

**FINANCING AGRICULTURAL MARKETING IN TANZANIA: A CASE STUDY
OF SMALL SCALE MILLERS IN DAR ES SALAAM AND MOROGORO
REGIONS**

BY

ARBOGAST BERNARD MOSHI

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE
IN AGRICULTURAL ECONOMICS OF SOKOINE UNIVERSITY
OF AGRICULTURE MOROGORO TANZANIA.**

2007

ABSTRACT

The purpose of this study was to identify the sources of finance available to small scale maize and paddy millers in Dar es Salaam and Morogoro regions. Specifically the study aimed at identifying different sources of finance to small scale millers and describing the mode of financial arrangements, analyze the main factors that influence small scale millers access to credit and compare their performance. Structured questionnaire was used to collect information from the sampled millers. Checklist was used to obtain information from financial institutions. Major tools for analysis were descriptive statistics including means, standard deviations and cross tabulations. Logistic and linear regressions were used to determine factors that influence small scale millers access to formal loans and size of loan respectively. Descriptive results show both formal and informal credit to be used in the study area. However formal loans were found to be more used by maize millers than paddy millers. These results provide an indication of the difficulty in accessing formal sources of credit, forcing enterprises to rely more on their savings and informal sources. Quantitative results indicate education and experience in business to influence access to credit at $P < 0.05$. The gross margin analysis of the milling operation was positive for both maize and paddy millers. Furthermore the gross margin between millers with access to formal credit and without access was significant different at $P < 0.05$ for maize millers. However for paddy millers the test was insignificant. The study recommends that there is a need for policy measures to increase access of SMEs to formal credits. This can be achieved through the establishment of credit insurance schemes protecting the financial institutions against default risks, which could result in credit rationing. Similarly it was observed that very few entrepreneurs joined SACCOs. It is recommended that there is still a need for more sensitization to join and form SACCOs.

DEDICATION

This work is dedicated to my parents Mr. Bernard Moshi and Mrs. Costancia Moshi who created a good foundation for my education.

DECLARATION

I, Arbogast Bernard Moshi, do hereby declare to the senate of Sokoine University of Agriculture that this dissertation is my own original work and that it has not been submitted for a degree award at any other universities.

Signature..... Date.....

(MSc Candidate)

The above declaration is confirmed

Signature..... Date.....

(Supervisor)

COPYRIGHT

No part of this dissertation may be reproduced, stored in any form or by any other means without prior permission of the author or Sokoine National Agricultural Library in that behalf.

AKNOWLEDGEMENT

I wish to express my profound gratitude to my supervisor Dr. G. Ashimogo of the Department of Agricultural Economics and Agribusiness of Sokoine University of Agriculture for his intellectual stimulation guidance and valuable detailed comments without which this work would have been difficult to accomplish.

Special thanks are also due to the entire staff of the department of Agricultural Economics and Agribusiness for their co-operation and assistance. Their critical comments during the time of the entire study significantly contributed to the success of the study.

I would like also to express gratitude to my parents, the rest of the family and relatives for their love, constant support, encouragement and inspiration during the whole time that I was undertaking this study.

My gratitude also goes to the Higher Education Students Loan Board, for sponsoring my studies at Sokoine University of Agriculture. I would also like to thank my employer; Ministry of Agriculture, Food Security and Cooperatives for granting me a study leave to enable me pursue the same.

Thanks are also due to my fellow postgraduate students in the department of Agricultural Economics and Agribusiness for their moral and material support in the course of study.

TABLE OF CONTENTS

ABSTRACT.....	3
DECLARATION.....	5
TABLE OF CONTENTS.....	7
LIST OF TABLES.....	8
LIST OF APPENDICES.....	11
CHAPTER ONE.....	14
INTRODUCTION.....	14
1.1 Background to the milling sector	14
1.2 Micro enterprise financing in Tanzania.....	14
1.3 Problem statement and justification.....	14
1.4 Objectives of the study.....	15
1.4.1 Specific objectives.....	15
1.4.2 Hypotheses.....	15
1.5 Organization of the study.....	15
CHAPTER TWO.....	15
LITERATURE REVIEW.....	15
2.1 Overview.....	15
2.2 Policy and legal framework	15
2.3 Small scale millers.....	15
2.4 Financial institutions.....	16
2.4.1 Formal credit arrangements.....	16
2.4.2 Semiformal credit arrangements.....	16
2.4.3 Member-based organizations (SACCOs).....	16
2.4.4 Informal credit arrangements.....	16
2.5 Forms of credit provision.....	16
2.5.1 Individual lending.....	17
2.5.2 Group-based lending.....	17
2.6 Access to credit	17
2.7 Credit linkage within the marketing system.....	17
2.9 Chapter summary.....	17
METHODOLOGY.....	18
3.1 Over view.....	18
3.2 Description of the study area.....	18
3.2.1 Dar es Salaam region.....	18
3.2.2 Morogoro region.....	18
The region is located in the eastern part of Tanzania mainland. It is bordered by seven other regions. Arusha and Tanga, regions to the north, Coast region to the east, Dodoma and Iringa to the west and Ruvuma and Lindi to the south. The region lies between latitude 5° 58” and 10° 0” to the south of equator and longitude 35° 25” and 35° 30” to the east. Administratively, Morogoro region has six districts namely Morogoro urban, Morogoro Rural, Mvomero, Kilosa, Kilombero and Ulanga. All the districts of the region are divided onto a total of 30 divisions and 140 wards. The region is estimated to occupy a total of 72,939 square kilometers which is approximately to 8.2% of the total area of Tanzania mainland (URT, 2003a).....	18
3.3 Theoretical and conceptual framework.....	18
3.4 Sample selection.....	19

3.5 Data collection and sources.....	20
3.6 Descriptive analysis.....	20
3.7 Quantitative analysis.....	20
3.7.1 Gross margin analysis.....	20
3.7.2 Mean different t-test.....	20
3.7.3 Linear regression.....	20
3.7.4 Logistic regression.....	21

The common econometric problems encountered in estimating model from cross-sectional surveys data are multicollinearity, autocorrelation and heteroscedasticity. Excluding some strongly correlated variables from the model and leaving only those that were important and not perfectly correlated minimize Multicollinearity. Heteroscedasticity is associated with inconsistent error term variance in the dependent variable (Y_i) (Green, 1990). Heteroscedasticity affects standard errors estimated using OLS methods where the variance becomes large (Gujarat, 1995) leading to smaller t-ratios, where most of the parameter estimates become insignificant unnecessary. Autocorrelation is associated with the presence of relation not between two different variables but between successive values of the same variable (Ndunguru, 2007).....22

3.8 Problems encountered during the survey.....22
RESULTS AND DISCUSSION.....24

4.1 Overview.....	24
4.2 District of the millers.....	24
4.3 General household characteristics.....	24
4.3.1 Age of the millers.....	24
4.3.2 Gender of the millers.....	24
4.3.3 Marital status of the millers.....	24
4.3.4 Education of the millers.....	24
4.3.5 Other occupation of the millers.....	25
4.3.6 Experience in milling business.....	26
4.4 Management of milling business and marketing.....	27
4.4.1 Source of funds for investment and operating capital.....	27
Furthermore in term of operating costs, about 55.2% of surveyed millers costs for day-to-day operations were reported to be financed by own saving only, while 44.8% of millers used both own saving and credit. This may be an indication that people wishing to start up business without a good track record are likely to experience entry difficulties. The results further imply that sustainable operating capital is crucial for cereal millers because they have fixed costs and must cover those throughout the year, and they have obligations that need a guaranteed regular and sufficient supply of products in order to meet the needs of their longstanding customers throughout the year.....	27
4.4.2 Source of cereals.....	27
4.4.3 Average duration of stockholding raw materials	28
4.4.4 Duration for holding end products	28
4.4.5 Marketing and financing flows of maize and paddy in the study area.....	29
4.5.1 Formal credit sources.....	34
4.5.2 Most recent source of credit.....	34
4.5.3 Conditions considered to get credit	35
4.5.4 Time taken to get loan.....	35
4.5.5 Difficulties in loan acquisition.....	36
4.5.6 Amount of loan obtained.....	36
4.5.7 Loan duration.....	36
4.5.8 Brief description of financial institutions surveyed.....	37

4.5.8.1 National Microfinance Bank (NMB).....	37
National Microfinance Bank (NMB) provides loans for an existing business and not to launch a business. More over the business must be at least one year in operation. This provides evidence that the client is assumed to have enough experience about the business and is assumed to be able to handle the loan provided. The bank provides loans to many kinds of businesses. However no loans are given to support agriculture directly except sugarcane out growers. To be eligible to access the loan, the client must be of the age eighteen and above, the business must be legal and must be within 20km from the bank. The reason for the later is to minimize the cost for the bank for visiting the business. The business must also have a license, and the owner must have a security however a third party may be used to grant collateral to the client. The terms of the loans provided are categorized in to four including loan for MEs, loan for SME, personal loans and Pensioners loan. For MEs the loan doe not exceed one million that is from 50,000Tsh to one million. And the repayment time is six months. For SME the amount ranges from 5,000,000Tsh to 30,000Tsh For this loan there must be a detailed business plan and audit report. There is no cost to the customer at all levels except for SMEs. The processing cost was 0.5% of the value of the credit requested. For SME the interest rate was 18% and the loan duration is 12 months. For MEs the loan interest was 2% per annum. There is no grace period and repayment start after only one month of lending.....	
4.5.8.2 Dar es Salaam Community Bank (DCB).....	37
4.5.8.3 Akiba Commercial Bank (ACB).....	37
4.5.8.4 WANAMA SACCOs.....	37
4.5.8.5 Tandale SACCOs.....	37
4.5.9: The most preferred credit sources.....	37
4.5.10 Reasons for preferred credit sources.....	38
4.6 Access to informal credit markets.....	39
4.6.1 Informal credit sources.....	39
4.6.2 Source and form of informal credit.....	39
The source of informal credit was maize traders/farmers (50.8%) and (49.2%) of millers obtain informal credit from other millers. In more detail the study results reveal that all surveyed paddy millers obtain informal credits from other millers. This was due to the fact that some millers lend their fellow millers when they go to the villages to buy paddy. The relationship with lender was that about 66.1% of millers obtain informal credit from people who are well known to them and friends. This result is similar to Kashuliza (1993), who reported that about 66% of interviewed farmers who borrowed form informal sources did so from relatives, neighbours and friends. About 33.9% of millers obtain informal credit from people who didn't have relationship (Table 20). This was specifically for maize millers who obtained credit from traders who take maize to Dar es Salaam.	
4.6.3 Informal interest rate.....	40
4.6.4 Informal loan duration.....	40
4.6.5 Condition required to obtain informal loan.....	40
Furthermore the survey revealed that few millers were required to have a witness. For maize millers types of witness were commission agents (Dalali) (23.7%) and neighbours (9.4%). The rest (71.2%) did not need witness in transacting their informal loans. Commission agents play a big role in transacting maize from traders who takes maize to Dar es Salaam. The remarkable argument in this credit arrangement is that, they act as trustees for the credit provided. This result is contrary to Zeller (1994) who found in Madagascar that formal loans are more	

frequently disbursed in the presence of a witness than informal loans, in order to be able to compel repayment through social networks.....	41
4.6.6 Time taken to process the informal loan.....	41
4.6.7 Millers-wholesalers linkage.....	41
4.6.8 Reason preferred for the form of credit linkage.....	41
4.6.9 Perception of the nature of credit.....	43
4.7 Gross margin analysis.....	43
4.8 Mean difference t-test.....	43
4.9 Linear regression results.....	44
4.10 Logistic regression.....	45
CONCLUSION AND RECOMMENDATION.....	46
5.1 Conclusions.....	46
5.2 Recommendations.....	46
APPENDICES.....	53

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMS

ACB	-	Akiba Commercial Bank
COLS	-	Corrected Ordinary Least Squares
CRDB	-	Co-operative and Rural Development Bank
DCB	-	Dar es Salaam Community Bank
FAIDA-		Tanzania Finance and Advances in Development Association
FAO	-	Food and Agriculture Organization
FINCA	-	Foundation for Institutional Community Association
GDP	-	Gross Domestic Product
ISPD	-	Sustainable Industrial Development Policy
Kg	-	Kilogram
LIMDEP	-	Limited Dependent Variable
km ²	-	Square kilometer
MAFC	-	Ministry of Agriculture, Food Security and Cooperatives
MEDA	-	Mennonite Development Association
MLE	-	Maximum Likelihood Estimation
MEs	-	Micro enterprises
MFIs	-	Microfinance Institutions
NGOs	-	Non-Governmental Organizations
NMB	-	National Micro-finance Bank
OLS	-	Ordinary Least Square
PRIDE	-	Promotion of Rural Initiatives and Development of Enterprises
PTF	-	Presidential Trust Fund
RATES	-	Regional Agricultural Trade Expansion Support Programme
ROSCAs	-	Rotating Savings and Credit Associations

SACCOs	-	Savings and Credit Co-operatives
SEDA	-	Small Enterprises Development Agency
SIDO	-	Small Industries Development Organization
SGR	-	Strategic Grain Reserve
SMEs	-	Small and Medium Enterprises
SPSS	-	Statistical Package for Social Sciences
SSA	-	Sub-Saharan Africa
TPB	-	Tanzania Postal bank
Tsh	-	Tanzania Shillings
UNDP	-	United Nations Development Programme
URT	-	United Republic of Tanzania
WDF	-	Women Development Fund

CHAPTER ONE

INTRODUCTION

1.1 Background to the milling sector

Agricultural sector in Tanzania remains the largest sector in the economy and hence its performance has a significant effect on output and corresponding income and poverty level. The sector accounts for about half of GDP and export and its importance is amplified through backward and forward linkage. Sale of agricultural products accounts for about 70 percent of rural household (MAFC, 2006). The development of agriculture has been an important objective of the Government. The focus has been to produce more food to enhance food security and alleviate poverty, with the ultimate goal of becoming self-sufficient in basic food requirements.

The food processing industry is increasingly becoming an important sector in developing countries for its role in generating employment and attracting foreign investment. During the period 1980-91, the food industry (including tobacco and beverages) grew at a rate of 87% in developing nations (doubling in many Asian countries) compared to only 20% in developed countries (White, 1999). Moreover, this percentage is undoubtedly underestimated considering the large number of informal activities undertaken in this sector in developing countries (RATES, 2003).

The emergence of agro-industries in Tanzania and other developing countries depended on agriculture, has been both a historical and natural development process, as the need to process agricultural produce arose. The agro-industrial sector continues to dominate the

manufacturing sector in Tanzania. The statistics shows that it continues to contribute more than 55% per cent of the manufactured value added. It employs more than 75% percent of the manufacturing employment. In terms of exports, the share of agro-manufactured produce is more than 70% percent of total manufactured exports (Kuzilwa, 1997). The principal factor behind the impressive growth in developing countries was a combination of market liberalization policies with an inexpensive and abundant supply of labour.

In Tanzania about 40% of the registered small scale food processing enterprises are cereal mills (Lwoga *et al.*, 1999). The main cereals processed include crops such as paddy and maize (FAO, 1998). The annual production of paddy in Tanzania lies between 600,000 and 700,000 tones. The major paddy producing regions in Tanzania are Shinyanga, Mwanza, Morogoro, Mbeya and Tabora. Large Industrial processors, such as large scale millers or brewers, enforce specific and stringent quality standards for evaluating their raw materials. Unreliable quality of small cereals has discouraged and frustrated commercial processors who attempt to use them. This lead to most of produced paddy to be milled by small scale millers (FAO, 1998). Work is needed on the forward and backward linkages that ensure a continuous and consistent supply of cereal for processing.

One of the key players in the maize value chain is a maize miller. The structure of maize milling industry in Tanzania is made up of three major types of mills, namely; large-scale millers, medium scale millers and small hammer (*posho*) mills (Rates, 2003). The medium as well as the large scale milling firms are concentrated in urban areas. The rest of the country mainly depends on small hammer mills for maize flour. The small-scale hammer mills or custom mills are found all over the country even in the remotest villages. They dominate the major part of the maize mill industry both in urban and rural areas. Depending on the way they operate, custom mills can be distinguished into two major

types. The first and most common one is the small hammer mill that provides services to individuals who bring their cereals to be processed. The second type is the small hammer miller who buys maize cereal, mills and packs it for sale to (town) kiosks or final consumers. Some millers combine these two functions. The custom miller's main advantage is that they operate informally. Their labour costs are minimal and flexible (Rates, 2003).

Generally these enterprises are individually or family owned. Although micro enterprises are very important, they are always denied access to credit from the formal financial institutions. Nevertheless, provision of financial/credit services to the micro enterprises are considered of paramount importance in their establishment, growth and development. It has been argued that it is only when the business has been operating for some time, usually as a micro-enterprise or on a small scale that an attempt is made to seek financing from a bank for further development and expansion (Mosley and Hulme, 1998). Credits to small business have become fashionable in development economics. Credit has been considered necessary for small scale firms and micro enterprises owned by poor people to improve performance. Access to credit therefore offers the possibility of managing scarce household and enterprise resources more effectively, protection against risks and provision for the future (URT, 2003b).

