INFLUENCE OF FINANCIAL LINKAGES ON GROWTH OF INFORMAL FINANCIAL INSTITUTIONS IN HOMA BAY COUNTY, KENYA

BY

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN ECONOMICS

DEPARTMENT OF ECONOMICS

MASENO UNIVERSITY

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DECLARATION

I declare that this Thesis is my original work and has not been submitted for the award of a degree in this or any other university/ college/ institution.

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ACKNOWLEDGEMENTS

DEDICATION

I dedicate this thesis to Almighty God and my family

ABSTRACT

Major trends highlighted by Financial Access surveys in Kenya have shown strong expansion of both formal and informal finance use. This shows that formal and informal financial institutions are not simply substitutes for each other, but may be complementary and that clients value both their services. The dividing line between the two is not so clear-cut. The interpenetration/linkages in terms of operations and participants (i.e. lenders, borrowers & savers) involved, geographical location and the nature of activities sometimes results in a substantial flow of resources in both directions between them. However, there exist divergent views with regards to the influence of financial linkages on growth of informal financial institutions. Some researchers observe that financial linkages offer the first best solution to promoting growth of informal financial institutions in terms of credit access while others have indicated that using financial linkages may reduce credit access and impact negatively on growth. It is therefore difficult to attribute the witnessed growth of informal financial institutions in Homa Bay County to the influence of existing financial linkages. Relying on institutional theory of complementarily, this study thus purposed to establish the influence of financial linkages on growth of informal financial institutions in Homa Bay County. Specifically the study sought to: establish the effect of both financial training and Credit Information Sharing (CIS) and to determine the influence of volumes of group savings on growth of informal financial institutions. Correlational research design and stratified random sample of 300 respondents from a target population of 3,000 were used. Data was collected using semi structured pre-tested questionnaires analyzed through OLS multiple regressions and correlation. The Cronbach's Alpha was 0.709.Correlational results established that both financial training and CIS have a weak negative relationship with growth given by R= -0.226 and R= -0.326 respectively while group savings account has a strong positive relationship with growth given by R= 0.57. Financial training's influence is insignificant while both volumes of group savings and CIS have significant positive and negative influence on growth given by $\beta = -0.053$ and $p = 0.371(>0.05)$, $\beta = 0.541$, $p =0.000(< 0.05)$ and $\beta = - 0.259$, $p = 0.000(< 0.05)$ respectively. In general, the influence of financial linkages on growth of informal financial institutions is significant given that $R = 0.636$, $R^2= 0.405$ and $p = 0.000(< 0.05)$. The study thus recommends strengthening of both group savings account and CIS as forms of financial linkages for growth and stability in the financial sector. This should be done through regulation of activities of formal financial institutions together with creating a favorable environment for the operations of informal financial institutions. Finally, the study recommends further research to establish why persons with graduate and post graduate level of education are less likely to engage in the activities of informal financial institutions owing to the fact that both account for a mere one percent of respondents.

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ABBREVIATIONS AND ACCRONYMS

APRACA - Asia- Pacific Rural &Agricultural Credit Association

ASCAs - Accumulating Savings and Credit Associations

BOC - Banking On Change

BoP - Bottom of Pyramid

CARE - Cooperative for Assistance and Relief Everywhere

CIS - Credit Information Sharing

CRDB - Co-operative and Rural Development Bank

CRS - Catholic Relief Service

FFIs - Formal Financial Intermediaries

GS&L - Group Savings & Loaning

ILO - International Labour Organization

KIPPRA - Kenya Institute of Public Policy Research and Analysis

LDCs - Least Developed Countries

M- PESA - Mobile-based money transfer service (Pesa means money in Swahili)

MFIs - Micro-financial Institutions

NABARD - National Bank for Agriculture and Rural Development

NGOs - Non-Governmental Organizations

OECD - Organization for Economic Co-Operation and Development

PAI - Population Action International

PCFC - People's Credit and Finance Corporation

PHBK - Program Linking Banks with Self-Help Groups

ROSCAs - Rotating Savings and Credit Associations

SILCs - Savings and Internal Lending Communities

VSLAs - Village Savings and Loan Associations

WIEGO - Women in Informal Employment Globalizing and Organizing

OPERATIONAL DEFINITION OF TERMS

Financial linkage: Any mutually beneficial partnership between formal and informal financial institutions through which resources, including finance, inputs, information and outputs flow that results in the expansion of financial services among the poor.

Informal financial institution: A registered or non-registered financial association/institution whose operations are not guided by the regulatory framework of the central monetary authority.

Financial dualism: The co-existence and operation side by side of both formal and informal financial institutions in an economy.

Financial repression: The close regulation of competition in the financial system by the government and imposing of restrictions like interest and exchange rates controls and reserve requirements on the activities of formal financial institutions.

Financial liberalization: Embracing of competition and removing or relaxing of restrictions like interest and exchange rates controls and reserve requirements that the government imposes on the activities of formal financial institutions.

Rotating Savings and Credit Association (ROSCA): An informal financial institution/group whose members make regular monetary contributions at fixed intervals which are then lent to each member in turn.

Accumulating savings and credit association (ASCA): An informal financial institution/group into which regular savings are made by members to form an accumulated internal fund from which any member is free to borrow at some fixed monthly interest rates.

Commercial (bulk) loans/credit lines: Funds borrowed by informal financial institutions from formal financial institutions through 'group agency' for relending purposes. It can also be referred to as 'group on-lending funds'.

Financial training: The process of acquiring a combination of awareness, knowledge, skills, attitude and behaviour necessary to make sound financial decisions.

Savings products: Services like group savings account designed for safe custody of regular deposits and for purposes of building up some collateral for future loan.

Client assessment/Credit Information Sharing (CIS): Resolving information asymmetry/opacity through group agency by providing relevant financial track record of a potential borrower to enable credit screening and ascertain ones credit worthiness.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The financial sector according to Kenya Institute of Public Policy and Research Analysis (KIPPRA, 2013) plays a very critical role in the development process of any economy by driving high levels of savings to finance a country's investment needs. In most economic systems of developing countries, the sector consists of both formal financial institutions (i.e. banking, capital markets, insurance, pension schemes, Savings and Credit Co-operative Organizations (SACCOs) and informal financial institutions such as Rotating Savings and Credit Associations (ROSCAs) and Accumulating Savings and Credit Associations (ASCAs) (KIPPRA, 2013) a situation referred to as 'financial dualism' (Germidis, 1990; Pagura& Kirsten, 2006). The dividing line between the two financial institutions however, is not so clear-cut. The interpenetration/linkages between them in terms of operations and participants (i.e. lenders, borrowers & savers) involved, geographical location and the nature of activities also results in a sometimes substantial flow of resources in both directions between them, (Germidis, 1990).However, there exist divergent views with regards to the influence of the existing financial linkages on growth of informal financial institutions.

According to Germidis (1990), two main arguments are usually put forward regarding the causes of financial dualism. One sees the informal financial institutions' growth as a response to the shortcomings of the formal financial institutions which result from financial repression such as strict credit controls leading to credit rationing by banks thus reducing access to funds for a large share of the population that cannot fulfill the stringent eligibility criteria (Germidis, 1990). The

proponents of financial repression approach do not view informal financial institutions as alternative sources of financing in developing countries contrary to the view by Kaburi, Ombasa, Omato, Mobegi andMemba (2013). Their general policy recommendation; financial liberalization is regarded as accomplishing two desirable outcomes: financial deepening and reducing the activities of the informal financial institutions in developing countries, (Germidis, 1990; Gahadassi, 1998).

The other line of argument according to Germidis (1990) and Mauri (1988) explains existence of financial dualism and growth of informal financial institutions more by the intrinsic dualism of economic and social structures in the developing countries and the rural population's attachment to traditional values, customs, flexible and speedy transactions that responds to the needs of those segments of the population who, for whatever reasons, have found themselves excluded from the formal financial institutions. These include, those who have no access at all to formal finance, people who have access to formal sources but who seek to supplement bank loans with informal funds or to take advantage of the speed delivery of informal credit or to better integrate themselves into their community by participating in neighborhood associations, (Germidis, 1990).According to Germidis (1990), those who subscribe to this thesis favour a more regulated financial system and hasten to point out that even in liberalized financial systems, the informal financial institutions still exist. Similarly, according to Kaburi,et al., (2013), informal financial institutions have existed for decades and their primary social objective has been and remains alleviation of poverty. Empirical evidence however suggests a combination of the two above analyses regarding the causes and growth of informal financial institutions, (Ghate, 1992).

In the contemporary context, according to Antony and Broer(2010) and Meagher(2013), the global financial crisis that started in 2007 in the United States subprime market, spread to the real side of the global economy in the second half of 2008 and by early 2009, saw the world production go down by 1%, and world trade by 13% and the dramatic expansion of the informal economy across the developed, as well as the developing world, brought to the fore the importance of understanding the relationship between the formal and informal financial institutions. To this end, two different schools of thought have emerged. One school avers that, informal financial institutions are integrated with the formal financial institution through complementary linkages which offer the first best solution to promoting informal financial institutions' growth in terms of credit access (Pagura& Kirstein, 2006) as well as offering new solutions to failing aid-based development models that crowd out established institutions in the markets and reduce the poor to recipients of charity (Prahalad& Hart, 2002; World Bank, 2007). The second school on the other hand believes that the informal financial institutions have a dependent relationship with the formal financial institutions but are being exploited by the latter through strict credit controls like stringent credit eligibility criteria leading to credit rationing despite the potential collateral offered by informal financial institutions' group savings and ability to lower default related risks through group agency. Besides, banks act at times as instruments for siphoning off the savings from poorer to richer and more progressive regions where returns are high and secure (Myrdal, 1963). Hence attempts to use financial linkages are likely to impact negatively on growth of informal financial institutions (Bairagya, 2010).

In Kenya, major trends highlighted by the Fin Access 2009 survey showed a strong expansion of informal finance as well as formal finance use (FSD, 2009). This shows that formal and informal

financial institutions are not simply substitutes for each other, but that clients value both their services, and that these different institutional forms may even be complementary (Malkamäki, 2011). This view is supported by new institutional complementarily economists who explain that, formal and informal financial institutions, due to their differential comparative cost advantages, essentially cater for different but connected segments of the financial markets (Braverman& Stiglitz, 1989). Financial linkage therefore is an emerging form of partnership between financial institutions intended to accrue mutual benefit to all the institutions involved. In developing countries Kenya included, it is widely practiced between formal and informal financial institutions (Pagura& Kirstein, 2006). According to Germidis (1990) and Pagura and Kirstein (2006), informal financial institutions enter into financial linkages with an aim of realizing growth in volume of savings and credit accessed. Relying on institutional complementarily theory by Stiglitz and Braverman which postulates that sustained institutional growth is likely to be achieved between different institutions through complementary linkages, this study thus purposed to establish the influence of financial linkages on growth of informal financial institutions in Homa Bay County. Specifically, the study sought to establish the effect of both financial training and Credit Information Sharing (CIS) on growth besides determining the influence of volumes of group savings on growth of informal financial institutions in Homa Bay County.

A number of researchers in the field of development economics have underscored the importance of various linkage techniques and forms including the vertical linkage between formal and informal finance in provision of credit to SMEs. Chaudhuri and Dwibedi (2002) found out that establishing vertical linkages between the formal and informal financial institutions is clearly superior to policy of horizontal linkage (substituting the informal sector by the formal one). They

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pointed that the policy of vertical linkage ensures lower informal interest rate and higher agricultural productivity when compared to the horizontal linkage case. However, the effectiveness of such mechanisms has been contested by other researchers owing to possibility of collusion cases, strategic cooperation, or monopolistic competition among the credit suppliers. Hoff and Stiglitz (1997) for instance did not support the policy of vertical linkage claiming that subsidies may have perverse effects under monopolistic competition. The negative externalities among suppliers they say may raise the informal interstate by raising the costs of loan enforcement which results from an increase in the number of lenders in the informal credit market. Their findings were parallel with the evidence that injecting of government-subsidized formal credit in Cambodia have not improved the terms offered by moneylenders as indicated by Sethykun (2011).Floro and Ray (1997) also observed that the effects of stronger vertical links depended on a form of the lenders' competition. If the relationship between lenders is one of strategic cooperation (collusion), an expansion of formal credit may reduce the expansion of the supply of credit to the informal borrowers. Furthermore, some authors such as Pagura and Kirstein (2006) have also raised the constraints in the development of such linkages besides casting doubt as to whether the initial appeal of financial linkages can with time translate to anything sustainable or replicable.

From the foregoing studies, there is yet to be resolved divergence in opinions by various researchers on the exact influence of financial linkages on growth of informal financial institutions. Besides, the doubt cast by other authors on whether the initial appeal of financial linkages can with time translate to anything sustainable or replicable, presents uncertainty and a knowledge gap that needs to be bridged. It is on the basis of this uncertainty and divergence in opinions that the study's general objective is anchored in order to help establish more clarity.

On financial literacy/training as a form of financial linkage, the findings of a number of studies conducted reveal that it influences group savings and individual savings plans. According to Alice, Maude and Christine (2014), "Banking on Change (BOC)" an initiative by Barclays, CARE and Plan International, is designed to address financial exclusion focuses on combining CARE and Plan's knowledge and understanding of communities with the financial expertise of Barclays to develop innovative solutions. Using Village Savings and Lending Associations (VSLAs) methodology as a first step to help address the barrier of inadequate financial understanding, Alice et al. (2014) observed that after joining the group, BOC members are systematically trained over a period of one year on how to manage transactions, make decisions on who in the group should take out the next loan, and determine interest rates and a repayment schedule. And with one year of this type of training resulted in some groups managing to double their weekly savings from $2 to $4 over one year, (Alice et al., 2014).This finding by Alice et al., (2014) supports the observations by Duflo and Saez, (2003) and(2004), Bernheim and Garrett (2003); Lusardi (2004) and Clark and D'Ambrosio (2008). The findings however only provide a correlation between financial literacy and savings plan and levels with no direct link or correlation between frequency of such trainings and growth of informal financial institutions in terms of volumes of credit accessed from formal financial institutions. This provided the basis of the first specific objective of this study. A study by Wachira and Kihiu (2012) who sought to establish the impact of financial literacy on access to financial services in Kenya using the 2009 National Financial Access (Fin Access) survey data equally found out that financial services is not based on levels of financial literacy but rather on factors such as income levels, distance from banks, age, marital status, gender, household size and level of education. It is worth noting that

Wachira and Kihiu (2012)did not consider financial literacy in the context of a linkage which this study endeavored to do.

Group saving schemes of one sort or another help mobilize deposit and are known to operate in about half of all African countries (Aryeetey 1994). According to Aryeetey and Udry (1995), group savings is a means of avoiding the information and enforcement difficulties in financial market transactions. It is possible that the group savings help build what Besley and Coate(1991) call "social collateral" by increasing information flows, providing benefits (which could be cut off) to members, and serving as a focal point for social interaction. Informal group saving, therefore in addition to its direct role in mobilizing deposits/savings, may serve to ameliorate the information and enforcement difficulties associated with other financial transactions. According to Bagachwa (1994), in Tanzania the cooperative movement or "scheme" was the most significant informal deposit mobilize in rural areas, the total volume of deposits mobilized by SCAs increased by 57% in real terms in the period 1990-92 with significant growth in the numbers of depositors. According to Alice et al. (2014), the linkage component of BOC has proved to be a model that works. Group members welcome the fact that they can keep their funds in a safe place and that they are treated as equals by the bank. This observation is in contradiction with Aryeetey (2008) who remarked that many formal financial institutions in Sub-Saharan Africa have not linked up with informal finance sector because of considerable distrust, inadequate knowledge about the informal sector and in some cases prejudice. In Kenya Odongo and Kendi (2013) points out how group lending against the collateral of group savings appears to command an edge over individual lending in mitigating loan defaulting. This observation is supported by other observations by Aliber (2015) and Alice et al. (2014). The findings of these studies provide information on group savings as a means of deposit mobilization to the formal

financial institutions and qualitative observations which are more of hypothetical thus leaving acknowledge gap as to what influence the volumes of group savings have on growth of informal financial institutions in terms of credit access which is the second objective in this study.

