DETERMINING CASH BALANCE MANAGEMENT PRACTICES: "THE CASE OF SAVINGS AND CREDIT CO-OPERATIVE SOCIETIES (SACCOs) IN NAKURU DISTRICT".

BY

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DATE : 25/06/2003

DECLARATION

This research work is my own original work and has not been submitted in any other university or place.

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Supervisors Approval

This work has been submitted with our approval as university supervisors

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DEDICATION

To my dear wife Miriam: Your love, support and encouragement knows no boundaries.

To my son Trevor: May this work awaken in you the eagerness to learn.

To my parents Naphtaly and Naomi Waweru: Your enduring love has seen me thus far.

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ABSTRACT

Cash management is a core ingredient for any business survival. Saving and credit co-operative societies (SACCOs) are seen as vehicles for resources mobilisation and gateways to economic prosperity for families especially those in lower and middle income category. These enterprises handle large sums of members' funds in the form of deposits, shares and interest. It was therefore the intention of this study to determine the extent of use of optimal cash balance management practices in the co-operative movement and the factors influencing optimal cash balance management. Information from this study will be useful to the policy makers, co-operative members, independent researchers, learners and the general public. Survey research design was employed. The population consisted of the 143 SACCOs in Nakuru district. A sample of 38 SACCOs was selected from the population through stratified random sampling. Questionnaires were administered personally to the managers in the selected SACCOs. A pre-test was done using 5 SACCOs which were not included in the main study. Descriptive statistics and inferential statistics was used to analyse the data, which was tested at $\alpha = 0.05$ significant level. It was found out that SACCOs did not invest in marketable securities and there was a general aversion to overdraft facilities. The study concluded that cash management problems had no bearing on the cash management strategies used and that cash management problems were unique to individual SACCOs.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND

Cash is the money, which a firm can disburse immediately without any restriction. The term cash includes coins, currency and cheques held by the firm and balances in the its bank accounts (Pandey, 1995). Cash management is concerned with the managing of cash flows into and out of the firm, cash flows within the firm and cash balances held by the firm at a point in time, by financing deficit or investing surplus cash (Van Horne, 1997). The aim of cash management is to maintain adequate control over the cash position, to keep the firm sufficiently liquid and to use excess cash in a profitable way (Pandey, 1995). Excess cash without immediate use is invested in marketable securities. The existence of alternative short-term investments has increased the opportunity cost of holding excess cash balances (Weston, 1998).

Cash management has four facets. These are; cash planning, managing cash flows, maintaining optimum cash levels and investing surplus cash (Pandey, 1995). Cash planning involves cash budgets preparation to project cash surplus or deficit for each planning period. Managing cash flows involves accelerating cash inflows and as far as possible decelerating cash outflows. Maintaining optimal cash levels entails deciding on the approximate cash balances to avoid the cost of excess cash and the danger of cash deficiency. Investing surplus cash incorporate those decision and actions that lead to the investment of the surplus cash between bank deposits, marketable securities and intercorporate lending.

The firm's need to hold cash may be attributed the following three motives: the transactions motive, the precautionary motive and the speculative motive (Pogue, 1970). The transactions motive, requires the firm to hold cash to conduct business in the ordinary course. The precautionary motive requires a firm to hold cash to meet contingencies in future. The speculative motive is the need to hold cash for investing in profitable opportunities as and when they arise. Cash management is important because cash constitutes the smallest portion of the total current assets, yet management's considerable time is devoted to managing it (Weston, 1986).

Earlier studies in this area have bordered on cash planning, managing cash flows and investing surplus cash. Studies on optimum cash level have given more attention to publicly quoted companies. The co-operative sector has remained unexplored as far as optimal cash level management is concerned. This study explored optimal cash level management practices in the co-operative sector. Several authors have suggested optimal cash level management models. These include the Baumol model, the Miller-Orr model, the Beranek model, the Lockyers model, Archer's model and the Gibbs buffer stock model. This study while not being limited to the above models concentrated on the extent of use of optimal cash levels management models in the co-operative sector and the underlying reasons for their use.

1.2 STATEMENT OF THE PROBLEM

Co-operative societies incorporate both social and profit motives. This being the case the, operations of co-operative societies are guided by the Co-operative Act (Co-operative Societies Rule Numbers 12 of 1997) and the companies Act (cap 486). In the recent past

many firms have had to restructure, merge or downsize to improve their cashflows while others have collapsed, (Ouma 2001). The average loan waiting period in the SACCOs, is 3 months due to poor cash flow position (KUSCO, 2002). There is need for socially responsive and profitable SACCOs and good cash management practices are necessary to enhance the performance of the SACCOs. Optimal cash management becomes even more urgent in the co-operative sector with the recent (1997) introduction of the front office services. These services include among others cheque discounting, salary pay points and saving accounts. SACCOs have to decide how much to hold as cash inform of currency notes, coins saving accounts, current accounts and marketable securities in order for them to maintain a balance between liquidity and profitability. SACCOs are seen as vehicles for resource mobilization and gateways to economic prosperity for families communities and nations (Gachara, 1990). Yet there is little knowledge of research on optimal cash management in the co-operative sector. Poor cash balance management leads to high opportunity costs of holding cash, where large amounts of funds lie idle in the firm and also cash-out costs where the firm is unable to meet its financial obligations as and when they fall due. The study explored the problems in cash balance management, the optimal cash balances management practices and factors influencing optimal cash balance management in SACCOs.

1.3 OBJECTIVES

a) To determine cash management problems in SACCO operating in Nakuru District.

b) To determine the specific cash management practices used by SACCOs operating in Nakuru District.

c) To determine the relationship between cash management problems and cash management practices.

1.4 HYPOTHESES

H_1 : Cash management problems are unique to individual SACCOs operating in Nakuru District.

H_2 : Cash management practices vary among SACCOs operating in Nakuru District.

H_3 : Those SACCOs that apply cash management practices have few cash management problems.

1.5 SIGNIFICANCE OF THE STUDY

a) The study will increase the inventory of knowledge on SACCOs financial management in Kenya.

b) The results will sensitize the Ministry of Co-operative development and SACCOs managers on the level of cash management in the co-operative sector.

c) It is expected that the findings of the study will evoke proper cash management practices in the co-operative sector.

d) It is expected that the findings of the study will stimulate further research on facets of cash management.

1.6 ASSUMPTIONS OF THE STUDY

a) All respondents involved in the study were honest and sincere in providing the information being sought.

b) The results of the study may be generalized to the rest of SACCOs in Kenya.

1.7 SCOPE AND LIMITATION

The study concentrated on the extent, application and factors determining the application of optimal cash management models by SACCOs in Nakuru District. It is hoped that the

findings from this study will be generalized to all SACCOs in Kenya. However due to time and financial limitations this study was limited to Nakuru District. There was a general reluctance to fill out the questionnaires. Some SACCOs refused to fill out the questionnaires claiming the information was confidential while others felt they were too busy to fill out the questionnaires.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

Mwarania and Mutugu (1986) studied the role of SACCOs in Kenya's economic development. According to them the funding of SACCOs is the responsibility of deposits, and corporate savings. This study did not however specify how a corporative saving was to be achieved. Mungai (1986) further complemented Mwarania and Mutungu (1986) study by reviewing the role of SACCOs in Kenya's economic development and further elucidating the regional distribution of SACCOs in Kenya. Makanda (1986) studied the role of agricultural based co-operatives in the co-operative movement and reasons for their poor performance. Further Mutungu and Munish (1986) commented on the role of co-operatives in agricultural development and marketing of agricultural products.

The fact that co-operatives are competing for the scarce funds with banks and non-bank financial institutions (Ongore, 2001), makes the void on optimal cash level management in the co-operative sector worth filling. This study attempted to fill that void. Karanja (1970) carried out a study on the development of co-operatives in Kenya. He found out that co-operatives played a crucial role in Kenya's financial development. In 1977 the ministry of co-operative development carried out a study on SACCOs and found out that there was inadequate control over liquidity, that there existed inadequate management, accounting and internal control systems applicable to SACCOs operations and, that mismanagement and embezzlement of funds was common.

The study did not however explain the methodology and type of data used. Goran (1978,1979) carried out research on the leadership profile in Kenyan co-operatives. The research revealed that most leaders were farmers, teachers and civil servants. This research

concentrated on agricultural based co-operatives thus fell short of providing a representative sample. Ndege (1978,1979) carried out a study whose objective was to identify problems and learning needs of the SACCO members. The study found out that 80 percent of the members had never had co-operative member education. The sample was however drawn from members of one SACCO.