1.2 Micro enterprise financing in Tanzania

The importance of micro enterprise in the economy of Tanzania has been being recognized. A number of public and private MFIs including some banks have been reported to provide microfinance (URT, 1998a). For example in the late 1990s the government formed national Microfinance Bank (NMB) as a split of giant NBC (Selejio,

2002). In 2001, the government developed National Microfinance Policy which aimed at addressing the issues of micro finance widely (Bikki and Joselito, 2003). Currently there are other banks which provide micro finance including Tanzania Postal Bank (TPB), CRDB Bank and Akiba Commercial Bank (ACB), Exim Bank (Chiduo, 2001). Chijoriga and Cassimon (1999) argued that the actual number of MFIs is unknown. Some of MFIs which are present issuing credit to MEs include Promotion of Rural Initiatives and Development (PRIDE-Tanzania), Tanzania Finance and Advances in Development Association (FAIDA), Foundation for International Community Assistance (FINCA), Small Enterprise Development Agency (SEDA), and Presidential Trust Fund (PTF) and many others (Bikki and Joselito, 2003).

However, a big number of microfinance institutions and small scale entrepreneurs do not get full access to the requisite financial resources for their technological advancement. This limits them to compete regionally and globally. Access to formal institutional finance is difficult for most small businesses because of the small nature of their operations, which in turn makes their needs small, and as a result loan administration becomes costly and unattractive to established suppliers of finance. Lack of adequate and reliable collateral and unfamiliarity with complicated loan application procedures and paperwork further limits their access to formal finance from banks. This difficulty occurs because banks do not have enough information about these businesses, making them unwilling to provide the much-needed finance due to the perceived risk and high transaction costs (Mosley and Hulme, 1998).

1.3 Problem statement and justification

Agro-processing industries make use of the abundant local raw materials practically found all over the country, land and labor. It promotes industrial linkages between agriculture and manufacturing and induces value added on products. It contributes to the improvement of rural incomes through provision of market opportunity for farm produce.

One aspect of market liberalization has been the rapid expansion in the number of cereal mills in the region. Entrepreneurs have installed these both in cities and in fairly remote villages. Cereal milling forms an important part in agricultural sector and in economies of many developing countries because in a greater way it converts the farm produce in to consumer goods which could not be handled by few large scale millers available in developing countries. Also it is one of the means for reducing unemployment and poverty which are major problems of modern times. Apart from being a source of employment, profits from small scale millers are a source of income to owners.

The major existing problem facing the agro-processing sub-sector is the inability of the firms to procure sufficient quantities of agricultural raw materials (and other) materials necessary for maintaining and or increasing production. Private buyers of agricultural raw materials don't have to sell to the processing firms locally. This may require that the firms and farmers (traders of agricultural raw materials) have to enter into some form of relationship to ensure that they obtain adequate supplies in required quantities. But the processing has to offer to the farmer prices that are competitive and have to be able to pay promptly. Poor liquidity positions of the firms resulting from poor past performance has however, been a problem that has affected their raw materials procurement abilities (Kuzilwa, 1997). It is argued that, despite the financial sector in Tanzania going through a number of development phases, growing small businesses appear to be still constrained in terms of credit accessibility (Satta, 2002). Kimei (2002) argues that despite the

liberalization of the financial sector, progress on evolution of a responsive and efficient banking system has been slow. The survey results in Dar es Salaam revealed also that lack of enough capital was the major factor constraining the development of small and micro enterprises (Minga, 1998). Lack of capital ranks high amongst factors constraining the development of micro enterprises, not only in Tanzania but also in other development countries (Kuzilwa and Mushi, 1997; Buckley, 1997). There is no doubt that lack of access to formal finance can be a major element crippling the ability of a business to operate effectively, to maintain or replace machinery, to purchase materials and services most economically and to modernize or expand.

Although the small scale millers are very important to the economy, they are always denied access to credit from the formal financial institutions. Yet, provision of financial services to the small scale millers is considered of paramount importance in their establishment, growth and development. Therefore, despite the fact that farm produce (cereals) is accomplished by adding value through milling, many studies in Tanzania have been on financing farmers and financing SMEs in general. There is no specific study that has been done on financing the small scale millers and their link to the farmers.

The present study strives to identify the sources of finance available to small scale millers, the constraints experienced by millers in accessing finance and problems associated in lending them. Knowing the existing structure of the financing of millers, and the prospects and constraints facing them, we can know what the future potentials of this sector are and which strategies to be adopted in order to fully maximize the growth potentials of the sector. The findings will also generate useful information for the millers to realize their enterprise performance and potential contribution to the national economy. And finally, the

generated information will lead to recommendations on how to improve the cereal milling sector.

1.4 Objectives of the study

The general objective of the study was to evaluate the financing of small scale millers in Dar es Salaam and Morogoro regions.

1.4.1 Specific objectives

- (i) To identify different sources of finance to small scale millers and describing the mode of financial arrangements.
- (ii) To analyze the main factors that influence small scale millers access to credit.
- (iii) To compare the performance of selected small scale millers between borrowers and non borrowers.
- (iv) To develop from findings useful suggestions and recommendations to improve financing to small scale millers.

1.4.2 Hypotheses

- (i) Socio economic factors (education level, age, value of assets, gender of the recipient, interest rates, credit use characteristics such as history of credit use and repayment, amount of loan needed) have no significant effect on access to finance and size of loan attained by small scale millers.
- (ii) There is no significant difference in performance between small scale mills owned by borrowers and non borrowers.

1.5 Organization of the study

This dissertation is organized into five chapters. Chapter one presents an introduction on background to milling sector, the need of credit for millers, and micro enterprise financing in Tanzania. Problem statement, objectives and hypothesis of the study are also covered in this chapter. Chapter two presents relevant literature review on financing/credit for small scale millers. Chapter three presents the methodology used to conduct this study. The chapter begins by describing the study area followed by description of data sources and collection and data analysis tools. Chapter four presents results and discussion of the survey. Lastly, chapter five give conclusions and recommendations drawn from the findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter reviews important aspects associated with the study. It begins by describing the legal framework underlining this study, suppliers of financial intermediation services and forms of credit provision. Other issues reviewed include credit linkage within the marketing system and the link between credit use and development.

2.2 Policy and legal framework

In Tanzania the milling sector has been recognized as a significant sector in employment creation, income generation, poverty alleviation and as a base for industrial development. Based on the importance and potential of this sector, this study is in line with the National Micro finance Policy which covers the provision of financial services to small and micro enterprises both in rural and urban areas. The objective of National Microfinance Policy is to foster job creation and income generation through promoting the creation of new enterprises and improving the performance and competitiveness of the existing ones to increase their participation and contribution to the Tanzanian economy (URT, 2003b). This study is also in line with Tanzania Development Vision 2025 policy which seeks to transform the low productivity agricultural economy into semi industrialized one led by modernized highly productive agricultural activities.

Furthermore the Sustainable Industrial Development Policy-ISDP (1996-2020) which places specific emphasis on promotion of small and medium industries through the following measures: supporting existing and promotion of new institutions, simplification of taxation licensing and registration of SMEs and improve access to financial services. Lastly the study is under the SME Development Policy (2003-2013) which outlines priorities and strategies for improving the performance and competitiveness of existing SMEs and for creating new ones.

2.3 Small scale millers

Micro enterprises are normally family businesses operating mainly in the informal sector with as many as ten workers although the usual number is one or two, with or without some part-time assistance (Sharma, 2000). In general, however, small enterprises are

mainly found in the realm of the private sector (Nkya, 2002). It is estimated that about a third of the GDP in Tanzania originates from the Small and Medium Enterprises (SMEs) sector. A large majority of these (98%) are micro enterprises (employing less than 5 people) (Nissanke, 2001). In the context of Tanzania, a small enterprise is defined as a unit where capital investment in plants and machinery does not exceed sixty millions shillings and where the number of regular employees does not exceed 50 people (Floro and Ray, 1997). All other enterprises with more assets and greater number of employees are regarded as medium or large scale. On the other hand much smaller production units which employ up to 9 people are commonly referred to as micro enterprises (Bagachwa, 2005).

According to Nagel (1994), small enterprises constitute an important if not dominant portion of the private sector of most African countries in terms of employment and value added. In the case of Tanzania the following illustrative statistics attest to this assertion. A 1989 industrial census carried out in the Dar-es-Salaam City, the major commercial and industrial centre in Tanzania, indicates that, of the 3,831 enterprises located there, 88% fall under the small-scale category (employing up to 10 persons) and 9% under a medium scale category (employing between 10 and 100 persons). Further, in a sample of 131 enterprises picked randomly from the above industrial survey, 43% of the firms were owned by non-indigenous entrepreneurs who constitute only about 1.3% of the total Tanzanian population (World Bank, 2005). A 1989 survey by the Tanzanian Bureau of Statistics estimated that the number of small-scale enterprises had grown to at least three times the level of mid-1980s (Msambichaka *et al.*, 1995). This study adopts the definition of small scale enterprises as suggested above for Tanzania and treats micro enterprises as components of small scale enterprises.

2.4 Financial institutions

The financial system includes all savings and financing opportunities and the financial institutions that provide savings and financing opportunities, as well as the valid norms and modes of behavior related to these institutions and their modes of operations (Ledgerwood, 2000). Financial systems can generally be divided into the formal, semiformal and informal sectors. The distinction between formal and informal is based primarily on whether there is a legal infrastructure that provides recourse to lenders and protection to depositors (Kashuliza *et al.*, 1998).

2.4.1 Formal credit arrangements

Formal financial institutions are chartered by the government and subject to the banking regulations and supervision. They include public and private banks, insurance firms, and finance companies (Ledgerwood, 2000). Processing of transactions entails detailed paperwork and bureaucratic procedures that results in high transaction costs, reinforcing the bias toward relatively large loans. The formal credit institutions in Tanzania have considerable long history. However, the formal institutions found it difficult to deal with MEs because of the latter's lack of collateral, high incidence of defaults and high transactions costs associated with issuing of small credits (Kashuliza *et al.*, 1998). The MEs needed special arrangement and since the 1970s some organizations and institutions began to undertake special credit programs for low-income people and MEs in particular. However, most of them were not sustainable due to issuing of "cheap" credits and poor recovery (Selejio, 2005).

Not many formal banks operate in rural areas, since they find it unprofitable to operate in these areas. It is for example not beneficial for a bank to run a credit analysis with its administrative costs, for one single small loan application in the rural areas. Low-income borrowers can seldom have collaterals to meet the conditions corresponding to banks regulations. Consequently a majority of Tanzania's population rarely use the formal financial sector and the trend has become even worse along with the financial restructuring (Kerstin, 2003).

2.4.2 Semiformal credit arrangements

Semiformal institutions are not regulated by banking authorities but are usually licensed and supervised by other government agencies. Examples are credit unions and cooperatives banks, which are often supervised by a bureau in a charge of cooperatives. They include cooperatives and unions, savings and credit societies, community-based projects, credit programmes of non-governmental organizations (NGOs), venture capital firms, and many others (Ledgerwood, 2000). In Tanzania semiformal institutions include OXFARM, PRIDE Tanzania and many others (Sumay, 1999). The semiformal financial institutions mainly focus on income generating activities for youth and women who are the most disadvantaged groups in poor societies (Esguerra and Meyer, 1992).

As a result of the implementation of structural adjustment and financial sector liberalization policies in the majority of the SSA countries in the last ten years, institutions and organizations participating in the semi formal credit system have increased substantially and expanded their operations in both rural and urban areas (Kashuliza *et al.*,1998). Semiformal institutions provide products and services that falls somewhere between those offered by formal sector and informal sector institutions. The design of their

loans and savings products often borrows characteristics from both sectors. In many countries semiformal institutions often receive donor or governmental support through technical assistance or subsidies for their operations.

2.4.3 Member-based organizations (SACCOs)

SACCOs is a prevalent saving device in Tanzania. A SACCOs is a member driven, Self-help, and non-profit driven cooperation. The most dominant member-based organizations in Tanzania are the Savings and Credit Co-operative Societies. (Wangwe, 2004). The idea is a democratic cooperation where the members have influence. Members are supposed to be both the owners and the users of the services available. Members agree to save money together and to make loans to each other at “agreeable” rates of interest. Most SACCOs are capitalized by illiquid shares. The shares/ savings function as an instrument of ownership, and a basic feature is that the SACCOs should be capable of running on the financial resources of the membership alone (Kerstin, 2003).

All SACCOs are subject to the same legal and institutional framework. The Bank of Tanzania is to field a task force to examine the legal environment. The instruments involved are: inspection of individual SACCOs by district co-operative officers and inspection of final audited accounts by regional co-operative officers. But it is clear that this does not happen in any systematic way, because of insufficient resources. A SACCOs has one shared account in a bank. The account represents a connection between SACCOs and the formal sector. The bank account is primarily needed for security. Well functioning SACCOs are popular because of their ability to provide low cost emergency or consumption loans without the burdensome bureaucratic procedures associated with

formal banks. SACCOs are also often located near member's workplace or home, which reduces transaction costs (Kerstin, 2003).

Lwoga *et al.* (1999) argues that a well functioning SACCOs are popular because of their ability to provide low-cost emergency or consumption loans without the burdensome bureaucratic procedures associated with formal banks. They do not require long and complicated application procedures. They provide safe and convenient deposit facilities, which are normally easily accessible and located near members' workplaces or homes. In addition, the hours of operation tend to be sensitive to the members' hours of business operation while others have some mobile daily deposit collection services. This significantly diminishes the possibility of default and ensures the discipline for regular deposits ((Bikki and Joselito, 2003).

2.4.4 Informal credit arrangements

Informal sources or informal financial institutions refer to all transactions, loans and deposits occurring outside regulations of a central monitoring and supervision (Chijoriga and Cassimon, 1999). They include local moneylenders, pawnbrokers, self-help groups, and NGOs as well as the savings of family members who contribute to the micro enterprise (Kimei, 1999). Informal credit arrangements do not comply with common book keeping standards and are not reflected in official statistics on the depth and breadth of the national financial sector. Often loans are granted without formal collateral on the basis of familiarity with the borrower. Social sanctions within a family, a village, or a religious community substitute for legal enforcement. Credit terms are typically adapted to the client's situation. The total amount lent, as well as the number and the frequency of

installments, is fitted to the borrowers expected cash flow (World Bank, 2005). Little if any paper work is involved in applying for a loan (Ledgerwood, 2000).

The operations of informal sources are frequently more cost effective and useful for poor than those of formal credit sources. In most cases collateral and repayment conditions are flexible which an advantage is for those without collateral (Kimei, 1999). However repayment remains high because of the personal nature of the finance and credit transactions which are largely conducted on the basis of the trust and intimate knowledge of customers (Kashuliza, 1993; Bagachwa, 2005).

The emerging view about informal lenders from studies conducted in the 1980s in a number of development countries is that, in general, they perform legitimate economic functions in the rural financial markets and that their operations are frequently more cost effective and useful for the poor than those of formal credit institutions and commercial banks (Von Pischke and Adams, 1989). Generally in SSA the informal finance system is thought to mediate a significant amount of financial transactions (of both deposits and loans). It has been documented that in general, informal loan repayments remain high compared to formal ones (Kashuliza, 1993). There is a wide range of informal finance and credit arrangements in SSA countries, ranging from transactions which are largely social and personal to those which are partially commercial and impersonal: credits between friends and relatives, money lenders, shop owners and traders (that advance loans and sell goods on credit), and the now common group rotating saving and credit associations (ROSCAs) (Kerstin, 2003).

2.5 Forms of credit provision

Credit is a borrowed fund with specified terms for repayment. Methods of credit delivery can be divided into the two broad categories of individual and group approaches based on how the MFI delivers and guarantees its loans.

2.5.1 Individual lending

Individual loans are delivered to individuals based on their ability to provide the MFI with assurances of repayment and some level of security. Formal lending institutions' decisions on business and clients characteristics include cash flow, debt capacity, historical financial results, collateral and character. Formal sector lenders have also proven the usefulness of personal guarantors to motivate clients to repay loans. They have demonstrated the high value of a businesslike approach and the importance of achieving cost recovery in their lending operations. Finally, they have established the importance of external regulations to safeguard client savings and the institution itself (Ledgerwood, 2000). However, formal sector lending practices are often not suitable for microfinance institutions as many micro-businesses or business owners do not have many assets or adequate financial reporting systems. Informal sector lenders approve loans based on personal knowledge of the borrowers rather than on a sophisticated feasibility analysis and they use informal collateral sources. They also demonstrate the importance of responding quickly to borrower's needs with minimum bureaucratic procedures. Individual lending requires frequent and close contact with individual clients. Informal lending is often successful in urban areas where client access is possible. Individual lending can also be successful in rural areas, particularly through saving and credit cooperatives or credit unions. In both urban and rural areas individual lending is often focused on financing production-oriented business, whose operators are generally better off than the very poor (Wangwe, 2004).

2.5.2 Group-based lending

Group lending began in 1970s mainly for the purpose of reaching more poor people with multiple small loans without which it could be unprofitable to deal with, because of the excessive individual loan transaction costs. Group lending flourished further after many financial institutions realized that individual loans are associated with high default rates (Zeller, 1998). Group-based approaches make loans to groups, either to individuals who are members of a group and guarantee each other's loans or to groups that then sub loan to their members. Group-based lending involves the formation of groups of people who have a common wish to access financial services. Group lending approaches frequently build on or imitate existing informal lending and savings groups.