On credit information sharing, numerous studies and theoretical papers have explored the implications of imperfect information and incomplete markets for contractual forms in credit markets in low-income rural settings. Imperfections in the financial markets occur due to information asymmetry. According to Stiglitz and Weiss(1981), information asymmetry (opacity) occurs when borrowers have more information about the out turn of their investment and greater capacity to repay loans than lenders. A networked credit information exchange through group agency is a mechanism enabling credit information collection, processing, and further disclosure to users of data, as well as value-added services based on such data, (IFC, 2012).According to Aryeetey and Udry (1995), there is little evidence of any substantial attempt by African informal lenders to monitor the use of loans by their clients. And the success of informal lenders in achieving high repayment rates cannot be attributed to intensive monitoring activities but on the arrangements they have made to secure loans; be they collateral or group pressure. Indeed delinquency in loan repayment is relatively low to informal lenders, i.e. in contrast with banks. For instance, 77% of the sample of different informal lenders studied by Aryeetey (1994) in Ghana had no delinquent borrowers in 1990 and 70% had none in 1991. For those who had delinquent borrowers, they usually were less than 5% of total borrowers. Malawian and Tanzanian figures also suggest low default rates. Default rates are higher in Nigeria (17% from SCAs and 20% from esusu collectors), but these are lower in rural Nigeria (Udry, 1990). From these findings, the importance of information sharing among financial institutions cannot be gainsaid. A number of studies have observed that among individual

borrowers, credit information sharing (client assessment) can be achieved through group lending which appears to command an edge over individual lending in mitigating loan defaulting Odongo and Kendi (2013). However, beyond loan default mitigation, there is no information presented with regards to what extent this loan default mitigation then influences the growth of informal financial institutions/groups in terms of volumes of credit accessed.

The study area (Homa Bay County) is located along the shores of Lake Victoria in western Kenya, between Kisumu County to the north and Migori County to the south. According to Population Action International (PAI, 2015), the County performs below the national average on most socio-economic indicators. It scores a 0.46 on the Human Development Index (HDI) - a composite measure of development that combines indicators of life expectancy, educational attainment and income. This is below the national average of 0.56. The County has got five (5) Commercial Banks, two (2) MFIs and a number of financial linkage partners such as Catholic Relief Services (CRS), Maisha development trust (MDT), Plan International, Equity Bank and CARE Kenya among others. The County was chosen as the study area because; it has experienced an influx of many NGOs/financial linkages partners which have escalated their financial linkage activities. Besides, preliminary review of the status of informal financial institutions in the County according revealed that there is growth both in terms of the number of informal financial institutions accessing credit as well as the volumes of credit being accessed by the institutions operating within the County. For instance according to the statistics obtained from Homa bay Women Sacco, volumes of credit disbursed to the informal financial institutions in Homa Bay County between the years 2015 to 2017 grew from Kshs. 15,440,410 to 19 groups in 2015 to Kshs. 29,098,611to 28 groups in 2017 representing a growth of 88.46 %.

Despite the linkages and the growth of informal financial institutions in Homa Bay County, some studies focusing on the contribution of financial linkages on access to credit by the informal financial institutions as highlighted earlier have elicited divergent views with regards to the contribution of financial linkages on credit access by the informal financial institutions. With some claiming that financial linkages offer the first best solution to promoting informal financial institutions' growth in terms of credit access as well as offering new solutions to failing aid-based development models that crowd out established institutions in the markets and reduce the poor to recipients of charity while another group of scholars believe that through financial linkages, informal financial institutions are exploited by their linkage partners (Banks) hence attempts to use financial linkages are likely to reduce credit access and impact negatively on growth of informal financial institutions, it is therefore not possible to attribute with certainty the said growth of informal financial institutions witnessed in Homa Bay County to the existing financial linkages. This study therefore purposed to establish the contribution of financial linkages on growth of informal financial institutions witnessed in Homa Bay County whose findings will enable policy makers in the financial sectors (Governments, Banks, NGOs as well as informal financial operators) involved in the linkage programs to proceed with confidence and certainty in coming up with policies to address informal financial sector's growth in terms of credit access through financial linkages.

1.2 Problem Statement

From literature review of previous studies, a number of researches conducted in the field economics revealed divergent and sometimes uncertain observations and findings regarding the influence of financial linkages on growth of informal financial institutions in terms of credit access. While one group of scholars avers that, use of financial linkages provide the first best

solution to enhancing credit access to informal financial institutions/groups, another school believes that the informal financial institutions are being exploited by formal financial institutions in their linkages through strict credit controls despite the potential collateral of group savings and Credit information sharing through group agency. Therefore attempts to use financial linkages to increase credit access may reduce supply of credit access and impact negatively on growth of informal financial institutions. Other researchers have also cast doubt as to whether the initial appeal of financial linkages can with time translate to anything sustainable or replicable. On the basis of these divergent views and uncertainty, a knowledge gap exist with regards to the exact influence of financial linkages on growth of informal financial institutions and this created uncertainty as to whether or not to attribute the reported growth of informal financial institutions in Homa Bay County to the emerging financial linkages. The findings of this study will therefore provide the needed clarity and inform policy makers in governments, Banks, NGOs as well as informal financial market involved in the linkage programs on clear policy choices that would help expand volumes of credit access to informal financial institutions as well as identify which specific forms of financial linkage to strengthen and how without adverse effects on overall financial sector stability.

1.3 General Objective

This study sought to analyze the influence of financial linkages on growth of informal financial institutions in Homa Bay County.

1.3.1 Specific objectives

i. To establish the effect of financial training on growth of informal financial institutions in Homa Bay County.

ii. To determine the influence of volumes of group saving son growth of informal financial institutions in Homa Bay County.

iii. To establish the effect of Credit information sharing on growth of informal financial institutions in Homa Bay County.

1.4. Research Hypotheses

i.) H_{01}–Financial training does not affect growth of informal financial institutions in Homa Bay County.

ii.) H_{02}–Volumes of group savings does not influence the growth of informal financial institutions in Homa Bay County.

iii.) H_{03} – Credit Information Sharing does not affect the growth of informal financial institutions in Homa Bay County.

1.5. Significance of the Study

Preliminary review of the status of informal financial institutions in Homa Bay County according to a number of financial linkage partners operating therein revealed that there is growth both in terms of the number of informal financial institutions accessing credit and the volumes of credit accessed by the institutions operating within the County. For instance according to the statistics obtained from Homa bay Women Sacco, volumes of credit disbursed to the informal financial institutions in Homa Bay County between the years 2015 to 2017 grew from Kshs. 15,440,410 to 19 groups in 2015 to Kshs. 29,098,611to 28 groups in 2017 representing a growth of 88.46 %. .

However, a number of studies focusing on financial linkages have elicited mixed and divergent findings besides making uncertain observations with regards to the contribution or influence of such linkages on growth of the informal financial institutions. It is therefore not possible to directly attribute the said growth of informal financial institutions witnessed in Homa Bay County to the existing financial linkages. This study therefore aims at coming up with findings that will help establish more clarity on the actual influence of financial linkages on growth of informal financial institutions. This will in effect reduce the uncertainty caused by the divergent views presented in the existing literature regarding the influence of financial linkages on growth of informal financial linkages. The findings of this study will be able to inform policy makers in governments, academia, financial institutions, NGOs as well as informal financial market players involved in the linkage program on clear policy choices that would help expand volumes of credit access to informal financial institutions as well as identify which specific forms of financial linkage to strengthen and how without adverse effects on overall financial sector stability.

1.6. Theoretical Framework

Formal-informal sector relationship is grounded on the theory of complementarily propounded by new institutional economists such as Braverman and Stiglitz (1989) which seeks to combine the best of both worlds (i.e. the resources and technological capacity of the formal economy and the indigenous knowledge, human face and local embeddedness of the informal sector). The theory argues that when the best of both worlds are combined through complementary linkages, sustained institutional growth is likely to be achieved along the dimensions such as expanded volume of credit accessed, financial transitioning and increased group membership.

In this framework three independent variables were considered. Credit lines and financial training form the financial resourcefulness and technological capacity of the formal financial institutions while Credit information sharing is considered strength of the informal financial institutions owing to their local embeddedness and strong interpersonal relationship among group members. Group Savings/deposit mobilization account on the other hand is considered a common factor /strength in which the formal institutions provide savings accounts into which deposits from informal institutions are made. Growth of informal financial institutions (G_j) in terms of volumes of credit accessed is taken to be a direct function of the three forms of financial linkages (i.e. x_1 = Financial training, x_2 = Savings accounts/volumes of group savings and x_3 = Credit information sharing). Therefore the function below summarizes the linear regression model used in this study to illustrate the relationship between growth and forms of financial linkages:

$G_j = f(x_1, x_2, x_3)$

CHAPTER TWO

LITERATURE REVIEW

2.0. INTRODUCTION

In this chapter the study explores relevant economic studies both from theoretical and empirical perspectives. The study reviewed three theories; Theory of comparative advantage by David Ricardo, Myrdal's theory of circular causation and institutional complementarity theory by New Institutional Economists such as Braverman and Stiglitz (1989) which supports the third school of thought with regards to the relationship between informal financial sector and the rest of the economy. The institutional complementarity theory formed the theoretical basis for this study. The three theories reviewed in this regard are discussed below.

2.1. Theoretical perspectives behind financial linkages

2.1.1 Theory of Comparative Advantage

Sweetland (1997) defines Comparative advantage as low relative cost of a good in a given country compared to other countries. It involves a double comparison, across both goods and countries. This theory originally based on the labour theory of value was developed by David Ricardo in the early nineteenth century. But it was refined in the 1930s by an approach based on opportunity cost developed by Haberler, (Hardwick, Khan & Lang mead, 1990). It demonstrates that trade (exchange), is potentially beneficial to the welfare of a country if a country specializes in the production of those commodities or services in which it has a comparative advantage i.e. whose production has a lower opportunity cost (Hardwick et.al, 1990). Relative efficiency is considered to be the relevant factor when considering the possibility of gains from linkages/trade.

The theory took as its starting point, the assumption that different countries (institutions) have different production costs for the same good attributed to differences in factor endowments between countries. Thus a country (an institution) with an abundance of natural resources and agricultural land can be described as land-abundant and may be expected to have a comparative cost advantage in the production of commodities which are land-intensive (Hardwick et.al, 1990). If the domestic price of a good is higher than the world price, then the direction of trade will be the opposite: it will be imported, (Sweetland, 1997). Therefore in relation to this study, formal institutions have extensive infrastructures, systems and access to funds, but they are further removed from rural or poor clients. Thus they face intense difficulties to obtain adequate information to reduce default related risks among the rural poor clients leading to higher contract enforcement (screening) and transaction costs, (Pagura& Kirsten, 2006). In contrast, informal financial institutions operate close to rural clients, possess quite good information and enforcement mechanisms and are typically more flexible and innovative, but are constrained in the services they can offer since they lack adequate resources and infrastructure to serve clients beyond a small geographic area, resulting in highly concentrated loan portfolios (Pagura& Kirsten, 2006).

Informal financial institutions therefore are likely to have a comparative cost advantage in dealing with screening problems as experienced in Nepal, (Haugen, 2005) while formal institutions are also likely to have a comparative cost advantage in offering financial literacy services, commercial (bulk) loans due to wider resource base (funds) and safe custodial services/savings products. Therefore borrowing from the philosophy of this theory, the two institutions (formal and informal financial institutions) are likely to establish linkages structures or systems to facilitate their growths even as they serve different market segments' unique

demands that may not be served well by the other due to comparative cost advantages. According to Pagura and Kirsten (2006), linkages between established or formalized financial institutions and less formal or informal financial systems just like trade (exchange) create new possibilities for delivering microfinance to the poor by reducing the high information and enforcement problems that increase transaction costs in rural credit markets. This theory however, is not the basis of this study due to its more of a macro-analysis approach/foundation.

2.1.2. Myrdal's theory of circular causation

Professor Myrdal like Ricardo acknowledges the existence of both regional and institutional inequalities that may necessitate linkages or trade. However, in his theory he maintains that economic development results in a circular causation process whereby the rich are awarded more favours and the efforts of those who lag behind are thwarted (Jhingan, 1997). The backwash effects predominate and the spread effects are dampened. According to Myrdal (1963), trade/linkage operates (as a rule) with fundamental bias in favour of the richer/formal financial institutions or stronger and progressive regions and in disfavor of the poorer/informal financial institutions or weaker and less developed regions. Thus this theory in as much as it acknowledges existence of inequalities as the basis upon which trade/linkages are based, it did not form the core of this study owing to the fact that Myrdal (1963), assumes that the banking system, if not regulated to act differently tends to become an instrument for siphoning off the savings from poorer regions to the richer and more progressive ones where returns are high and secure. Furthermore the theory focuses more on a macroeconomic analysis hence may be best suited for macroeconomic studies.

2.1.3. Institutional Complementarity Theory

This theory is closely related to comparative advantage theory in its application. A complementary good is that which gives utility only in the presence of the other e.g. cars and petrol (Hardwick et.al, 1990). The theory advanced by New institutional economists such as Stiglitz and supported by bottom of the pyramid(BoP) literature according to Meagher (2013); Braverman and Huppi (1991) argues that when the best of both worlds (i.e. the resources and technological capacity of the formal economy and the indigenous knowledge, human face and local embeddedness of the informal sector) are combined through complementary linkages, sustained institutional growth is likely to be achieved, (Braverman& Stiglitz, 1989). The new institutional economics complementarity hypothesis implies that the formal financial institutions concentrates on prime risks and leave a large vacuum in the credit markets for the informal credit markets to fill, (Gahadassi, 1998). It therefore emphasizes the potential for synergy between formal and informal financial institutions in financing hard-to-reach groups. The authors argue that strengthening formal-informal linkages is more effective than formalization in extending finance to small business and rural producers. According to Gahadassi(1998),examination of the interaction between the two financial sub-sectors (i.e. formal and informal) in Iran provided evidence of complementarity in terms of linkages between the two sectors and their influence.

The fact that, major trends highlighted by the Fin Access 2009 survey in Kenya showing a strong expansion of semi-formal sector as well as formal banks use and more striking fact that the increase in ROSCA and ASCAuse since 2006 is a strongly urban phenomenon is puzzling; since it is towns and urban areas where the formal and semi-formal financial services are most easily available (Malkamäki, 2011). Both of these findings indicate that informal groups and formal financial institutions are not simply substitutes for each other, but that clients value both the

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formal and informal services, and that these different institutional forms may even be complementary (Malkamäki, 2011). On the basis of the findings above, this study will thus be based on the theory of complementarity besides the fact that complementarity theory analyses microeconomic elements within a system similar to what the study will focus on.

2.2 Empirical review of formal-informal financial market linkages

The review here opens with a highlight of those literature which have documented successful cases of financial then proceeds to review of literature from Sub-Saharan Africa, Asia and Latin America before narrowing down to literature on specific forms of linkages including commercial/bulk loans and self-help group on-lending, financial literacy/training, savings accounts (volumes of group savings) and client assessment (credit information sharing).

2.2.1. Financial linkages in sub-Saharan Africa, Asia and Latin America

A number of researchers in the field of development economics have underscored the importance of various linkage techniques including the vertical linkage between formal and informal finance in order to provide credit to SMEs. The effectiveness of such mechanisms has however been contested by other researchers owing to possibility of cases they claim can be of collusion, strategic cooperation, or monopolistic competition among the credit suppliers. Furthermore, some authors have also raised the constraints in the development of such linkages. To this end there have emerged several schools of thought regarding the formal and informal financial sectors' relationship.