In 1983, the ministry of co-operative development carried out a major study to establish the nature, trends and implications of past investment projects by various categories of co-operative societies and unions, the future potential of such investments, the modes of financing, investment processes and procedure and the instruments guiding such investments. The findings were among others that SACCOs were unable to provide loans to members because large sums of money were invested in low return projects.

Obuon (1988) carried out a study on the determinants of savings in SACCOs in Kenya. The study concluded that to increase their profits and assets, SACCOs need to increase their corporate savings, share capital and attempt to reduce outstanding loans. This study is helpful in addressing the savings facet of the SACCOs.

Ssenyondo (1988) carried out research on the members' attitude towards the loan policy of the SACCOs in Kenya. The research revealed that the members' attitude towards the loan policy varied from negative to positive. The study concluded that members see the SACCOs as lending institutions, saving only enough money in the SACCOs to meet their borrowing capacity. This study while enriching the knowledge on the saving behavior in SACCOs falls short of providing a representative sample since it was based on one SACCO.

Gachara (1990) carried out a study on the investment practices of reserve funds in SACCOs in Nairobi. This study centered on investment of surplus cash, which is one facet of cash management. The study is useful since good investment decisions could improve the profitability and liquidity position of SACCOs.

Jamsen (1999) carried out research on capital information and farmers' co-operatives in Kenya with the aim of exploring the factors affecting performance of farmer owned co-operatives in Kenya. This study concluded that co-operatives should promote open committed and trustworthy management, educate members, improve women participation, increase share contribution and promote open flow of information between the members and co-operatives. While these findings are commendable the sample from which the research was carried out was not highly representative because it consisted of one type of SACCO.

Schweigman (2001) undertook a study on West Africa Co-operatives. The research was embedded in long existing collaboration programmes with universities and research institution in West Africa. This study revealed a revival of co-operative movements, a trend that the study linked to a reaction on the process of privatisation and liberalisation due to the introduction of "structural adjustment programmes". The study contends that agricultural co-operatives play a vital role in terms of strengthening farmers' food security and market position in a liberalized private market. The research also explored both theoretically and in practice, under which conditions and which extent specific co-operative activities can be efficient.

Drew (2001) researched on co-operatives in Australia and revealed exponential growth in co-operatives. This is in regard to savings, income and new products. Drew contended that deregulation had opened new avenues for co-operatives to explore and in the absence of statutory marketing bodies, marketing co-operatives could provide 'strength in numbers' giving them a more powerful position in the market.

Ongore (2001) carried out a study on the managerial response to deregulation of the co-operative sector. This was a case study of SACCO societies in Nairobi. Since more than 50 percent of the SACCOs are found or headquartered in Nairobi, this study was highly representative. The study revealed among other things that SACCOs were fast changing to co-operative strategic management, to move away from dependence on government regulation to compete effectively with financial institutions for scarce funds. Though the findings are plausible the scope of the research was too wide to concretize specific aspects of SACCO operations. From the research made on the co-operative sector, it is evident that the area of optimal cash balance management in the co-operative sector has received very little attention. Lumbasyo (1976) carried out study based on a sample of 31 firms. The co-operative sector was however not represented in the sample. This study revealed that certain factors need to be fulfilled first before a model was introduced. The research also revealed that:

a) The basic objective of holding cash was to avoid cash-outs and costs related to cash balance decisions were not considered.
b) Firms did not have formal policies for making cash balance decisions.
c) Working capital was a major variable influencing cash balance.

e) Majority of Kenyan firms hardly undertook cash planning.

Since 1976 when the study was carried out a lot of changes have taken place such as liberalization of many facets of the Kenyan economy, increased competition, computerization, competent management practices and improved information systems. More important the study did not attempt to include the co-operative sector where large amounts of Kenyan savings are held.

Mugera (1998) carried out a study on cash management practices in small-scale enterprises. The study revealed that small-scale firms had inherent problems that accounted for poor cash management. These problems among others included inefficient management and weak internal control leading to poor cash management. Though the study's findings are invaluable in the area of cash management it cannot be said to be representative since it concentrated on small-scale businesses. No attempt was made to include co-operatives in the study. The study did not give a clear outline on cash management on the entire spectrum of Kenyan business enterprises.

Ouma (2001) carried out a study on cash management approaches employed by companies quoted at the Nairobi stock exchange (NSE). This study revealed that;

a) Most companies had a specific policy in cash balance management due to the keen control and regulations of the NSE.
b) A majority of firms had specific minimum cash balances below which cash balance are not allowed to fall.
c) The firms were conscious about the opportunity cost holding idle cash.

c) The firms were conscious about the opportunity cost holding idle cash.

d) Majority of the quoted companies had set specific cash balance levels they considered optimal for their firms. The possibility of cash outs significantly influenced the setting of optimal balance cash levels.

e) Due to the availability of overdraft facilities the number of firms that kept buffer money was quite low.

f) Firms quoted at the NSE carried out cash planning and most of the firms had more than one planning period.

g) Most firms quoted at the NSE invested in marketable securities.

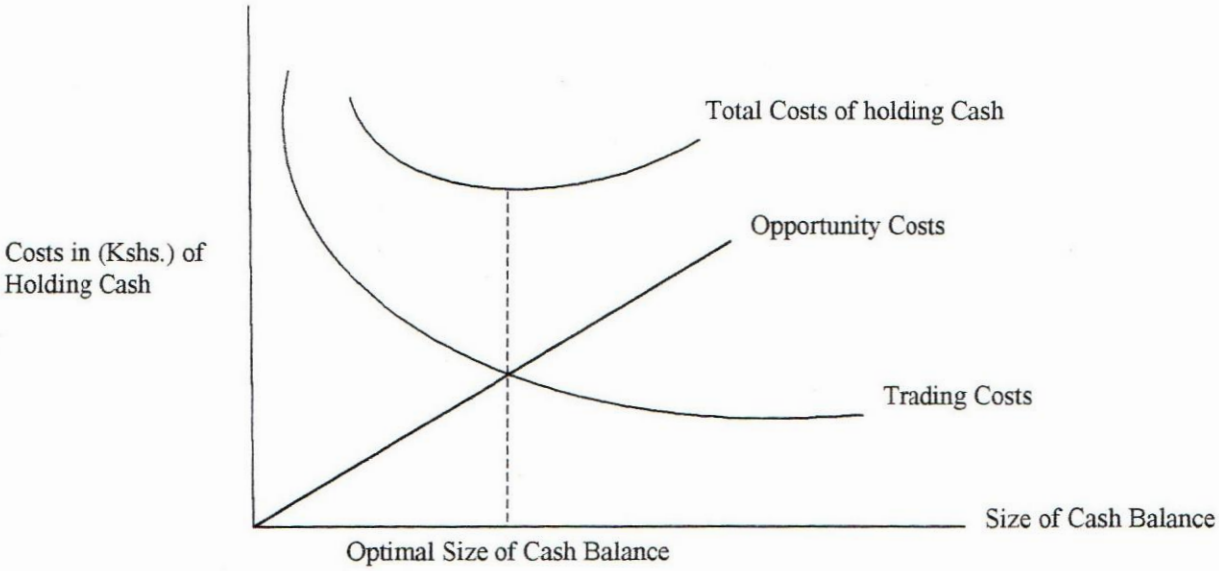
This study has widened the knowledge on cash balance management especially for the highly capitalized firms. It is however important to point out that the study did not address cooperative sector. With the deregulation of co-operative sector (1997), which has led to the venturing of co-operatives to services rendered by banks such as cheque discounting, saving accounts and salaries conveyance, the optimal cash balance management in the co-operative sector needs serious attention. In the findings by Ouma (2001), only 3 banks responded which cannot give a clear picture on the cash management practices of the banking sector which unlike other firms operates under strict liquidity requirements imposed by the central bank of Kenya. In the light of the fact that there existed a void in the area of optimal cash level management by the co-operative sector, this study intended to fill that void.

2.1 THEORETICAL FRAMEWORK

Van Horne (1997) contends that optimal utilization of a firm's cash can contribute to the overall objective of the firm. However there is no standard appropriate minimum cash level

that would apply to all firms and it is important that each firm determine its optimal cash levels depending on its needs (Braeley and Myers, 1984).