Well known group-lending models include the Grameen Bank in Bangladesh and ACCION International's solidarity group lending, both of which facilitate the formation of relatively small groups (of 5 to 10 people) and make individual loans to group members. Other models such as the Foundation for International Community Assistance (FINCA) village banking model, utilize larger groups of between 30 and 100 members and lend to the group itself rather than to individuals (Ledgerwood, 2000). One importance of using group-based lending is the use of peer pressure as a substitute for collateral. The most important rationale for group lending is the collection responsibility towards loan repayment (Wangwe, 2004). Many group-based lending targets very poor who cannot meet the traditional collateral requirements of most financial institutions. Another advantage of group lending is that it may reduce certain institutional transaction cost. However, while it appears that some people work well in groups, there is the concern that many people prefer to have individual loans rather than being financially punished for the

irresponsible repayment of other group members. Zeller (1998) argues that repayment incentives of a good borrower will vanish under joint group liability when the expectation is that a significant number of peers will default.

2.6 Access to credit

Lack of capital is mentioned by many scholars as one of the most limiting factor in development of micro-enterprises. Lack of capital has been ranked high in Tanzania and in other developing countries by Bagachwa (2005) and Kuzilwa (1997). Access to formal credit by micro enterprises is constrained by many factors. Most formal financial institutions still insist on traditional characteristics of borrowers some of which being capital, collateral, capacity and character which exclude most of the would be borrowers. Most micro enterprise owners are poor and so have few valuable assets they can offer as collateral security against loans. Many studies have shown that the majority of micro enterprises owners depend on informal sources of finance in order to start up or improve their enterprises (Kuzilwa and Mushi, 1997). Chiduo (2001) argues that, this is so because loans are given with primary purpose of meeting social obligations rather than for earning interest. However, it is argued that, an individual who cannot start up an enterprise for lack of capital demonstrates that he has no deferred gratification to effect savings (Buckley, 1997).

2.7 Credit linkage within the marketing system

In some developing countries (especially during the era of structural adjustment and market liberalization) formal credit programmes have utilized non-financial entities or informal lenders as conduits of formal credits to the rural farmer borrowers. Such conduits

include input suppliers, traders, millers and or processors of agricultural commodities (Kashuliza *et al.*, 1998).

There are many vertical and some horizontal financial arrangements in the various marketing chains (Sherpherd, 2004). Such arrangements are not consistently applied but largely depend on factors such as supply and demand conditions and seasonality. While traders and millers have trading partners with whom they have longstanding business arrangements, the nature of their financial transactions can and does vary depending on these factors. For example the case study of Pakistan notes that when there is a bumper crop, farmers are under immense pressure to dispose off their paddy and are therefore willing to accept deferred payments. When there is a production shortfall, on the other hand, sales are invariably for cash (Sherpherd, 2004). Credit linkages serve primarily to bind people in order to ensure regular supply and disposal of produce. Hendriks (1994) examined the mutually beneficial relationships among traders on Cebu Island in the Philippines report that credit is the pivot of trade and that tied loans for vegetables reach all the way from the central wholesale market to retailers and consumers in one direction and to farmers in the other. Unlike Hendriks, a study of trader finance carried out by Crow and Murshid (1994) in Bangladesh did not see the various relationships as being mutually beneficial, but rather as a way in which the larger, a more-powerful trader tie smaller trader to them. Tied loans were common in both directions of the marketing chains, example from a miller or rice broker to a rice retailer or from a miller to a small trader collecting paddy from farmers.

2.9 Chapter summary

This study explored the financing of agricultural marketing in Tanzania specifically to the small scale milling sector. Basing on the importance of the milling sector, and its potential there are microfinance policies which cover the provision of financial services to small and micro enterprises. This includes Tanzania Development Vision 2025 which seeks to transform a low productivity agricultural economy into semi industrialized one. The formal institutions found it difficult to deal with MEs because of the latter lack of collateral, high incidence of credit defaults and high transaction costs associated with issuing of small credits. Individual loans are delivered to individuals based on their ability to provide the MFI with assurances of repayment and some level of security. Many group-based lending target poor who cannot meet the traditional collateral requirements of most financial institutions. The operations of informal sources are frequently cost effective and useful for poor than those of formal credit sources. However repayment remains high because of the nature of finance and credit transactions which are largely conducted on the basis of the trust and intimate knowledge of customers. Many studies have shown that majority of micro enterprise owners depend on informal sources of finance in order to start or improve their business. Despite the financial sector in Tanzania going through a number of development phases, growing small businesses appear to be still constrained by terms of credit accessibility.

Microfinance providers are found in both the public and the private sectors. To identify market gaps when providing or considering providing financial services to micro entrepreneurs, it is important to determine who the existing providers are and how well the needs of the market are being met. The objective of the study was to identify some critical gaps in the financial landscape that have contributed to the poor performance of

productive investment of small scale millers. Although the low level and nature of cereal milling is an outcome of other factor beside financial sources, it is of belief that an analysis of a full range of the financial products available to small scale millers helps explain the observed pattern of small scale cereal milling. For this purpose the study focused on the typical financing sources from formal, semiformal and informal segments of the credit markets.

CHAPTER THREE

METHODOLOGY

3.1 Over view

This chapter presents the methodology used in conducting this study. It describes the study location, sampling techniques, data sources, data collection methods and data analysis techniques used in the study. The problems encountered during the survey are also discussed.

3.2 Description of the study area

Because of the resource constraints, the study was restricted in two regions. The regions selected for the study were Dar es Salaam and Morogoro. The Main advantage of selecting these regions was that there were many small scale millers and there were some baseline information of credit sector. The two areas differed in terms of availability of raw materials (cereals). While Morogoro is within the production area, Dar es Salaam is far from the major production centers. Morogoro is also an intermediate region for trade of major cereals in the country.

3.2.1 Dar es Salaam region

This city is located in the eastern part of Tanzania mainland and it is surrounded by coast region. Dar es Salaam is a commercial city with a population of 2.5 million according to 2002 census data and annual growth rate of 4.3 (URT, 2003c). Administratively the Dar es Salaam city has three districts namely Ilala, Kinondoni, and Temeke. The district are

divided into 10 divisions and 52 wards altogether. The city was estimated to cover 1,121.3 km² (URT, 1998b).

Dar es Salaam is inhabited by people of different background from different parts of the country. About 945 kilometers square of total area of the region comprises of rural setting which is suitable for agriculture. However 80% of its residents depend on food from other region because food produced within the region is not enough to meet demand of the urban dwellers. Dar es Salaam dwellers are employed workers, farmers and or peasants and business persons who are living in the city (URT, 2003a). Dar es Salaam city was selected for the study due to the presence of large number of small scale millers and a relatively high demand of food products from population size and incomes of people. The study was conducted in two districts of the region namely Kinondoni and Ilala.

3.2.2 Morogoro region

The region is located in the eastern part of Tanzania mainland. It is bordered by seven other regions. Arusha and Tanga, regions to the north, Coast region to the east, Dodoma and Iringa to the west and Ruvuma and Lindi to the south. The region lies between latitude 5° 58'' and 10° 0'' to the south of equator and longitude 35° 25'' and 35° 30'' to the east. Administratively, Morogoro region has six districts namely Morogoro urban, Morogoro Rural, Mvomero, Kilosa, Kilombero and Ulanga. All the districts of the region are divided onto a total of 30 divisions and 140 wards. The region is estimated to occupy a total of 72,939 square kilometers which is approximately to 8.2% of the total area of Tanzania mainland (URT, 2003a).

Excluding Dar es Salaam, Morogoro region is among the regions which have a higher number of active public and private microfinance institutions (Selejio, 2002). The study was conducted in only two districts of the region namely Morogoro Urban and Kilombero. These districts have more mills compared to other districts found in the region (URT, 2003c).

3.3 Theoretical and conceptual framework

The first step in understanding the context in which a microfinance provider operates is to determine who makes up the financial system. The financial system (or financial sector, or financial infrastructure) includes all savings and financing opportunities and financial institutions that provide savings and financing opportunities, as well as the valid norms and modes of behavior related to these institutions and their operations (Ledgerwood, 2000). Financial system can be divided into formal, semiformal and informal sectors. The distinction between formal and informal is based primarily on whether there is a legal infrastructure that provides recourse to lenders and protection to depositors.

Conceptually, the overall political and economic environment of a country determine the microfinance sector. Figure 1 indicates the contextual factors that affect how supplies of financial intermediation reach their clients. There are financial sector policies which affect the provision of financial services, including interest rate policies, government mandates for sectoral credit allocation, and legal enforcement policies (Ledgerwood, 2000). There are forms of financial sector regulation and the regulations of MFIs. Furthermore the economic and social policies which affect the provision of financial services and the ability of micro entrepreneurs to operate.

Zeller (1994) used univariate probit model to estimate the factors that determine an individual's borrowing decisions in terms of their participation in formal or informal credit markets in Madagascar. In this study the credit markets segments are treated separately in order to identify each in credit application and rationing.

In credit demand factors, Zeller (1994) divides the factors into individual characteristics, household assets, household events that affect credit demand, and the reason for participation. This approach assumes an individual's decision is only affected by internal factor. However there are external factors which play important role in influencing participation in credit markets but are beyond the scope of this study. A number of conceptual difficulties have been identified in estimating loan size and access to credit. In most models where there is a possibility of loan default due to poor imperfect contract enforcement and an upward supply curve, it is assumed that lenders offer borrowers a choose points on the supply curve to which they are restricted. It therefore becomes difficulty to identify the loan demand schedule using information on observed loan amounts since this reflects only the existing supply. The credit demand function can only be identified from borrowers participation decision namely, the decision to borrow or not and from which sector to borrow. Bigstern *et al.* (2000) estimate credit markets participation and constraints faced by firms by modeling the explicit demand for funds by firms and assessing the decision rules use by financial institution to grant loans. Since applying for loans has transaction costs, firms can build internal funds from retained profits. They argue that controlling for risks attitudes, the factors that determine whether firms have a demand for credit are expected return on investment, the opportunity cost of using own funds and the cost of outside funds. Given credit markets imperfections, firms may prefer external funds, but would not apply due to inability to meet collateral requirements, perceived low rate of application success and high costs associated with the

loan application. Accessing credit by a miller could enable him/her to obtain money to invest in milling which could improve markets of cereals, and income to the millers. Increasing markets for cereals will have make farmers to increase farm production and hence produce more cereals. The output will be generation of more employment and income to both small scale millers and farmers and the nation as whole.

CONTEXTUAL FACTORS

1. Financial sector policies and legal environment

- Interest rate restrictions
- Government mandates
- Financial contracts enforcement

2. Financial sector regulation and supervision

3. Economic and policy

- Economic stability
- Poverty levels
- Government policies

Millers increase: -- more income
-firm expansion

- buy more grains from farmers
- Farmers increase:**
- production
- income

Figure : Conceptual framework

Modified from Ledgerwood (2000).

In this study, data were collected from sampled small scale millers and checklists were used to obtain information from financial institutions. To achieve the stated objectives, the study used both descriptive and analytical methods. These include cross tabulations, test of difference between means and regression analysis.

3.4 Sample selection

Simple random sampling technique was used to draw samples. The samples include small scale millers and financial institutions. Cross-sectional survey method were used to collect data through interviews with samples of 87 smaller-scale millers drawn from the target population of small scale millers from Dar es Salaam and Morogoro regions.

3.5 Data collection and sources

Primary data were gathered using a structured questionnaire (Appendix 1) and a checklist (Appendix2). Questionnaires were used to collect data from small scale millers. Information collected was on mill characteristics and credit characteristics. Before the actual survey, pre-testing of the questionnaire was done to check its relevance and comprehensiveness. Appropriate modifications were made accordingly. Checklist was used to collect information from financial institutions. The financial institution includes National Microfinance Bank, Akiba Commercial Bank, Dar es Salaam Community Bank, FINCA, WANAMA SACCOs and Tandale SACCOs. Secondary data were collected from records and published documents. Secondary data collected include information obtained from Sokoine National Library (SNAL), financial institutions and websites on the internet. Data collection was done between November 2006 and February 2007.

3.6 Descriptive analysis

Descriptive statistics were used in exploratory analysis of survey data. This includes the estimation of means, range, standard deviation, t-test and chi-square based on objective and hypothesis of the study.

3.7 Quantitative analysis

The main quantitative analytical tools that were used in this study were gross margin, mean different t-test and regression analyses. The tools were used to test the hypothesis that there is significant different in performance between millers owned by borrowers and

non borrowers. The tools were also used to test the hypothesis that socio-economic factors affect significantly the performance of the small scale millers.

3.7.1 Gross margin analysis

The gross margin analysis was used to assess the performance of small scale millers in this study. The key advantages of gross margin as an economic analytical tool include its easiness to be understood, its ability to draw logical interrelation of economic and technological parameters and its ability of rational variations for the operational structure of enterprise or individual farmer (Phillip, 2001). This technique, however, does not take into account variations in fixed cost structure within and or among enterprises and it fails to make allowance for complementary and supplementary relationship between enterprises. Gross margin for an enterprise is its gross output less variable costs attributable to it. The formula for gross margin (GM) is given in equation (1)

$$GM = TR_i - TVC_i \dots\dots\dots(1) \text{ Where:}$$

GM = Gross Margin (Tsh/month)

TR_i = Total Revenue (Tshs)

TVC_i = Total variable Cost (Tsh)

Data used in gross margin analysis were obtained directly from millers from their records and author estimations of their milling costs and returns.

3.7.2 Mean different t-test

Since the study considered millers with and without access to credit, a comparison between borrowers and non borrowers, was done in terms of their performance. This was done to test the H_0 that there is no significant difference in performance between the two

groups of small scale millers. T-statistics was calculated based on separate variance estimate presented in equation (2).

$$T = \frac{X_1 - X_2}{\sqrt{S_1^2 / N_1 + S_2^2 / N_2}} \dots\dots\dots(2)$$

Where X_1 and X_2 are sample means of alternative group (credit borrowers and non borrowers respectively).

S_1 and S_2 are variance of the two groups and

N_1 and N_2 = sample sizes for the two groups

3.7.3 Linear regression

Size of loan can be determined by a number of factors such as age of the entrepreneur, gender, his/her education, type of product being milled, experience in milling business, other occupation and location of the enterprise. In estimating linear and non linear regression models, ordinary least squares (OLS) estimation techniques are commonly used. This technique is appropriate for single equation models (Gujarat, 1995).

According to Mukras (1993), ordinary least square estimate method makes use of the least square criterion that the regression line can be drawn through the scatter of the sample observation such that the positive and negative deviation of observation cancels out. On the other hand the second criterion requires the sum of squares of the deviations of the sample observations be minimized. The OLS estimation technique is simple to use, eloquent, and gives the best estimator and it does not require the knowledge of the probability distribution of the underling population being studied. Of all estimation rules OLS leads to best linear unbiased estimator and hence its popularity in applied econometrics (Gujarati, 1995). The size of the loan were estimated by OLS as shown in equation (3).

$$LS = \alpha + \beta_1 EDUC + \beta_2 YEAR + \beta_3 AGE + \beta_4 TYPE + \beta_5 GEN + \beta_6 DIST + \varepsilon_i \dots (3)$$

Where:

LS = Loan size form formal institutions

$EDUC$ = Level of education attained by the miller

$YEAR$ = Years being in milling business

AGE = Age of the mill

$TYPE$ = Type of cereals milled

GEN = Gender of the miller

$DIST$ = District of the miller

ε_i = Disturbance term

$\beta_0 - \beta_5$ = Parameter estimates

3.7.4 Logistic regression

To identify factors which account for credit accessibility among small scale millers, a logistic regression analysis was used. The model was used because of the fact that the dependent variable was binary. That is, explains whether the miller accessed the loan or not. The choice of the model was based on the assumption that the random component of the response follows a binomial distribution and the logistic distribution of the error term (Liao, 1994).

Logistic can be used to determine attributes of who get access to a given credit source. Results generated through logistic regression can also be used to predict the future behavior of credit clients. That is who will borrow from which source (Kashuliza *et al.*, 1998).

The dependent variable (Y_i) is the natural logarithm of probability to borrow (P) divided by the probability not to borrow ($1-P$) of the i^{th} observation (individual miller). Independent variables are factors which influence millers access to credit.

The logistic model

The binary logistic model using maximum likelihood method was used to estimate the probability of accessing credit. The SPSS version 12 was used to estimate the model. The estimated empirical logistic regression model is specified in equation (4).

$$\ln(P/1-P) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \mu_i \dots \dots \dots (4)$$

Where:

$\ln(P/1-P)$ Is the natural logarithm of probability to borrow (P) divided by the probability not to borrow ($1-P$) of the i^{th} observation (individual miller)

α = Constant

β = Parameter estimated

μ_i = Disturbance term

Table : Specification of variables included in the logistic model

Code	Variable	Measurement	Expected relationship
X_1	Age of miller	Years	+
X_2	Gender of the miller	($X_2 = 1$ if male; $X_2 = 0$ otherwise)	+
X_3	Education of the miller	Number of years in school	+
X_4	Location of the enterprise	($X_4 = 1$ if Urban; $X_4 = 0$ otherwise)	+
X_5	Type of product milled	Maize, Rice	+/-
X_6	other occupations		+/-
X_7	Experience of milling operation in years	Years	+

Estimation was done using Maximum likelihood method (MLE). Green (1993) asserts that the maximum likelihood is an efficient estimator compared to the corrected ordinary least squares (COLS). The goodness of fit of the logistic model was then tested using Wald coefficient and T-test. The strength of the logistic model lies in the fact that its dependent variable Y_i is assumed to be binary, taking on but two values, say 1 and 0.

