment. Accordingly, a number of factors have been raised as systematically influencing loan repayment. Hence, a look at the major ones can serve the purpose of grasping what the empirical literature offers on the subject.

Loan amount (size) is one of the factors that can affect loan repayment performance. Adeyemo (1984) in his study about loan delinquency in Nigeria indicates that large loan amount is negatively related with loan repayment. Likewise, Njoku and Obasi (1991) studied determinants of loan repayment in Nigeria and found out that loan amount was negatively related with loan repayment. On the other hand, Vigano (1993), in a study about the case of Burkina Faso, states that large loan amount receivers are better payers if they are established bank customers.

Farmanfarmian's (1962) discussion of the impact of increased loan to total project cost ratio and swifter loan disbursements on investment and loan recovery is also another important study that captures attention in the discussion of loan repayment determinants. Farmanfarmian states that if there is a situation where loan constitutes a relatively higher percentage of the total cost of a project, an investor is likely to be attracted to invest as his own contribution becomes smaller. Limiting the loan percentage will have a negative impact on a private investor's tendency to invest.

Farmanfarmian further notes that "generous" loan policy and swifter disbursements will lead to less delay in project implementation which, in turn, will bring about swifter loan repayment. He also argues that if investors can get loan from an industrial bank at an interest rate smaller than market rate of interest, larger loan amounts become highly attractive. On the other hand, in explaining the effects of limiting the percentage of loans, Farmanfarmian states that part of the essential requirements of an investment project (such as pre-production expenditures, installation costs, etc) may be overlooked to meet permitted proportions; and the investor may find it difficult to procure the rest of the money from other sources. Besides, he points out that one of the most common errors of inexperienced industrialists is to start projects with inadequate funding.

Supervision is among the major factors that affect loan repayment positively. Regarding this, such agriculture related findings, as shown in Okorie (1986) based on a Nigerian case and that of Jama and Kulundu (1992) based on a Kenyan case, show that there is a strong positive relation between supervision and loan repayment.

Interest paid on loan can influence loan repayment since it is the cost of borrowing. In connection with this, there are some empirical studies that have come up with similar findings. For instance, Njoku and Obasi (1991) studied the determinants of agricultural loan repayment in Nigeria and arrived at a conclusion that interest paid on loan and loan repayments were negatively related.

Business experience is also another important point that should be considered in studying factors affecting loan repayment. It is usually considered to be positively related with loan repayment. Vigano (1993) supports this idea by stressing that younger firms are more subject to default risk. On the other hand, in studies by Njoku and Obasi (1991), in Nigeria, and Yaqub (1995) in Bangladesh, borrower's experience had no relevance to loan repayment.

Repeated borrowing or credit experience has been considered by Yaqub (1995) and Hunte (1996) in their studies about loan repayment performance. While Hunte's study came forward with a positive sign for the variable, the work of Yaqub indicated that repayment fell with repeated borrowing because of empowerment that came from repeated borrowing. Vigano (1993) is also of the opinion that established customers are better payers.

We can still mention some more loan repayment influencing factors that have been empirically tested. For instance, grace period and delayed loan issuing have been found to have some relation with loan repayment. In the case of grace period and delayed loan issuing, Hunte got a negative result. Accordingly, extended grace period and delayed loan issuing resulted in diminished loan repayment. However, a recent study by Caprio and Demirgüç-Kunt (1998) on the role of long-term finance shows that there is an association between long-term finance and higher productivity. This implies that higher productivity may mean higher profit and hence good loan

repayment. In other words, since relatively long grace period is associated with long-term finance, it may be concluded that grace period may positively affect loan repayment.

It is also worthwhile to make note of the finding of Njoku and Obasi (1991) that stresses the importance of profitability of an enterprise in loan repayment. Contrary to this, Vigano (1993) states that " there is almost no relationship between the specific project's profitability and regular loan repayment. This confirms the widespread opinion that the fungibility of money and the unity of the enterprise [(Dell'Amore (1965), Von Pischke and Adams (1980)] make it misleading and dangerous to put too much attention on the specific project to be financed instead of evaluating the firm's global performance" (Vigano 1993: 459).