Several authors have come up with models that help in determining the optimum cash levels for firms. The models may be divided into two; simulation models that include Archers model and Gibbs model and Analytical models that include Baumol Model, Miller-Orr Model, Beranek Model and Lockyers Model. Determination of target cash balance involves a trade-off between the opportunity cost of holding too much and trading costs of holding too little (Ross, 1990). The figure below presents the problem graphically.



Source:(Ross S.A,1990)

A model is a simplification of an otherwise abstract and long process. Models therefore turn long and complicated procedures into simple processes.

William Baumol (1952) was the first person to provide a formal model of cash management. This model applied the economic order quantity (EOQ) to cash. Brokerage fees and clerical

work form order costs while foregone interest and cash out costs form the costs of holding cash.

For a firm to apply Baumol's Model it needs to know the following three variables:

F= The fixed cost of selling securities to replenish cash

T= The total amount of new cash needed for transactions purposes over relevant planning period, Say, one year.

K= The opportunity cost of holding cash (interests on marketable securities).

With these the optimal cash balance policy can be determined by first determining the total costs of any particular cash balance policy.

a) The opportunity costs of cash balances in Ksh. must be equal to the average cash balance (C) multiplied by the interest rate (F).

   Opportunity Cost (Ksh) = C/2 * K

b) The trading costs can be determined by the number of times that the firm must sell marketable securities during the year (T) divided by the initial cash balance (C) then multiplied by the fixed cost of selling securities to replenish cash (F).

   Trading costs = T/C * F.

c) Total costs = Opportunity costs + Trading costs

   = C/2 * K + T/C * F

If the total cost function $Z = CK/2 + TF/C$ is differentiated with respect to C;

$dZ/dC = K/2 - 1/C^2 \ TF = 0$

Then, $C = \sqrt{2TF/K}$

Baumol's model is thus given by formula:

$C = \sqrt{2TF/K}$

Baumols' model has the following limitations

a) The model assumes the firm has a constant disbursement rate.

b) The model assumes there are no cash receipts during the projected period.

c) No safety stock is allowed for.

Baumol's is however probably the simplest and most striped down sensible model for determining the optimal cash position (Ross, 1990) It's chief weakness is that it assumes discrete and certain cashflows.

Miller and Orr (1966) developed a cash balance model to deal with cash inflows and outflows that fluctuate randomly from day to day. In the Miller-Orr model both cash inflows and outflows are not included. The model assumes that the distribution of daily net cashflows is normally distributed. The model operates in terms of upper (H) and lower (L) control limits and a target cash balance (Z). The cash balance is allowed to wander randomly between H and L. The firm only makes a cash balance transaction when the cash balance reaches H, when the firm buys H – Z marketable securities or when the cash balance reaches L, when the firm sells Z – L marketable securities. The firm sets L depending on how much cash shortfall it is willing to bear. The cost of selling and buying marketable securities (F) is assumed to be fixed. The percentage opportunity cost per period of holding cash (K) is the daily interest rate on marketable securities.

Unlike Baumol's model the number of transactions per period is a random variable that varies from period to period, depending on the pattern of cash inflows and outflows. The values of Z and H that minimize the expected total costs have been determined by Miller and Orr;

$Z^* = \sqrt[3]{3F\delta^2/4\ K+L}$

$H^* = 3Z^* - 2L$

Where * denotes optimal values and δ^2 is the variance of the net daily cash flows.

The average cash balance in the model is given by;

Average cash balance = $\frac{4Z - L}{3}$

The implications of the Miller - Orr model is that the manager must fulfill four conditions;

a) Set the lower limit for the cash balance.

b) Estimate the standard deviation of daily cash flows.

c) Determine the interest rates.

d) Estimate the trading costs of buying and selling marketable securities.

The Miller – Orr model works very well compared to actual cash balances (Mullins and Hamonoff, 1976). This model clarifies the issued of cash management. First it shows that Z* is positively related with trading costs (F) and negatively related to K. This finding is consistent with Baumol's model. Secondly the Miller – Orr model shows that Z* and average cash balance are positively related to the variability of cash flows.

Beranek (1963) came up with a different approach to cash management. This approach hinges upon optimal allocation of funds between cash balance and marketable securities. Beranek contends that in so far as cash flows are controllable and recur in a cyclical manner, the financial manager can predict cash needs over the planning period and invest the amount considered surplus. In his approach however Beranek does not give light of what constitutes the critical minimum balance. This approach also assumes predictable cash inflows.

Lockyer (1973) modified Baumols model to incorporate overdraft facilities. According to Lockyers approach the total annual cash policy cost attributable to the use of overdraft

facilities is given by the sum of total annual cash transfer cost, total annual overdraft cost and the total annual holding cost. Lockyer's model is critiqued for assuming overdraft facilities, which are not automatic especially for firms with poor credit rating. The model also assumes disbursements are even over the planning period.

Archer (1956) contends that apart from providing a cash balance for transactional purposes, a cash balance should be provided for precautionary purposes, especially for seasonal activities that are unpredictable. In Archers approach costs related to overdraft facilities and capital costs of precautionary balances are compared to determine the optimum. Archer's approach is advantageous for it recognizes the cyclical nature of net cash flows of many firms.

Gibbs (1976) argued that determination of optimal cash balance involves a combination of investment and financial decisions. In Gibbs approach, cases where demand for money is of a cyclical nature a combination of short and long term borrowing should be used to avoid the use of long term funds to cover peaks arising from idle cash balance during periods of low cash demand. Gibbs contends that the determination of buffer money to hold is seen as an investment decision. Gibbs approach emphasizes holding costs, costs of short and costs of long-term borrowing and the costs of investment in marketable securities.

Despite their enormous limitation and lack of flexibility to incorporate all the information generated by financial managers, models perform effectively if they capture the critical elements in decision problems.

2.2 APPLICATION OF THE MODELS IN THE SACCOs

SACCOs may be divided into institution based and non-institution based depending on the pattern of cash receipts. Institution based SACCOs have certain, predictable and controllable cash receipts. This is due to the fact that cash receipts are mainly done through a check-off system. On the other hand non-institution based SACCOs may not be able to adequately predict the cash receipts because of the lack of a check-off system. In light of this fact the different categories of SACCOs may be best suited to apply the different models due to their unique characteristics. This study intended to find out the extent of use of these models. For the purposes of this study the unique characteristics of these models were identified. These characteristics assisted the study in assessing the prevalence of these models in the SACCOs.

Table 2.2.1 Unique Characteristic of cash management module

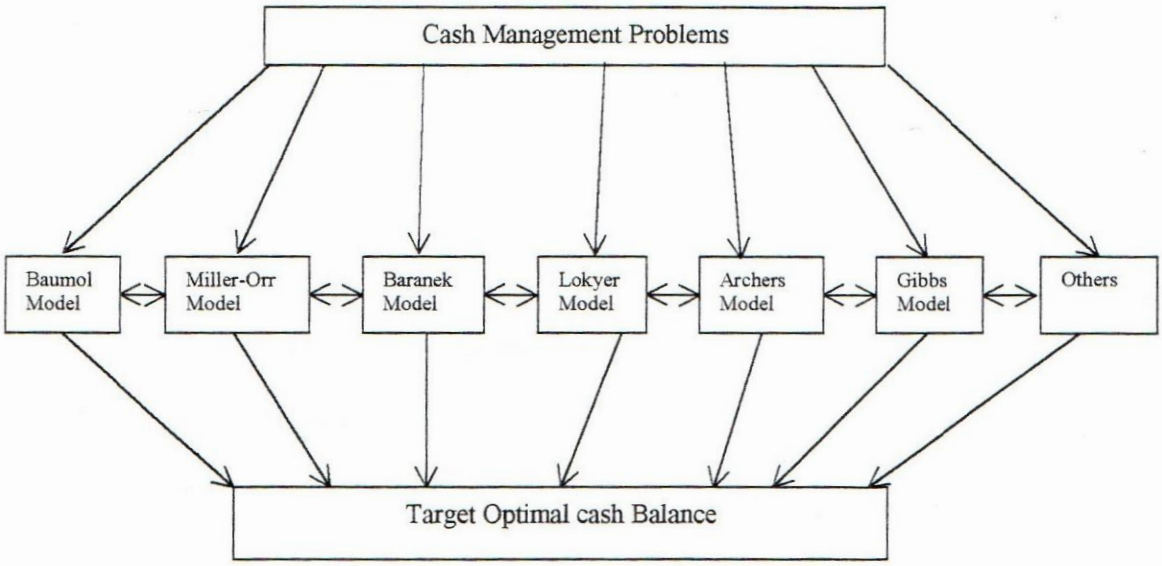
Model	Unique characteristics/variables
Baumol Model	Cash balance based on the need for transactions balance
Miler-Orr Model	Cash balance based on existence of specific amount of transfer to and from marketable securities.
Baranek Model	Cash balance based on certain cash receipts and expenditures.
Lockyer Model	Cash balance based on existence of credit facilities.
Archers Model	Cash balance based on the need for transactions and precautionary balance
Gibbs Model	Cash balance based on the risk of cash outs

Source: (Author's Compilation, 2003)

The study also sought to explore the extent of optimal cash balance management in Co-operative sector and the factors influencing optimum cash balance management practices in SACCOs.