The common econometric problems encountered in estimating model from cross-sectional surveys data are multicollinearity, autocorrelation and heteroscedasticity. Excluding some strongly correlated variables from the model and leaving only those that were important and not perfectly correlated minimize Multicollinearity. Heteroscedasticity is associated with inconsistent error term variance in the dependent variable (Y_i) (Green, 1990). Heteroscedasticity affects standard errors estimated using OLS methods where the variance becomes large (Gujarat, 1995) leading to smaller t-ratios, where most of the parameter estimates become insignificant unnecessary. Autocorrelation is associated with the presence of relation not between two different variables but between successive values of the same variable (Ndunguru, 2007).

In order to observe multicollinearity problems correlation matrix followed by a step wise regression was conducted. This method involves gradual addition of variables (forward selection) to the elementary regression and then their effects observed on the overall R^2 to the model for several times. The variables which had serious correlation were automatically removed out of the model. The new variables that improved R^2 without rendering considerable effects neither on the signs nor on the values of the individual coefficients to be unacceptable in the equation were included. For autocorrelation a Durbin Watson test was done. White test was conducted to test for heteroscedasticity. The data were found free of both autocorrelation and heteroscedasticity. Descriptive analyses were done using statistical package for social science (SPSS) version 12 and quantitative analysis was done using LIMDEP econometric software version 8.0.

3.8 Problems encountered during the survey

Some of the millers were relatively unwillingly to answer some of the questions in the questionnaire. It is suspected that some millers feared the information might be leaked to competitors or government staff involved in tax collections. This was particularly observable when seeking information on income, production costs, sales, taxes, bank loan and assets. On average, only one out of every three mills visited provided such information. It was common to complete only three interviews per day.

Furthermore answers given by the millers depended heavily on memory recall. This was worsened by non existence of records were more serious on operating costs such as maintenance costs and labour costs. However much computational task had to be done in order to convert answers in to proper units of measures because many units were not standardized. Monthly income and cost of production (variable costs) were obtained through calculating their daily, weekly averages.

This study is based on a case study. As a result, findings of the study are based on cross-sectional data collected from a limited number of observations (millers) in selected area of Dar es Salaam and Morogoro regions. Therefore, conclusions drawn from this study cannot be generalized for the whole country. However in spite of the above limitations it is expected that the study gives indications of what could be happening in financing maize and paddy milling in Tanzania.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Overview

This chapter presents the results and discussions of the study. It begins by describing household characteristics of millers followed by description of management of mills and marketing and financial flow of cereals and end products, and finally access to credit from formal and informal credit markets. The surveyed millers were categorized into maize and paddy millers. This categorization was based on the grounds that the two types of millers were found to have a slight difference in their mode of procuring cereals, and access to credit markets.

4.2 District of the millers

The total sample obtained was 87 small scale millers. Maize millers were 47 and were obtained from each district as shown in table 2 below. Paddy millers were 40 and were obtained from Morogoro urban and Kilombero districts. Kinondoni and Ilala districts had no paddy millers. These imply that the rice sold in Dar es Salaam is milled from other regions of this country.

Table : Distribution of millers by district

District	Maize millers n=47	Paddy millers n=40	Overall % n=87
Kinondoni	51.1	NA	27.6
Ilala	34.0	NA	18.4
Kilombero	2.1	60.0	28.7
Morogoro	12.8	40.0	25.3

4.3 General household characteristics

This section presents the major characteristics of millers. The main identification features of sample small scale millers are laid out in table 3. Such characteristics include: age, gender, marital status, education and other occupation.

4.3.1 Age of the millers

From table 3, the typical average mean age of millers was around 36 years for both maize and paddy millers. Maximum age was 58 years and minimum 26 years. This result reflects that, the milling activities are performed mostly by a very active age group. Milling business need active people who are able to run and monitor the business effectively. The results are similar with those observed by Mead and Liedholm (1998) in Botswana, Kenya, Malawi Swaziland and Zimbabwe; that most entrepreneurs are relatively young people who might have sought jobs in government or private organization.

4.3.2 Gender of the millers

Because of the social set up of the country, men predominate many of the occupation/income generating activities. The survey revealed that female form 29.8% and 15% for maize and paddy millers respectively. This implies that, although the government supports women in their income generating activities, women still lack enough capital to enter into cereal milling business. Gender and cereal milling is one such area. Coming to terms with gender in trade would necessitate daily activity schedules for men and women traders to show what, if any, time constraints exist for women traders. Oral histories of men and women traders could reveal their different trading career tracks. Differences between men and women traders could prove to be highly revealing. Most women have no access to enough capital and hence are engaged in micro-enterprises which need little

capital, are easily operated and which respond to market competition of products quickly (e.g. food vendors) (Minga, 1998). In both urban and rural settings, women tend to engage in activities that offer easy entry and exit and do not require large amounts of working capital. Such activities offer the flexibility regarding time commitments that enables women to balance their work and family obligations (Ledgerwood, 2000).

4.3.3 Marital status of the millers

The study also revealed that majority (82.8 %) of millers was married (Table 3). It was further noted that 13.8% of millers were single, and 3.4% were separated. These results may indicate that married people venture into production activities as the way of finding means of relieving financial problems facing their families. Chiduo (2001) found that married people have better chances of operating enterprises than people who are not married. This might be true in the sense that spouses mostly husbands in this case provide financial support for initial capital, and immediate support in the case of failure to raise or save the required premium. Marriage also might relate to the amount of assets that borrowers can have access to offerings as collateral. MEs operated by married owners have higher chances of survival in case the spouse has another source of income to meet, albeit partly, family maintenance costs (Chiduo, 2001).

4.3.4 Education of the millers

The survey result in table 3 revealed that most millers (47.1%) had primary education. It was further observed that very few millers (13.8%) had college or university education. Minga (1998) found that, the low level of education of the majority of millers was found to be one of the limiting factors in launching other business opportunities which could

bring in additional income and stability. Also Selejio (2002) found that entrepreneurs with some formal education were found to be much more productive than unskilled one. The implication is that whoever is interested to help millers in terms of skills gains, knowledge and other training should do so consciously while acknowledging their educational background. For instance, it was noted in the study that millers were interested to learn new techniques of doing business including business planning skills. With the knowledge of the millers, interveners intending to impart such skills will have to use tailor made or special programmes. The goal ought to be one of disseminating education in a language, form and media that can be comprehended by locally educated audience.

4.3.5 Other occupation of the millers

Table 3 presents the distribution of millers by occupation other than milling. The results show that 25.3% of the millers surveyed were involved in farming activities. This was specifically for paddy millers (55%). Few millers (4.6%) were keeping livestock. About 26.4% were involved in doing other business like shop keeping, car garage and others. Very few millers (3.4%) were employed in the formal sector and about 40.2% had no any other activity apart from milling operation. This implies milling business require close monitoring and management.

Table : Summary of household characteristics of millers

Variable measured	Maize millers n=47	Paddy millers n=40	Overall % n=87
Age distribution			
Mean age	36.9	35.7	36.4
Standard deviation	4.9	7.9	6.5
Minimum	26.0	23.0	23.0
Maximum	47.0	58.0	58.0
Gender of miller			
Male	70.2	85.0	77.0
Female	29.8	15.0	23.0
Marital status			
Single	12.8	15.0	13.8
Married	80.9	85.0	82.8
Separated	6.4	NA	3.4
Education level			
None	2.1	NA	1.1
Primary	25.5	72.5	47.1
Secondary	53.3	20.0	37.9
College	19.1	7.5	13.8
Other Occupation			
Farming only	NA	55.0	25.3
Livestock	8.5	NA	4.6
Business	42.6	7.5	26.4
Employed	6.4	NA	3.4
No other occupation	42.6	37.5	40.2

NA = Not available

4.3.6 Experience in milling business

The results have indicated that, the average mean years of undertaking the same enterprise was 7 years. Minimum years were 1 and maximum 22 years (Table 4). Years of experience may have a positive bearing on profits due to increased bearing maneuvers and having more customers. Kayunze and Twamala (2000) found that years in business of SMEs were positively correlated with net profit implying that experience in business helps realize more profit. Probably this is one of the reasons why most financial institutions prefer to give credit to entrepreneurs who already had business.

Table : Number of years in milling

Years	Maize millers n=47	Paddy millers n=40	Overall % n=87
Mean	5.7	8.6	7.0
Standard deviation	4.1	5.9	5.2
Minimum	1.0	1.0	1.0
Maximum	18.0	22.0	22.0

4.4 Management of milling business and marketing

This section explores the marketing and management of mills and its impact on the overall marketing system in the study area. Throughout this section four areas are taken into consideration: source of funds for investment and operating capital, source of raw materials, duration of stockholding of cereals, end products, marketing and financing maize and paddy millers. The aim was to identify the reasoning behind the millers marketing management and decision-making. In this section sample millers were found to have partly different in milling operation. In order to understand their role and to have representative of millers in each category, sample millers were grouped into two categories of maize and paddy millers.

4.4.1 Source of funds for investment and operating capital

Table 5 indicates that the majority of the small scale millers in the study area depended on their own saving as the source of capital to launch their enterprises. Of 87 interviewees 78.2% indicated to have used their own saving to start their milling, while 11.5% relied on contribution made by the family members and or friends and (10.3%) reported to have

had access to credit from formal financial institutions. Buckley (1997) asserts that, such MEs start with very small capital and owners experience grows as the MEs grow.

Furthermore in term of operating costs, about 55.2% of surveyed millers costs for day-to-day operations were reported to be financed by own saving only, while 44.8% of millers used both own saving and credit. This may be an indication that people wishing to start up business without a good track record are likely to experience entry difficulties. The results further imply that sustainable operating capital is crucial for cereal millers because they have fixed costs and must cover those throughout the year, and they have obligations that need a guaranteed regular and sufficient supply of products in order to meet the needs of their longstanding customers throughout the year.

Table : Distribution of millers by source of funds for investment and operating costs

Variable measured	Maize millers n=47	Paddy millers n=40	Overall % n=87
Source of Investment cost			
Own saving	70.2	87.5	78.2
Grants	14.9	7.5	11.5
Credit	14.9	5.0	10.3
Source of Operating costs			
Own saving only	40.4	72.5	55.2
Own saving and credit	59.6	27.5	44.8

4.4.2 Source of cereals

The results indicate that all paddy millers obtain cereals directly from farmers. But for this situation was different from maize millers where by only 21.3% obtain maize directly form the farmers in villages (Table 6). The major source of cereals for maize millers was

from middlemen who received maize from either traders or farmers from villages. About 21.3 % of maize millers obtain maize from wholesalers. In general, these findings suggest that most millers depend on intermediaries for their supplies of raw materials. This is because 57.4% of maize millers rely on middlemen to obtain maize from traders. Also even for the paddy millers the situation was that once they go to buy paddy in the villages, they meet agents (*Dalali*) who collect paddy from different peasants till they get the desired consignment. The cost for that activity ranged from 500-1000 per bag of approximately 115 kg. This situation also found in other countries however with slightly difference. For example in other countries wholesalers operate on a commission basis to link buyers to sellers in whole sale markets. In Pakistan for example, such commission agents advance apparently interest-free loans to village assemblers and pre-harvest contractors who, in turn, provide farmers with interest-free loans for inputs and family requirements (Sherpherd, 2004).

Table : Distribution of millers by source of cereals

Source of cereals	Maize millers n=47	Paddy millers n=40	Overall % n=87
Directly from farmers in villages	21.3	100.0	57.5
Middlemen	57.4	NA	31.0
Whole sellers	21.3	NA	11.5

4.4.3 Average duration of stockholding raw materials

Results from the field survey indicate that the average duration of holding stock of cereals was 8 days. Furthermore, the minimum and maximum duration of holding stock was 1 and 21 days respectively (Table 7). Few days of holding stock could be associated with absence of warehouse and enough capital to buy large consignment. However millers further replied that the basis for holding stock was to reduce marketing costs (55.2%). This

was because there were many millers and they had to mill according to the customer demand. About (44.8%) hold cereals until they get wholesalers to make order. The other reason to store for few days could be because of price instability of cereals. This was observed in Dar es Salaam whereby the price of maize fluctuates every day. This situation was caused by amount of maize brought by traders to Tandale market. Therefore this situation might be influencing millers not to store large stock of maize in order to avoid the risk of loss. This phenomenon is contrary to many studies of millers in Asian countries (Pakistan, India and Vietnam) where millers hold stock of paddy in order to wait for seasonal price rises (Rafique, 2006). The price fluctuation can indicate market integration across the country. It has been found that there exists a relatively high level of integration in the maize market which allows responsive market prices following changes in supply and demand (World Bank, 2005). Ashimogo (1988) asserts that, farmers in Sumbawanga district dispose off their marketable cereal in a manner consistent with sound economic behavior. In other words the stronger the effective market demand as expressed by high prices the greater the volume of maize supplied. It thus becomes very difficult for the millers to obtain economic volumes of cereals for profitable milling operations, especially those who are trying to invest in more expensive/higher technology machines. The seasonal variations in price and lack of proper information on production levels make milling planning difficult. Therefore while economic volumes could be obtained by buying buffer stocks during the peak harvest seasons to ensure longer operating periods, high volume purchase of cereals is constrained by enough space to store and limited funds available to the majority of small scale millers.

Table : Distribution of millers by average duration of stockholding of stock

Variable measured	Maize millers n=47	Paddy millers n=40	Overall % n=87
Days			

Mean	7.1	11.0	8.8
Standard deviation	5.1	3.8	4.9
Minimum	1.0	2.0	1.0
Maximum	21.0	21.0	21.0
Reasons			
Reduce marketing costs	78.7	27.5	55.2
Wait wholesalers to make order	21.3	72.5	44.8

4.4.4 Duration for holding end products

The survey reveals that the mean storage duration to hold stock of end products was 5 days. The minimum and maximum stockholding was 1 and 21 days. Maximum duration to hold stock of end product (rice) for paddy millers was 12 days but for maize millers it was 21 days (Table 8). This discrepancy between maize and paddy millers may be due to the fact that, in Kilombero district; most millers do not mill their paddy till they get a customer to buy rice. After negotiating the price, millers mill and take the rice. And therefore they do not hold stocks finished products. However in Morogoro urban paddy millers do not wait for customers then to mill. Instead they mill and stockhold the rice and sell it to customers. For maize millers the situation was a bit different in the sense that once they buy maize they mill and stock the finished products for a few days before it is taken by whole sellers.

The main reason for stockholding finished products by millers include waiting for better prices (9.67%), and orders from wholesalers (73.6%). These results reflect one of the reasons to hold stock of raw materials as discussed in section 4.4.2 above. This means that these millers receives orders from wholesalers and mill the cereals and bulk the end products until when the wholesalers collect them. Furthermore about 19.5% of millers hold stock of end products waiting for consumers or retailers to buy.

Table : Distribution of millers by duration and reasons for holding finished products

Variable measured	Maize millers n=47	Paddy millers n=40	Overall % n=87
Duration (Days)			
Mean	7.2	3.1	5.3
Median	7.0	1.0	5.0
Standard deviation	5.2	3.3	4.8
Minimum	1.0	1.0	1.0
Maximum	21.2	12.0	21.0
Reason			
Wait for better prices	8.5	5.0	6.9
Customer order from rice wholesalers	76.6	70.0	73.6
Wait for customer to buy (retailers/consumers)	14.9	25.0	19.5

4.4.5 Marketing and financing flows of maize and paddy in the study area

Figures 2 and 3 traces typical marketing channel and its accompanying credit channel for maize and paddy. In both channels it was found that commission agents plays a great role in linking cereal traders to the millers. The dominance of commission agents lies in the substantial advantage that these agents possess information. Where as in other countries like Philippines marketing agent provide credit to farmers (Sherpherd, 2004), in the study area it was not the case.

To understand how cereals move through various channels, it is necessary to identify the roles of various marketing agents (participants) involved in maize and paddy marketing. Markets participants refer to all individual or firms that are involved in marketing process. For maize, the channel begins with maize farmers¹. The farmers are typically subsistence and small scale. They produced maize and sell directly to the millers, sell to assembly markets, or to larger traders. Maize marketing involves a number of participants as the maize is moved from the farmer until it reaches the final consumer. Farmers sell maize to assembly market or to maize trader/village collector or transport his maize directly to Dar es Salaam in Tandale market. In Tandale market the farmer/trader has two options; either to sell the maize to the market or to a miller who were many in that area. But the funny

¹ Maize farmers from Tanga, Morogoro and Dodoma regions were the most one who sold maize in the study area.

observation found was that, this farmer or trader cannot sell the maize directly to the millers, rather he was obliged to find a commission agent who takes the sample of maize to millers and negotiate price.

The other channel found was the SGR which buys maize for relief elsewhere either in the country or outside the country. It is the most preferred buyers of many of the large farms. There were large traders/processors such as the Coast Millers, Mohamed Enterprises Limited and export trading. These big companies not only trade in maize but also process and export maize. They own silos that enable them to buy large quantities when the price is low in harvest seasons and store the same until the price improves. The agents and traders buy reasonably large quantities. They buy directly to the farmers or from village collectors. They sell to whole sellers or to millers or to the large traders. Also other channel was wholesalers. These are traders who buy maize from either farmers or from assemblers and transport the cereal to where they sold to assemblers, retailers or millers. Most wholesalers are also vertically integrated into assembly, as most of the volumes they purchase in the post-harvest months are direct from farmers.