The first school of thought according to Bairagya(2010), notes that informal financial sector is an autonomous segment of the economy producing mainly for consumption within the sector. The second school believes that the informal financial sector has a dependent relationship with the

formal financial sector though exploited by latter while according to the third school, the informal financial sector is integrated with the rest of the economy through complementary linkages (ILO, 1991).Some of those who have documented the importance and the successful cases of financial linkages include:

Varghese (2005) observed that if banks could link with moneylenders, borrowers would have access to further bank loans. He further noted that linkages can potentially improve upon a monopoly bank and bank competition. The result of the study indicated that borrowers would still prefer linkages to competition in the banking sector. Gallardo, Goldberg, and Randhawa (2006) also observed that linkages enabled the rural/informal financial institutions to significantly access new capital resources, manage transaction costs, acquire technical and management skills, link up to banking technology and infrastructure, and provide an expanded range of financial products and services. Seibel and Parhusip (1990) noted that linking informal and formal financial institutions, with financial self-help groups acting as intermediaries between micro-entrepreneurs and the banks reduces transaction costs substantially, for the benefit of both linkage partners. Seibel (1997) & (2006) presented the successful cases of linkage adopted by APRACA (pilot projects in Indonesia, the Philippines, Thailand, and Nepal). In 1988, GTZ supported bilateral projects in Indonesia, the Philippines and Thailand and by the end of a two and a half year pilot period, 1600 SHGs, 16 bank branches and 15NGOs had entered into commercial linkages in Indonesia. Later the methodology was conducted in India where NABARD built what is now the largest and fastest-growing rural microfinance program.

Pagura and Kirsten (2006) in a multi-country review of 12 case studies conducted in eleven countries in Africa, Asia and Latin America sought to examine financial linkages that result in expanded access to a broad array of financial services, not just credit. Results of the successful

innovations on improving access to financial services for poor populations in rural areas revealed that, financial linkages are increasingly used by formal financial institutions (public or private) to target rural clients. The results further showed that a wide variety of less formal (informal), often rural financial institutions are the linkage partners. However, Pagura and Kirsten (2006) observed that even though financial linkages seems promising, they are difficult to set up and manage, require less strong formal as well as formal institutions, and rarely yield a significant expansion of financial services beyond credit and therefore recommended need for a future further study to establish whether the initial appeal of financial linkages can with time translate to anything sustainable or replicable.

Also according to Pagura and Kirsten(2006) and Ndiege (2013), initial evidence indicated that the linkages seem to afford both partners the opportunity to overcome a weakness in what they can achieve on their own. Through linkages, financial institutions may be able to expand the scale and scope of their rural operations resulting in greater profits and better financial and institutional sustainability (Ndiege, 2013). However, further evidence show that there is no single circumstance sufficient to explain the emergence of various types of linkages or the reasons why specific institutions enter into linkages, (Pagura& Kirsten, 2006; Ndiege, 2013). Some linkages they say, are spontaneous and market driven, such as when a large urban commercial bank/institution lends to a cooperative or NGO that is closer to and more knowledgeable about the demands of a specific rural clientele for financial services (formal sector driven linkages) and specializes in rural lending. Others are sponsored, such as when donors support the creation of wholesale apex institutions for lending to small rural retail institutions. And sometimes informal (smaller) institutions seek linkages with formal (larger)

institutions to gain access to their more abundant resources and expertise (informal sector driven linkage).Some linkages also emerge out of compliance with regulations.

Pagura and Kirsten(2006) and Ndiege (2013) concluded that in some cases, mutual interest of different linkage partners may not be realized. Negative impacts at times occur when subsidized new entrants crowd out established institutions. Exclusive contract requirements within a linkage may also impede experimental linkages with other institutions that would generate new products and services. Therefore with these mixed observation on the benefits of financial linkages to the linkage partners especially to the informal financial institutions in terms of influence on credit access, this underscores the need for further study to establish and bring more clarity on the same.

In Philippines, Floro and Ray (1997) looked at the evidence from a 1978 informal lenders survey of 163 rural informal lenders in three Philippines provinces which showed that significantly more than a half of the informal lenders surveyed were savers in or borrowers from formal banks. Eighty-four or 52% of rural informal lenders were in particular borrowers from the formal sector. Bank loans comprised close to half of their operational funds. The bulk (four-fifths) of such loans came from commercial banks. In Rwanda, more than 20,000 individuals living deep in the rugged countryside had access to credit and other financial services of the Peoples Banks on a regular basis, and many group members were leveraging their creditworthiness to open personal accounts due to linkages. While in Tanzania, Co-operative and Rural Development Bank (CRDB) reached close to 80,000 new rural clients through 157 SACCOs by offering loans, savings and money transfer services, (Pagura& Kirsten, 2006).

This shows existence of financial linkages in form of group Savings/deposit mobilization accounts into which informal financial institutions keep their savings with formal financial institutions and in return can apply for credit against the collateral of group savings. Floro and Ray (1997) however observed that the effects of stronger vertical links depended on a form of the lenders' competition. If the relationship between lenders is one of strategic cooperation (collusion), an expansion of formal credit may reduce the expansion of the supply of credit to the informal borrowers. Hoff and Stiglitz (1997) thus did not support the policy of vertical linkage by claiming that subsidies may have perverse effects under monopolistic competition. The negative externalities among suppliers may raise the informal interest rate by raising the costs of loan enforcement which results from an increase in the number of lenders in the informal credit market. Their findings were parallel with the evidence that injecting of government-subsidized formal credit in Cambodia have not improved the terms offered by moneylenders as indicated by Sethykun (2011).

However, Chaudhuri and Dwibedi (2002) found out that establishing vertical linkages between the formal and informal financial institutions is clearly superior to a policy of horizontal linkage (substituting the informal sector by the formal one). They pointed that the policy of vertical linkage ensures lower informal interest rate and higher agricultural productivity when compared to the horizontal linkage case. Their study on a case of collusion between the informal lenders and also found that the interest rate is still lower in the vertical linkage case, which is in contradiction with the findings of Floro and Ray (1997) and Hoff and Stiglitz (1997).

While weighing in on the same debate, Aliber (2015), in his comparative study of informal finance in Kampala, Uganda and Nagpur, India, also found out that one of the most significant

development interventions to assist informal operators is the improvement of access to formal sector financial services. He observed that two of the most important strategies to broaden access to formal sector financial services revolve around informal finance. Firstly, simulating or adapting features of informal financial institutions (horizontal linkages) as has been the case with many MFIs and some banks thus solving problems that informal financial institutions seem to cope with, but which traditionally have stymied formal financial institutions. Secondly, MFIs and banks have occasionally attempted to link up with informal financial institutions (vertical linkages) in order to reach low-income households through the mediation of the latter. Although both of these approaches have some promise, they face significant limitations. According to analysis by Aliber (2015), the adaptation by MFIs and banks of features seen in informal financial institutions (horizontal linkage) is the more promising. This contradicts Chaudhuri and Dwibedi (2002) who found out that establishing vertical linkage between the formal and informal financial institutions is clearly superior toa policy of horizontal linkage. In his conclusion which further contradicts findings by Chaudhuri and Dwibedi (2002), Aliber (2015) observed that the fundamental problem with the second strategy involving cultivation of financial linkages between formal and informal financial institutions (vertical linkage) is that it tends to distort the informal financial institutions.

According to Odongo and Kendi (2013), linkages through group lending has been used successfully in some parts of the world (notably by the Grameen Bank) to expand the reach of microcredit programs. However, in their study, they show that microfinance institutions in Kenya prefer individual lending which is more "wasteful" in the sense that it cannot effectively address borrowers' financial needs. This is reflected in the higher default levels associated with

individual lending compared to group lending. However, group lending appears to command an edge over individual lending in mitigating loan default concludes Odongo and Kendi(2013).The study by Odongo and Kendi (2013) focused more on evaluating the merits of individual lending versus group lending with regards to expanding the outreach of microcredit programs and not the influence of linkages in promoting credit growth.

Sabana (2005) found out that K-Rep Bank started in Kenya as a private microfinance Bank, linked with various MFIs and SACCOs as a way to minimize costs and further its business. Later on the microfinance grew into a Bank. This observation supports the initial evidence by Pagura and Kirsten(2006) and Ndiege (2013) which indicated that the linkages seem to afford both partners an opportunity to overcome a weakness in what they can achieve on their own. In K-Rep Bank's case however, the benefit accruing to the informal linkage partners was missing. Therefore the findings may be assumed to support the school of thought that claims formal sector exploits informal sector. From the foregoing studies, therein emerge: divergent with regards to the best policy proposal to implement in order for the financial sector to fully benefit from the financial linkages; uncertainty as to whether the initial appeal of financial linkages can translate into anything sustainable or replicable and the fact that linkages though promising, are difficult to set up and manage, require strong less formal as well as formal institutions and seldom result in a significant expansion of financial services beyond credit to individuals. All these findings underscored the need for this study to establish whether the initial appeal of financial linkages can with time translate to anything sustainable or replicable and also to reveal more clearly the influence of financial linkages on growth of informal financial institutions together with a recommendation of a clear and best policy to implement to achieve this growth.

2.3.   Empirical studies on specific forms of linkages

2.3.1.   Commercial (bulk) loans and self-help group on lending

Aliber (2015) defines 'self- help group on-lending' as the practice whereby a bank lends a commercial/bulk loans to a self- help group which in turn on-lends that money to its members. The most significant linkage initiative involving self-help group on-lending according to Aliber (2015) is the Program Linking Banks with Self-Help Groups (PHBK) project in Indonesia, which dates back to the late 1980s. Since its inception, PHBK has experimented with a number of different variations on the basic model, for example using NGOs or rural banks as intermediaries rather than linking to the self- help groups directly. The growth of the PHBK project has been impressive, albeit depending on some amount of subsidization. A similar initiative undertaken in India under the auspices of National Bank for Agriculture and Rural Development (NABARD), the apex institution for rural credit, has also shown promise, but is far from achieving cost recovery if one takes into account the heavy reliance on donor-funded NGOs for training and support to groups (Aliber, 2015).Other studies on formal- informal financial institutions' linkages reveal some interesting statistics. A study by Rahaman (2011)on access to financing and firm's growth for instance revealed that an increase of 10% in bank credit to a firm would lead to an increase of 18.14% in firm growth.

Ochanda (2014)while using regression models to examine the effect of financial deepening on growth of SMEs in Nairobi County found out that access to credit positively influenced the growth of 92% of SMEs. According to Ochido (2016), on relationship between credit accessibility and growth of small and medium size enterprises in Nairobi County, the findings revealed that accessibility to credit had a positive influence of 46% on the growth of SMEs in Nairobi County. The studies by Rahaman (2011),Ochanda (2014) and Ochido (2016) focused on

influence of credit access on growth which was positive. However, information on the influence of linkages on growth in terms of volumes of credit accessed is missing. A related study was also carried out by Ndege (2012) to establish the impact of financial sector deepening on economic development in Kenya. The study targeted the 44 banking institutions operating in Kenya by the year2011 using a quantitative comparative design. During the period of the study (2007-2011), financial sector deepening was high as a result of commercial banks leveraging their operations through adoption of new technologies including automation. The study by Ndege (2012) only established the contribution of technology to the formal sector growth and did not focus on contribution of other forms of financial linkages such as financial training and client assessment to the growth of volumes of credit accessed by informal financial institutions.

2.3.2. Financial training

Alessie, Maarten and Lusardi (2011) define financial training as the process of acquiring a combination of awareness, knowledge, skills, attitude and behaviour necessary to make sound financial decisions. The impact of financial education/training on saving behaviour has been investigated, mostly in the context of retirement. Bernheim and Garrett (2003); Lusardi (2004) and Clark and D'Ambrosio (2008) have documented positive effects of retirement seminars in the workplace; for example, participants surveyed just after a seminar report an intention to change saving behaviour. Overall, however, the evidence is mixed, as other studies according to observation by Duflo and Saez, (2003) and(2004) have not been able to come up with significant, lasting effects.

Alessie et al. (2011) also evaluated the importance of financial literacy by studying its relation to retirement planning and household wealth (i.e. stock market participation). Their findings provided evidence of a strong positive association between financial literacy and household net

worth. Financial literacy, they concluded increases the likelihood of investing in stock market and is also positively related to retirement planning and development of savings plan. The studies above provided findings on the influence of financial training on savings plan without revealing any direct link or influence of financial training on credit access. This has left a gap that this study therefore sought to bridge.

According to, Alice, Maude and Christine (2014), "Banking on Change (BOC)" an initiative by Barclays, CARE and Plan International to address financial exclusion by working through local organizations and members of the community to engage and train poor people, has been implemented in 11 countries, mainly in Africa. BOC challenges traditional banking practices such as individual banking and traditional methods of client acquisition and servicing. It focuses on combining CARE and Plan's knowledge and understanding of communities with the financial expertise of Barclays to develop innovative solutions. Using and relying on the tried and tested methodology of Village Savings and Lending Associations (VSLAs) as a first step to help address the barrier of inadequate financial understanding, Alice et al. (2014) observed that after joining the group, members are systematically trained over a period of one year on how to manage transactions, make decisions on who in the group should take out the next loan, and determine interest rates and a repayment schedule. And with one year of this type of training resulted in some groups managing to double their weekly savings from $2 to $4 over one year, (Alice et al., 2014).This finding by Alice et al., (2014) supports the observations by Duflo and Saez, (2003) and(2004), Bernheim and Garrett (2003); Lusardi (2004) and Clark and D'Ambrosio (2008). It however also fails to provide a direct link between financial literacy and

growth of informal financial institutions in terms of volumes of credit accessed from formal financial institutions.

A study by Wachira and Kihiu (2012) sought to establish the impact of financial literacy on access to financial services in Kenya using the 2009 National Financial Access (Fin Access) survey data. Using a multinomial log it approach to explain access to the four major financial service access strands, the study found out that financial literacy remains low in Kenya. Besides, regression results indicated that households' access to financial services is not based on levels of financial literacy but rather on factors such as income levels, distance from banks, age, marital status, gender, household size and level of education. It is however noteworthy that a study by Wachira and Kihiu (2012) did not consider financial literacy in the context of a linkage. It also provided more of a qualitative statistics without giving the quantitative influence of financial literacy as a form of linkage on the volumes of credit accessed.

2.3.3. Group Savings /deposit mobilization accounts

Group saving schemes of one sort or another help mobilize deposit and are known to operate in about half of all African countries (Aryeetey 1994). According to Aryeetey and Udry (1995), group savings is a means of avoiding the information and enforcement difficulties in financial market transactions. It is possible that the group savings help build what Besley and Coate(1991) call "social collateral" by increasing information flows, providing benefits (which could be cut off) to members, and serving as a focal point for social interaction. Informal group saving, therefore in addition to its direct role in mobilizing deposits/savings, may serve to ameliorate the information and enforcement difficulties associated with other financial transactions. Even though Aryeetey (2008) remarked that many formal financial institutions in Sub-Saharan Africa have not linked up with informal finance sector because of considerable distrust, inadequate

knowledge about the informal sector and in some cases prejudice, Aliber (2015) observed that many banks have introduced savings products specifically designed to accommodate indigenous savings clubs (informal financial institutions). In principle he noted that these clubs represent a huge opportunity for banks to take in additional deposits without incurring the same transactions costs as would apply to individuals.

In South Africa a number of commercial banks introduced such accounts in the late 1980s or mid-1990s, but most of these were discontinued. Verhoef (2001), relates the example of how First National Bank terminated its "People's Benefit Scheme" due to lack of demand and ascribes this lack of demand to insufficient marketing, as well as the fact that the Scheme was overly complicated. One interesting feature of the Scheme was that it was designed to permit group members to borrow against the collateral of the group's savings; however, Verhoef indicates that the minimum allowable loan size was too large for most of those who were or might have been attracted to the scheme.

In trying to analyze the informal deposit mobilization trends in Africa in their study of characteristics of informal financial markets in Africa, Aryeetey and Udry (1995) observed that between 1990 and 1992 SCAs(or *susu*)collectors in Ghana increased significantly the sizes of their clientele, and the growth in clientele was more rapid in urban areas than in rural areas. In Accra the mean number of depositors in a month per collector rose from 155 in 1990 to 221 in 1991 and 290 in 1992, a total increase of 48% over the period. In the case of Savings and Credit Associations (SCA) they noted that the deposit mobilization capability of each SCA was dependent on membership size, their incomes and the frequency with which deposits are made into the common pool.