2.3 CONCEPTUAL FRAME WORK

The conceptual frame work developed by this research is illustrated below.



Source: (Author's Compilation, 2003)

Key: ↓ Direction of causation.

↔ Ability of the models to borrow elements from each other.

With cash management problems such as cash outs and opportunity cost of holding cash the SACCOs may apply a particular cash balance model or a combination of models to arrive at a target optimal cash balance. The downward slopping arrows show the direction of causation where cash management problems lead to the application of a given cash management model or a combination of models. Proper application of models in turn lead to the attainment of a target optimal cash balance for the SACCO. The horizontal bi-directional arrows indicates the possibility of the models to borrow elements from each other.

CHAPTER THREE

3.0 RESEARCH DESIGN METHODOLOGY

3.1 RESEARCH DESIGN

This study employed a survey as its research design. The purpose of a survey is to explore and describe observed phenomena, (Kathuri and Pals, 1993). Surveys are effective in obtaining information relating to people's thoughts feelings and opinions. Surveys are suitable where the population under study is relatively large and the phenomenon under investigation can be observed directly by the researcher, (Borg and Gall, 1983)

3.2 TARGET AREA

The target area was Nakuru District. The District has institution based SACCOs and non institution based SACCOs.

3.3 POPULATION OF THE STUDY

The target population consisted of the 205 SACCOs in the district. However 62 of the 205 SACCOs are dormant thus the population was based on the 143 active SACCOs. Since the population was fairly large a sample of 38 SACCOs was taken. The sample was necessitated by time and resource limitations.

3.4 SAMPLING

Stratified sampling was used to ensure fair distribution of the different kinds of SACCOs. Each of the 143 SACCOs formed a sampling unit.

The stratification was based on; Institution based SACCOs and non-Institution SACCOs. This was in order that each stratum or category formed a sampling frame. Each stratum was assigned a random number from a table of random numbers, which was used to select the SACCOs to be included. Given that n = 38 and N=143, the sampling fraction was more than adequate. Borg and Gall, (1983) recommends a sampling fraction of at least 0.25.

3.5 INSTRUMENTS

The study used of both primary and secondary data. Questionnaires were used to collect data pertaining to the extent of use of the optimal cash balance management models by SACCOs. Questionnaires were also used to identify problems in cash management and factors influencing the choice of the models. Data relating to the level of cash planning was obtained from the District Co-operative records and the Kenya Union of Saving and Credit Societies (KUSCO) records.

3.6 VALIDATION OF THE INSTRUMENTS

The items in the instruments were standardized for validity using Cronbach's Alpha procedure. The instruments were pre-tested in 3 SACCOs in Koibatek District and 2 SACCOs in Nakuru District which were not included in the sample. Appropriate modifications were made on the questionnaires after pre-testing for the purpose achieving the objectives the study.

3.7 DATA COLLECTION METHOD

After the necessary approvals for data collection from the Office of the President, Ministry of Co-operative Development and respective SACCOs, the questionnaires were administered personally to some and through the method preferable to the respondents.

3.8 DATA ANALYSIS METHODS

For cash management practices and problems, analysis of frequencies were employed. For the optimal cash level strategies used analysis of frequencies were employed. Factors determining the maximum and minimum cash balances were also analyzed using analysis of frequencies. Hypotheses were tested using the t- test.

CHAPTER FOUR

4.0 DATA ANALYSIS, INTERPRETATIONS AND DISCUSSIONS

4.1 CASH MANAGEMEMENT PRACTICES USED BY SACCOS IN NAKURU DISTRICT.

4.1.1 Specific policy on cash balances

The results indicate that 79% of the SACCOs are conscious about the need to control cash balances and have put in place specific policies on the cash balances 21% of the SACCOs have however not put in place specific policies on cash balances. Ouma (2001) found out that only 67% of quoted companies had specific policy on cash balance.

4.1.2 Specific minimum cash balances

53% of the SACCOs specify the minimum level below which cash balances are not allowed to fall. This falls in line with the assumption by Miller-Orr (1966) and Baumols (1952). 47% of the SACCOs did not specify the minimum balance. This could be attributable to access to quick sources of funds to replenish the balances.

Table 4.1.2.1 Factors that SACCOs consider in determining the minimum cash balance levels

Factor	Percentage of SACCOs
Minimum deposits required by basis	91%
Cash cycle sizes	5%
Benefits foregone	4%

Source: (Author's Compilation, 2003)

Minimum deposits required by bank ranks highest. This could be attributed to the fact that the SACOOs' main motive is to lend to members rather than seek such incomes as interest from banks.

4.1.3 Specific maximum cash balance levels.

Only 21% of the SACCO specified the level above which cash balances were allowed to exceed. Ouma (2001) found that 70% quoted companies specified a ceiling above which cash balances ere not allowed to exceed. This could be because SACCOs usually lend excess cash to members.

4.1.4 Specific optimal cash balance level

Only a paltry 13.2% of the SACCOs have a specific cash balance level they regard as optimum. This is an indication that majority of the SACCOs do not make a deliberate effort to set optimal cash balance level.

Table 4.1.4.1 Factors considered in settling the optimal cash balance level.

Factor	Percentage of SACCOs
Investment opportunities	5.3%
Cash cycle size	5.3%
Benefits forgone	2.6%

Source: (Author's Compilation, 2003)

The result indicate that only 5.3% of the SACCOs considered investment opportunities and cash cycle size in determining the optimal cash balance. 2.6% of the SACCOs considered

benefits forgone in setting their optimal cash balances. 86.8% of the SACCOs did not have a specific optimal cash balance. Lumbasyo (1976) and Ouma (2001) found out that the objective of holding cash was to avoid cash outs. The findings in the co-operatives however indicate that cash cycle size and taking advantage of investment opportunities are the main objectives of holding cash.

4.1.5 Pattern of Receipts and expenditure

Table 4.1.5.1 Pattern of receipts and expenditure

	Percentage of SACCOs	
Pattern	Receipts	Expenditure
Certain	25.7%	75%
Uncertain	74.3%	15.2%
Continuos	-	6.1%
Seasonal	-	3.0%

Source: (Author's Compilation, 2003)

Baumol's and Baranek's models assume that receipts are predictable. The findings however seem to contradict this assumption since 74.3% of the SACCOs said these receipts were uncertain. These could be attributable to the fact that some of the SACCOs do not have a check off system. 75.7% of the SACCOs said their expenditure were certain. This is attributed to the fact those found collected must be loaned to members.

Table 4.1.5.2 Correlation of pattern of receipts and expenditure

	Receipts	Expenditure
Receipts	Pearson Correlation 1.000	-.270
	Sig. (2-tailed) .	.128
	N 35	35
Expenditure	Pearson Correlation -.270	1.000
	Sig.(2-tailed) .128	.
	N 35	35

Source: (Author's Compilation, 2003)

There was a weak negative correlation between the pattern of expenditure and receipts (-0.270). This an indication that receipts and expenditures moved in relatively opposite directions.

4.1.6 Cash planning

97.4% of the SACCOs were found to undertake cash planning 5.6% did it weekly, 80.6% monthly, 5.6% quarterly and 7.9% annually. This result show a deviation from the study by Ouma (2001) and Lumbasyo that indicated that the planning period was evenly spread out by firms in the NSE.

4.1.7 Investment in marketable securities

None of the SACCOs studied was found out to invest in marketable securities. SACCOs have instead concentrated on giving loans to members rather than investing surplus cash in marketable securities. This contradicts Baumol, Miller-Orr and Baranek models that recommend, investing surplus cash in marketable securities to avoid the opportunity costs of holding excess cash.

4.1.8 Buffer Money

6.7% of SACCOs kept some cash as buffer money that was attributed to emergency loans. 33.3% of the SACCOs did not keep some cash as buffer cash. 92% of those SACCOs that kept buffer money considered expected expenditure levels while 12% considered the cost of borrowing in determining the amount of buffer money.