For paddy, as can be seen from figure 3, marketing channels for paddy and rice can be simple. In the study area the pivotal point in the chain was the miller as they are involved themselves in buying paddy from the entire villages. That is there were direct sales by farmers through village collectors to millers who make a journey to buy paddy in their villages. In Pakistan and India, for example paddy may pass through two or three hands before being milled (Esguerra, 1993).

The flow of end products (rice and maize flour) had three routes to reach the final consumers. Some times the products go directly to consumer but in some cases the

products pass through one or two hands before reaching consumers. In the second route millers sell their products to retailers and the third route involve selling of products wholesalers. For paddy millers, there was a slight difference in selling rice between millers from Morogoro urban and in Kilombero district whereby millers in Morogoro use commissioned retailers to sell their rice.

About the flow of finance, as any developing country, the financial system of Tanzania has its formal and informal components. From the survey it was found that there was an interaction between the formal and informal financial credit markets. The linkage typically takes the form of significant flow of funds between the two sectors. Informal lenders often borrow their formal counterparts. However the informal sector was found to be widely diverse. At one end of the spectrum it was highly personalistic system of reciprocity among relatives and friends situated within a scheme of reciprocity in which loan transaction do not carry interest charges and at the other side an interest was charged. Several studies document the evidence of flow of funds from formal to the informal sector (Zeller, 1994). These findings are supported by survey of formal lenders in Philippines which found that a third of formal and development banks had lent to informal lenders (Sherpherd, 2004). For maize millers it was maize farmer/traders who lend consignment to the millers and receive payments later. Also the millers themselves lend consignment of end products to wholesalers retailers.

For paddy millers, the mill owners lend other millers some money to support them to buy and transport paddy from the villages². In the villages they find agents who collect paddy from different households. Once they buy paddy they organize themselves in order to load a lorry. In Kilombero it was noticed that paddy millers do not mill paddy until he is

2 Villages found in Kilombero, Kilosa, Mvomero and Ulanga districts.

approached by a wholesale rice customers but in Morogoro they mill and leave the consignment to sub-commission who sell on their behalf. The informal finance goes to whole sellers who takes the consignment and repay money after selling.

Figure 4.1 Maize marketing and financial flow in the study Consumers
Government

Maize imports

Retailers

Banks
NGOs
MFIs

Larger flour milling companies

Wholesalers

Formal finance
Informal finance

Small scale millers

Small scale millers

46

SGR

Assembly market

Wholesalers/retailers

Commission agent

Larger trader
Maize trader/agent/village collector

Assembly markets
Farmer/Maize trader

Maize farmer

Fig 2: Marketing and financing flows of maize in the study area

Government
Consumer

Banks
NGOs
MFI

Retailers

Sub commission
agents

Wholesalers

Formal Intermediaries

47

Informal Intermediaries

Rice millers

Paddy miller/Mill owners

Paddy trader
Commission
agent

Commission agents

Paddy trader

Other paddy millers
Farmer/producer

Wholesale/retailers

Fig 3: Paddy/rice marketing and financing flow in the study area

4.5 Access to formal credit markets
Access to and use of credit from formal sources is discussed in this section. In order to understand the nature and extent of use of formal credit sources, the sample millers were grouped into type of cereal milled. The aim was to identify and reasoning behind availability and nature of credits to the millers.

4.5.1 Formal credit sources

Among 87 interviewed maize and paddy millers, 44.8% had access to credit and the rest (55.2 %) had no access. The proportion of millers who had access to credit facilities was relatively higher for maize millers than paddy millers (Table 9). The big proportion of paddy millers who had no access to credit facilities could be attributed to the absence and or inaccessibility of credit facilities and lack of sound collateral. It was found that most paddy millers rent mills to conduct milling operation while maize millers owned the milling machines and used them as collateral. It has been argued that the institutions supporting the SME sector are fragmented and concentrated in urban areas (URT, 2003b). The results also imply that despite the current financial sector reforms that have resulted in liberalization of the financial sector to a greater extent including establishment of a number of banks and microfinance institutions, still SME sector is facing a major constraint in accessing finance. This limits their capacity to survive, upgrade its technologies and even in many cases, expand their markets and improve management or raise productivity and eventually increase incomes.

Table : Distribution of millers by formal credit application

Credit application	Maize millers n=47	Paddy millers n=40	Overall % n=87
Yes	66.0	20.0	44.8
No	34.0	80.0	55.2

4.5.2 Most recent source of credit

The sources of credit that were found to be more important in the study area were Banks (59%), SACCOs (30.8%) and other microfinance institutions (10.3%). Among the three sources of credit, banks (NMB) and SACCOs were the most important (Table 10). The dominance of NMB can be attributed to the fact that NMB has many branches even in rural areas. They also have longer loan maturity periods, which are considered favourable to SME financing (Chiduo, 2001). About SACCOs number of members was still minimal. Owing to the poor access of formal financial services in the rural areas, the formation of SACCOs has been advocated and encouraged by the Government as one way of promoting access to financial services. The sensitization to form and join SACCOs is still needed.

Table : Most recent source of credit for the millers

Variable measured	Maize millers n=31	Paddy millers n=8	Overall % n=39
--------------------------	-------------------------------	------------------------------	---------------------------

Most recent source

Bank	61.3	50.0	59.0
SACCOs	25.8	50.0	30.8
MFIs	12.9	NA	10.3
Type of financial institution			
NMB	32.3	50.0	35.9
ACB	16.1	NA	12.8
DCB	12.9	NA	10.3
PRIDE	9.7	NA	7.7
SACCOs	25.8	50.0	30.8
FINCA	3.2	NA	2.6

In more details it was found that, more than half of female millers however small in number had accessed credit (Table 11). This could be because of the objective of many MFIs to empower women by increasing their economic position in the society. Women entrepreneurs have attracted many special interests from MFIs because they almost always make up the poorest segments of society; they are generally responsible for child-rearing and they often have fewer economic opportunities than men. It has been argued that an increase in women's income benefits the household and the community to a greater extent than a commensurate increase in men's income. Women have also demonstrated higher repayment and savings rates than male clients (Ledgerwood, 2000).

Table : Distribution of access to credit by gender

Credit application	Male n= 67	Female n=20	Overall % n=87
Yes	41.8	55.0	44.8
No	58.2	45.0	55.2

4.5.3 Conditions considered to get credit

To obtain a loan, borrowers must usually and necessarily comply with some loan conditions. The study has shown that millers consider collateral as the most difficult condition for credit access (59%) (Table 12). This situation could be of the fact that some millers rent mills and therefore can't use them as collateral. The appraisal for loan applications from formal creditors is often based more on the collateral offered than on the business proposition put forward or the loan repayment capacity of the prospective borrower. The ability to offer collateral is thus almost essential in dealing with banks. In Vietnam for example, 84% of loans from the Vietnamese Bank for Agricultural and Rural Development were secured using collateral on buildings, or land or other real assets (Ghate, 1992). Other conditions which were assumed by the study to be undesirable received very little response. These include business records (15.4%), deposit accounts (20.5%) and referees (5.1%). Deposit account was the pre-condition to get a loan from SACCOs. SACCOs visited declared that individual can borrow three times of the cash deposited in SACCOs. As a result of constrained access to formal credit, the poor rely almost exclusively on the informal financial sector. A study of credit in Uganda by Rafique (2006) found that informal lenders innovatively seek to solve the problems of high risk, high cost and low returns that banks face when serving the poor.

Table : Distribution of millers by conditions considered to get credit

Conditions	Maize millers n=31	Paddy millers n=8	Overall % n=39
Business record	19.4	NA	15.4
Collateral	61.3	50.0	59.0
Referee	3.2	12.5	5.1
Deposit account	16.1	37.5	20.5

4.5.4 Time taken to get loan

The mean number of days to access loan was found to be 23 days. The minimum and maximum was 12 and 42 days respectively (Table 13). The time taken to deliver the loan can be accounted for by the time needed in visiting the miller in order to assess the project, assessing the securities and drawing necessary information of the client. It has often been argued that the formal financial sector in most developing countries has failed to serve the rural communities due to collateral, credit rationing, reference for high-income clients and large loans, and bureaucratic and lengthy procedures of providing loan (Wangwe, 2004).

Table : Time taken to process formal loans

Days	n=39
-------------	-------------

Mean	23.1
Standard deviation	8.0
Minimum	12.0
Maximum	42.0

4.5.5 Difficulties in loan acquisition

About 61.5% of millers who received credit had difficulties in loan acquisition and 15% didn't experience any difficulties. The most difficult issues were the lengthy procedure used until to one secures the loan (79.2%), and high transaction costs (20.8%) (Table 14). Poor clients also encounter substantial transaction costs (e.g. time and transportation costs) in dealing with banks, *inter alia* because banks are often not conveniently located. This costly access for credit is considerably decreased by informal lenders,

Table : Distribution of millers by difficulties in formal loan acquisition

Variable measured	Frequency n=24	Percentage
Difficulties		
Yes	24.0	61.5
No	15.0	38.5
Most difficult issue		

Length procedure	19.0	79.2
High transaction cost	5.0	20.8

4.5.6 Amount of loan obtained

Millers were asked about the amount of last loan obtained. The study revealed that the majority of millers (48.7%) received loans amounting to less than 1 000 000Tsh. Also, about (38.5%) have received loans between 1 000 000Tsh and 5 000 000Tsh. Higher loan levels (greater than 5 000 000Tsh) were received by only 12.8% of millers (Table 15). The maximum loan was 20 000 000Tsh and minimum was 250,000Tsh (Appendix 5).

Table : Amount of loan received by millers

Amount Tsh	Frequency n=39	Percentage
Less than 1 000 000	19.0	48.7
1 000 000 - 5 000 000	15.0	38.5
Above 5 000 000	5.0	12.8

4.5.7 Loan duration

The results in table 16 shows that the millers surveyed had varying loan duration. The minimum duration was 4 months (5.1%) and the maximum was 24 months (5.1%) other duration are as displayed in table 4.18. The mode of repayment was mainly on monthly basis (87.2%) and few millers (12.8%) were repaying on weekly basis. Normally Borrowers are able to repay their loans on time without suffering hardship only when their repayment capacity equals or exceeds the debt service due according to the loan contract.

Table : Loan conditions and repayment frequency

Variable measured	Frequency n=39	Percentage
Duration in Months		
4	2.0	5.1
6	19.0	48.7
12	16.0	41
24	2.0	5.1
Repayment frequency		
Weekly	5.0	12.8
Monthly	34.0	87.2

4.5.8 Brief description of financial institutions surveyed

There are a number of credit institutions that support small and micro enterprise activities in the study area. These include commercial banks, development finance institutions, and rural credit organizations like SACCOs. The financial institutions described hereunder were the ones with more clients from cereal millers.

4.5.8.1 National Microfinance Bank (NMB)

National Microfinance Bank (NMB) provides loans for an existing business and not to launch a business. More over the business must be at least one year in operation. This provides evidence that the client is assumed to have enough experience about the business and is assumed to be able to handle the loan provided. The bank provides loans to many kinds of businesses. However no loans are given to support agriculture directly except sugarcane out growers. To be eligible to access the loan, the client must be of the age eighteen and above, the business must be legal and must be within 20km from the bank. The reason for the later is to minimize the cost for the bank for visiting the business. The business must also have a license, and the owner must have a security however a third party may be used to grant collateral to the client. The terms of the loans provided are categorized in to four including loan for MEs, loan for SME, personal loans and Pensioners loan. For MEs the loan doe not exceed one million that is from 50,000Tsh to one million. And the repayment time is six months. For SME the amount ranges from 5,000,000Tsh to 30,000Tsh For this loan there must be a detailed business plan and audit report. There is no cost to the customer at all levels except for SMEs. The processing cost was 0.5% of the value of the credit requested. For SME the interest rate was 18% and the loan duration is 12 months. For MEs the loan interest was 2% per annum. There is no grace period and repayment start after only one month of lending.

4.5.8.2 Dar es Salaam Community Bank (DCB)

The Dar es Salaam Community Bank provides micro loans which are categorized into solidarity group loans, salaried loans and individual or commercial loans. People who are eligible to access loan are all Dar es Salaam citizens micro entrepreneurs. These citizens are categorized in the following: Self employed women, men and youth working in the informal sector. Small and medium enterprises with potentials to increase employment capacity and employees with whom their employers are willing to guarantee them. Collaterals of non removable properties are applicable for individual/commercial loans.

Lending are guided by policies and regulation under the Bank of Tanzania Regulation Act, Loan policy and operation manual, risk management policy and risk based audit police and, above all, the international financial and auditing standards. However, the terms differ from one type of client to another. The interest rate for salaried loans is 18% per annum, and 30% and 21% for group lending and individual the durations of the loan are 12-24 months for both salaried loans and individual loans and 3 months, 6, 7 up to 12 months for solidarity groups.

4.5.8.3 Akiba Commercial Bank (ACB)

Its original mission of specializing in providing financial services to small and medium-size enterprises met stiff competition, and changed in August 1999 to providing a range of banking and financial services to micro and small businesses on a commercial basis. The client seeking the

loan must have a business and experience of at least one year. The loan taken is to facilitate business and not to start a business. The basic requirement is that the client must have an account with a minimum deposit of 22,000Tshs and two referees from the same bank. The ACB offers individual loans and group loans. For individual loans the client must have collateral which cover at least 70% of the loan (which include movable and non movable assets).The interest rate decrease depending on the frequency of getting the loan. The first individual loan is charged an interest of 25% for duration of six months. The second and third loans are charged 24% and 23%respectively for the duration of payment of one year. The bank also offers short term financing which is repaid within three months (minimum is 200 000Tsh).

4.5.8.4 WANAMA SACCOs

WANAMA an acronym for *Wafanya Biashara wa Nafaka Manzese*. The SACCOs was established in 2005 and has 250 members from whom 64 are maize millers. The SACCOs provide different variety of loans including loans for cereal business operation, stockholding cereals and for farming activities. The loan for cereal business has an interest of 2% per month. If the loans exceed 9 000 000TSh the lending duration is one year. Otherwise loans are usually offered for duration of six months. Loans for farming activities have an n interest of 3% and the amount loaned does not exceed 1 500 000TSh the loan duration is 8 months. The first condition for accessing WANAMA loans is that the client must have been a registered member for at least after three months. If the loan is less than 3 millions shillings, there is no need for collaterals.

4.5.8.5 Tandale SACCOs

Tandale SACCOs was registered in 2003 and it provides normal loans and emergency loans. The Condition to get a loan is that the client must be a registered member for at least three months. However, in service³ members they can get the loan after one month of registration. For any amount loaned, the loaner must have at least 40% of the loan in their deposit account. The first loan is less than one million shillings and the interest is 2%. The second loan range between one million to two million shillings and the interest is 1.9% for first loan and 1.8% for second loan. The SACCOs also provide group loan at a 1.5% interest rate.

About repayment, the first loan is repaid within 24 months whereas the second loan is less than two million shillings and is repaid within 36 months. In service members can borrow up to two and up to four million shillings first and second loans respectively. The SACCOs has one month grace period before the client begins to repay the loan. The loan must be paid in the first 1-5 days each month. Beyond these days a penalty of 0.5% of the amount to be repaid for that month is added. Otherwise alternatives after the 5 days 1,000Tsh is increased to the amount to be repaid for that month as a penalty.

³ In service members refers to members who are employed by the government

4.5.9: The most preferred credit sources

Survey results indicate that 23% of interviewed millers prefer to borrow credit from banks. About 16.1% named SACCOs as their best source of credit while 40.2% prefer more to borrow from informal sources (Table 17). Few millers prefer other microfinance institution (FINCA and PRIDE). The rest of the millers (17.2%) were indifferent or did not prefer borrowing from either source. Further no paddy miller preferred credit from MFIs. This is attributed by the fact that most loans from MFIs are repaid on weekly basis and due to the nature of paddy milling as described in section 4.4. It is difficult for them to repay the loan on weekly basis.

Table : Most preferred credit source by millers

Credit source	Maize millers (n=47)	Paddy millers (n=40)	Overall % n= 87
Bank	31.9	12.5	23.0
SACCOs	27.7	2.5	16.1
Friends and relative	21.3	62.5	40.2
MFIs	6.4	NA	3.4
None	12.8	22.5	17.2

4.5.10 Reasons for preferred credit sources

Reasons advanced by millers who prefer institutional credit sources include low transaction costs (8.3%), no collateral required (20.8%) flexibility in repaying the loan (27.8%) and no interest charged (18.1%). Few millers (25%) had other reasons (Table 18). This could also be attributed to the nature of paddy milling whereby much time is taken to procure cereals from villages. This precludes millers from taking short-term loans that are repaid on weekly basis. The preoccupation with collateral leads thus to a suboptimal allocation of funds. While there may be a cereal of plausibility to this argument, it is a fact that banks are obliged to protect the assets of their depositors, creditors, owners, which does not leave much room for experiments with unsecured portfolios (Kerstin, 2003).