In addition to the earlier variables, loan-issue timing, loan maturity (repayment instalment period), and ratio of total debt to total assets were also found to have relation with repayment. Accordingly, Vigano (1993) argues that while the latter two have a negative relation with repayment, timely issued loan is supportive of good repayment. Regarding loan maturity, he also finds that small periodical repayments are good.

Looking briefly at the methodologies employed most of the works discussed above made use of Ordinary Least Squares (OLS) method with single equation in their data analysis. Besides, a linear functional form was considered as the best fit (based on value of $R^2$) in the studies. Jama and Kulundu (1992), however, took up a different approach. They used two stages least squares method to deal with endogeneity problem of the loan diversion variable included in the loan repayment equation as an independent variable. Hunte (1996) also employed a different method. The model he employed was the Tobit model to take care of a continuous dependent variable that may involve variable censoring of some sort (e.g., involving zero values).

Our earlier discussions were based on empirical evidences from other developing countries. When we look at the Ethiopian situation, the literature is thin. As a result, we do not have much to say in this regard. We now, therefore, pass to the discussion of the methodology utilised in this study.

## 4. METHODOLOGY

The study of loan repayment performance is mostly an empirical exercise for lack of a well-developed theory in the field. Thus, factors affecting manufacturing loan recovery rate may be studied using various techniques. However, no econometric study has ever been made regarding this matter neither in the DBE nor in the country. Therefore, the study makes use of empirical evidences and approaches from related studies in other countries. Accordingly, to study the determinants of manufacturing loan recovery rate in Addis Ababa, the Tobit model has been employed.

The reason behind using this model is that the data used are censored in nature. That is, the Tobit model can be used when a dependent variable can, in principle, assume a negative value in addition to a value of zero (Maddala, 1992). There are cases in banking business when a loan happens to remain uncollected forever. To allow for such occurence, DBE calculates on loans it extends a risk premium which can be regarded as a negative collection (properly known as doubtful account or bad-debt). It is for this reason that the Tobit model has been chosen as an appropriate model that can serve for the purpose of this study.

It is known that the Tobit model is a censored regression. As censoring limits, zero and one have been taken as lower and upper limits, respectively. The reason for setting zero as lower limit seems to be clear from the earlier discussion (although negative recovery rate cannot be observed a zero recovery rate is observable). On the other hand, the upper limit of one shows a 100% recovery rate. What are censored here are recovery rates beyond 100% for a given instalment repayment period. Recovery rate beyond 100% results when a borrower repays an amount in excess of what is demanded to be repaid for a single semi-annual repayment period.

The following is the Tobit model employed in the study.

$$LRR = \begin{cases} \alpha_0 + \alpha_1 LA + \alpha_2 TPC + \alpha_3 DIR + \alpha_4 CLR + \alpha_5 PILR + \alpha_6 GP + \alpha_7 NDI + \alpha_8 RP \\ + \alpha_9 NSV + \alpha_{10} T + U \quad \text{if } 0 < LRR \leq 1 \\ \text{or} \\ 0 \quad \text{if } LRR \leq 0 \end{cases}$$

Where:
LRR = loan recovery rate;
LA = loan amount (in Birr);
TPC = total project investment cost (in Birr);
DIR = ratio of debt (loan) to total project investment cost;
CLR = ratio of value of collateral offered to total loan amount;
PILR = ratio of pre-operating interest amount to total loan amount;
RP = repayment period (in semi-annual);
GP = grace period (in semi-annual);
NDI = number of disbursement instalments;
NSV = number of supervision visits;
T = time (in semi-annual);
U = error term.