4.1.9 Costs of holding cash

82.2% of the SACCOs said they considered benefits foregone as the cost associated with the holding of cash while 17.8% said they considered possibility of loss as the cost associated with the holding of cash. This is consistent with the study by Ouma (2001).

4.1.10 Costs associated with cash outs.

80.6% of the SACCOs considered borrowing costs as the costs associated with cash outs while 9.4%, considered the deterioration of credit rating as the costs associated with cash outs.

4.1.11 Overdraft facilities

91.9% of the SACCOs did not have overdraft facilities while 8.1% of the SACCOs had overdraft facilities. This is inconsistent with the study by Ouma (2001) which found out that 89% of the firms quoted at the NSE had overdraft facilities and may not find it necessary to have specific cash balance levels.

4.1.12 Motives for keeping cash balances

The results indicated that 91.9% of the SACCOs kept cash balances for a combination of transactional and precautionary motives. The transactional motive constituted normal loans while precautionary motive was attributed to emergencies and contingencies.

4.1.13 Financing of cash balances

97.3% of the SACCOs indicated that the financing of cash balances came from combination of members deposits, shares and interest from loans while 2.7% said the financing came from long term loans.

4.1.14 Opening balances for each planning period.

48.6% of the SACCOs said they had specific opening balances for each planning period while 50.4% of the SACCOs did not have any opening balances for each planning period. Among the 48.6% that had specific opening balance in each planning period 83.3% said they

considered expected receipts in setting the opening balance for the each planning period. This is consistent with the Ouma (2001).

4.1.15 Computerized cash monitoring system

Only 18.9% of the SACCOs had computerized cash monitoring system. Ouma (2001) found out that 61% of the companies quoted at the NSE had computerized cash monitoring system. These indicates wide variations with these findings.

Table 4.1.16 Summary of the extent of use of cash management models

Model	Percentage use
Barmol Model	66.7%
Miller-Orr Model	3.1%
Baranek Model	25.7%
Lockyer Model	8.1%
Acher Model	8.1%
Gibbs Model	62.5%

Source: (Author's Compilation, 2003)

The above percentages show that though Gibbs Model and Baumols Model featured prominently, the SACCOs used a combination of Models and not a single Model was used entirely. This indicated that the SACCOs incorporated the features of the Models that were not limiting in managing their cash balances.

It was found that there was no significant difference in cash management practices between the institutional and non-institutional SACCOs, (appendix 5).

4.2 CASH MANAGEMENT PROBLEMS

The cash management problems related to lack of cash management policy, failure to specify the minimum and maximum cash balances, lack of cash planning, cash-outs and a longer loan waiting period. It was found out that cash management problems were unique to individual group of SACCOs. The results indicated a significant difference at 95% confidence level between institutional and non-institutional SACCOs of 0.014, (appendix 4).

4.3 RELATIONSHIP BETWEEN CASH MANAGEMENT PRACTICES AND CASH MANAGEMENT PROBLEMS

Results indicated that there was no significant difference between those SACCOs that had put in place cash management policies and those that had not. Therefore cash management problems were not necessarily related to the cash management policies, (appendix 6).

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY AND CONCLUSIONS

The first objective of the study set out to find the cash management problems in the SACCOs by testing whether the problems were unique to individual SACCOs or not. The study concluded that indeed the problems were unique to individual SACCOs, a trend that was attributed to the lack of a check-off system since this was the basis of stratification of the SACCOs. It would be advisable for the SACCOs without a check-off system to strengthen measures in cash management in order to control cash receipts.

This study also set to find out the cash management practices. It was found out that SACCOs used a combination of approaches in managing cash balances. No one model was found to be used entirely. This suggests that SACCOs find it worthwhile to use a multiple of strategies in order to manage their cash balances effectively. This finding was found to be consistent with (Ouma, 2001).

It was also found out that SACCOs did not invest in marketable securities and instead loaned excess cash to members. This varied with companies quoted at the NSE where a majority was found to invest in marketable securities, (Ouma, 2001). This may be attributed to the fact that most SACCOs rarely satisfy members' demand for loans and possibly not much remains that can be invested in marketable securities. Another possible reason could be that most SACCOs have regulations prohibiting investment in marketable securities. It could also be

due to the fact that most SACCOs, are still in their early stages of development and therefore may not have the capacity to invest in marketable securities. It is recommended that to avoid the opportunity cost of holding idle cash, excess cash should be loaned to members. This may be achieved through development of flexible products such as advances. The study concluded that there was no significant difference in the cash management practices used by the institutional and non institutional SACCOs.

The third objective of the study was to find out whether there was any relationship between cash management practices and cash management problems. The study concluded that there was no relationship between the cash management practices and cash management problems. This is an indication that cash management problems may not be a direct consequence of the cash management practices. Some SACCOs may experience cash management problems due to lack of a check-off system while others this may be due to retrenchment of workers which affects the cash flow positions.

The level of computerization in the SACCOs was found to be very low. This may be attributed to the fact that most of the SACCOs were in their early stages of development. However those well established SACCOs were found to have computerized their operations. In contrast, (Ouma, 2001) found out that 61% of the firms quoted at the NSE had computerized their operations. It would be advisable that SACCOs computerize their operations especially on cash balances monitoring.

A majority of SACCOs were not keen on using overdraft facilities. This variation may be attributed to the fact that SACCOs lend at a relatively lower interest rate than what is charged

for overdrafts by banks. This makes it unfeasible to borrow from banks. Other businesses like those studied by (Ouma, 2001), depend on overdrafts to finance their working capital.

5.2 RECOMMENDATIONS

1. SACCOs without a check-off system should put in place stringent regulations such as stiff penalties in order to control cash reciepts.
2. Excess or idle cash should be loaned to members to avoid the opportunity costs of holding cash. This may be achieved through development of flexible products that encourage borrowing such as advances.
3. SACCOs should computerize their operations especially on cash management. This should be viewed from the perspective that such an expenditure is a cost saving measure in the long run.
4. Since overdraft facilities are expensive an alternative would be to encourage members to save more.

5.3 SUGGESTIONS FOR FURTHER RESEARCH

Further study could be done establish to reasons the aversion of SACCOs to invest in marketable securities.

Very few SACCOs were found to use computers, study on the impact of computers on cash management could be carried out. Research could also be undertaken to establish the most appropriate cash management practices for the SACCOs.

Research could also be undertaken to establish the reasons behind the aversion of SACCOs to overdraft facilities.

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APPENDIX 1

INTRODUCTORY LETTER

---/---/2002

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.....
.....

Dear Sir/Madam,

RE: REQUEST THAT YOU FILL OUT A QUESTIONNAIRE

I am a postgraduate student of Egerton University studying of a Master of Business Administration. I am currently undertaking a research project as part of the requirements of the program. My research project is on the cash management strategies employed by SACCOs. Your SACCO is one of the SACCOs that I have included for data collection.

I am kindly requesting that you assist me in the data collection by filling out the questionnaire attached.

The information you provide will be treated with utmost confidentiality and the results of the research will be for academic purposes only. The findings may however be availed to you upon request.

If you have any further questions or would like more information please call me on
Tel: 0722 – 221507.

Thank you for your help.

Yours sincerely,

WAWERU KENNEDY MUNYUA,
MBA STUDENT, EGERTON UNIVERSITY.

APPENDIX 2

CODED QUESTIONNAIRE

You are kindly requested to answer the following questions by ticking (√) appropriately in the spaces provided ( ).
Where necessary please provide additional information as brief as possible.
The term cash is taken to mean currency notes and coins held by the firm in current and deposit account balances.

1. Name of your SACCO _____

2. Does your SACCO have a specific cash balance levels policy? **(scbp)**
   i) Yes ( )
   ii) No ( )

3. Does your SACCO specify the minimum level below which cash balances are not allowed to fall? **(sminl)**
   i) Yes ( )
   ii) No ( )

4. Does your SACCO specify the maximum level above which your cash balances are not allowed to exceed? **(smaxl)**
   i) Yes ( )
   ii) No ( )

5. If your answer to question 3 and 4 is **Yes** what factors do you consider in deciding the minimum and maximum balances? Where multiple factors are considered rank them in order of importance i.e. 1 2 3 etc.