Collateral is also a screening device (next to a number of other screening devices built into a loan contract, for example the interest rate). The pledge in a collateral arrangement means that the borrower could lose part of his property if he does not pay back; the borrower has an interest in paying back. The hesitation of a borrower to provide collateral could signal to the bank that the borrower is fully aware of the implications of making this pledge, and if he does provide collateral, then he is likely to do everything to avoid the loss of the pledged asset (Kerstin, 2003). Collateral-free practices are generally associated with the informal financial sector, in fact the absence of collateral is considered to be one of the outstanding features of the informal financial sector. This is plausible because of the greater proximity between lender and borrower and the facilities to obtain reliable information on default risk quickly and cheaply. The absence of collateral could also partly explain the high interest rates on informal sector loans which may contain an important risk premium (Kashuliza, 1993). To address this problem, banks usually attach

collateral requirements to loans. Collateral not only assists in determining creditworthiness, but also solves the incentive and enforcement problems. Unfortunately, conventional collateral requirements usually exclude the poor, who seldom have sufficient forms of conventional title, resulting in banks failing to meet the poor's demand for credit.

Table : Distribution of millers by reason to prefer source of credit

Reason	Maize millers n=41	Paddy millers n=31	Overall % n= 72
Low transaction cost	12.2	3.2	8.3
No collateral needed	4.9	41.9	20.8
Flexibility	43.9	6.5	27.8
No interest charged	7.3	32.3	18.1
Other	31.7	16.1	25.0

4.6 Access to informal credit markets

Access to and use of credit from informal sources is discussed in this section. In order to understand the nature and extent of the use of informal credit sources, the sample millers were grouped in to districts of origin and into type of cereal milled.

4.6.1 Informal credit sources

Out of 87 mills surveyed more than half of the millers (67.8%) indicated that they had approached informal lenders and 32.2% had not obtained credit from informal lenders (Table 19). Those who have obtained credit from informal lenders mentioned that there were no well organized informal lending mechanisms for indigenous entrepreneurs in their area. Therefore, finance assistance has to be obtained from friends with little strict repayment conditions. For example, the only major pre-condition was that, one has to be trustworthy and to be well known by his or her

fellow money lender. Aryeetey (1996) ascertains that virtually many studies of informal finance in both rural and urban areas are that a substantial majority of lending occurs between friends, family and neighbors. It can thus be concluded from the findings of this study that informal sources of credit play a very big role in both maize and paddy milling. These findings are in line with studies by Aryeetey (1996), who found informal sources of credit to be important to both agriculture and non agricultural enterprises.

Table : Access to and use of informal credit by millers

Access to informal credit	Maize millers n=47	Paddy millers n=40	Overall % n=87
Yes	68.1	67.5	67.8
No	31.9	32.5	32.2

4.6.2 Source and form of informal credit

The source of informal credit was maize traders/farmers (50.8%) and (49.2%) of millers obtain informal credit from other millers. In more detail the study results reveal that all surveyed paddy millers obtain informal credits from other millers. This was due to the fact that some millers lend their fellow millers when they go to the villages to buy paddy. The relationship with lender was that about 66.1% of millers obtain informal credit from people who are well known to them and friends. This result is similar to Kashuliza (1993), who reported that about 66% of interviewed farmers who borrowed from informal sources did so from relatives, neighbours and friends. About 33.9% of millers obtain informal credit from people who didn't have relationship (Table 20). This was specifically for maize millers who obtained credit from traders who take maize to Dar es Salaam.

The form of credit was both in cash and kind depending on the prevailing borrower demands. However, these forms of informal credit differed between maize and paddy millers. Whereas all maize millers who used informal credit named consignment as their form of credit, all paddy millers used cash form of informal credit (Table 20). This was because the maize millers took informal credit in form of consignment from the maize trader/farmer who takes maize from the villages to urban areas to sell. Paddy millers obtain some cash from other mill owners. This type of lending was tied to a guarantee of getting these millers to use their mills. The cash was mainly used to pay part of the cost of transporting paddy from the villages. This could be because of means of procuring paddy was complex in terms of going to the villages, buying paddy and transporting it to the

mills. There were many charges along the route including shelter, hiring the lorry and tax levied along each district passed. As in the case of paddy, there is some evidence that traders at the same level provide loans to each other. This appears to be more in the form of product than cash. For example, traders in Agora wholesale market in Mindanao, Philippines lend produce to other traders who have a contract to fulfill but have been unable to procure sufficient product to meet that contract (Esguerra, 1993). Also the result is similar to the credit survey done by Zeller (1994) in Madagascar that most frequent lenders are friends and relatives. They provide the bulk of short-term credit, either in cash or in kind, normally for a couple of days. Most of these loans are interest free.

Table : Sources and use of informal credit by millers

Variable measured	Maize millers n=32	Paddy millers n=27	Overall % n=59
Source			
Other millers	6.0	100.0	49.2
Maize farmer	93.8	NA	50.8
Form of informal credit			
Consignment	100.0	NA	54.2
Cash form	NA	100.0	45.8
Relationship with informal lender			
Well known friends	37.5	100.0	66.1
They lend to any miller in need	62.5	NA	33.9

4.6.3 Informal interest rate

While informal lenders are often perceived to have outrageous high interest rates, in contrast with formal lenders, there appears to be considerable variation in the rates of different informal lenders between the study areas. Aryeetey (1996) noted from an analysis of variance in the monthly rates of Ghanaian informal lenders that the main source of variation was the type of lender. The study results show that, there was no interest charged for taking informal credit for paddy millers. This was because some of the mill owners wanted to attract millers to mill paddy in their mills. Kashuliza (1993) argues that in general, interest charges are not imposed on credit from relatives. However, for maize millers there was an interest charged. The interest ranged from 1.95% to 6.49% per kilogram of maize loaned (Table 21). These rates were not much different from rates observed elsewhere in Africa. However some lenders have been observed to have interest rates that go beyond 100% for one-year loans. It is obvious that there is no clear pattern to informal interest rates determination. The millers argued that the interest charge was aimed to be the cost of keeping the maize trader to wait for the miller to mill, sell the product and pay the money. It has been found that larger informal loans, or loans for a longer duration, frequently carry positive interest rates even if the lenders are friends and relatives (Zeller, 1994).

Table : Informal interest rate for the millers

Interest rate	Maize millers n=32	Paddy millers n= 27	Overall % n=59
Mean	3.1	NA	3.1

Standard deviation	1.1	NA	1.1
Minimum	1.9	NA	1.9
Maximum	6.5	NA	6.5

4.6.4 Informal loan duration

The survey results show that, overall the loans were paid back in agreed time depending on the time taken to mill the cereals and sell the final product. The mean loan duration was 9 days. Further it was found that the maximum duration was 20 days while 3 days was minimum (Table 22). Further more, paddy millers were found to have more loan duration than maize millers. This is because paddy millers needed more time to go to the villages to buy paddy, transport, and mill and then sell the rice. Zeller (1994) argues that larger informal loans, or loans for a longer duration, frequently carry positive interest rates even if the lenders are friends and relatives.

Table : Informal loan durations

Duration (days)	Maize millers n=32	Paddy millers n= 27	Overall % n=59
Mean	6.5	13.3	9.6
Standard deviation	3.0	3.6	3.0
Minimum	3.0	7.0	3.0

Maximum	20.0	21.0	21.0
---------	------	------	------

4.6.5 Condition required to obtain informal loan

To obtain a loan, borrowers must usually and necessarily comply with some loan conditions. Screening by individual lenders relies extensively on personal knowledge of the borrower either directly or through an introduction by an old client. Table 23 shows the lenders conditions, as reported by borrowers. The study has reported that, millers consider business record as the most important condition to get informal credit (89.8%). Other conditions were witnesses (8.5%) and collateral (1.7%). In general, this type of credit seems to be untied to any major security items and depends largely on mutual trust and guarantee to pay back in time. However since loans in the informal financial sector are mainly character loans (i.e. not backed by any collateral security), the borrower's reputation is of significant importance to the informal lender. For this reason, informal lenders invest both financial resources and time to gather information about potential borrowers from people known to them both in the market place and the villages where borrowers reside. The reputation of the borrower determines the probability of willful default, which may be assessed through how he has performed in the repayment of loans borrowed from other people. Borrowers with poor reputations will more likely be credit rationed.

Table : Distribution of millers by condition required to meet to obtain informal loan and type of witness used

Variable measured	Maize millers	Paddy millers	Overall %
	n=32	n= 27	n= 59
Conditions			

Business record	81.3	100.0	89.8
Collateral	3.1	NA	1.7
Witness	15.6	NA	8.5
Type of witness used			
Commission agents	43.8	NA	23.7
Neighbours	9.4	NA	5.1
No witness	46.9	100.0	71.2

Furthermore the survey revealed that few millers were required to have a witness. For maize millers types of witness were commission agents (*Dalali*) (23.7%) and neighbours (9.4%). The rest (71.2%) did not need witness in transacting their informal loans. Commission agents play a big role in transacting maize from traders who takes maize to Dar es Salaam. The remarkable argument in this credit arrangement is that, they act as trustees for the credit provided. This result is contrary to Zeller (1994) who found in Madagascar that formal loans are more frequently disbursed in the presence of a witness than informal loans, in order to be able to compel repayment through social networks.

4.6.6 Time taken to process the informal loan

The results of the survey indicate that the mean time to process informal loan was 2 days. The minimum and maximum was 1 and 5 days respectively but for paddy millers the maximum was 5 days (Table 24). This is because paddy millers use cash which needs some time to be

accumulated. The short loan processing time is necessary for proper and continuous milling operation. The short time to get informal loan could be the major factor which make more millers to rely on informal credit markets. Kashuliza (1993) found that farmers prefer to borrow directly from informal sources in comparison to formal sources because of the promptness with which informal credit could be secured in terms of times of need, as well as flexibility of getting the credit in cash or in kind.

Table : Time taken to process the loan

Time (Days)	Maize millers n= 32	Paddy millers n= 27	Overall % n= 59
Mean	1.3	2.9	2.0
Standard deviation	0.6	1.1	1.2
Minimum	1.0	1.0	1.0
Maximum	4.0	5.0	5.0

4.6.7 Millers-wholesalers linkage

It was found that, there was a strong links between millers and wholesalers of end products. The form of credit provision was a processed consignment (maize flour and rice) to wholesalers. Millers were found to have close business relationship with wholesale traders at different stages of the marketing chain. This often involves provision of consignment credit. About 65.5% of millers provide credit to other traders. Few of millers (34.5%) do not provide credit to other traders (Table 25). The form of repayment was on cash basis. This informal credit was interest-free consignment credit offered by millers to rice or maize flour traders with whom they have longstanding trading arrangements. Smith *et al.* (1992)

argues that much informal credit does not carry an excessively high rate of interest, some times it bears no interest at all. The duration of the loan is not clearly specified but is more related to the time it takes the trader to resell the quantity purchased from the miller. This phenomenon is different to other millers in Nepal and Philippines where supplies consigned in this way cost about 1.3 percent more than the cash sales (Crow and Murshid, 1994).

Table : Credit linkage between millers and other traders

Credit linkage	Maize millers n=47	Paddy millers n=40	Overall % n=87
Yes	87.2	40.0	65.5
No	12.8	60.0	34.5

4.6.8 Reason preferred for the form of credit linkage

When asked about why they prefer this form of credit, about 87.7% of millers replied that it provides guaranteed selling of their end products. This is because once the millers mill their end products they distribute to the whole sellers at once and were repaid money later. This implies that maize

millers do not stay with processed consignment for long time, and also it makes them to have assured customers. About 12.3% of millers claims that it simplifies crop procurement (Table 26). This kind of linkage helped millers especially paddy millers to buy produce from the villages.

Table : Distribution of millers by reason preferred for the form of credit linkage

Reason	Maize millers n= 41	Paddy miller n= 16	Overall % n= 57
Simplify crop procurement	NA	43.8	12.3
Guaranteed sales of the milled products	100.0	56.3	87.7

4.6.9 Perception of the nature of credit

The results show that the form of linkage between millers and wholesalers was generally non-exploitative. Only one miller (1.8%) perceived the nature of credit as exploitative. The rest (98.2%) perceived the nature as mutual (Table 27). And they argued that it helps to facilitate selling of their milled product. This implies that both party benefit equally.

Table : Distribution of millers by perceiving the nature of credit link

Nature of credit	Maize millers n=41	Paddy millers n=16	Overall % n= 57
Exploitative	2.4	NA	1.8
Mutual	97.6	100.0	98.2

4.7 Gross margin analysis

The study also assessed the performance of mills using gross margin analysis. This analysis was specifically used to assess the profitability of enterprises. The data used in gross margin were obtained from records of millers interviewed. Detailed calculation is found in appendix 3 and 4. In terms of the magnitude of the GMs, it was revealed from the study results that all millers in the study had positive and above zero GMs per month, implying that total variable costs were recovered in all enterprises (Table 28).

Table : Gross margin of millers

Type of miller	GM(Shs/kg)	Return to investment/kg
Maize millers	114.529	2.143
Paddy millers	271.211	2.093

4.8 Mean difference t-test

Hypothesis number (ii) was examined by testing the difference between two means. Independent samples t-test was used for maize millers and paddy millers with access to credit and without access to credit. Results of the mean significance t-test indicate that significant differences exist between credit users and non users in relation to gross margin. According to the test and the pre-specified level of significance ($P < 0.05$), there is enough evidence to reject the null hypothesis in favour of the alternative hypothesis for the maize millers (Table 29). Credit users had consistently higher values and this implies that the use credit is playing a positive role in alleviating poverty because credit enables the users to expand their milling operations. The empirical results of this study tentatively confirm that credit improves maize milling operations and an income thereby contributes to poverty alleviation. Therefore maize millers can improve their well being through use of credit. This is in agreement with the argument of Mead and Liedholm (1998) that provision of credit to an enterprise enables it to acquire more fixed and variable capital inputs which

is an obvious expansion of MEs Selejio (2002) found that MEs with credit had slightly higher average gross margin per year than those without credit in terms of magnitude.

On the other hand, results of the mean significance t-test for paddy millers indicate that there is no significant difference that exists between credit user and non users $P < 0.05$. This implies that provision of credit does not lead to significant better performance to paddy miller borrowers than their counterparts (non-borrowers), which is not in agreement with the hypothesis. The reason behind this observation might be due to the fact that profit generated by micro enterprises was not wholly reinvested in business but used for other purposes like consumption and/or starting/expanding other type of enterprises, which is in agreement with observation of Selejio and Mduma (2005) asserts that extra capital (credit) might have also been used to employ relatively advanced technology and more labourers to simplify enterprise operation.

Table : Comparison of gross margin between millers accessing credit and without access to credit

Type of miller	Observation (n)	t-value	df	Significance
Maize millers				
Credit user	31	2.141	45	0.039
Non user	16			
Paddy miller				
Credit user	8	0.270	38	0.790
Non User	32			

4.9 Linear regression results

Regression analysis was adopted to investigate factors that influence loan size to small scale millers. Model diagnostics was done to test for misspecification errors. Stepwise regression method was used to correct for Multicollinearity by gradual addition of variables. After several runnings of the model, gender of the miller and district of the miller were dropped because they were all insignificant in the relationship and their inclusion was rendering the model insignificant at $P < 0.05$.

The regression model gave the following results.

$$\text{Eqn. 1: } LS = -9867.14 + 0.816EDUC \quad R = 0.657 \\ \quad \quad \quad (8.582^{***})$$

$$\text{Eqn .2: } LS = -7788 + 0.657EDUC + 0.264YEAR \quad (5.857^{***}) \quad (2.356^{**}) \\ R^2 = 0.694$$

$$\text{Eqn .3: } LS = 1523 + 0.39EDUC + 0.237YEAR + 0.325AGE \\ \quad \quad \quad (2.123^{**}) \quad (2.159^{**}) \quad (1.810) \quad R^2 = 0.712$$

$$\text{Eqn .4: } LS = 1893 + 0.48EDUC + 0.229YEAR + 0.343AGE + 0.184TYPE$$

(2.600^{**}) (2.152^{**}) (1.967) (1.822)
R² = 0.730

Note

^{**} = Significance at 5%

^{*} = Significance at 10%

() = Figures are t-values

The coefficient for education of the millers were statistically significance at 5% and was positively related to the size of the loan. This implies that as the level of education increases, the size of loan increases. Experience in milling business was statistically significant at 5% and positively related to the size of the loan. Number of years in milling was expected to contribute significantly to the size of loan. This is because millers could have enough experience in milling and could provide level of trust to credit providers that their money will be repaid. The coefficient for age the miller was statistically significant ($P < 0.1$) and positively related to the size of the loan. This implies that increasing age increases the size of the loan. This could due to the fact that relatively older people could have been borrowing more frequently, a factor that increases the size of the loan each time one borrows.

Type of product milled was positively related to loan size. However this relationship was not significant. This implies that whether the business is milling maize or paddy the loan size is the same for both types of millers.

4.10 Logistic regression

The analysis to determine factors influencing credit accessibility was conducted through the logistic regression procedure (as explained in section on data analysis). The results of the model show that the model was significant as indicated by the significance of ($P < 0.001$). Some factors were later dropped off the model because of high correlation with one or more variables, or after they depicted a weak relationship with the dependent variable. Results of the analysis which are summarized in Table 30.