According to Bagachwa (1994), in Tanzania the cooperative movement or "scheme" was the most significant informal deposit mobilize in rural areas, the total volume of deposits mobilized by SCAs increased by 57% in real terms in the period 1990-92 with significant growth in the numbers of depositors. Tanzania had 485 urban-based savings and credit societies (SCS) or credit unions and 438 rural-based cooperatives. They mobilized altogether about TSh. 828.4 million worth of deposits at the end of 1990 which was equivalent to 4% of total commercial bank deposits (Aryeetey & Udry, 1995). From the foregoing findings, it can be seen that most of the savings accounts designed by formal financial institutions are meant to serve the purpose of mobilizing deposits after which there is no information provided as to how the so mobilized savings influence growth of informal financial institutions in terms of volumes of credit accessed.

In South Africa, as well as in Kampala and Nagpur, members of ROSCAs are disproportionately likely to open individual savings accounts anyway, thus the relative importance to a bank of accommodating group accounts is modest, (Aliber, 2015).According to Alice et al. (2014), the linkage component of BOC has proved to be a model that works. Group members welcome the fact that they can keep their funds in a safe place and that they are treated as equals by the bank. This observation is in contradiction with Aryeetey (2008) who remarked that many formal financial institutions in Sub-Saharan Africa have not linked up with informal finance sector because of considerable distrust, inadequate knowledge about the informal sector and in some cases prejudice. In Kenya Odongo and Kendi (2013) points out how group lending against the collateral of group savings appears to command an edge over individual lending in mitigating loan defaulting. This observation is supported by other observations by Aliber (2015) and Alice

et al. (2014). However, these observations are again more qualitative and hypothetical thus leaving the quantitative gap to be bridged by this study.

2.3.4. Client assessment (credit information sharing)

A number of studies and theoretical papers have explored the implications of imperfect information and incomplete markets for contractual forms in credit markets in low-income rural settings. Imperfections in the financial markets occur due to information asymmetry. According to Stiglitz and Weiss(1981), information asymmetry (opacity) occurs when borrowers have more information about the out turn of their investment and greater capacity to repay loans than lenders. A networked credit information exchange through group agency is a mechanism enabling credit information collection, processing, and further disclosure to users of data, as well as value-added services based on such data, (IFC, 2012).The existence of credit reporting systems between stakeholders in the financial market indicate the level of interlink ages among different financial institutions, (IFC, 2012). Benefits of credit reporting include among others, identification of good borrowers (who typically outnumber bad borrowers by a factor of 10 to 1) and access to external funding which is necessary for sustained institutional growth, (IFC, 2012). According to IFC (2012),the 2007–2008 financial crisis was widely blamed on lack of Credit information sharing. It showed that both, the market on one hand, and financial institutions supervisors on the other hand, were poorly equipped to deal with systemic risk issues stemming from widespread and concentrated exposure to credit risks in the financial markets. Supervisory authorities did not have access to broad, timely, and reliable information, especially about off-balance sheet exposures that tend not to be regulated.

According to Aryeetey and Udry (1995), there is little evidence of any substantial attempt by African informal lenders to monitor the use of loans by their clients. And the success of informal

lenders in achieving high repayment rates cannot be attributed to intensive monitoring activities but on the arrangements they have made to secure loans; be they collateral or group pressure. Indeed delinquency in loan repayment is relatively low to informal lenders, i.e. in contrast with banks. For instance, 77% of the sample of different informal lenders studied by Aryeetey (1994) in Ghana had no delinquent borrowers in 1990 and 70% had none in 1991. For those who had delinquent borrowers, they usually were less than 5% of total borrowers. Malawian and Tanzanian figures also suggest low default rates. Default rates are higher in Nigeria (17% from SCAs and 20% from esusu collectors), but these are lower in rural Nigeria (Udry, 1990).

According to IFC (2012), because of credit information sharing, Egypt's ranking in the Doing Business indicator improved greatly. The total number of records in the bureau(consumers and firms) rose from 3.9 million at the end2008 to 8.7 million as of December 2011, with over 23 million credit facilities. Egypt's score on the Doing Business 2012CIIincreased from 2 out of 6 in 2007 to 6 out of 6 in 2012. According to IFC (2012),the microfinance sector in India which is potentially the largest in the world, but also the least well served has seen a tremendous growth rate in the past few years. However, this growth has led to a number of complex issues, many of which culminated in the recent repayment crisis in Andhra Pradesh. Due to information asymmetry (opacity) or lack of any credit information sharing among MFIs, this has in some cases in India led to multiple borrowings and financial over indebtedness resulting to reported suicides of poor farmers, significantly affecting the financial sector. Similar scenarios of suicides have been witnessed in Kenya. From these findings, the importance of information sharing among financial institutions cannot be gainsaid. A number of studies have observed that among individual borrowers, credit information sharing (client assessment) can be achieved

through group lending which appears to command an edge over individual lending in mitigating loan defaulting Odongo and Kendi (2013). However, beyond loan default mitigation, there is no clear information presented with regards to how much this loan default mitigation then influences the growth of informal financial institutions/groups in terms of volumes of credit accessed.

2.4Conclusion

From the findings of reviewed literature, many researchers have emphasized and underscored the importance of formal finance to economic growth in general in comparison with informal finance. In order to provide credit to SMEs, some of them have suggested various linkage techniques including the vertical linkage between formal and informal finance. While some researchers such as Chaudhuri and Dwibedi (2002) are applauding the policy of forming formal-informal financial institutions as clearly superior to a policy of horizontal linkage (substituting the informal sector by the formal one) in promoting credit access. They pointed that the policy of formal-informal financial institutions' linkages ensures lower informal interest rate and higher agricultural productivity if compared with horizontal linkage case. They also studied the case of collusion between the informal lenders and found that the interest rate is still lower in the vertical linkage case hence a better policy in promoting credit access to informal borrowers. However in contradiction, the effectiveness of such mechanisms however has been questioned by other researchers like Hoff and Stiglitz (1997; Floro and Ray (1997)because of the likely perverse effects such as high informal interest rates and credit supply rationing under cases of monopolistic competition, collusion and strategic cooperation among the credit suppliers. Furthermore, some authors have also raised the constraints of the development of such a linkage. The negative externalities among suppliers may raise the informal interest rate by raising the

costs of loan enforcement which results from an increase in the number of lenders in the informal credit market. In addition the findings of Pagura and Kirsten (2006) showed that formal financial institutions increasingly used financial linkages to target rural clients by taking less formal or rural financial institutions as linkage partners. They confirmed that even though financial linkages seems promising they are difficult to set up and manage, require less strong formal as well as formal institutions, and rarely yield a significant expansion of financial services beyond credit to individuals.

From the literature reviewed and the findings presented, it can be concluded that there exist contradicting information regarding the influence of financial linkages on growth of informal financial institutions with respect to credit access. Equally the literature that have documented positive influence of financial linkages on growth in terms of credit access like Odongo and Kendi (2013), supported by other observations by Aliber (2015) and Alice et al. (2014)have done so hypothetically and in qualitative terms without providing the quantitative aspects. Finally, there is also the uncertainty aspect observed by Pagura and Kirsten (2006) as to whether the initial appeal of financial linkages can translate into anything sustainable or replicable. All these show that there is a gap to be filled through further study to establish clarity on the actual influence of financial linkages on growth of informal financial institutions in terms of volumes of credit access.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0: INTRODUCTION

This chapter opens with the study area which is followed by a brief description of the type of research design used in the study. The population, sampling procedure and sample size for the study is then presented in that order. The discussion proceeds to look at the data type and sources before highlighting the data collection methods and instruments used. Reliability and Validity Test(s) for Data Collection Instruments and data analysis methods used are then outlined followed finally by model specification for the study.

3.1 Study Area

The study was conducted in West Karachuonyo division and Homa Bay town (Asego division) of Homa Bay County. Located along the shores of Lake Victoria in western Kenya, between Kisumu County to the north and Migori County to the south, Homa Bay County is home to a rapidly growing population largely attributed to high fertility, which is currently 5.2 children per woman, compared to a national average of 4.6 children per woman. The livelihoods of most county residents depend on fisheries and rain-fed small-scale farming, practices that are highly vulnerable to environmental degradation and the effects of climate change. Under CARE's innovative group savings and loans (GS&L) in Homa Bay County, there are 46, 986 direct beneficiaries; 38,597 female and 8,389 male of the pooling and utilization of financial resources.
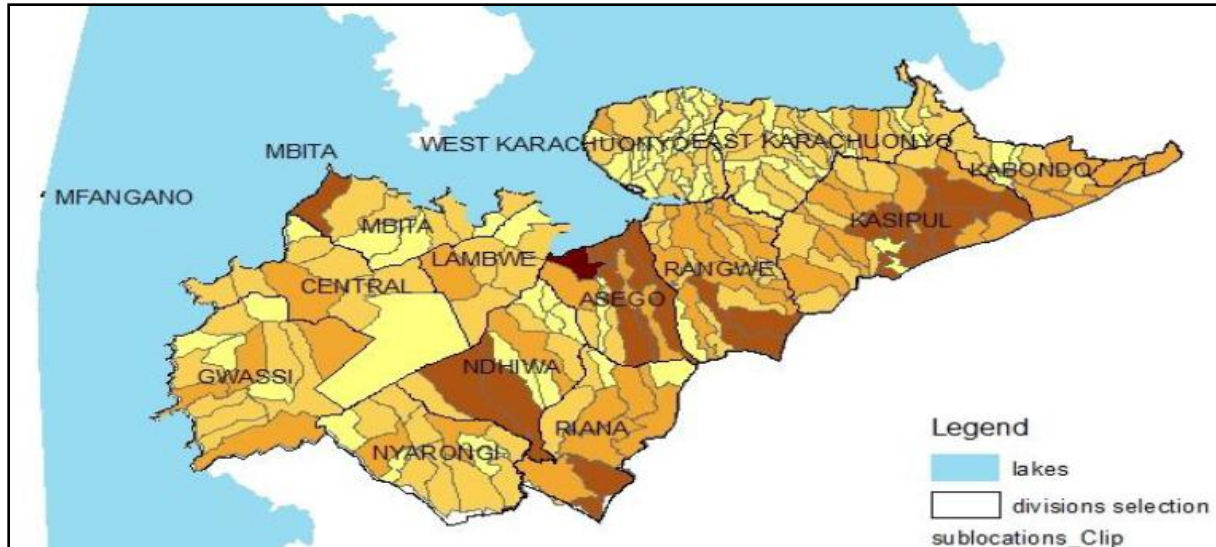
Figure 3.1: Map of Homa Bay County (study area);

Source: KNBS 2013

3.2. Scope of the Study

This study was carried out in West Karachuonyo division and Homa Bay town (Asego division) within Homa Bay County. The study analyzed the influence of financial linkages on growth of informal financial institutions in Homa Bay County. Growth of informal financial institutions was measured in terms of commercial/bulk loans (percentage changes in volumes of credit accessed) by the informal financial institutions from formal financial institutions. Financial training was measured in terms of both frequency and schedule of the training sessions. Savings accounts were measured in terms of the volumes of savings kept in the formal bank accounts besides the factor by which the group savings would be compounded to determine the commercial/bulk loans receivable. Credit Information Sharing was measured in terms of whether or not it was the required whenever commercial bulk loans were sought from the formal financial institutions.

3.3 Research Design

Correlational research design was used since the study involved collection of data on different variables at the same point during the same time period to determine the extent to which the values for the factors are related or change in an identifiable pattern. The researcher recognized that there could also be other uncontrollable factors influencing the growth of informal financial institutions that did not form part of this study. The design was therefore chosen since it is appropriate when it is difficult to control for other possible factors that could be causing changes in behaviour, (Miller, 1965)

3.4TargetPopulation and Sample size

The population of informal financial institutions operating within Homa Bay County was estimated by Homa Bay County government department of social services to be 3,000. Therefore 3,000 was the population from which a sample for the study was drawn. Cochran (1963) developed the equation shown below to yield a representative sample for proportions of large populations (i.e. for N > 10,000).

$$n = \frac{z^2 pq}{e^2} \quad \text{...3.1}$$

Which is valid where n is the sample size, Z^2 is the abscissa of the normal curve that cuts off an area 'a' at the tails (1 - a equals the desired confidence level is 95%), e = 0.05 is the desired level of precision, p is the estimated proportion/prevalence of an attribute that is present in the population, and q is 1-p. The value for Z is 1.96 found in statistical tables which contain the area under the normal curve. Daniel, (1999) and Lwanga and Lemeshow(1991) suggest that if it is impossible to come up with a good estimate for p, one may set p equal to 0.5 to yield the

maximum sample size. Macfarlane(1997) also suggested that if there is doubt about the value of p, it is best to err towards 50%as it would lead to a larger sample size.

$$n = \frac{(1.96)^2 (0.5)(1-0.5)}{(0.05)^2} = 384 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.2$$

However for a small population, (i.e. N < 10,000), the formula for finite population correction was required to reduce the sample size slightly (Yamane, 1967).A sample size of 300 respondents therefore was used. It was determined and purposely selected according to Mugenda and Mugenda (1999), who postulates that 10 % sample size of a population of 300 and above, is adequate whereas a population less than 300 requires a sample size of 30 %.

3.5 Sampling Procedure

A stratified random sampling was done on the basis of locality of respondents (i.e. rural West Karachuonyo and Homa Bay urban area). The respondents were drawn using a random start after which a systematic random sampling was used to pick subsequent respondents. The stratification was done not on the basis of heterogeneous characteristics of the respondents, but only to show that the informal financial activities are no longer a rural but also an urban phenomenon as highlighted by Fin Access 2009 survey showing the major trends in expansion of informal finance as well as formal finance use in Kenya.

3.6 Data Type and Sources

The study used mainly cross sectional data from primary sources (i.e. responses from informal financial institutions' representatives and livelihood officers in charge of linkage institutions.

3.7 Data Collection Methods and Instruments

Data was collected by the researcher himself assisted by three assistants using both open and closed ended structured questionnaires as the main data collection instrument. One set of

questionnaire was administered to the livelihood officers (considered as key informants) working with the formal financial linkage partners/institutions while another set of questionnaire administered to an official representative of the informal financial institution. Observations and interviews were also used where necessary. The selection of these instruments were guided by the nature of data to be collected, time available, area and scope of the study as well as the objectives of the study. The research was mainly concerned with views, opinions, perceptions, feelings and attitudes of the respondents. Such information could only be best collected through questionnaire and interview techniques (Bell, 1993; Touliatos& Compton, 1988).

3.6.1. Reliability and Validity Test(s) for Data Collection Instruments

According to Saunders, Lewis and Thornhill (2009), reliability refers to the extent to which the data collection techniques or analysis procedures yield consistent results obtained from numerous tests using the same instrument. While Validity refers to the extent to which results meet generally acceptable standards and can be accurately interpreted and generalized to other populations. To control quality, items with validity and reliability co-efficient of 0.7 or 70% are accepted as valid and reliable in research (Kathuri& Pals, 1993). Formulated questionnaire was pre-tested on 5 informal financial institutions to establish its reliability and validity before necessary adjustments were made and the final questionnaire administered to the respondents. The questionnaire was structured to enhance research objectivity. This allowed for the findings to be pre-coded and analyzed statistically (Sudman & Bradburn, 1982). Both closed and open-ended questions were included in the questionnaires to give respondents an opportunity to freely comment on given issues. Validity was determined using Content Validity Index (C.V.I).

$$C.V.I = n/N \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.3$$

Where n is the number of rated items as relevant and N is the number of items in the questionnaire. The Cronbach's Alpha coefficient obtained from the pre-tested questionnaires for the selected twelve items forming part of key variables and with some related to the variables under study was 0.709. This coefficient of 70.9% implies that the questionnaire items relating to the variables under study were reliable and valid according to Kathuri and Pals(1993).

3.7 Data Analysis

Data obtained from the field in raw form is difficult to interpret unless cleaned, coded and analyzed (Mugenda&Mugenda, 2003).Therefore quantitative data analysis on descriptive statistics to determine frequencies besides use of OLS multiple regressions method of estimation was used to obtain the values of the parameter estimates for the model of the study so as to establish effects of independent variables on dependent variable. Correlation analysis was used to determine the relationship between the variables. Durbin Watson test for autocorrelation, t-test for significance levels, analysis of variance and multi collinearity test for endogeneity using Variance inflation Factor (VIF) were also done.