Factors	**Minimum balance**	**Maximum balance**
Investment opportunities	**(dminiop)**	**(dmaxiop)**
Sales trends	**(dminst)**	**(dmaxst)**
Cash cycle Size	**(dminccs)**	**(dmaxccs)**
Benefits foregone e.g. (interest)	**(dminbf)**	**(dmaxbf)**
Inflation	**(dmininf)**	**(dmaxinf)**
Minimum deposits required by banks	**(dminmdrb)**	**(dmaxmdrb)**
Others (specify)	**(dmino)**	**(dmaxo)**

6. Does your SACCO have a specific cash balance it considers as optimal? **(scbcopt)**
   i)Yes ( )
   ii)No ( )

7. If your answer to question 6 is yes what factors does your SACCO consider in setting this optimum cash balances level. If multiple factors are considered rank them in order of importance i.e. 1 2 3 etc

Factor	Rank
Investment opportunities **(optdiop)**	
Sales trends **(optdst)**	
Cash cycle size **(optdccs)**	
Possibility of cash outs exhaustion **(optdpco)**	
Benefits forgone **(optdbf)**	
Inflation **(optdinf)**	
Minimum deposits required by banks **(optddrb)**	
Others (specify) **(optdo)**	

8. How would describe the pattern of your receipts and expenditure?

Pattern	Receipts	Expenditure
Certain	**(ptrcts)**	**(ptexc)**
Uncertain	**(ptruc)**	**(ptexuc)**
Continuos	**(ptrcon)**	**(ptexcon)**
Seasonal	**(ptrs)**	**(ptexs)**
Others (specify)	**(ptro)**	**(ptexo)**

9. Does your SACCO undertake cash planning? **(cp)**

   i) Yes ( )
   ii) No ( )

10. If your answer to question 9 is **Yes** what is the length of the cash planning? **(lenthcp)**

Weekly	
Monthly	
Quarterly	
Semi annually	
Annually	
Others (specify)	

11. Does your SACCO invest in marketable securities? **(ims)**
    i)Yes ( )
    ii) No ( )

If **Yes** indicate the types of marketable securities that your SACCO invests in.

12. When does your SACCO invest in marketable securities?

When cash balances exceed a specified level	
When receipts exceed expenditure	
Others (specify)	

13. What costs do our regard as associated with conversions of cash to marketable securities and marketable securities to cash.

	Cash to marketable securities	**Marketable securities to cash**
Brokerage/transfers		
Ordering costs		
Others (specify)		

14. What costs do you consider with holding of cash

Possibility of loss	**(chcpl)**
Benefits forgone e.g. interest	**(chcbl)**
Inflation	**(chcinf)**
Others (specify)	**(chco)**

15. Does your SACCO have a specific amount it considers optimal for transfer from cash to marketable securities?
    i) Yes ( )
    ii) No ( )

16. Does your SACCO have a specific amount it considers optimal for conversion of marketable securities to cash?
    i) Yes ( )
    ii) No ( )

17. Do you keep any part of the cash as buffer money? **(bm)**
    i) Yes ( )
    ii) No ( )

18. If your answer to question 17 is **Yes**, what factor determines the amounts of buffer money

Expected sales levels	**(bmesl)**
Cost of borrowing	**(bmcb)**
Expected expenditure levels	**(bmeel)**
Others(specify)	**(bmo)**

19. What costs does your SACCO regard as associated with cash exhaustion (cash outs)?

Deterioration of credit rating	**(ccodcr)**
Cost of borrowing	**(ccocb)**
Others(specify)	**(ccoo)**

20. Does your firm have overdraft facilities? **(od)**
    i) Yes ( )
    ii) No ( )

21. For what motive does your SACCO plan for cash balances?

Motive	
Transactional motive	**(cbptm)**
Precautionary motive	**(cbppm)**
Speculative motive	**(cbpsm)**

22. From what sources does SACCO finance its cash balance?

Members deposit	**(fcbmd)**
Members share	**(fcbms)**
Long term borrowing	**(fcbltb)**
Short term borrowing	**(fcbstb)**
Interest form loans	**(fcbintl)**
Combination of short and long term borrowing	**(fcbltstb)**
Others (specify)	**(fcbo)**

23. Does your SACCO have specific opening cash balance level required at the beginning of each planning period? **(sob)**
    i) Yes ( )
    ii) No ( )

24. If your answer to question 23 is **Yes**, what factors determine the opening balance?

Expected receipts	**(sober)**
Expected expenditure levels	**(sobeel)**
Opportunity cost of holding cash	**(sobochl)**
Ease of obtaining replenishing cash	**(sobeolc)**
Others (specify)	**(sobo)**

25. Does your SACCO have a computerized cash balance monitoring system? **(ccbm)**
    i) Yes ( )
    ii) No ( )

26. How long is the loan waiting period in your SACCO? **(lwp)**
    i) 0 - 1 month ( )
    ii) 1 – 2 months ( )
    iii) 2 – 3 months ( )
    iv) over 3 months ( )

27. What does your SACCO feel about this period? **(flwp)**
    i) The period is okey ( )
    ii) The period is long ( )
    iii) The period is too long ( )

28. How often does your SACCO experience cash outs? **(co)**
    i) 0 – 5 times a year ( )
    ii) 5 – 10 times a year ( )
    iii) Over 10 times a year ( )

29. Does your SACCO ever give its members less than they qualify for in loans due to cash outs? **(lldcu)**
    i) Yes ( )
    ii) No ( )

APPENDIX 3
RAW DATA

RESPONDENT	scbp	smnl	smxl	dminop	dminsd	dminccs	dminbf	dmininf	dminmdrb	dmaxiop	dmxt	dmaxccs	dmaxbf	dmaxinf	dmaxdrb
1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
2	2	2	1	1	1	1	1	1	2	1	1	1	2	1	1
3	2	2	1	1	1	1	1	1	2	0	0	0	0	0	0
4	2	2	2	1	1	1	1	1	2	0	0	0	0	0	0
5	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
6	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
7	2	2	1	2	1	1	1	1	2	1	1	1	2	1	1
8	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
9	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
10	2	2	1	1	1	1	2	1	2	2	1	1	1	1	1
11	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
12	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0
13	2	2	2	1	1	1	1	1	2	0	0	0	0	0	0
14	2	2	2	1	1	1	1	1	2	1	0	0	0	0	0
15	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
16	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
17	2	2	1	1	1	1	1	1	2	1	1	1	1	1	2
18	2	2	2	1	1	2	1	1	1	0	0	0	0	0	0
19	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0
20	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
21	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
22	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
23	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
24	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0
25	2	2	2	1	1	1	1	1	2	0	0	0	0	0	0
26	2	2	2	1	1	1	1	1	2	1	1	1	1	1	1
27	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1
28	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
29	2	2	2	1	1	2	1	2	2	1	1	1	1	1	1
30	2	2	1	1	1	2	1	1	2	2	1	1	1	1	1
31	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
32	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
33	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0
34	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
35	2	2	1	1	1	2	1	1	1	2	1	1	1	1	1
36	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
37	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
38	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 3
RAW DATA

sclocopt	optdiop	optdst	optdccs	optdpco	optdbf	optdinf	optddrb	ptrcts	ptnexper	cp	lengthcp	ims	chcpl	chcinf	trnsmcs	bm	bmcsl	bmcb
1	0	0	0	0	0	0	0	2	1	2	2	1	0	0	0	1	1	1
1	0	0	0	0	0	0	0	4	1	2	2	1	1	2	1	1	1	2
1	1	1	1	1	1	1	2	3	1	2	2	1	1	2	1	1	1	2
2	1	1	1	1	1	1	2	3	0	2	2	1	1	2	1	0	0	2
1	0	0	0	0	0	0	0	0	0	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	3	1	2	2	1	0	0	0	1	1	2
1	1	1	1	2	1	1	2	3	1	2	2	0	1	2	1	1	1	2
1	0	0	0	0	0	0	0	2	1	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	3	1	2	2	1	1	2	1	0	0	2
1	0	0	0	0	0	0	0	3	1	2	5	2	1	2	1	1	1	1
1	0	0	0	0	0	0	0	1	1	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	2	1	2	2	1	1	2	1	1	1	1
1	0	0	0	0	0	0	0	3	1	2	2	2	1	2	1	1	1	2
1	0	0	0	0	0	0	0	0	0	2	2	1	0	0	0	0	0	1
1	0	0	0	0	0	0	0	1	2	1	0	2	1	2	1	2	1	1
2	1	1	2	2	1	1	2	1	4	2	3	2	0	0	0	0	0	0
2	1	1	1	2	1	1	1	1	2	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	1	1	2	2	1	1	2	1	0	0	2
1	0	0	0	0	0	0	0	3	1	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	2	1	2	2	1	2	1	1	1	1	2
1	0	0	0	0	0	0	0	1	1	2	2	1	0	0	0	1	1	2
1	0	0	0	0	0	0	0	3	3	2	2	1	2	1	1	0	0	2
1	0	0	0	0	0	0	0	1	1	2	5	1	1	2	1	1	1	1
1	0	0	0	0	0	0	0	0	0	2	3	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	4	2	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	4	0	2	2	1	1	2	1	1	1	2
2	2	1	2	2	2	1	2	3	1	2	0	1	2	2	1	1	1	2
1	0	0	0	0	0	0	0	1	3	2	2	1	0	0	0	1	1	1
1	2	1	1	1	1	2	1	2	2	2	2	1	2	1	1	1	1	0
1	0	0	0	0	0	0	0	3	1	2	5	2	1	2	1	1	1	1
1	0	0	0	0	0	0	0	2	1	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	2	1	2	2	1	0	0	0	1	1	2
1	0	0	0	0	0	0	0	2	1	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	2	1	2	1	1	0	0	0	1	1	1
2	1	1	1	2	1	1	1	1	2	2	2	1	1	2	1	1	1	2
1	0	0	0	0	0	0	0	2	1	2	1	1	1	2	1	1	1	1
1	0	0	0	0	0	0	0	2	1	2	2	1	2	1	1	1	1	1
1	0	0	0	0	0	0	0	2	1	2	2	1	0	0	0	1	1	1