Table : Results of logistic regression

Variable	β statistics	S.E	Significance	$\text{Exp}(\beta)$
Age(Years)	0.840	0.230	0.000	1.088
Gender (Male, female)	-0.207	0.364	0.570	0.813
Education level(years)	0.383	0.168	0.022	1.467
Years in milling	-0.20	0.310	0.000	0.818
Type of product milled	3.043	0.288	0.000	20.962
Constant	-4.988	0.984	0.000	0.007

Nagelkerke R-square = 0.621
Cox and Snell R-square = 0.460
-2Log likelihood = 125.235

The Nagelkerke R^2 shows that the coefficient of determination between access to credit as a dependent variable and independent variables is 0.621 which suggests that the selected independent variables explain the probability of accessing credit. The estimated slope coefficients age, education, and type of product milled are significant at the 5% level and are in accordance with *a priori* expectations. Age has log odds of 0.84, the higher the age of the miller the greater the odds of accessing credit. In other word when this log odd is converted to odd ratio it gives a value of 1.088, which means that when the age of the miller increases by one unit year, the odds that one could access credit increases by a factor of 1.088 *ceteris paribus*. The higher the education levels the more chance to access credit. The education odd ratio was 1.467 which indicates that, when education of the miller increases by one year, the odds that a miller could access credit increases by 1.467 *ceteris paribus*.

The odd ratio for the type of product milled was 20.962 which mean that the chance to access credit is increased by a factor of 20.962 for maize millers over paddy millers. This could be because paddy milling is more tedious comparing to maize milling. In addition the cumbersome the nature of procuring paddy described earlier takes more time compared to maize procurement. Therefore taking short term credit for which requires weekly repayment can't be profitable. Also most paddy millers rent their machine to other millers and therefore might not be having sound collaterals to access credit during the time when their mills are leased out. Gender of the miller was significant at 10%. The negative sign to the log odd imply that, female millers had greater chance to access credit by a factor of 0.813 over male millers. These results are contrary to those

obtained by Kashuliza and Kydd (1996) who found that female members of society were relatively less involved in credit markets than men. This could be because nowadays there are many credit institutions some of which to lend to women only.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

The broad aim of this study has been to study the financing of agricultural marketing in Tanzania. The findings in this report have revealed a number of things regarding the financing agricultural marketing specifically small scale millers.

5.1 Conclusions

The study found that small scale millers of maize and paddy have household characteristics common to most rural households. Most of the millers had attained at least primary education. Both males and females were involved in maize and paddy milling although males dominated the activities.

It was found that all paddy millers source paddy from farmers from villages. But for maize millers most of them receive maize at their door posts brought up by maize traders. Middlemen were found to play a big role in transacting cereals to the millers. The average duration of holding stock of cereals was within one month for both paddy and maize millers. This was because most small scale millers had no warehouse to store cereals.

Also the price of cereals especially maize in Dar es Salaam was found to fluctuate every day. This is because of supply and demand of maize at Tandale market. The price of end products was found to reflect the changes in price cereals.

The first objective of the study was to identify different sources of finance to small scale millers and describing the mode of financial arrangement. Most millers use their own funds to initiate their business. Operating costs for day to day milling operations was partly from own savings and credit. In accessing formal credit, the proportion of millers who had access to credit was relatively higher for maize millers than paddy millers. The reason could be due to few credit facilities available for paddy millers. This point out the limited ability of the financial markets to meet existing credit demand from certain borrowers and reinforcing the argument that small scale rural based enterprises do not have access to the financial resources of the formal financial sector. Generally the survey revealed that the major reason for not seeking credit was lack of required security. The ability to offer collateral is thus almost essential in accessing formal credit.

Access to informal credit was prominent among millers. This was taken as a substitute for formal finance. For maize millers the form of credit was maize consignment provided by maize traders and there was an interest charged which was meant to keep the trader in town till waiting for repayment of the loan. The amount of interest ranged from 3 Shs/kg to 10 Shs/kg. However for paddy millers the form of credit was cash and was provided by other millers to assist their fellows in buying and transporting paddy from villages. In this loans with no interest were given. The most important condition to get informal credit was a business record. However, few lenders claimed for collaterals. The type of informal credit was

untied to any major security items and depends largely on mutual trust and guarantee to pay back in time. It significant proportion of agricultural marketing transactions between farmers and traders is based on trust that, traders trust farmers to repay loans while farmers trust traders to pay for the products they sell to them.

It can thus be concluded from the findings that informal credit play a very big role for both millers. It is further concluded that informal credit sources provide easier access to their credit facilities for small scale millers. The main reasons explaining this scenario are the lending terms and conditions reflected in collateral, application procedure and repayment period.

The second objective of the study was to analyze the main factors that influence small scale millers access to credit and loan size. The result of regression analysis on size of the loan revealed that an increase in education was associated with increase in the size of loan. It was further noted that more experience in milling also increases the size of loan. Result of logistic regression on access to formal credit reveal that higher education levels increase the chance to access credit. Moreover increase in age has a greater chance of accessing credit. Gender of the miller was negatively related to access to credit meaning that women had a more chance to access credit than men. This could be probably due to the fact that gender has been a cross cutting issue and currently many MFIs focus on women.

The third objective was to compare the milling performance between credit users and non users. According to the t-test and the specified level of significance ($P < 0.05$), maize credit users had relatively higher gross margin than non users. For paddy millers there was no significant difference between credit users and non users.

An important conclusion for improving access to credit that emerges from this study is that given the wide and established branch network of commercial banks, improving their lending terms and conditions in favour of small-scale enterprises would significantly facilitate the accessibility of small scale enterprises to credit. This is because although informal finance provides easier access to credit, the results of the study show that informal credit is confined to specific activities and at lower levels of income, thus limiting its use. This tends to confirm the argument that the nature of credit markets in Africa is such that the lending units are unable to meet the needs of borrowers interested in certain types of credit. The result is that a credit gap is created that captures those borrowers who cannot get what they want from the informal market, yet they cannot gain access to the formal sources because of restrictive lending practices.

5.2 Recommendations

The fourth objective was to give recommendation on policy implementation to improve financing to small scale millers. Basing on the results of this study the following measures are recommended. It was found that it cost much to transport cereals from rural areas to the market. Therefore the study recommends that the government should address institutional and infrastructural bottlenecks, particularly in the rural areas. These

bottlenecks include marketing structures and feeder roads. Addressing those bottlenecks is crucial for consolidation of the positive impacts of liberalization measures. Perhaps the most immediate infrastructural bottleneck to be addressed is the poor conditions of feeder roads; because of this situation primary marketing appears to be less efficient than secondary marketing as traders refrain from trading in remote areas. In addition to improving feeder roads, efforts should also be made to improve regional and trunk roads. Currently, poor conditions of these roads have kept transport costs quite high. Provision of communication infrastructure should also be the responsibility of the government. This calls for an improved communications network so that market information could be disseminated promptly for use by all market participants. Infrastructure helps to make the more remote rural areas part of a broader market, contributing to the marketization and profitability of agriculture. It also promotes information flows between communities and rural and urban areas, thus linking farmers to markets for goods, input supplies, and agricultural extension services.

Financial development is playing an important role in Tanzania's economic progress. Financial failures, particularly insufficient institutions and high transaction costs limit poor people's access to formal finance and prevent low income people from borrowing, and saving. Providing extended access to financial services would enable Tanzania to reallocate capital, through mobilizing savings and increasing investments. To increase more access to credit by SMEs the study recommends the following:

(a) More outreach programmes by financial institutions

It is important for financial institutions to extend more outreach programmes to entrepreneurs to enhance them to utilize the opportunities available in their institutions. Micro Financial Institutions and SACCOs outreach to people are insufficient, for reasons such as badly designed financial products and required obligatory, weekly meeting, which can lead to high transaction costs. MFIs require entrepreneurship, which leaves out many people. As a result many individuals are unable to obtain these services. What remains for these people are varying informal services, often limited in safety and efficiency. The development of rural finance requires action by several actors in the public, private as well as the civil society sectors. The public sector should work with the micro finance institutions through investing in infrastructure, market services and extension of the rural areas as a way of developing the agricultural sector.

(b) Sensitization to form and join SACCOs

SACCOs has more advantage to it s members. However this is more found in towns. The government should continue to intervene and support people to form and join SACCOs. The rewards followed by increased savings are not complicated to comprehend, but it is more difficult locating the best way for achieving this. The problem with low saving rates most likely needs to be dealt with from many different angles. To begin with, economic stability is necessary to make saving a beneficial option. But further on, as mentioned earlier, an essential element is making financial services available for as many people as possible. Developing and improving occupational SACCOs, can be one effective alternative to formal banks. SACCOs are reaching low-income people with financial services. If improvements are made and

regulations are recognized they could operate as an intermediating institution, allocating resources between low income savers and borrowers.

(c) Formation of credit guarantee schemes

Given the relatively abundant financial resources of the formal institutions and informal credit sources, there is need for policy measures to increase access of SMEs to formal credit. This can be achieved through the establishment of credit insurance schemes protecting the financial institutions against default risks, which result in credit rationing. The formal financial institutions should also be encouraged to diversify their loan portfolios so as to be able to cater for the different financial needs of SMEs.

Credit guarantees may help to increase bank lending for SMEs but will not prove panacea if the financial sector as a whole and the various banking institutions are not in a sound state to use such schemes properly. All guarantee schemes must pass the test of loan additionally, namely that the introduction of the guarantees has resulted in an increase in lending to SMEs and that those who have not previously had access to finance are able to obtain credit. There is little value in a guarantee scheme that only results in risky loans of the banks' regular clients being given guarantees. Credit guarantee schemes can only solve the problem of lack of suitable collateral on the part of SME borrowers with good business projects.

(d) Developing relevant loan products.

The main constraint to increasing loans for agricultural marketing is the question of loan collateral. Those involved with marketing are often reluctant to risk their collateral, assuming they have no collateral to offer. Understandably, however, banks do not consider a loan to someone unwilling to pledge his or her own assets to be a safe bet. Nevertheless, there may be a case for commercial banks that wish to extend their portfolios to devote resources to developing an understanding of how their local marketing and agribusiness systems function and the problems faced by the actors in those systems. At the same time, banks need to examine why so many traders are reluctant to approach them and, in some cases, are quite frightened at the prospect. It may then be possible to develop loan products, which, while still requiring collateral, recognize the seasonal resource constraints faced by traders and the consequent need for more flexible repayment schedules that can lead to full repayment without jeopardizing collateral.

(e) Strengthening formal-informal credit linkage

The study also recommends that the key institutional challenge is to link the informal and formal financial sectors, drawing on the strengths of each, but without destroying the former. Proper links should increase the available capital and hence decrease rationing and interest rates, while preserving the strengths of informal systems, in particular concerning client information and provision of flexible services with low transaction costs. The major challenge, however, is to determine in how far external capital can be used without changing the essential features that determine the sustainability of the informal groups.

(f) More than finance

Finally, access to financial services is only one ingredient for sustained enterprise development, albeit an important one. The minimalist credit approach has clear limitations, and for credit schemes to be effective and have impact, complementary services are needed. Access to suitable business development services is also important for enterprises to support the upgrading of their production techniques, products and services, with a view to being able to adapt to changing market conditions, and to move into the production of goods and services that meet the demands of domestic and foreign markets in terms of price, quality and design or in other words making the enterprises more competitive.

(g) Direction for further research

There is an important opportunity for new research which should integrate emerging knowledge regarding financing cereal milling operations. Given (a) the importance of formal and informal sector borrowing, and (b) the fact that much emphasis is put on entrepreneurship, it is essential to begin to build models which can account for the interconnections between key macroeconomic policy variables (formal sector interest rates and banking regulations, in particular) and the terms of informal finance.

REFERENCES

Aryeetey, E. (1996). *Rural finance in Africa: International developments and access*

for the Poor. Annual World Bank Conference on Development Economics.

Washington, DC, 20 November, 1995. 184pp.

Ashimogo, G. C. (1988). Economics of on-farm maize storage in Tanzania: The case of Kilosa district. Dissertation for Award of MSc Degree at

University of Nairobi, Kenya, 207pp.

Bagachwa, M. S. D. (2005). *Financial Intergration and Development in Sub Saharan Africa*. A study of Informal Finance in Tanzania. ODI,

Regents College, Inner Circle, Regents Park. London. 320pp.

Bigsten, A. P., Collier, S., Dercon, M., Fafchamps, B., Guthier, W., Gunning, M., Soderbom, A., Oostendorp, O., Patillo, C., Teal, F. and Zeufack,

A. (2000). Credit Constraints in Manufacturing Enterprises in Africa. [www.bepress.com/cgi/] site visited on 10/7/2007.

Bikki, R. and Joselito, G. (2003). Microfinance Regulation in Tanzania. Implication for development and performance of the industry.

[<http://www.worldbank.org/afr/wps/wp51.pdf>-] site visited on 16/7/2007.

Buckley, G. (1997). Micro-finance in Africa: Is it either the problem or the Solution? *World Development* 25(7): 1081 - 1093.

Chiduo, C. P. (2001). Micro enterprise finance in Tanzania. A case study and policy design analyses. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 125pp.

Chijoriga, M. and Cassimon, D. (1999). *Micro enterprise: Is there a Best Model?* In: *African Entrepreneurship and Small Business Development*. (Edited by Rutashobya, L. K. and Olomi, D. N) Dar es Salaam University Press, Dar es Salaam, Tanzania. 256pp.

Crow, B. and Murshid, K. (1994). Economic returns to social power: Merchants' finance and interlinkage in the cereal markets of Bangladesh. *World Development* 22(7): 1011 - 1030.

Esguerra, E. (1993). From trader to lender: Interlinked contracts from a credit market perspective. Quezon City, Philippines. *Philippines Journal of Economics* 93(3): 1 - 30.

Esguerra, E. F and Meyer, R. J. (1992). *Collateral Substitute in Rural Informal Financial Markets in the Phillippines*. Westview Press, Colorado.
164pp.

Food and Agriculture Organization (FAO), (1998). Crop and Food Supply Assessment Mission to Tanzania.
[http://www.fao.org/trade/docs/Food_Financing.htm -] site visited on 5/4/2007.

Floro, S. and Ray, D. (1997). Vertical links between formal and informal financial
institutions. *Review of Development Economics* 1(1): 34 - 56.

Ghate, P. B. (1992). Informal credit markets in Asian developing countries. *Asian Development Review* 6(2): 64 - 85.

Green, H. (1990). *Econometric Analysis*. Second Edition. Macmillan Publishing Company, New York. 791pp.

Gujarat, D.N. (1995). *Basic Econometrics*. Third Edition. McGraw-Hill. Inc., New York, London Mexico City, New Delhi, Singapore, Tokyo.
750pp.

Hendricks, M. (1994). Trade arrangement and interlinked credit in the Philippines [<http://www.gew.nl/kiosk/microfinance>] site visited on 12/8/2006.

Kashuliza, A. K., Hella, J. P., Magayane, E. T. and Mvena, Z. S. K. (1998). *The Role of Informal and Semi-formal Finance in Poverty Alleviation in Tanzania: Results of Field Study in Two Regions*. Research on Poverty Alleviation (REPOA). Dar es Salaam University Press, Dar es Salaam, Tanzania 98(1): 65pp.

Kashuliza, A. K. (1993). Perception and role of informal finance in developing countries: the example of Tanzania. *Journal of Rural Studies* 9(2): 150 – 1180.

Kashuliza, A. K. and Kydd, J. G. (1996). Determinants of bank credit access for smallholder farmers in Tanzania: A discriminant analysis application. *Journal of Rural Studies* 20(3): 27 - 32.

Kayunze, K. and Twamala, S. (2000). Does credit have any negative impact in poverty alleviation among the very poor? Responses from women of Morogoro municipality, Tanzania. In: *Proceedings of The Fourth Scientific Conference of the Agricultural Economics Society of Tanzania*. (Edited by Mdoe, S. Y. et al), 30/9-1/10/2000. Iringa, Tanzania. 79 - 93pp.

Kerstin, B. (2003). The value of savings and financial intermediaries in Tanzania. [<http://www.econ.umu.se/mfs/uppmfs.html>] site visited on 24/5/2007.

Kimei, C. S. (2002). *The Role of Commercial Banks in Rural Finance: The Case for Tanzania*. Paper presented at the East African Sub-regional Workshop, Arusha, Tanzania, 22-23 April, 2002. 87pp.

Kimei, C. (1999). The role and experience of financial institutions in financing economic growth. *The Tanzania Bankers Journal* 13: 18 – 36.

Kuzilwa, J. A. and Mushi, E. K (1997). Credit needs for small business. *The Tanzanian Bankers Journal* 9: 13 - 16.

Kuzilwa, J. A. (1997). *Market Liberization and the Agro-Industrial Potential in Tanzania*. Research Information and Publication Centre, Mzumbe, Morogoro, Tanzania. 161pp.

Ledgerwood, J. (2000). *Sustainable Banking with the Poor. Microfinance Handbook, An Institutional and Financial Perspective*. Readit Books Ltd., Dar es Salaam, Tanzania. 286pp.

Liao, T. F. (1994). *Interpreting probability models Logit, Probit, and other Generalized Linear Models. Quantitative Applications in the Social Sciences Series No. 101.* Sage Publication. Inc., London, New Delhi. 87pp.

Lwoga, C., Maximabali, F., Rutherford, S., Mutesasira, L., Safe, S., Gogadi, B., Mukami, N; Seiya, G., Maeda, S. and Tairo, J. (1999). Use and Impact of Savings Among the Poor in Tanzania. [[ttp://www/undp.org/sum](http://www/undp.org/sum)] site visited on 22/7/ 2007.

Ministry of Agriculture, Food Security and Cooperatives (MAFC), (2006). Agriculture Sector Development Program.