3.8 Model Specification

On the basis of complementarity theory, sustained institutional growth can be achieved through complementary linkages whenever they exist (Stiglitz &Braverman, 1989). In this study, growth of informal financial institutions (G_j) is taken as a function of three forms of financial linkages viz; financial training(x_1), volumes of group savings/Savings products(x_2) and Credit Information Sharing (CIS) (x_3).Therefore the general objective involves both regression and correlational study between the three forms of financial linkages and growth. The correlational analysis presents correlation coefficients in correlational matrix table to show the strength and

direction of association with the growth while OLS multiple linear regressions was used as the main method of estimation to give the coefficient of determination for the general objective.

Simple linear regressions were done for each of the three specific objectives. The formulated linear regression models adopted for both the specific and general objectives in this study are as shown in the following equations:

3.8.1. Model Specification for the specific objectives

$$G_j = {}^{\beta}0 + {}^{\beta}1x_{1j} + \mu_1 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.4$$

$$G_j = \alpha_0 + \alpha_1 x_{2j} + \mu_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.5$$

$$G_j = {}^{\gamma}0 + {}^{\gamma}1 x_{3j} + \mu_3 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.6$$

Equations 3.3, 3.4 and 3.5 represent the first, second and third specific objectives respectively Where; G_j represents growth of informal financial institutions, j represents the informal financial institutions and x_1, x_2 and x_3 represent financial training, volumes of group savings and CIS respectively as the three forms of financial linkages under study. The disturbances μ_1, μ_2 and μ_3 reflect the impact of various unmeasured factors on growth of informal financial institutions.

3.8.2. Model Specification for the general objective

This will be represented by equation 3.6 below;

$$G_j = \text{ß}_0 + \text{ß}_1 x_{1j} + \text{ß}_2 x_{2j} + \text{ß}_3 x_{3j} + \mu \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots3.7$$

The error termμ equally reflects the impact of various unmeasured factors on growth of informal financial institutions. G_j was obtained by estimating an OLS against all of exogenous variables. Equation 3.6 estimated using OLS will produce consistent estimates of all the parameters. The stochastic term (μ) shall be assumed to have random and real value, be normally distributed with

a constant variance and zero mean value i.e. $(\mu) \sim N (0, \delta^2(\mu)$ and independent of the explanatory variables i.e. cov. $(x_1, x_2, x_3\mu) = 0$.Diagnostic tests done included; Durbin Watson test for autocorrelation, t-test for significance levels, ANOVA and multicollinearity test for endogeneity

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 INTRODUCTION

In this chapter, results are presented in two sections. First, the descriptive statistics for selected variables then the correlational and regression results as per the objectives. The estimation results after testing for endogeneity are also presented. The data type involved was cross sectional from primary sources which are prone to endogeneity. The test for endogeneity was therefore done by first running reduced form models using all the exogenous variables in each case. The tests results revealed absence of endogeneity hence there was no need for instrumentation.

4.1. Descriptive Statistics

4.1.1. Gender distribution of respondents

Table4.1 depicts the distribution of the respondents according to gender. This data was captured to establish the level of participation by gender in informal financial institutions' activities.

Table 4.1: Gender distribution of respondents

Gender	Frequency	Percent	Cumulative Percent
Male	104	49.5	49.5
Female	106	50.5	100
Total	210	100	

Source: Field Data 2018

From the results in Table 4.1, out of the 210 respondents interviewed, 104(49.5%) and 106 (50.5%) of the respondents were male and female respectively. This implies that both gender have taken up an active role in the activities of the informal financial institutions almost on equal basis. Therefore equal or balanced focus if need be to promote participation should be directed on both gender. The results in Table4.1 agrees with the study carried out in Homa bay county Ndhiwa district which sought to find out the determinants of the Level of Households' Participation in NGO's Supported Projects in Homa Bay District, Kenya. A   random sample of 120 households considered in the study revealed that 59 (49.2%) and 61(50.8%) of the respondents were males and females respectively, Osike. O, et.al, (2015). According to FSD, Kenya (2009) informal group membership by gender stood at 48.2 % and 51.8% being men and women respectively.

4.1.2. Age of respondents

Table 4.2 shows the age of the respondents. This data was captured to show which age group has taken an active role of leadership in the informal financial institution/groups. This would help to identify and direct focus with regards to which age bracket are keen or lagging behind on leadership of the informal institutions so as to encourage or bring them on board in order to maximize on the achievements or gains associated with the groups.

Table 4.2: Age of respondents

Age	18 – 24yrs	25 – 31yrs	32 – 38yrs	39 – 45yrs	>45 yrs	Total
Percent	1	24.8	19	28.6	26.7	100
Cumulative Percent	1	25.8	44.8	73.3	100	

Source: Field Data 2018

From Table 4.2, out of the 210 respondents interviewed, the results indicate that the majority were the middle aged with 55.3% aged between 39 –over 45 years while the youth were 44.8% aged between 18 - 38 years. The results suggest that the leadership of informal financial institutions is popular with older people of 39 years and above which accounts for 55.2%. These results agree with a number of studies which assert the same. Anderson (2004) found that ROSCA members were more likely to be married, older and with primary education. It is noteworthy that the age brackets of 18–24 years constitute only 1% of the respondents. This could be explained by the fact that this is likely to be unmarried and college going age bracket.

4.1.3. Educational Level

Table 4.3 shows the membership of the informal financial institutions in terms of their education level. This data was captured to show the popularity of informal financial institutions across different categories of education levels and which level to direct focus.

Table 4.3: Education level of the respondents

	Post graduate	Graduate	Diploma	Secondary	Certificate (Primary)	Total
Percent	1	0	9.5	50.5	39	100
Cumulative Percent	1	1	10.5	61	100	

Source: Field Data 2018

As depicted in Table 4.3, out of the 210 respondents interviewed, majority at 89.5% had Primary certificate and secondary level of education while only 10.5% had post graduate and diploma qualification. This concurs with Anderson (2004) who found that ROSCA members were more

likely to be with primary level of education. Also according to FSD, Kenya (2009), 17.1% , 46.0% and 36.6% of the informal groups' membership have no formal education, primary and secondary education respectively. It is worth noting that those with higher education levels are less likely to engage in the activities of informal financial institutions. However, that 0.0 % of the informal financial institutions' representatives interviewed were graduates is a striking revelation that calls for further research.

4.1.4. Position of respondents in the institution

Table 4.4 shows the position held by the respondents in the informal financial institutions from which the data was obtained. This data was captured to establish that the respondent was in a position that might enable him or her understand well the institutions operations and therefore provide the relevant information required.

Table 4.4: Position held by the respondents

	Chairperson	Secretary	Treasurer	Member	Total
Percent	45.7	33.3	9.5	11.4	100
Cumulative Percent	45.7	79	88.6	100	

Source: Research Data 2018

As depicted in Table 4.4, the results indicate that majority of the respondents were in group leadership with 88.6% either being the chair person, the secretary or the treasurer. The rest; 11.4% were equally members of the institutions. This shows that the data was obtained from the leadership of the institutions and/or from members who had the relevant background information on the institution's operations sought for by the researcher.

4.1.5. Area of Operation

Figure4.1shows the stratification of the respondents between rural west Karachuonyo division and Homa Bay town (Asego division) within Homa Bay County from which the sample was obtained. The stratification was necessary to confirm the fact that major trends highlighted by the Fin Access 2009 survey in Kenya showed that the increase in ROSCA and ASCA use since 2006 is a strongly urban phenomenon (Malkamäki, 2011). The results in Figure 4.1 show that respondents from rural areas accounted for approximately 26% while from urban area the respondents accounted for approximately 74%.
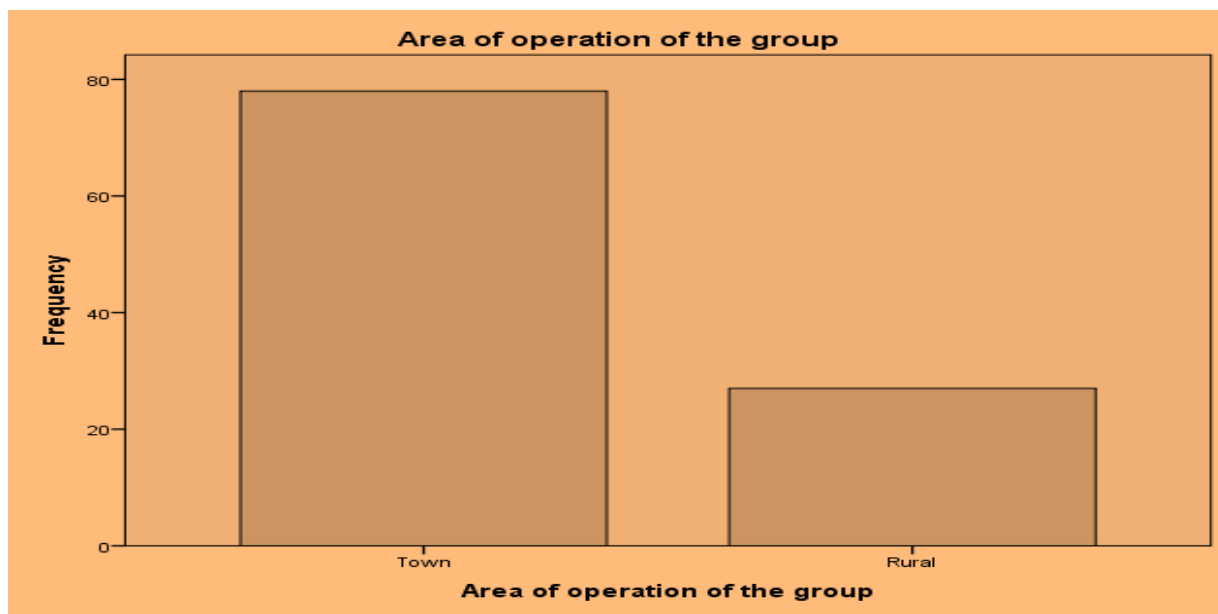
Figure 4.1: Sample of respondents according to area of operation

Source: Field Data 2018

These statistics turned out to confirm the major trends highlighted by the Fin Access 2009 survey in Kenya which showed that the increase in ROSCAs and ASCAs use since 2006 is a strongly urban phenomenon (Malkamäki, 2011).

4.1.6. Institutional Category

Table 4.5 presents results on the various categories of informal financial institutions to which the respondents belong. The data captured shows the percentage distribution of informal financial institutions' membership across the various categories.

Table 4.5: Category to which the group belongs

	ROSCAs	ASCAs	SILCs	Others	Total
Percent	51.4	37.1	5.7	5.8	100
Cumulative Percent	51.4	88.5	94.2	100	

Source: Research Data 2018

The results in Table 4.5 indicates that 51.4 % of the informal financial institutions were categorized as ROSCAs, 37.1% were ASCAs, 5.7% were SILCs while the remaining 5.8% constituted other forms of informal financial institutions or Village Savings and Lending Associations(VSLAs) . The percentages show that majority of the respondents are much more predisposed to join ROSCAs followed by ASCAs and SILCs in that order. This is consistent with the results from FSD, Kenya (2009) which also had the ROSCAs membership higher than other categories followed by that of ASCAs.

4.1.7.Informal financial institutions' Membership

Table 4.6 shows the variations in membership of informal financial institutions. Initial (the group membership at its formation) and current membership (group membership at the time of the study) of the institutions is captured from which the difference (growth) is calculated.

Table 4.6: Membership (initial, current and growth)

	Observations	Mean	Std. Dev.	Min	Max
Initial membership	210	24	21.8	4	170
Current membership	210	44.4	80.8	5	611
Membership growth in percentages	210	85	76	25	259

Source: Research Data 2018

From Table 6, it is evident that informal financial institutions in Homa bay County have witnessed growth in the dimension of membership. The data results on the mean, standard deviation, minimum and maximum membership initially compared to the same on current membership reveal an overall growth on all those dimensions. Although this dimension of growth did not form the focus of this study, the results are in tandem with the institutional complementarily theorists who aver that institutional growth is likely to be achieved when the best of both formal and informal financial institutions are combined through complementary linkages, Meagher (2013).

4.1.8. Volume of monthly group savings(Initial and Current) in Kshs.

Table 4.7 presents the volumes of monthly group savings both initial (immediately after the group's formation) and current(savings as at the time of the study) by the individual members of the informal financial institutions' into their various groups.

Table 4.7: Volumes of savings (Initial and Current)

Variable	Observations	Mean	Std. Dev.	Min	Max
Initial Savings	210	649.8	879.4	20	6000
Current Savings	210	2075.7	3110.8	50	24000
%ge growth in savings	210	219.4	253.8	150	300

Source: Research Data 2018

The results in Table 4.7 show a tremendous growth in volumes of savings by the members of the informal financial institutions. More particularly, the results show that at the initial stage of the group's formation, each member of the informal institutions in Homa Bay County saved an average of Kshs 649 per month while currently (at the time of conducting the study) they save Kshs 2,075 a month. This represents over 200% growth in savings. The minimum savings by a member in the initial stages was Kshs 20 and this has now risen to a minimum monthly savings of Kshs 50 representing a 150% percentage growth. Subsequently the maximum savings per member at the initial stage was Kshs 6,000 which has now increased by 300% to Kshs 24,000 per member per month.

Although at this point, the specific variable that influences this growth in savings cannot be revealed, literature available shows that over time, institutions involved in linkages may experience such growth. This finding is in tandem with the findings of Alice et al., (2014). In their study, they found out that one year of exposure to financial training resulted in some groups managing to double their weekly savings from $2 to $4 over one year, (Alice et al., 2014).

Besides the volume of savings, this study also sought to find out whether or not the informal financial institutions have a savings account with the formal financial institutions into which they

channel their savings. Figure 4.2 shows the percentage of respondents who have a savings account with the formal financial institutions for keeping their group monthly savings.
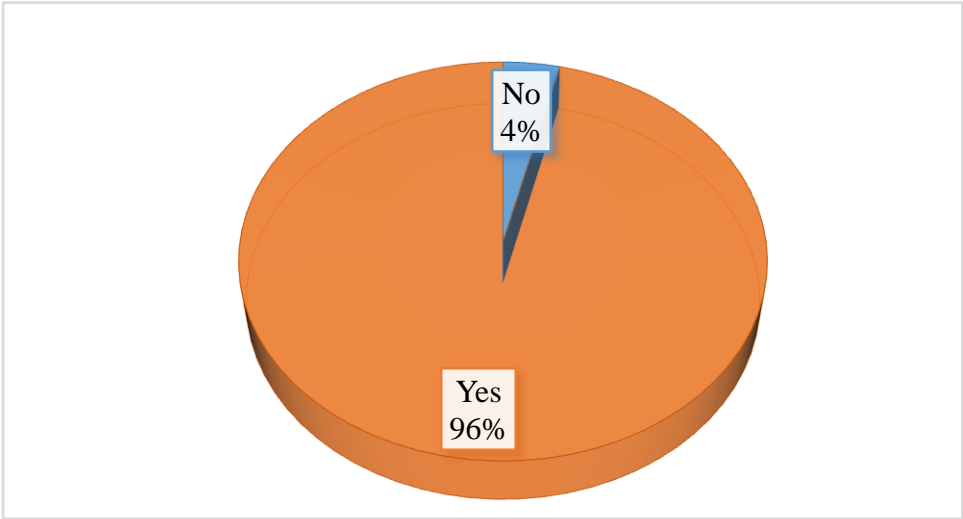
Figure 4.2: Ownership of Savings Account with Formal Financial Institutions

Source: Field Data 2018

From the results shown in the pie chart (see Fig. 4.2), 96% of these institutions had savings account while only 4% didn't have. These points to the important value attached to savings for the informal financial institutions.

4.1.9. Volumes of borrowing

Table 4.8 presents the volumes of borrowings by the individual members of the informal financial institutions' into their various groups. The mean and standard deviation for the borrowings are also presented for both the current and initial borrowings. Maximum as well as the minimum borrowings were obtained and overall percentage growth in terms of borrowings calculated from each aspect.

Table 4.8: Volumes of borrowings (Initial and Current) in Kshs.