Loan recovery rate is defined as a ratio of actual loan collection for a semi-annual repayment period to total loan-collection demand (which is a sum of loan in arrears and current demand) for the same semi-annual repayment period.

In specifying the variables affecting loan recovery rate, two major variables have not been included in the above equation. These variables are a variable standing for

profitability (which should have a positive impact on loan recovery rate) and an interest rate variable (which should have a negative impact on Loan recovery rate, as it is a cost). Since interest rate is constant and has been exogenously determined by the National Bank of Ethiopia, it is of no use to add the variable in the equation. But regarding profitability, it is only because of lack of data on individual firm's performance that it has not been possible to include the variable. Despite this weakness, effort has been made to include most major variables. Therefore, all the variables chosen are assumed to have an important impact on loan recovery and to be appropriate for the purpose of this study. Moreover, they are given serious attention in the day to day activities of the Bank.

## 5. HYPOTHESES

The study of determinants of loan repayment performance has mainly been an empirical work. Theoretical work regarding loan repayment performance is not at an advanced stage. According to Yunus (1989: 6), for instance, "economic literature does not pay much attention to credit on the ground that it only plays a lubricating role for trade, commerce and industry. Literature fulfils its responsibility by erecting a theory of interest and walks out of the subject." The relationship between loan repayment and factors affecting it is thus hypothesised based on practical experiences and on other related studies. Also, it needs to be noted that signs of variables in such empirical work without a priory requirement may depend much on the empirical outcomes. Moving to the discussion of the expected signs, let's see each of the variables separately.

a)      LA - This variable is required to study the impact of loan size on loan recovery rate. An increase in loan amount is likely to increase the production cost of a borrowing firm since interest is paid on the borrowed fund. Financial costs (interest payment) result in increased cost of production, which may have negative impact on loan repayment. However, depending on the size of the borrowing firm and its efficiency in utilising its production capacity and the loan, the sign of this variable can either be positive or negative. If the borrowing firm is efficient enough to increase its productivity and utilisation of more loans to this effect, loan size and loan repayment may be positively related. If the loan size passes what the borrower actually requires and can manage, the relationship between the two variables may be reversed to become negative. Hence, the actual sign of the variable can be said to be empirically determined.

b)      TPC - This variable helps us know what happens to loan recovery rate when a firm size (in terms of total investment) increases. The variable most likely assumes a positive sign because of the assumption that bigger firms have the institutional capacity to

manage borrowed funds more efficiently. Moreover, in most of the cases, it is observed that bigger firms may require loans that constitute lesser part of their respective investment costs. In certain cases, there could be ambiguity as to the exact sign of the coefficient of the variable when, for example, the loan constitutes major part of the total investment cost (whatever the size of the total investment cost). But still the capacity of bigger firms to shoulder the burden might be taken to be superior to those of smaller firms.

C) **DIR -** This variable tells us the impact of increasing (decreasing) the share of a loan in the total investment cost of a project. There is a belief in the Bank that this variable has got a negative impact on loan recovery rate contrary to the idea of Farmanfarmian who favours high DIR. As the share of bank loan increases relative to the own-contribution of the investor, the cost and hence the burden to fulfil repayment obligation will increase. On the other hand, like Farmanfarmian suggests, some think that increased loan percentage will have a leverage on investors to repay the loan as quickly as possible.

d) **CLR -** It tells us how an increase in collateral offered affects loan recovery. It is expected to have a positive relation with loan recovery rate. As the value of collateral increases, the borrower is likely to be forced to observe his loan repayment obligations so that the mortgaged properties can be released as quickly as possible and make use of them in whatever other way he likes (e.g. selling).

e) **PILR -** This variable tells us the impact of paying accrued interest before operation begins (during what the Bank calls a grace period) on loan recovery rate. It is negatively related with LRR since it is cost before production begins (i.e., interest payment has to be based on sources other than the income to be generated by the planned firm). If interest accrued before operation begins is capitalised, there is no need to consider this variable in this kind of analysis. However, this is not practised in the Bank at the initial stage of financing.