[<http://www.agriculture.go.tz/mafs-services>] site visited on 21/6/2007.

Mead, D. C. and Liedholm, C. (1998). The dynamics of micro and small enterprises in developing countries. *World Development* 26(1): 61 - 74.

Minga, N. M, (1998). Impact of structural adjustment programmes on small scale enterprises in Tanzania. A case study of agro-based enterprises in Dar es Salaam region. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 107pp.

Mosley, P. and Hulme, D. (1998). Micro enterprise finance: Is there a conflict between growth and poverty alleviation? *World Development* 5: 783 – 790.

Msambichaka, C. A., Kilindo, A. L. and Mjema, G. D. (1995). *Beyond Structural Adjustment Programme in Tanzania: Successes, Failures and Perspectives*. Economic Research Bureau, Dar es Salaam University Press, Dar es Salaam, Tanzania. 291pp.

Mukras, M. S. (1993). *Elementary econometrics theory, Application and Policy*. East African Education Publishers, Nairobi, Kenya. 647pp.

Nagel, S. (Ed.)(1994). *Entrepreneurship and Africa: African Development and Public Policy*. London Macmillan Press, London. 211pp.

Ndunguru, C. (2007). *Econometrics a Science for Non Experimental Data Analysis*. Research, Information and Publication Center, Mzumbe, Morogoro, Tanzania, 239pp.

Nissanke, M. K. (2001). Financing enterprise development in sub Saharan Africa. *Cambridge Journal of Economics* 25: 343 - 367.

Nkya, E. J. (2002). Entrepreneurial Response to the Reform of Institutional framework: The Case of Small-Scale Enterprises in Tanzania. [<http://www.tzonline.org/pdf/entrepreneurialresponsetothereform.pdf>]. site visited on 12/5/2007.

Phillip, D. (2001). Economic analysis of medium scale agricultural enterprises in a predominantly small holder agricultural sector. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 115pp.

Rafique, S. (2006). Implications of informal credit for policy development in India for building inclusive financial sectors. *Asia-Pacific Development Journal* 13(1): 102 - 127.

Regional Agricultural Trade Expansion Support Programme (RATES), (2003). *Maize market assessment and baseline study for Tanzania*. [http://www.ratescenter.org/pdf/maize/maize_tanzania_may03.pdf] site visited on 13/4/2007.

Satta, A. T. (2002). A multidimensional strategy approach to improving small businesses' access to finance in Tanzania. [<http://www.alternative-finance.org.uk/rtf/multidimsatta.rtf>]. site visited on 2/9/2006.

Selejio, O. and Mduma, J. K. (2005). *Impact of Credit on Attitude towards Risks Among Micro-enterprise Operators: A case of Morogoro in Tanzania*. Dar es Salaam University Press, Dar es Salaam, Tanzania. 13pp.

Selejio, O. (2002). Economic analysis of micro enterprises and the role of micro enterprise finance in Tanzania. A case study of Morogoro Region. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 101pp.

Sharma, M. (2000). Impact of microfinance on poverty alleviation: What does emerging evidence indicate?. *Journal of Rural Financial Policies for Food Security of the Poor* 4(2): 1 - 2pp.

Shepherd, A. W. (2004). Financing agricultural marketing: The Asian experience. [<http://www.fao.org/ag/ags/subjects/e/agmarket/access.html>] site visited on 13/3 2007.

Smith, L., Stockbridge, M. and Lohano, H. R. (1999). Facilitating the provision of farm credit: the role of interlocking transactions between taders and farmers in crop marketing systems in Sindh. *World Development* 27(2): 217 – 228.

Sumay, F. P. (1999). Performance assessment of semi- formal systems of credit for small scale farmers in Arumeru district, Tanzania. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania, 96pp.

United Republic of Tanzania (URT), (1998a). *A Strategic Plan to Development Tanzania's National Policy Framework for Small Business. Unpublished Report by Common Wealth Secretariat for the Ministry of Industry and Commerce.* Government Printer, Dar es Salaam, Tanzania. 200pp.

United Republic of Tanzania (URT), (1998b). *Dar es Salaam Regional Development. 1998 Annual Report to Vice President Office.* Government printer, Dar es Salaam, Tanzania. 210pp.

United Republic of Tanzania (URT), (2003a). *Integration of Population Variables in Development Planning. Part II Trainee Manual. Demographic Training Unit.* Dar es Salaam University Press, Dar es Salaam, Tanzania, 205pp.

United Republic of Tanzania (URT), (2003b). *Small and Medium Enterprise Development Policy.* Business Printers Ltd., Dar es Salaam, Tanzania. 44pp.

United Republic of Tanzania (URT), (2003c). *National Trade Policy Background Papers: Trade policy for Competitive Economy and Export Led Growth.* Dar es Salaam University Press Limited, Dar es Salaam, Tanzania. 214pp.

Von Pischke, J. D. and Adams D. W. (1989). Fungibility and the Design and Evaluation of Agricultural Credit Projects. *American Journal of Agricultural Economics* 62(4): 719 - 726.

Wangwe, S. (2004). Paper presented for The Third Annual Conference on Microfinance, Arusha, Tanzania, and 15 – 17 March, 2004. 18pp.

White, S. (1999). *Women's Employment in the Agro and Food Processing Sector: South Asia and East Africa: Draft Report Submitted to the Aga Khan Foundation, Montreal, Canada, 9 April, 1999.* 30pp.

World Bank (2005). Summary of the financing of maize production and price risks in Tanzania. [www.worldbank.org/afr/aftps] site visited on 10/6/2007.

Zeller, M. (1998). Determination of repayment performance on credit groups. The role of programme design, intra-group risk pooling and social cohesion. *Economic Development and Cultural Change* 46(3): 599 – 620.

Zeller, M. (1994). Determinants of credit rationing: A study of informal lenders and formal credit groups in Madagascar. *World Development* 22(12): 13 – 23.

APPENDICES

Appendix : Questions to be addressed to the entrepreneur or business owner

FINANCING AGRICULTURAL MARKETING IN TANZANIA: A CASE STUDY OF SMALL SCALE MILLERS IN DAR ES SALAAM AND MOROGORO REGIONS

Name of enumerator.....Date of interview.....

Respondent number.....

1.0 BASIC INFORMATION

1.1	Socio-economic and demographic characteristics	
A01	District	.....
A02	Age	.....years
A03	Gender	1= Female 2= Male
A04	Marital status	1=Single, 2=Married, 3= Divorced, 4= Widowed, 5= Separated
A05	Education level	1= None 2= Primary 3= Secondary 4= University/College 5= Others, specify
A06	Major occupation	1= Farming, 2= livestock keeping, 3= Employed, 4= Trader ,5= Others, (specify
A07	Apart from trading, what is the other major	1= Farming only 2= Farming

	activity do you have as source of income?	<i>and livestock 3= other business 4= Employed 5= Others, (specify), 9=Missing</i>
--	---	--

2.0 TECHNICAL MANAGEMENT AND MARKETING

A08	How many years have you been in business	..... years
A09	What products do you deal with	1= rice, 2= Maize, 3= Vegetables, 4= Fruits, 5= Others
A10	From whom do you buy the products	1= Direct from farmers, 2= Assembly markets, 3= Middlemen , 4= Whole seller,5= Others
A11	To whom do you sell your products	1= wholesalers,2= retailers,3= direct to consumers
A12	What is the capacity of your mill	.....Kg of maize/rice
A13	On average how much kilograms do you mill per day?	.....Kg
A14	What is the reason for this?	1=No enough cereals,2=electricity=others (Specify)
A15	What is the average duration of stockholding stock?	..... weeks, 9 =Missing/don't know
A16	On what basis do you decide to hold the stock	1=Wait for better prices, 2= perishability, 3=Reduce marketing costs, 4= others (specify)
A17	What is the average duration of stockholding of finished products?	.....Months, 9=Missing/don't know
A18	On what basis do you decide to hold the finished products?	1=wait better market price, 2= perishability ,3=others (specify), 9= Missing
A19	Do you have enough market of your products?	1=yes,2=little,3=no
A20	What is your source of power?	1=Diesel, 2= Electricity, 3=

		<i>Solar, 4 =Others (Specify)</i>
--	--	-----------------------------------

3. 0 MARKETING COSTS

A21	Do you keep records of your transaction?	<i>1=yes,2=No</i>
A22	If yes what record do you keep?	<i>1=Sales 2= Expenditure, 3=Both, 4=Others (specify)</i>
A23	If no why?	<i>1=Don't know to keep record, 2= No need for record, 9=missing/do not know.</i>

4.0 SOURCE OF FINANCE

4.1	Source of investment capital	
A24	How did you get the initial capital to enter into business	1= Own saving,2= Grants,3=Credit If not credit go to A70
A25	If credit mention the most important source	1= Bank, 2= SACCOs, 3= Friends and relatives , 4=Money lender, 5=Others, (specify)
A26	How did you get the information of the credit source	1=media, 2=outreach, 3=friends, 4= Other (specify)
A27	Do you know any other financing sources other than the one you used?	1=Yes, 2=No
A28	If yes, mention the sources.	1=Microfinance institutions, 2=NGO,3=Trust fund
A29	What is the source of finance do you have for day-to-day purchases?	1= Own saving, 2= Credit 3= Differed payments
A30	Are the funds adequate?	1 = Yes 2 = No

5.0 CREDIT UTILIZATION

5.1	Credit Terms and conditions	
A31	Have you applied for any credit from any source	1=Yes, 2=No
A32	If credit mention the most recent source	1= Bank, 2= SACCOs, 3= Friends and relatives , 4=Money lender, 5=Others, (specify)

A33	What was the primary purpose for that credit?	1=Operational, 2= Expand business, 3=Others (specify)
A34	What is the most important condition you were required to meet for obtaining the loan?	1=Business record, 2=Collateral, 3=Referee, 4=other (specify)
A35	What most important condition did you consider too difficult to meet?	1=Business record, 2=Collateral, 3=Referee, 4=other (specify)
A36	If collateral, in what form	1= Permanent structure e.g. house 2 = Movable assets e.g. car, machinery 3 = Land 4 Animals 5 Anything valuable, 6 = Others, specify
A37	How long did it take to process the loan?	.....months
A38	Were there any difficulties in loan acquisition?	1=yes, 2=no
A39	If yes, what was the most difficulty issue?	1=Lengthy procedure, 2=High transaction cost, 3=Others (Specify)
A40	Did the loan meet your requirements?	1= Yes, 2= No
A41	Did you apply for a loan from any other institution	1=Yes,2=No
A42	If yes what institutions	1=NGO, 2= Microfinance institution (name the institution and the NGO)

Indicate terms of the loan, sources and number of times you borrowed

5.2	terms of the loan	<i>Units</i>
-----	-------------------	--------------

A43	Amount of loan	.....Tsh
A44	Loan duration	.....Months
A45	Interest rate	.....Tsh
A46	Repayment frequency	.....Weeks/Months
A47	Amount per installment	.....Tsh

	Informal credit	
A48	Do you have access to any of those informal credit facilities?	1 = Yes 2 = No
A49	If yes, which ones have you ever borrowed from?	1= Friends and relatives, 2= Money lenders, 3= Others (specify)
A50	In what form?	1 = Consignment, 2 = Cash form 3 = Transport, 4= Others (specify)
A51	What was the amount?	.....Tsh
A52	What was the interest rate?	.....Tsh
A53	Loan Duration	.....Weeks
A54	Repayment frequency	.....Weeks
A55	Mode of paying	1= By cash 2 = Reduce from crop 3 = Other (specify)
A56	If cash, what is the amount per installment	.....Tsh
A57	What is the most important condition you were required to meet for obtaining the loan?	1=Business record, 2=Collateral, 3=witness, 4=other (specify)
A58	If witness who?	1 = Government/ village leaders

		<i>2 = Political leader 3 = An elderly person 4 = Formal lawyer 5 = Anyone you know 6 = Others, specify</i>
A59	If collateral, in what form	<i>1= Permanent structure e.g. house 2 = Movable assets e.g. car, machinery 3 = Land 4 Animals 5 Anything valuable, 6 = Others, specify</i>
A60	How long did it take to process your loan	<i>.....Days</i>
A61	Relation ship with the informal lender	<i>1 = Relative 2 = Well known and friends 3 = They lend to anyone with collateral 4 = Other (specify)</i>
A62	For the credit application failures (both from formal and informal sources). What is the most important reasons given by institutions/lender for unsuccessful applications	<i>1 = unviable project 2 = Pending (told to wait) 3 = Lack of funds, 4 = No reason 9= Do not know/missing.....</i>
A63	Which is you most preferred credit source	<i>1=bank,2=SACCOs, 3=Money lender, 4=Friends and relative 5=NGO, 6=MFI</i>
A64	Why do you prefer it?	<i>1=Low transaction cost, 2=No collateral needed, 3=Flexibility, 4=No interest charged, 5=Other (specify)</i>

6.0 CREDIT LINKAGE

	Do you provide any credit to other people?	<i>1=Yes, 2=No</i>
--	--	--------------------

A118		
A65	If yes, to whom?	<i>1=Producer, 2=Other traders</i>
A66	In what form?	<i>1= Cash, 2= Input, 3=Consignment</i>
A67	What is your most preferred credit form	<i>1=Cash, 2=Crop, 3=input</i>
A68	Why do you prefer it?	<i>1=Timely, 2=Secured supply 3=Simplify crop procurement 4=To avoid risk of non payment 5= Guaranteed sales 6=Other (specify)</i>
A69	What is the repayment form?	<i>1=Cash, 2=Produce,</i>
A70	How do you perceive the nature of the credit?	<i>1= Exploitative, 2=Mutual</i>
A71	What are the estimated costs of loan processing?	<i>..... Tsh per loan</i>

7.0 MILLING PERFORMANCES

For the most recent months indicate costs incurred

	Type of cost	Quantity	Amount (TSh)
A72	Rent		
A73	Maintainance /repair		
A74	Labour		
A75	Electricity		
A76	VAT		
A77	Buying maize		
A78	Buying paddy		
A79	Transporting raw materials		
A80	Transporting finished products		
A81	Electricity		
A82	Packaging		
A83	Water		
A84	Fuel		
A85	Advertising		
A86	Others (specify)		
A87	Total cost		

For the most recent months indicate income you generate per month

Sell of milled products

	Source of income	Quantity sold Kg	Selling price Tsh	Total revenue Tsh
A88	Rice			
A89	Maize flour			

A90	Maize grits			
A91	bran			
A92	Others			

Milling others cereals

	Source of income	Quantity Milled Kg	Price per Kg Tsh	Total revenue Tsh
A93	Milling maize in to flour			
A94	Milling maize into grits			
A95	Milling paddy			

THANK YOU FOR YOUR COOPERATION

Appendix : Checklist for financial institutions

BASIC INFORMATION

Name of Institution.....
District..... Division.....
Nature/Type of organization E.g. Bank/SACCOs/Primary Cooperative Society.....
Date of establishment
Documented or officially stated objectives
Formal registration

LOAN CONDITIONS/ORGANISATION

Type of financial support provided
Decision making process for loans applied
Conditions and eligibility for loans
Policies and lending procedures
Terms of the loan (interest rate, loan duration, repayment schedules, collateral requirement, others)
For SACCOs, information on membership (eligibility, contributions, others)
What are the loan processing costs incurred by the institution?

LOAN REPAYMENT/FINANCIAL ASPECTS

Loan repayment rate
Delayed and default payments and their remedies
Levels and trends of loans, purposes, beneficiaries, conditions, collateral, and repayment schedule
Any other relevant information

EXPERIENCES IN LENDING AGRICULTURAL ENTERPRISES

Whether they have agricultural specific loans
What are the opportunities available in agricultural lending?
What are the problems/challenges encountered?

Appendix : Maize milling gross margin analysis

Out put generated from maize milling	Amount/kg
Maize flour	245.4184196
Maize bran	44.8077486
Total revenue/kg	290.2261682
Variable costs	
Total electricity	2.201724965
Average price of maize	154.8317422
water costs	0.469984151
Winnowing	0.91671429
Packaging	7.548479579
Labour costs	3.631042819
Maintenance costs	2.076610613
other costs	0.292871125
Transporting finished products	2.216393544
transporting maize	
Total processing cost/kg	175.6970022

Gross margin

114.529166

Return per shilling invested = (i.e. revenue/GM)

2.142846474

Appendix : Paddy milling gross margin analysis

Out put generated from paddy milling	Amount/kg
Price of rice	567.6449461
Total revenue/kg	567.6449461
Variable costs	
Total electricity	2.201724965
Average price of paddy	220.5218581
Maintenance costs	9.651921089
water costs	
Winnowing	
Packaging	4.55305954
Labour costs	9.352473584
Loading /unloading	6.956521739
other costs	
Transporting finished products	
transporting paddy	28.07950566
Total processing cost/kg	296.4337713

Gross margin

271.2111748

2.0929

99842

Return per shilling invested = (i.e. revenue/GM)

Appendix : Amount of the loan received by millers

Amount in TSh	Frequency	Percentage
250000	1	2.6
400000	1	2.6
500000	12	30.8
600000	3	7.7
800000	1	2.6
1000000	5	12.8
1500000	3	7.7
5000000	7	17.9
6000000	2	5.1
7000000	1	2.6
8000000	1	2.6
10000000	1	2.6
20000000	1	2.6
Total	39	100.0