Variable	Observations	Mean	Std. Dev.	Min	Max
Initial borrowing	210	5374.3	9531.3	0	50,000
Current borrowing	210	35991.4	50390.6	0	300,000
Percentage change in borrowing		569.697	428.6885		500

Source: Research Data 2018

As the data in Table 4.8 shows, an average amount of Kshs 5,374 could be borrowed by each member from the informal financial institutions at the beginning when the group was in its formative years. While currently (at the time this study was conducted), the average amount of borrowing stood at Kshs 35,991 which is a 569% increase in borrowing. The maximum amount a member could borrow from the group at the initial/formative stages of the group was Kshs 50,000 while currently (at the time of conducting this study) a member could borrow up to a total of Kshs 300,000. This is a 500% increment.

4.2.0.Age of the informal financial institutions

Table 4.9 shows the age of informal financial institutions under study in Homa Bay County. The data was captured to show the maturity of the respondents from which the data was obtained.

Table 4.9: Age of informal financial institutions in Homa Bay County

Variable	Observations	Mean	Std. Dev.	Min	Max
Institution's age	210	9.7	4.5	3	25

Source: Research Data 2018

Looking at the year of establishment of the financial institutions, it is clear that most of these institutions are 9 years 8 months old. However, there are those which are as young as 3 years while there are also those which are as old as 25 years old. Despite this big range in age, the average age of 9 years 8 months is an indication that the respondents have been in existence for long enough to have accumulated the necessary data to support the study objectives.

4.2.0. Access to Commercial (bulk) loan

The first issue in this section was to find out whether or not the respondents receive commercial bulk loans. The bar graph (see fig. 4.3), presents the findings on access to formal financial institution's commercial bulk loans by the informal financial institutions.
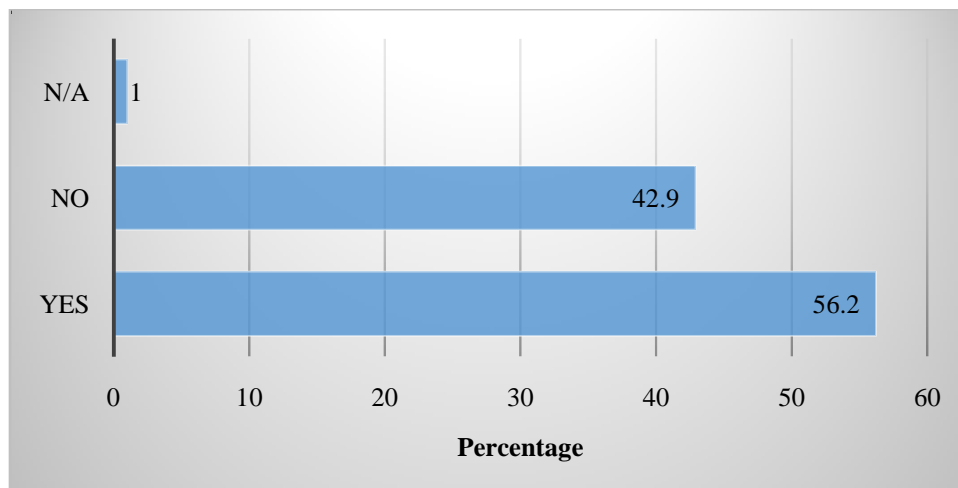
Figure 4.3: Access to commercial (bulk) loans

Source: Research Data 2018

The findings shown in the bar graph (see Fig.4. 3), reveal that majority of the respondents at 56% had access to commercial bulk loans. Table 4.10 presents both the initial and latest amount of

commercial loan obtained by informal financial institution from formal financial sources for onward lending to the group members.

Table 4.10: Access to commercial (bulk) loans (initial and current) in Kshs.

Variable	Observations	Mean	Std. Dev.	Min	Max
Initial loan amount	210	166619	222048.4	0	1,000,000
Latest loan amount	210	292257.1	499856.8	0	2,500,000
%gechange in loan amount		75.40443	125.1116	0	150

Source: Research Data 2018

The results in Table 4.10 show that the commercial bulk loan accessed by the informal financial institutions in their first application averaged at Kshs 166,619. This increased by 75% to the current (latest amount accessed by the time of conducting this study) standing of Kshs 292,257. The maximum commercial bulk loan at the initial stage was Kshs 1 million. This is now at Kshs 2.5 million representing a 150% increase.

4.2.1. Financial training of Informal financial Institutions

In this study, we also purposed to find out the participation of informal financial institutions in any kind of financial training. As per the results presented below, over 70% (specifically 74%) of the groups have had some financial training while 26% have not.
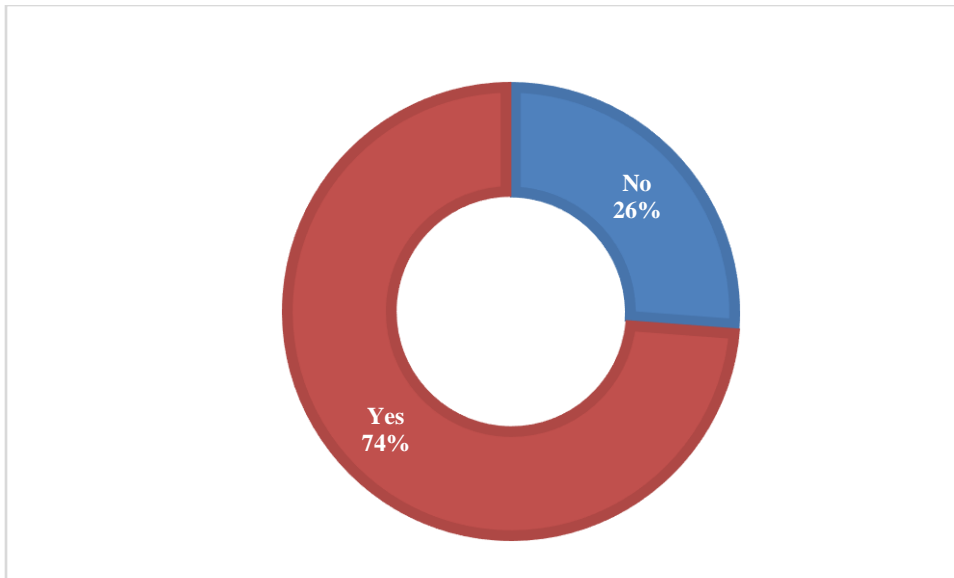
Figure 4.4: Group's participation in financial training

Source: Research Data 2018

4.2. Correlation Analysis

This was carried out to measure the strength or degree of linear association between the variables. The results would show the extent to which the variables are related and can be fitted in a regression line for prediction purposes. Correlation coefficient falls between -1 and +1. And there exist a strong (-, +) correlation if the level of association exceeds 50% and approaches 1. Below 50%, the correlation is a weaker one. Negative correlation means that the variables move in a linear format but in the opposite direction whereas a positive correlation means that the variables move in a linear format in the same direction.

Table 4.11 shows the Pearson correlation coefficient results for correlation between financial linkages and growth of informal financial institutions in Homa Bay County

Table 4.11: Pearson Correlation Coefficient(R) for the forms of financial linkages

	Growth	Financial training	Volumes of group savings	CIS
Growth	1			
	210			
Financial training	-.226[**]	1		
	.001			
	210	210		
Volumes of group savings	.570[**]	.410[**]	1	
	.000	.000		
	210	210	210	
CIS	-.326[**]	-.124	-.085	1
	.000	.074	.219	
	210	210	210	210

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data 2018

The results in Table 4.11 reveal that there is a weak and negative relationship between financial training and growth with R= -0.226 and $p < 0.05$. This finding also confirms what Wachira and Kihiu (2012) sought to establish. Their findings revealed that financial literacy remains low in Kenya and besides, households' access to financial services is not based on levels of financial literacy. Similarly, CIS also has a weak and negative relationship with growth indicated by R= -0.326 and $p < 0.05$. Volumes of group savings however shows a strong positive relationship with growth indicated by R = 0.570 and $p < 0.05$.It is also worth noting that the positive relationship

existing between financial training and volumes of group savings suggests signs of Collinearity. However Collinearity test carried out in the regression analysis confirms the absence of multicollinearity from the VIF values. This positive relationship between financial training concurs with the findings of a research carried out by Alice et al. (2014) which found out that financial training over a given period of one year had influenced weekly group savings in India to double over the same period of training.

4.3. Regression Analysis

This was carried out to investigate the relationships between variables, measure the significance of the slope and provide the basis for forecasting. It generates an equation to describe the statistical relationship between one or more predictor variables and the response(dependent) variable. The p-value for each term tests the null hypothesis that the coefficient is equal to zero (no effect). A low p-value (< 0.05) indicates that one can reject the null hypothesis. In other words, a predictor that has a low p-value is meaningful addition to the model because changes in the predictor's are related to changes in the response variable. Conversely, a larger (insignificant) p-value suggests that changes in the predictor are not associated with changes in the response. The following analyses are done as per the specific objectives of this study to reveal the coefficient of determination (R^2)**:**

4.4.1. Objective 1:   To establish the effect of financial training on growth of informal financial institutions in Homa Bay County.

This was achieved by running a regression for the dependent and independent variable and a p – value was generated to test the null hypothesis. The study used the enter method provided by the statistical analysis package. The linear regression output for the variable is presented in Tables

4.12, 4.13 and 4.14.Table 4.12 summarizes the proportion of variance and DW test results for autocorrelation while test results for significance levels of F- statistics which measures overall goodness of fit is presented in Table 4.13. Table 4.14 presents the regression coefficients of financial training.

Table 4.12: Model Summary for proportion of variance (R^2)values

| Model | R | R^2 | Adjusted R^2 | Std. Error of the Estimate | Change Statistics | | | | Durbin-Watson |
					R^2 Change	F Change	df2	Sig. F Change	
1	-.226	0.051	0.047	1.474	0.051	11.194	208	0.001	1.549

a. Predictors: (Constant), Financial Training

b. Dependent Variable: Volume of credit accessed by the group members (Growth)

Source: Field data 2018

With R^2 = 0.051, this implies that a unit change in financial training can be used to significantly explain 0.051unit change in growth. The Durbin-Watson statistic ranges in value from 0 to 4. A value close to 2 indicates no autocorrelation; a value toward 0indicates positive autocorrelation; a value between 2 and 4 indicates negative autocorrelation (Savin & White, 1978). With the Durbin- Watson value of 1.549 close to 2, this indicates no autocorrelation among the model residual. Table 4.13 for Analysis of variance shows the significance levels of F- statistics which measures overall goodness of fit. The result presented in Table 4.13 reveals that the F- statistics is significant since ($p < 0.05$) and therefore the sample chosen for the exogenous variable can be used as a justification for the entire population.

Table 4.13: Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	24.305	1	24.305	11.194	.001
	Residual	451.619	208	2.171		
1	Total	475.924	209			

a. Dependent Variable: Volume of credit accessed by the group members (Growth)

b. Predictors: (Constant), Financial Training

Source: Field data 2018

Table 4.14 presents the coefficients of determination results of financial training obtained from the linear regressions. With $p = 0.001 (< 0.05)$, the beta coefficient result (see Table 4.14) shows a significant effect of financial training on growth of informal financial institutions in Homa Bay County.

Table 4.14: Regression Coefficients of financial training

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.535	0.185		13.721	0.000
1	Financial Training	-0.256	0.076	-0.226	-3.346	0.001

a. Dependent Variable: Volume of credit accessed by the group members (Growth)

Source: Field data 2018

From Table4.14results,a unit change in financial training results in a -0.226 change in growth. This implies that as financial training frequency increases by one unit, volumes of credit accessed from formal financial institutions significantly dropsby 0.226 units. With the increase in financial trainings, the groups get exposed to the benefits of increasing their weekly savings, prudent management of transactions and strengthened internal lending structures. Eventually, the increased savings buffer internal lending sources. With increased savings (internal lending resources) and strong internal lending structures, internal lending takes preference to the group members as opposed to external lending sources. This is due to the fact that even though the internal lending usually attracts high monthly interest rates, the interests are another form of savings by the borrowers which at the end of the year are given back to the individual group member (borrower) as dividends. The effect of financial training on growth of informal financial institutions in terms of access to credit from formal financial institutions is therefore negative and can be summarized by the linear function shown below.

$$G_j = 2.535 - 0.256x_{1j}$$ …………………………………………………………………..3.7

This study also found out that arrangements similar to Program Linking Banks with Self-Help Groups (PHBK) project in Indonesia exist in Homa Bay County whereby institutions such as ECLOF, MDT, CRS, and CARE among others, in some instances train and act as intermediaries between banks (formal) and the informal financial institutions. They open accounts with specific banks like co-operative, Barclays and or Equity before or after linking with the groups, train them over a period of time then obtain commercial (bulk) loans which they on-lend to the groups according to their needs and ability to repay. With 61.4% of the respondents acknowledging training before loan, 1.4% after and 11.0% both before and after credit access, it is evident that

for majority of the groups, financial training discontinues after credit is advanced. This may imply that the trainings focus more on marketing and convincing the respondents to take up the credit and less on monitoring and evaluation of the productivity of such credit facilities to the beneficiaries. These findings have not been documented by any previous studies.

A related study by Wachira and Kihiu (2012) submits that financial literacy remains low in Kenya and household access to financial services is not based on level of financial literacy but rather on such factors as income levels, level of education, marital status, gender, age and distance from banks. Alessie, Maarten and Lusardi (2011) also submit that there exists evidence of a strong positive association between financial literacy and household net worth. Financial training they submit influences the savings plan with respect to stock market participation. This therefore can be seen in the context of savings plan and wealth accumulation by individuals.

A study by Alice et al. (2014) equally submit that through the Village Savings and Lending Associations (VSLAs) as a first step in addressing the barrier of inadequate financial understanding, financial training has helped the group members to double their savings over a period of one year. This would in essence avail more funds for internal lending with the likelihood of reducing borrowings from expensive external sources or formal financial institutions. The findings of these studies are in tandem with the results in Table 4.11 which reveals a positive correlation between financial training and volumes of group savings, $p < 0.05$, $R^2 = 0.41$. However, they all fail to provide a clear or direct relationship between and influence of financial trainings on growth of informal financial institutions in terms of growth in volumes of credit accessed which this study has presented in Table 4.14.

4.4.2. Objective 2: To determine the influence of volumes of group savings on growth of informal financial institutions in Homa Bay County.

This was also achieved by running a linear regression for the dependent and independent variable to generate a p – value to test the null hypothesis. The results are presented in Tables 4.15, 4.16 and 4.17. Table 4.15 summarizes the proportion of variance and DW test results for autocorrelation while test results for significance levels of F- statistics which measures overall goodness of fit is presented in Table 4.16. Table 4.17 presents the regression coefficients of volumes of group savings

Table 4.15: Model Summary for proportion of variance (R^2)values

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R^2 Change	F Change	df2	Sig. F Change	
1	.570	0.325	0.322	1.243	0.325	100.1	208	0.000	1.765

a. Predictors: (Constant), Volumes of group savings

b. Dependent Variable: Volume of credit accessed by the group (Growth)

 Source: Field data 2018

With R^2 = 0.325, this implies that a unit change in volumes of group savings can be used to explain 0.325 unit change in growth. Durbin Watson value also shows that there is no serial autocorrelation between variables. Table 4.16 for Analysis of variance shows the significance levels of F- statistics which measures overall goodness of fit. The result presented in Table 4.16 reveals that the F- statistics is significant since p =0.000 (< 0.05) and therefore the sample chosen for the exogenous variable can be used as a justification for the entire population.

Table 4.16: Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	154.592	1	154.592	100.069	0.000
	Residual	321.331	208	1.545		
1	Total	475.924	209			

a. Dependent Variable: Volume of credit accessed by the group (Growth)

b. Predictors: (Constant), Volumes of   group savings

 Source: Field data 2018

Table 4.17 presents regression coefficients results of volumes of group savings. With $p < 0.05$, the regression coefficient result (see Table 4.17) shows a significant effect of volumes of group savings on growth of informal financial institutions in Homa Bay County.