f) **GP -** The grace period variable is used to study the effects of increasing (decreasing) the period during which the firm can prepare itself for full fledged production and thus for loan repayment. In long-term financing, it is positively related with LRR because a longer grace period allows proper project implementation and readiness to observe loan repayment obligations without being severely constrained.

g)      **NDI -** The Bank thinks that increasing the number of disbursement instalments enables it to monitor the proper utilisation of loans. Proper utilisation of a loan, so the Bank believes, facilitates the recovery of the loan. However, as Farmanfarmian suggests, increased number of disbursement instalments will lead to delayed project implementation which may mean weak, perhaps no, repayment. Therefore, NDI could either be positively or negatively related with LRR.

H)      **RP -** It shows the impact of the size of a repayment period on repayment performance. It is positively related with LRR. Increasing the period of repayment saves the borrower from directing all of the profit he obtains towards debt servicing. The borrower can use the extra money (i.e., if only smaller amount is to be repaid in one instalment period because of the extended repayment period) for purposes that will increase future production and this facilitates future loan repayment.

I)      **NSV -** NSV is positively related with LRR. As more and more supervision visits are made to a project site, the borrower is likely to be under pressure to fulfil his loan repayment obligation.

J)      **T -** Time is supposed to be positively related with LRR because as time passes borrower gains more experience, production techniques improve and interest payment falls (interest is calculated on outstanding principal amount, which diminishes over time). As a result, repayment is likely to be facilitated. But in the long run, it may be possible that negative relation may result when the variable extends beyond the originally agreed loan repayment period.

## 6. DATA TYPE AND SOURCE

The only financial institution that grants long-term loans to manufacturing firms or any other profit making development projects is the Development Bank of Ethiopia (DBE) which is state-owned. The manufacturing firms to be covered in this study will, therefore, be those which have received long-term loans from DBE. The primary data collected from DBE are cross-sectional (firm level) and panel covering five semi-annual repayment periods for each observation. Here, it should be noted that one repayment-instalment-period means a six-month period. The data have been collected from individual files of borrowers with the Bank and quarterly financial reports of the Bank. They are hence first hand and as a result have undergone no manipulation whatsoever.

Sixty-five borrower-manufacturing firms have been considered. The periods include December 1993, June 1994, December 1994, June 1995, and December 1995. In total, we have 298 observations after skipping missing data. The firms considered constitute all the borrowers fit for the study. Owing to this fact, the sample size is nearly equal to the population size. This seems to strengthen the quality of the data.

# 7. EMPIRICAL RESULTS

The summary statistics are given in Table 1. Looking at some of the means of the major variables, the mean loan amount and the mean total project investment cost show that the majority of the borrower firms are of small scale by the standards of the Bank (a loan below Birr 2.5 million is considered small-scale project loan).

The mean ratio of loan to investment cost is about 55% while the Bank's maximum limit is 70%. The mean ratio of collateral to loan, on the other hand, is 151%, which is greater than the Bank's minimum requirement of 125%. The mean loan recovery rate is 36.5%. This rate is too small as a recovery rate required for good financial performance has to be greater than 90%.

**Table 1: Summary Statistics for the Variables**

| Variable | Mean | Standard Deviation |
|---|---|---|
| LA | 502,710 | 956960 |
| TPC | 1,337,000 | 2842300 |
| DIR | 0.54985 | 0.15386 |
| CLR | 1.5102 | 0.67439 |
| PILR | 0.048194 | 0.046464 |
| GP | 3.1257 | 1.9280 |
| NDI | 3.0839 | 1.5186 |
| RP | 12.416 | 2.9096 |
| NSV | 0.44631 | 0.49795 |
| T | 3.0839 | 1,3985 |
| LRR | 0.3654660 | 0.3799372 |

Note: Number of observations = 298.