APPENDIX 3
RAW DATA

bmeel	ccodcr	ccocb	od	cbptm	cbppm	cdpsm	fcbmd	fcbms	fcbtb	fcbstb	fcbintl	fcbltstb	sob	sober	sobeel	sobochl	sobex	cabm	imp	flwf	co
0	0	0	1	2	1	2	1	1	1	2	1	1	2	1	2	1	2	1	1	1	2
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	2	1	2	1	1	1	2
1	1	2	0	0	1	1	2	1	1	2	1	1	2	1	2	2	2	1	1	2	1
1	1	2	0	0	1	1	2	1	1	2	1	1	2	1	2	2	2	1	1	2	1
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	2	1	2	1	1	1	3
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	2	1	2	1	1	1	4
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	2	1	2	1	1	2	4
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	2	1	2	1	1	1	3
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	2	1	2	1	1	1	3
0	0	0	1	2	1	2	1	1	2	2	1	1	2	2	2	2	1	1	1	1	2
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	1	0	0	0	0	1	2
0	0	0	1	2	1	2	1	1	1	2	1	1	2	1	1	0	0	0	0	1	4
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	1	0	0	0	0	1	4
1	1	2	1	2	1	2	1	1	1	2	1	1	1	1	2	2	1	1	1	1	2
0	0	0	0	0	1	2	2	2	1	2	1	1	2	1	1	0	0	0	0	1	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1	1	2	2	1	1	1	2	1	2	1	1	1	1	1	2	1	2	1	1	1	1
1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	1	0	0	0	0	2	3
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	2	1	2	1	1	1	3
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	1	0	0	0	0	1	4
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	2	1	2	1	1	1	3
1	1	2	0	0	1	2	2	1	2	2	1	1	2	1	2	2	2	1	1	2	1
0	0	0	1	2	2	2	1	1	1	2	1	1	1	1	1	0	0	0	0	1	1
1	2	1	1	1	1	2	1	1	1	2	1	1	2	1	1	0	0	0	0	1	2
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	1	0	0	0	0	1	2
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	1	0	0	0	0	1	2
1	1	2	2	2	2	2	1	1	2	2	1	2	2	1	2	2	2	2	2	2	1
0	0	0	2	1	1	2	1	1	2	2	1	1	2	2	1	0	0	0	0	2	2
0	0	0	1	1	1	1	1	2	1	2	1	1	2	1	1	0	0	0	0	1	3
0	0	0	1	2	1	2	1	1	2	2	1	2	2	1	2	2	1	1	1	1	2
1	1	2	1	2	1	2	2	1	2	2	1	1	2	1	1	0	0	0	0	1	3
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	1	0	0	0	0	1	2
1	1	2	1	2	1	2	2	1	1	2	1	1	2	1	1	0	0	0	0	1	3
0	0	0	1	2	1	2	1	1	1	2	1	1	1	2	1	0	0	0	0	1	4
1	2	2	1	2	2	2	2	2	2	2	1	1	2	1	2	2	2	2	1	1	2
0	0	0	1	2	1	2	1	1	1	2	1	1	1	2	1	0	0	0	0	1	3
0	0	0	1	2	1	2	1	1	1	2	1	1	2	1	1	0	0	0	0	1	3
0	0	0	0	0	1	2	1	1	1	2	1	1	2	1	1	0	0	0	0	1	4

APPENDIX 3
RAW DATA

drcer	dru	drcon	drs	decer	deci	decon	des	sf	q2recode	q3recode	q4recode	q9recode	q27recode	q28recode	q29recode	q7recode
2	2	1	2	1	1	2	1	1	1	1	0	1	0	0	1	1
	2	1	1	1	2	2	1	1	1	1	0	0	1	0	1	0
	1	1	1	2	1	2	1	1	1	1	0	0	1	0	0	0
	1	1	1	2	1	0	0	0	0	1	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1
4	2	1	1	2	1	2	1	1	1	1	0	1	0	0	1	
3	2	1	1	2	1	2	1	1	1	1	0	0	1	0	1	1
2	2	1	2	1	1	2	1	1	1	1	0	1	0	0	1	1
2	2	1	1	2	1	2	1	1	1	1	0	1	0	0	1	1
	2	1	1	2	1	2	1	1	1	1	0	0	1	0	1	0
2	2	2	1	1	1	2	1	1	1	1	0	1	0	0	1	1
3	2	1	2	1	1	2	1	1	1	1	0	0	0	0	1	1
3	2	1	1	2	1	2	1	1	1	1	0	0	0	0	1	1
2	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
	2	2	1	1	1	1	2	1	1	1	1	1	0	1	1	0
3	2	2	1	1	1	1	1	1	2	1	1	1	0	0	1	1
	1	2	1	1	1	1	2	1	1	1	0	0	1	0	0	0
2	2	2	1	1	1	2	1	1	1	1	0	0	0	0	1	1
2	2	1	1	2	1	2	1	1	1	1	0	1	0	0	1	1
3	2	1	2	1	1	2	1	1	1	1	0	1	0	0	1	1
2	1	2	1	1	1	2	1	1	1	1	0	1	0	0	1	1
	1	1	1	2	1	1	1	2	1	1	0	0	1	0	0	0
	3	2	1	1	1	2	1	1	1	1	1	1	0	0	0	0
	1	2	0	0	0	0	0	0	0	0	1	0	0	0	1	0
	2	2	1	1	1	2	1	2	1	1	1	0	0	0	1	0
	2	2	1	1	1	2	0	0	0	0	1	0	0	0	1	0
	1	1	1	1	2	1	2	1	1	1	1	0	0	0	0	0
2	1	2	2	1	1	1	1	1	2	1	1	1	1	0	0	1	1
3	2	2	1	2	1	1	1	2	1	2	1	0	0	0	0	1	1
	2	2	1	1	2	1	2	1	1	1	1	0	0	1	0	1	0
2	2	2	1	2	1	1	2	1	1	1	2	0	1	0	0	1	1
	2	2	1	2	1	1	2	1	1	1	2	0	1	0	0	1	0
2	23	2	1	2	1	1	2	1	1	1	2	0	1	0	0	1	1
	3	2	1	2	1	1	2	1	1	1	2	1	1	0	0	1	1
2	2	2	2	1	1	2	2	1	1	1	2	0	0	1	0	1	1
	2	1	2	1	1	2	1	1	1	1	2	1	1	0	0	1	1
	3	2	1	2	1	1	2	1	1	1	2	1	1	0	0	1	1
	3	2	1	2	1	1	2	1	1	1	2	1	1	0	0	1	1