Table 4.17: Linear Regression Coefficients of volumes of group savings

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	0.875	0.143		6.124	0.000
1	Volumes of group savings	0.57	0.057	0.57	10.003	0.000

a. Dependent Variable: Volume of credit accessed by the group (Growth)

Source: Field data 2018

From Table 4.17 results, a unit change in volumes of group savings results in a 0.57 change in volumes of credit accessed. This implies that as volumes of group savings increases by one unit, volumes of credit accessed by informal financial institutions significantly increase by 0.57 units. These results imply that formal financial institutions strongly consider the volumes of savings as collateral to guarantee access to higher volumes of credit. Over 90% of respondents, banks and other linkage partners interviewed confirm that on average, ceteris paribus; volumes of group savings are compounded by factor three (3) to arrive at the amount of credit to be advanced to the groups. The effect of volumes of group savings on growth of informal financial institutions in Homa Bay County is therefore summarized in the linear equation as shown below;

$$G_j = 0.875 + 0.57x_{2j} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3.8$$

This study found out that a number of linkage partners in Homa Bay County open accounts with specific banks like co-operative, Equity and Barclays banks, link with the groups, then encourage the groups to save with the linkage partners through the savings accounts opened by the groups and train them over a period of time before obtaining commercial (bulk) loans which they on-lend to the groups according to the groups' needs and ability. The intermediary institutions are then responsible in ensuring that repayment is made through the accounts they have with the respective banks.

The findings of this study with regards to its second objective(see Table 4.17) agree with the proponents of the third school of thought but contradict both the first and second schools of thought proponents with regards to relationship between the formal and informal sector. The

proponents of the third school of thought according to ILO (1991) believe that complementary linkages such as having group savings account with formal financial institutions in which to keep the group savings offer the first best solution to promoting growth of informal financial institutions in terms of improving the volumes of credit accessed by the latter as the former equally benefits from the collateral of group savings/agency which is a challenge with individual lending.

The first school avers that informal financial sector is an autonomous segment of the economy producing mainly for consumption within the sector (Bairagya, 2010). While according to the second school, the informal financial sector has a dependent relationship with the formal financial sector but is being exploited by the latter through strict credit controls despite the potential collateral of group savings (Myrdal, 1963).

Myrdal (1963) argues that trade/linkage operates (as a rule) with fundamental bias in favour of the richer/formal financial institutions or stronger and progressive regions and in disfavor of the poorer/informal financial institutions or weaker and less developed regions. And that the banking system, if not regulated to act differently tends to become an instrument for siphoning off the savings from poorer regions through deposit mobilization to the richer and more progressive ones where returns are high and secure. This has happened in cases where regulatory authorities have failed to perform their supervisory roles. In South Africa where the 'People's Benefit Scheme' initiated by First National Bank and designed to permit group members to borrow against the collateral of the group's savings had to be terminated owing to the fact that the Scheme was overly complicated (Verhoef, 2001).

In Kenya, there was a similar concern of low uptake of loans from formal financial institutions which prompted the enactment of banking act amendment 2015 to cap interest rate at 10 per cent

with an aim of improving uptake of loans by SMEs. According to Odongo and Kendi (2013),banks still prefer individual lending which is more wasteful and cannot effectively address the borrowers' financial needs. However, this has not ruled out the influence of volumes of group savings and its collateral role in access to credit as exhibited by the results in Table 4.17. They conclude that group lending appears to command an edge over individual lending in mitigating loan default. Interestingly, other previous studies which have looked at group savings submit that on various occasions, many banks have introduced savings products specifically designed to accommodate indigenous savings clubs and informal financial institutions (Aliber, 2015).

Alice et al. (2014) argues that the linkage component of BOC has proved to be a model that works and that informal financial institutions welcome the fact that they can keep their funds in a safe place and that they are treated as equals by the banks. According to Aliber (2015), the savings clubs or informal financial institutions in principle also present a huge opportunity for the banks to take in additional deposits without incurring same transactions costs as would apply to individuals.

Further descriptive analysis confirmed that a significant number of respondents; approximately 40 percent keep their savings with the formal financial institutions (banks) with a hope to build collateral for future borrowings. This shows the significance attached to the group savings by the respondents with regards to its influence on credit access. In conclusion this study has presented both quantitative and qualitative data on influence of volumes of group savings on credit access as opposed to previous studies which only concentrated on the descriptive data on the same.

4.4.3. Objective 3: To establish the effect of Credit information sharing on growth of informal financial institutions in Homa Bay County.

This was achieved by running a linear regression for the dependent and independent variable to generate a p – value to test the null hypothesis. The regression output for CIS against volumes of credit accessed is presented in three (3) tables. Table 4.18 summarizes the proportion of variance and DW test results for autocorrelation while test results for significance levels of F- statistics which measures overall goodness of fit is presented in Table 4.19. Table 4.20 presents the regression coefficients of CIS.

Table 4.18: Model Summary for proportion of variance (R^2)values

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R^2 Change	F Change	df2	Sig. F Change	
1	-.326	0.106	0.102	1.43	0.106	24.788	208	0.000	1.612

a. Predictors: (Constant), CIS

b. Dependent Variable: Volume of credit accessed by the group members(Growth)

Source: Field data 2018

With R^2 = 0.106, this implies that a unit change in credit information sharing can be used to explain 0.106units change in growth. Durbin Watson value also shows that there is no serial autocorrelation between variables. Table 4.19 for Analysis of variance (ANOVA) shows the significance levels of F- statistics which measures overall goodness of fit. The result presented in Table 4.19 reveals that the F- statistics is significant since p = 0.000(< 0.05) and therefore the sample chosen for the exogenous variable can be used as a justification for the entire population.

Table 4.19: Analysis of variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	50.678	1	50.678	24.788	0.000
	Residual	425.246	208	2.044		
1	Total	475.924	209			

a. Dependent Variable: Volume of credit accessed by the group members(Growth)

b. Predictors: (Constant), CIS

Source: Field data 2018

Table 4.20 presents the regression coefficients results of CIS obtained from the linear regressions. With $p < 0.05$, the beta coefficient result (see Table 4.20) shows a significant effect of CIS on volumes of credit accessed by informal financial institutions in Homa Bay County.

Table 4.20: Linear Regression Coefficients of CIS

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	2.987	0.218		13.703	0.000
1	CIS	-0.532	0.107	-0.326	-4.979	0.000

Dependent Variable: Volume of credit accessed by the group members(Growth)

Source: Field data 2018

From Table4.20 results, every unit change in Credit Information Shared (CIS),results in a 0.326 change in volumes of credit accessed. This implies that as amount of credit information shared increases by one unit, volumes of credit accessed by informal financial institutions significantly drop by 0.326 units. As observed, the influence of CIS is strongly significant and very critical in the final decision making on whether or not to disburse commercial (bulk) loans to the informal financial institutions. The null hypothesis is therefore rejected.

According to Aryeetey and Udry (1995), a loan involves the exchange of current resources for future resources which is a promise. If a loan transaction occurs in a risky environment and if a complete set of markets for contingent commodities does not exist, then the promised transfer of future resources may not be certain. Similarly where there is access to broad, timely and reliable information about off-balance sheet exposures, multiple borrowings and financial over-in debtness about clients as is the case when informal financial institutions share information on their credit repayment history, abilities and challenges, they are exposed and the formal financial institutions tend to use the information to regulate the borrowings. Aliber (2015) further avers that there exist of a notion that it is better for MFI to create new borrowing groups according to its preferences than to try to accommodate existing groups which come with histories and dynamics that are not conducive to loan repayment. Formal financial institutions therefore regulate the borrowings by resorting to strict credit application screening to save their clients from the burden of multiple borrowings as well as to protect themselves (formal financial institutions) from the possible risks of bad debts. The character of the loan transaction will then be influenced by the risks faced by the parties involved, and by their knowledge of each other and the activities they undertake (Aryeetey & Udry (1995). And this will in effect reduce the volumes of credit accessed by the informal financial institutions which do not qualify owing to

the strict credit application screening. This explains the negative effect of CIS on volumes of credit accessed from formal financial institutions by groups.

These findings are in tandem with IFC (2012), which submits that in the absence of credit information sharing, access to broad, timely and reliable information especially about off-balance sheet exposures tend not to be regulated. As a result in the short run, there have been multiple borrowings and financial over-indebtness which have led to suicides of poor farmers and the recent repayment crisis in Andhra Pradesh in India. For long-term stability, financial institutions have therefore resorted to serious credit application screening to save their clients from the burden of multiple borrowings as well as protect themselves (formal financial institutions) from the possible risks of bad debts.

The findings of this study thus reject the null hypothesis of this objective and the effect of CIS volumes of credit accessed by informal financial institutions can therefore be summarized by the equation as shown below;

$$G_j = 2.987 - 0.532x_{3j} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.9$$

Multiple regression analysis

This was done to present multivariate results for the study's general objective. The multiple linear regression results for this objective are presented in three Tables. Table 4.21 summarizes the proportion of variance and DW test results for autocorrelation while test results for significance levels of F- statistics which measures overall goodness of fit is presented in Table 4.22. Table 4.23 presents the regression coefficients and the Collinearity statistics. The VIF column results provide an alternative diagnostic test for heteroscedasticity.

Table 4.21: Model Summary for proportion of variance (R^2)values

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				Durbin-Watson
					R^2 Change	F Change	df3	Sig. F Change	
1	.636	0.405	0.396	1.173	0.405	46.72	207	0.000	1.846

a. Predictors: (Constant), CIS, Volumes of group savings, Financial Training

b. Dependent Variable: Volume of credit accessed by the group members

Source: Field data 2018

With R^2 = 0.405 (see Table 4.21), this implies that the three forms of financial linkages account for 0.405units change in growth of informal financial institutions in Homa Bay County in terms of volumes of credit accessed from formal financial institutions. It also shows that establishment of forms of financial linkages increase by one unit, volumes of credit accessed by informal financial institutions significantly increase by 0.636 units. The DW value also confirms the absence of serial autocorrelation between the variables as is the case with primary data. Analysis of variance (ANOVA) results in Table 4.22 shows that F- statistics is significant since ($p < 0.05$) and therefore the sample chosen for the exogenous variable can be used as a justification for the entire population.

Table 4.22: Analysis of variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	192.701	3	64.234	46.72	0.000
	Residual	283.223	207	1.375		
1	Total	475.924	210			

a. Dependent Variable: Volume of credit accessed (Growth)

b. Predictors: (Constant), CIS, Volumes of savings, Financial Training

Source: Field data 2018

Table 4.23shows the regression coefficients results for the three forms of financial linkages viz; volumes of group savings, financial training and CIS obtained from the multiple linear regressions. With $p < 0.05$, the regression coefficient result shows a significant influence of volumes of savings and Credit Information Sharing (CIS) on growth of informal financial institutions in Homa Bay County.

Table 4.23: Regression Coefficients of forms of financial linkages

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 (Constant)	1.820	.229		7.948	.000		
Financial Training	-.060	.067	-.053	-.897	.371	.824	1.213
Volumes of group savings	.542	.054	.541	9.988	.000	.983	1.017
CIS	-.421	.096	-.259	-4.384	.000	.831	1.203

a. Dependent Variable: Volume of credit accessed by the group members
Source: Field data 2018

From table4.23 results, both volumes of savings and CIS remain significantly influential on the volumes of credit accessed. For every unit change in the volumes of group savings, volumes of credit accessed grow by 0.541 units while for every unit change in Credit Information Shared, volumes of credit accessed drops by 0.259. The influence of financial training however in this case has become insignificant though remains negative. For every unit change in financial training, volumes of credit accessed drops slightly by 0.053. With the Variance Inflation Factor (VIF)column results showing values far below 10, this confirms that there is no multicollinearity between the variables. Some papers argue that a VIF < 10 is acceptable but others say that the limit value is 5. For instance according to Hair, Anderson, Tatham and Black, (1995), 10 is the maximum value of VIF. While according to Ringle, Christian, Wende, Sven & Becker, (2015), 5 is the maximum level of VIF.

From the findings of this study, it is submitted that different forms of financial linkages affect or influence the growth of informal financial institutions in terms of volumes of credit accessed differently. This is clearly presented in Table 4.23 and it has captured the findings of the major two divergent schools of thoughts presented in the previous studies which were general in the nature about their findings. These findings therefore have provided an opportunity to look at and evaluate each of the forms of financial linkages in terms of their specific influences as well as their combined influence so as to harmonize the divergent views submitted by previous researchers. The overall influence of the three forms of financial linkages under consideration on growth of informal financial institutions can be thus be summarized by the function shown below;

$G_j = 1.820 - 0.053x_{1j} + 0.541x_{2j} - 0.259x_{3j}$…………………………………………………………4.0

CHAPTER FIVE:SUMMARY OF FINDINGS, CONCLUSION

&RECOMMENDATIONS

5.0 INTRODUCTION

The study sought to establish the influence of financial linkages on growth of informal financial institutions in Homa Bay County, Kenya. This was broken down into three specific objectives and both regression and correlation analysis done in line with each objective and univariate results presented. A multiple regression was also done using OLS method of estimation to present multivariate results for the general objective. The summary of the findings as per the objectives are presented as follows:

5.1   Summary of findings

A preliminary Correlation analysis was done for the general objective to show the degree and direction of association between the variables. The dependent variables/forms of financial linkages included financial training/literacy, group savings accounts (deposit mobilization accounts) and credit information sharing/client assessment. The summary results revealed mixed results on relationship between the variables in terms of strength and direction.

In general, the relationship between financial training and growth is weak and negative as revealed by the value of R= -0.226. Between volumes of group savings and growth, there exists a strong and positive relationship shown by R= 0.57 while that of Credit Information Sharing and growth just like financial training and growth, is weak and negative given by R= -0.326.Volumes of group savings and financial training have a near strong and positive relationship between them given by R = 0.41.Credit information sharing has a weak and negative relationship with both volumes of group savings and financial training given by R= -0.085 and R= -0.124 respectively.

Regression analysis was done for the first objective to establish the effect of financial training on growth of informal financial institutions in Homa Bay County. With coefficient of determination $(R^2) = 0.051$, this implies that a unit change in financial training can be used to explain 0.051units change in growth of informal financial institutions. Considered independently, financial trainings significantly influenced growth of informal financial institutions in the study area. With $\beta = -0.226$, $F (1, 208) = 11.194$ and $p = 0.001 (< 0.05)$, as financial trainings increases by one unit, volumes of credit accessed from formal financial institutions significantly drop by 0.226 units. The null hypothesis for the first objective therefore stands rejected.

In the second objective which sought to determine the influence of volumes of group savings on the volumes of credit accessed by the informal financial institutions in Homa Bay County, the regression results revealed that volumes of group savings had a significant influence on growth of informal financial institutions in the study area. With $\beta = 0.57$, $F (1, 208) = 100.069$, $p = 0.000 (< 0.05)$ and $R^2 = 0.325$, this implies that a unit change in volumes of group savings accounts for 0.325 change in growth and as volumes of group savings increases by one unit, volumes of credit accessed by informal financial institutions also significantly grows by 0.57 units. The null hypothesis remains rejected for the second objective.

A simple linear regression was also done for the third objective which sought to establish the effect Credit information sharing on the growth of informal financial institutions in Homa Bay County. The coefficient of determination results indicated that CIS had a significant influence on growth of informal financial institutions. With $\beta = - 0.326$, $F (1, 208) = 24.788$, $p = 0.000 (< 0.05)$ and $R^2 = 0.106$, this implies that a unit change in credit information shared accounts for 0.106 change in growth and as amount of credit information shared increases by one unit,

volumes of credit accessed by informal financial institutions also significantly drops by 0.326 units. In this objective too, the null hypothesis remains rejected.

Finally, from the multivariate534 results obtained through multiple regressions of all the variables together, volumes of group savings and CIS remain significantly influential on the growth of informal financial institutions with ß = 0.541, p =0.000(< 0.05) and ß = - 0.259, p = 0.000(< 0.05) respectively. Financial training though remains negatively correlated with growth, its influence changes to be insignificant with ß = -0.053 and p = 0.371(>0.05). The combined influence of the three forms of financial linkages significantly account for 0.405 unit change in growth of informal financial institutions in terms of volumes of credit accessed as their implementation is changed by one unit. Finally, given that R = 0.636, R^2= 0.405 and p = 0.000(< 0.05) as the implementation of the three forms of financial linkages increases by one unit, volumes of credit accessed increases by 0.636 units.