As is well known, the Tobit model involves maximum Likelihood estimation. In this study, Newton Iterations method has been employed to arrive at the Maximum Likelihood estimates. Besides, since cross-sectional data may suffer from heteroscedasticity problem, effort has been made to report estimates corrected for heteroscedasticity. The estimates are given in Table 2.

126

Answering this question is beyond the scope of this study. In short, a further study is required in this area.

As mentioned earlier, the analysis of loan repayment determinants is more of an empirical exercise. Hence, to have an equation with a better fit, an attempt has been made to see the impact of changing variable TPC into Log (TPC). Fortunately, the distribution of Log (TPC) is more normal than that of TPC, thus making our attempt more appropriate.

Table 3 gives the estimates when regressing the equation using the log of TPC in place of TPC (the other variables being the same as before). The new regression shows that the negative sign of TPC in our previous regression changes into positive when we use the log of TPC. In Table 3, we see that, in addition to assuming an expected sign, the coefficient of the log of TPC is more significant than that of TPC. It is significant at almost 25% level of significance.

The coefficient of DIR now, unlike the previous case, has got an unexpected sign. But it seems to be in line with the idea of Farmanfarmian (1962). Nonetheless, it is still insignificant like before.

**Table 3. Maximum Likelihood Estimates of the Tobit Loan Recovery Rate Equation with Log of TPC used in place of TPC**

| Variable | Coefficient | Standard Error | T-Ratio |
|---|---|---|---|
| Constant | -1.6112 | 0.9252 | -1.742 |
| LA | -0.0000003 | 0.0000006 | -3.997 |
| Log (TPC) | 0.073028 | 0.06367 | 1.147 |
| DIR | 0.079205 | 0.408 | 0.194 |
| CLR | -0.070915 | 0.06551 | -1.083 |
| PILR | -1.5534 | 0.9101 | -1.707 |
| GP | -0.020777 | 0.02374 | -0.875 |
| NDI | 0.018683 | 0.02687 | 0.695 |
| RP | 0.087850 | 0.01899 | 4.627 |
| NSV | 0.29172 | 0.1103 | 2.644 |
| T | -0.0056628 | 0.03726 | -0.152 |
| $\sigma$ | 0.56990 | 0.03582 | 15.912 |

**Note: Log-Likelihood = -257.22.**

Other improvements are also observed. For example, the coefficient of LA is now highly significant compared to the previous one while the coefficient of PILR has become significant at 10% level of significance (compared to the previous 15% level of significance), showing the importance of the impact of pre-operating interest

amount on loan recovery rate. The rest of the parameters showed no significant change as a result of the new regression.

In terms of goodness of fit, the equation with TPC changed into Log (TPC) has got a better fit than the equation with TPC unchanged by means of the value of the log-likelihood. The former has got a log-likelihood value of -257.22, which is greater than the log-likelihood of the latter (-257.88).

# 8. CONCLUSION AND IMPLICATIONS

In the earlier discussions, we have seen that repayment period, supervision visits, loan amount (size) and ratio of pre-operating interest to loan amount are the major factors having a significant influence on the rate of loan recovery in Addis Ababa.

The findings of this study seem to refute some of the practices of the Bank. Paying little attention to the impact of pre-operating interest, extended disbursement instalments, and grace period (during which accrued interest payment is compulsory) must be thought over once again by the Bank. By so doing, it is believed that the contribution of the Bank as a development banking institution towards helping development projects will be improved.

The effects of ratio of loan to total project investment cost, ratio of collateral to total loan amount, and total project investment cost on loan recovery rate have to be studied further to clear some of the ambiguities observed earlier.