APPENDIX 3
RAW DATA

q8recode	q16recode	q18recode	q22recode	q22/18recode	q21recode	hypo1	hypo2	hypo3
1	1 .		0	0	0	0	0	5
1	1 .		0	0	1	0	1	4
0	0	0	0	0	1	0	1	1
0	0	0	0 .		1	0	1	0
1	1 .	.		0	1	0	1	5
1	1 .		0	0	1	0	1	4
1	1	1	0	0	1	0	2	5
1	1 .		0	0	1	0	1	5
1	1 .		0 .		1	0	1	5
1	1 .		0	0	0	0	0	4
1	1 .		1	0	1	0	2	5
1	1 .		0	0	0	0	0	4
1	1 .		0	0	1	0	1	4
1	1 .	.			0	0	0	4
0	1 .		1	1	0	1	3	5
1	1	1	1 .	.	.		2	6
0	0	1	1	0	1	0	3	1
1	1 .		1 .		1	0	2	4
1	1 .		0	0	1	0	1	5
1	1 .		0	0	1	0	1	5
0	1 .		1	0	1	0	2	4
0	0 .		0 .		1	0	1	1
1	1 .		1	0	0	0	1	4
0	1 .	.		0	1	0	1	2
1	1 .		0	0	1	0	1	3
1	1 .		0	0	1	0	1	3
0	0	1	0	0	1	0	2	0
0	1 .		1	0	0	0	1	5
1	1	0	0	0 .		1	1	4
1	1 .		0	0	0	0	0	4
1	1 .		0	0	1	0	1	5
1	1 .		0	0	1	0	1	4
	1 .		0	0	1	0	1	4
1	1 .		0	0	0	0	0	6
1	1	1	1	0	1	1	4	5
1	1 .		0	0	0	0	0	6
1	1 .		0	0	0	0	0	6

APPENDIX 4

HYPOTHESIS 1 -t-TEST

	Stratification of two groups A and B	N	Mean	Std. Deviation	Std.Error Mean
HYPO1	Group A questionnaire 1 - 30	30	3.7000	1.6220	.2961
	Group B questionnaire 31-38	8	5.2500	.8864	.3134

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. tailed)	(2-Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HYPO1	Equal variances assumed	**1.751**	**.194**	-2.584	36	**.014**	-1.5500	.5998	-2.7665	-.3335
	Equal variances not assumed			-3.595	21.035	.002	-1.5500	.4312	-2.4466	-.6534

APPENDIX 5

HYPOTHESIS 2 t-TEST

	Stratification of two groups A and B	N	Mean	Std. Deviation	Std. Error Mean
HYPO2	Group A questionnaire 1 - 30	30	1.1667	.7915	.1445
	Group B questionnaire 31-38	8	.8750	1.3562	.4795

		Levene's Test for Equality of Variances		**t-test for Equality of Means**						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HYPO2	Equal variances assumed	**1.348**	**.253**	.789	36	**.435**	.2917	.3695	-.4577	1.0410
	Equal variances not assumed			.582	8.313	.576	.2917	.5008	-.8556	1.4390

APPENDIX 6

HYPOTHESIS 3 t-TEST

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	*Variable 2*
Mean	4	4.052632
Variance	2.555556	2.830409
Observations	8	30
Pooled Variance	2.692982	
Hypothesized Mean Difference	0	
df	36	
t Stat	-0.09885	
P(T<=t) one-tail	0.460902	
t Critical one-tail	1.688297	
P(T<=t) two-tail	**0.921803**	
t Critical two-tail	2.028091	

APPENDIX 7

REGISTERED SACCOs IN NAKURU DISTRICT (ACTIVE SACCOs)

A) INSTITUTIONAL SACCOs

Name of Sacco

1. Afrasa
2. Afro Spin
3. Ardesc
4. Athinai
5. Bam Hut
6. Bao
7. Baproco
8. Beliot
9. Bellin
10. Berbena
11. Bhogana
12. Bimster
13. Bitti
14. Blanketi
15. Bsc
16. Buds and Blooms
17. C.C.I
18. Carol
19. Colobus
20. Comply Staff
21. Copro
22. Datmar
23. Delamere
24. Diatomite
25. Ebony
26. Eccosacs (Egerton)
27. Echareria
28. Economic
29. Elianto
30. Fags
31. Faida seeds
32. Fawa
33. Fibres
34. Flamingo
35. Flava
36. Freewill
37. Gicheha Rongai

38. Gogari
39. Gondetia
40. Herco
41. Hibred
42. Hyrus
43. Indu firm
44. Jokehis
45. K.G.G.C.U
46. K.P.A.W.U
47. Kabazi Canners
48. Kavau
49. Kemco
50. Keringeti
51. Kokoto
52. Lakers
53. Lami
54. Lamsons Staff
55. Lengutab tinet
56. Livewire
57. Lomolo
58. Lonalo
59. Londra
60. Longhort
61. Machinery Services
62. Majani Mingi
63. Maua
64. May Flower
65. Mbao
66. Mbeu
67. Mboga
68. Mbolea
69. Mega Spin
70. Melon
71. Menetrend
72. Metro Tech
73. Metropolitan
74. Midland
75. Migotio
76. Milmate
77. Mokamwa
78. Molo Town Council
79. Nabaico
80. Nacos
81. Nago
82. Naheco
83. Naivasha Handa
84. Naivasha Vineyard
85. Nakuru Bima

86. Nakuru County Council
87. Nakuru Prepri
88. Nakuru Teachers
89. Nakuru War Memorial
90. Nanuho
91. Natoco
92. Nawet
93. Ndare
94. Ndume
95. Njoro Canners
96. Njoro High
97. Orbit E.A
98. Orpower
99. Oserian
100. Osiepe Investement
101. P.C.E.A Subukia Boarding
102. Pareto
103. Parksons
104. Pelican
105. Pembroke Employees
106. Pharma
107. Pine Breeze
108. R.V.I.S.T.
109. Rift Province
110. Riva
111. Rock
112. Roka
113. Rongai Workshop
114. Salihi
115. Samco
116. Sawu
117. Shah Academy
118. Shelloyees
119. Sheraco
120. Shield
121. Sirbrook
122. Sokoro
123. Spin Knit
124. Sports Club
125. Subati
126. Subukia Umoja
127. Sunrise
128. Top Market
129. Tupendane
130. Tusitengena
131. Twines
132. Ugali
133. Ukombozi

134. Unga
135. Valley Hospital
136. Wanaruona

B) NON-INSTITUTIONAL SACCOs

1. A.C.K. Menengai Parish
2. A.I.C. Nakuru Shepherd
3. Athinai Small Traders
4. C.P.K Watumishi
5. Dairy Men
6. Dondori Rural
7. Jehova Jireh
8. Langa
9. Mangumu Traders
10. Molo Line Joy
11. Naivasha Mirangi Taxis
12. Naivasha Rural
13. Naivasha Town Jua Kali
14. Naivasha Traders
15. Nakuru Bidii Handicraft
16. Nakuru Cloth traders
17. Nakuru Jua Kali Food Kiosks
18. Nakuru Peace Corps Jua Kali
19. Njoro Traders
20. Olenguruone
21. Pindi Bora
22. Rutere Rural
23. Shabab Matatu Operators
24. Sunshine Jua Kali
25. Unicab
26. Wakarimu

APPENDIX 8

WORK PLAN AND RESEARCH BUDGET

Work Plan

ACTIVITY	DURATION	DATES
Proposal Preparation	8 Weeks	28th Oct. – 20th Dec.2002
Christmas Break	3 Weeks	21st Dec. – 3rd Jan.2003
Submission of Proposal	1 Week	4th Jan. – 11th Jan. 2003
Defense of Proposal	1 Week	15th Jan. – 22nd Jan 2003
Pre-testing	1 Week	23rd Jan. – 30th Jan. 2003
Data Collection	2 Weeks	31st Jan. – 13th Feb. 2003
Data Analysis and Project Report Preparation	2 Weeks	14th Feb – 28th Feb. 2003
Project Report Submission	1 Week	1st Mar. – 7th Mar. 2003

Research Budget

ITEMS	QUANTITY	COST PER UNIT	TOTAL COST
Secretarial Services (Typing , Printing)		30.00	
1 Proposal	34 Pages		1020.00
2 Project Report	55 Pages		1100.00
Binding Charges		200.00	
1 Proposal	7 Copies		1400.00
2 Project Report	13 Copies		2600.00
Photocopying Services		3.00	
1 Proposal	7 Copies (34 Pages)		714.00
2 Project Report	13 Copies (55 pages)		2145.00
3 Questionnaire	50 Copies (5Pages)		750.00
Stationery			
Foolscap	1 Realm	300.00	300.00
Assorted Pens	1 Packet	100.00	100.00
Printing Papers	2 Realms	400.00	800.00
Envelopes	1 Packet	200.00	200.00
Data Collection Expenses			9,000.00
Contingencies (@ 10% of Total Cost)			2014.00
Grand Total			**22153.00**