5.2   Conclusion

In summary, the findings of this study with reference to the specific objectives have captured the two divergent views regarding the influence of financial linkages on growth of informal financial institutions. There are forms of financial linkages like deposit mobilization/group savings accounts whose establishment has resulted into mutual benefits to both the linkage partners involved. They offer best solutions to promoting growth of informal financial institutions in terms of volumes credit accessed as well as providing the needed collateral that is absent in individual lending. Other forms of financial linkages like financial training and Credit Information Sharing/Client assessment through group agency though have independently had negative effect on growth of informal financial institutions in terms of credit access from formal

financial institutions; the effect has been to the benefit of both the formal and informal financial institutions in the case of Credit Information Sharing.

The effect of financial training has been to the benefit of informal financial institutions by stimulating strengthening of internal lending structures and sources hence providing an alternative source of growth in the same dimension of increased credit access. While on the other hand Credit Information Sharing has regulated unhealthy borrowing hence relieving the formal financial institutions from the likelihood burden of bad debts as well as relieving the members of informal financial institutions from the burden of over indebtedness which in some cases have resulted into reported family conflicts and even suicides of poor group members thus significantly affecting the financial sector. In general, the forms financial linkages working together within the financial system have had a significant positive influence on growth of informal financial institutions and thus the initial appeal of financial linkages can with time be sustainable or replicable.

5.2.1 Policy Contribution

In terms of policy contribution, the findings of this study were to establish specific contributions of various specific forms of financial linkages with regards to growth of informal financial institutions. This has been established and presented both generally and in specific terms. The study therefore presents clear guidelines on which specific form(s) of financial linkage(s) to adopt in an effort to achieve expansion in credit access as well as enhancing the volumes of credit accessed. This is a departure from the previous consideration by other researchers who took a general approach to policy formulation on the basis of the general recommendations. The recommendations based on holistic contributions of the forms of financial linkages to growth of

informal financial institutions prompted the emergence of divergent views. The study therefore endeavored to bridge this gap by trying to enhance understanding of the various divergent views within the frame work of general influence of financial linkages so as to enable policy formulation and adoption (whether financial liberalization or financial linkages strengthening) within the framework of influence by specific linkage forms as well as the through the general approach.

To the academic sphere, the findings of this study have tried to minimize the divergent views relating to the influence of financial linkages on credit access by allowing scholars to look at the contribution of the various forms of financial linkages both from specific perspective as well as holistically. This would give the scholars an opportunity to find the point of convergence and promote a debate devoid of conflicting findings which are generated because of assumptions that come with generalizations.

5.3   Recommendation/Policy implication

From the findings of this study, there exists evidence that when the best of both worlds (i.e. the resources and technological capacity of the formal economy/formal financial institutions and the indigenous knowledge, human face and local embeddedness of the informal financial institutions) are combined through complementary linkages, sustained institutional growth is likely to be achieved. Generally, the forms of financial linkages under study have been found to significantly influence the growth of informal financial institutions in terms of credit access.

Unlike proponents of financial liberalization who favour competition and removal or relaxing of restrictions like interest and exchange rates controls and reserve requirements that the government imposes on the activities of formal financial institutions to achieve financial

deepening and reduce the activities of the informal financial institutions in developing countries, the study recommends the regulation of competition in the financial system and strengthening of linkages through deposit mobilization/group savings accounts and Credit Information Sharing (CIS) so as to provide both the formal and informal financial with a conducive environment to expand their activities for mutual growth and the financial sector's stability. Financial liberalization would be in disfavor of the informal financial institutions whose importance and contribution in the financial sector has been underscored and cannot be assumed. Both formal and informal financial institutions serve different financial market segments with unique demands that are best served by both the institutions through complementary linkages.

The study's first objective turned out to be insignificant. However, in the study's second objective which sought to determine the influence of volumes of group savings on growth of informal financial institutions in Homa Bay County. The study found out that the volumes of group savings kept in the deposit mobilization/group savings accounts with formal financial institutions has the capacity to provide the collateral against default risks. This mitigates loan defaulting rates associated with individual lending. Therefore with the evidence of significant positive influence of volumes of group savings on growth of informal financial institutions, the study recommends that this financial linkage form be strengthened.

Finally, in the study's last objective which sought to establish the effect of Credit information sharing on growth of informal financial institutions in Homa Bay County. The study established that CIS has played a very important role in ensuring that ease of doing business is enhanced. And because the benefits of Credit Information Sharing have been found to be of significant mutual benefit in the long run to both the formal and informal financial institutions, the study

recommends strengthening the intensity of this form of financial linkage. The net effect of CIS to the financial sector is far likely to be positive to the financial market stability.

5.3   Limitations of the study

The study sought to establish the influence of financial linkages on growth of informal financial institutions. This was done by considering the three main forms of financial linkages viz; financial training/literacy, group savings/deposit mobilization accounts and Credit Information Sharing or Client assessment through group agency due time constraint and the volume of data involved. This however left out other subsidiary forms of financial linkages like money transfer and insurance services. The study equally looked at the education level of the respondents though not with regards to its influence on growth of informal financial institutions. However the finding on the same is unique and have warranted further probe.

5.4   Areas for further research

Based on the foregoing findings of the study, the researcher suggests further research to;

1. Establish why persons with graduate and post graduate level of education are less likely to engage in the activities of informal financial institutions owing to the fact that both account for a mere one percent of respondents

2. Determine the influence of fundraising and donations/grants to the stability of informal financial institutions.

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Appendix 1: Typology of case study linkages

Table 1. Typology of case study linkages

	AFRICA				ASIA				LATIN AMERICA			
	Kenya	Mali	Rwanda	Tanzania	India	Indonesia	Philippines	Bolivia	Costa Rica	Honduras	Peru	
	K-Rep Bank, SACCOs and MFIs	BNDA and MFIs	People's banks and SHGs	CRDB Bank, SACCOs, community banks and NGOs	ICICI, MFIs and self-help groups	AVIVA Life and MFIs	BPD and LPDs	PCFC, rural banks and MFIs	FADES and various partners	Finca Costa Rica, commercial banks and, MFIs	Covelo Foundation, MFIs and producer organizations	Araiwa (NGO), Confianza (EDPYME) partners
DIRECT FINANCIAL LINKAGES												
Bulk loans and credit lines	x	x		x	x		x	x	x	x	x	x
Savings	x	x		x			x			x	x	x
FACILITATING LINKAGES												
Credit			x		x					x	x	
Insurance						x						
Deposit mobilization									x			
Money transfers									x		x	
Payments									x	x	x	
Salary/pension disbursements									x			

Appendix 2: Continuum of Formality

Figure 1: Continuum of formality

FINANCIAL INSTITUTIONS

Commercial banks
State dev banks
Postal banks
Insurance companies
Leasing companies
Money transfer firms

Apex organizations
Rural banks
Co-operative banks
Microfinance banks
Credit unions
Regulated MFIs
Finance companies

Unregulated MFIs
NGOs
Savings and credit associations
Village banks

Self-help groups
Farmers' organizations
Women's associations
Indigenous savings clubs
Deposit collectors

⟸ More formal   Less formal ⟹

Appendices 1 & 2. Source: Adopted from Pagura& Kirstein 2006

Appendix 3: Map of Homa Bay County

Appendix 4: Letter of Introduction

Mr. Benard Odhiambo Obop

Maseno University,
Box 33,
Maseno.

Dear sir/madam

<u>REF: LETTER OF INTRODUCTION AND REQUEST FOR INFORMATION</u>

This is an academic study undertaken in partial fulfillment of the Requirements for the award of Masters of Arts Degree in Economics at Maseno University. The purpose of this research is to study the influence of financial linkages on the growth of informal financial institutions in Homa bay county, Kenya.

Your co-operation and assistance in providing the requested information as asked in the questionnaire to facilitate this study will be highly appreciated.

Thank you in advance.

BenardObop

Tel: 0729010218

Email: <u>benardobop@yahoo.com</u>

Appendix 5: Questionnaire

Preamble

i) The information given in this questionnaire will be handled with utmost confidentiality and only used for the purpose of this study.

ii) The term informal financial institutions here include but not limited to ROSCAs, ASCAs and/or 'SILCs'.

PART A: General Information

1. Tick your gender   **Male** [   ]   **Female** [   ]

2. Tick your age bracket

Age Bracket	18 – 24 yrs	25 – 31 yrs	32 – 38 yrs	39 – 45 yrs	Over 45 yrs
Tick					

3. Kindly tick appropriately your level of education

Level of education	Post graduate	Graduate	Diploma	Secondary	Certificate	Other (specify)
Tick						

4. What is the name of your group? ……………………………………………

5. Tick your current position in the group

Position/title	Chairperson	Secretary	Treasurer	Other(specify)
Tick				

6. Tick the category to which your group belongs.

Category of institution/group	ROSCA(Here, every member must take loan on a rotational basis)	ASCA(Here, a member saves but taking loan is optional)	Other(s) specify
Tick			

7. Where is the group's area of operation?   **Town ( )   Rural   (   )**

PART B:For groups/institutions that have been in existence for more than 6 months

8. Tick the year bracket between which your group formed.

i)**1970 – 1979 ( ) ii)1980 – 1989 ()   iii)1990 – 1999( )**

iv)**2000 – 2009 ()   v)2010 – 2015 (   )**

9.   How many members were in the group when it was formed? ....

10. How much in **Kshs** was each member's monthly saving in the group when the group was started?

i)**20 –   500 (   )   ii)501 – 1,000 (   )   iii) 1,001 – 1,500 (   )**

iv) **1,501 – 2000 (   )   v)2,001 – 2,500 (   )   vi)Over 2,500 (   )**

11. How much loan in **Kshs** could each member borrow from the group when the group was started?

i)   **0 – 10,000 (   )   ii)   10,001 – 20,000 (   )   iii)20,001 – 30,000 (   )**

iv) **30,001 – 40,000 (   )   v)40,001 – 50,000 (   )   vi) Over 50,000 (   )**

12. How many members are in the group **currently**? ....

13. Tick from the list in the table below, the name of any financial institution your group is

linked to

Name of formal financial institution	Tick
Equity Bank	
Kenya Commercial Bank	
CARE Kenya	
Other(s) Specify	
Multiple institutions	

14. Tick from the list in the table below any form(s) of financial linkage which exist between

your group

and the mentioned formal financial institution(s) in question **13** above**.**

Form of financial linkage	Tick
The group receives bulk loans from the institution	
The institution conducts financial training to the group	
The group saves their money with the institution	
The group shares credit information relating to its members with the institution	

15. In which year were the linkage(s) ticked in question **14** above started between your group and the

mentioned formal financial institution(s)?

Form of financial linkage	Year started
Receipt of bulk loans	
Conduction of financial training	
Group savings of deposits with the institution	
Credit information sharing	

16. How much on average in **Kshs**does each group member contribute **currently** as monthly savings?

   i)   1 – 1,000 (   ) **ii)**1,001 – 2,000 (   )**iii)**2,001 – 3,000(   )

   iii) 3,001 – 4,000(   )**v)** 4,001 – 5,000 (   )**vi)**Over 5,000 (   )

17. How much on average in **Kshs**does each group member borrow **currently** as loans from the group?

   i)   0 – 20,000 (   ) **ii)**20,001 – 40,000 (   )**iii)**40,001 – 60,000(   )

   iv) 60,001 – 80,000(   )**v)** 80,001 – 100,000(   )**vi)**Over 100,000 (   )

PART C: THE EFFECT OF COMMERCIAL (BULK) LOANS AND FINANCIAL TRAINING ON GROWTH OF INFORMAL FINANCIAL INSTITUTIONS.

18. Does your group currently access commercial (bulk) loan(s) from the formal financial institution(s)
ticked in question **13** above?

YES (   )   **NO (   )**

19. If yes to question **18** above, what amount of loan did your group receive in their **first** and **last**
(Current) loan applications from the formal financial institution(s) mentioned in question **13**
above?

Financial institution linked to the group	Loan amount the group received in Kshs.	
	In first application	In latest/last application
Equity Bank	Kshs.	Kshs.
Kenya Commercial Bank	Kshs.	Kshs.
CARE Kenya	Kshs.	Kshs.
Other(s) Specify	Kshs.	Kshs.

20. Have your group members been able to undertake any form of financial training organized by any
formal financial institution?.

            YES. (   )   **NO. (   )**

21. If yes to question 21, were the trainings schedules frequent before or after loan disbursement
or both?
Before []   **After [   ]**   **Both before & after   [   ]**

22. If **YES** to question **21** above:
i.) Do you agree with the statement that 'the frequency of financial trainings go down as the level
of loan uptake from financial institutions rises'?
Strongly agree [   ]Agree []Disagree []strongly disagree []Undecided [   ]

ii.) Do you agree with the statement that 'the frequency of financial trainings also go up as the level of loan uptake from financial institutions rises'?

Strongly agree [   ]Agree []Disagree []   strongly disagree []Undecided [   ]

PART D: INFLUENCE OF VOLUMES OF GROUP SAVINGS AND CREDIT INFORMATION SHARING ON THE AMOUNT OF COMMERCIAL (BULK) LOANS RECEIVABLE BY THE INFORMAL FINANCIAL INSTITUTIONS.

23. Does your group keep the members' savings in any savings account with any formal financial

    Institution(s) such as Banks or Micro-financial institutions (MFIs)?.

YES. (   )   **NO. (   )**

24. Is your group required to save first with the formal financial institution before loan application is
considered?

	Tick
Savings required first **BEFORE** loan	
Savings required **AFTER** loan disbursement	
Savings required both **before** and **after** loan disbursement	
Savings **NOT NECESSARY** to access loan	

25. Do Banks or MFIs consider the amount kept as savings by the group in their accounts to determine
the amount of loan to be given to the group when the group applies for loan?.

                YES. (   )   **NO. (   )**

26. If yes to question **25**, by what factor do the Banks or MFIs multiply the group savings to get the loans
receivable by the group?

Factor by which savings are multiplied	Tick
1	
2	

3	
4 and above	

27. If yes to question **23** above, what percentage of the group's monthly savings is kept in the savings

account in the Bank or MFIs?

Percentage (%) kept in the Bank or MFIs	Tick
0 to 25%	
26 to 50%	
51 to 75%	
Above 75%	

28. If yes to question **23**, for what **main** reason does the group undertake to keep members'
savings in the

   Banks or MFIs?.

Reasons for taking savings products	Tick
To build collateral for future commercial (bulk) loan	
For safe keeping of excess liquid cash	
To earn interest	

29. Where the group has approached a Bank, MFI or any NGO with an application for a loan or financial

was there any requirement for any information relating to the group's past record on loan repayment

or simply loan repayment ability?

YES   (   )   **NO (   )**

30. a.) "The credit information sharing on required by the formal financial institutions is more for the first

loan application". Do you agree with this statement?

Strongly agree [   ]Agree [] Disagree []   strongly disagree []Undecided [   ]

b.) 'The credit information sharing required by the formal financial institutions is more for the subsequent compared to the first loan application'. Do you agree with this statement?

       Agree []Disagree []Undecided [   ]

PART E: CORRELATION BETWEEN FINANCIAL LINKAGES AND GROWTH OF INFORMAL FINANCIAL INSTITUTIONS.

31. Only for groups who have received loans or grants in terms of money from NGOs.

a) What factor do NGOs involved in giving loans to your group consider in calculating or deciding on the   amount of loan to give to the group?

Factor considered	Tick
i.) Level of group savings in the bank accounts	
ii.) The group's history relating to repayment of past loans	
iii.) Level of financial literacy(i.e. ability of the group to manage the funds well)	
iv.) Application/proposal/group registration certificate	
v.) Multiple factors	
vi) None of the above	

b.) On a scale of **0** for no guarantee, **1** for low, **2** for moderate and **3** for high guarantee, Rank the following situations in order of how they would determine the amount of bulk loan receivable by the group from Banks, MFIs or NGOs.

Situation that will guarantee access to more loan	Rank			
	0	**1**	**2**	**3**
High level of group savings in the bank accounts				
Good repayment history of past loans by the group (CIS)				
High levels of financial literacy (i.e. demonstrated ability of the group to manage funds well)				

THANKS FOR YOUR CO-OPERATION AND ASSISTANCE