What are the implications for investment and development? It is obvious that a development bank is exclusively meant for promoting investment and thereby enhances economic development through providing long-term credit facilities. The contribution of DBE to such an end can, therefore, become paramount if its loan provision is directed towards creditworthy and development promoting projects. However, some of the findings outlined earlier imply that the Bank may falter in meeting the objective of a development bank if repayment behaviour of borrowers is not well taken care of. Hence, if the objective is not to undermine investment through weak lending practices, effort needs to be made to systematically understand the repayment behaviour of borrowers. In addition, further study is also required to investigate the manner in which a borrower's repayment behaviour interacts with the lending (screening) behaviour of the Bank. Such a study is believed to highlight where the problem of loan recovery lies– whether it lies with the borrower or with the lender or both.

## REFERENCES

Adeyemo, Remi (1984) 'Loan Delinquency in Multi-Purpose Co-operative Union in Kwara State, Nigeria', *Savings and Development*, VII(3): 267-274.

Agricultural and Industrial Development Bank (1976), Revised Policy Statement of the Agricultural and Industrial Development Bank. Addis Ababa.

_____, Objectives and Strategies of Agricultural and Industrial Development Bank, Addis Ababa, 1988.

_____, Procedure Manual, Addis Ababa, 1982.

Caprio, Gerard, Jr., Asli Demirgüç-Kunt 'The Role of Long-Term Finance: Theory and Evidence', *Research Observer*, 13(2): Washington: the World Bank, August 1998.

Dell'Amore, Giordano (1965) 'Economica delle Aziende di Credito', *I Prestiti Bancari*, vol. 1 Giuffrè, Milano, 1965.

Farmanfarmian, A.N. (1962), The Financial Repercussions of Equity to Loan Financing of Industrial Enterprises, Conference on Industrial Development Banking, Istanbul, pp 43-50.

Hunte, C. Kenrick (1996) 'Controlling Loan Default and Improving the Lending Technology in Credit Institutions', *Savings and Development*, XX(1): 45-59.

Jama, M.A. and D.M. Kulundu (1992) 'Smallholder Farmers Credit Repayment Performance in Lugari Division, Kakamega District, Kenya', *East Africa Economic Review*, 8(2): 85-91.

Maddala, G.S. (1983). *Limited Dependent and Qualitative Variables in Econometrics*, U.S.A: Cambridge University Press.

—— (1992). *Introduction to Econometrics*. 2nd edition, New York: Macmillan Publishing Company, pp. 305-353.

Njoku, J.E., P.C. Obasi (1991) 'Loan Repayment and its Determinants under the Agricultural Credit Guarantee Scheme in Imo State, Nigeria', *African Review of Money, Finance and Banking*, 2: 167-180.

Okorie, Aja (1986) 'Major Determinants of Agricultural Smallholder Loan Repayment in a Developing Economy: Empirical Evidence from Ondo State, Nigeria', *Savings and Development*, X(1): 89-98.

Okorie, Aja and Andrew C. Iheanacho (1992) 'Agricultural Loan Recovery Strategies in a Developing Economy: A Case Study of Imo State, Nigeria', *African Review of Money, Finance and Banking*, 2: 195-202.

Provisional Military Administration Council (1979), AIDB Reestablishment Proclamation No 158/1979. Addis Ababa.

Transitional Government of Ethiopia (1994), Development Bank of Ethiopia Establishment Council of Ministers Regulations No.200/1994. Addis Ababa.

Vigano, Laura (1993) 'A Credit Scoring Model for Development Banks: an African Case Study', *Savings and Development*, xvii(4): 441-482.

Von Pischke, J.D., Dale W Adams (1980) 'Fungibility and the Design and Evaluation of Agricultural Credit Projects', *American Journal of Agricultural Economics*, Nov 1980, 719-726.

Yaqub, Shahin (1995) 'Empowered to Default? Evidence from BRAC's Micro-Credit Programmes', *Small Enterprise Development*, 6(4): 4-13.

Yunus, M. (1989), Strategy for the Decade of Nineties, paper presented at the Regional Meeting of UNICEF at Agra, India on September 7-8, 1989.