KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF ART AND SOCIAL SCIENCES

SCHOOL OF BUSINESS

"EFFECTS OF THE FINANCIAL SECTOR LIBERALIZATION ON SAVINGS MOBILIZATION AND CREDIT ALLOCATION BY RURAL BANKS IN GHANA"

A DISSERTATION SUBMITTED TO THE KNUST SCHOOL OF BUSINESS IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

BY

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DECLARATION

I declare that I have personally, under the supervision of Mr. Gordon Asamoah of the KNUST School of Business, undertaken the study therein submitted.

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I declare that I have supervised the student in undertaken the study submitted herein and approve it for assessment.

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LIST OF ABBREVIATIONS

FINSAP	Financial Sector Adjustment Programme
ADB	Agriculture Development Bank
ERP	Economic Recovery Programme
SAP	Structural Adjustment Programme
GDP	Gross Domestic Product
NGO	Non-Governmental Organization
FM	Frequency Modulation

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ABSTRACT

This research had sought to examine how rural banks' mode of savings mobilization and credit allocation had been influenced by Ghana's Financial Sector Liberalization Programme. This programme created conditions which enabled rural banks to increase their savings and lending through the introduction of new products, expanding the size of their operational areas and adopting much more flexible lending modes. However, the mode of lending by rural banks was linked to clients with a high probability to repay, and so favoured traders and salaried workers as against clients in other sector of the rural community.

From the study, it was realized that the introduction of FINSAP had resulted in the growth of both savings and credit allocation by rural banks in Ghana. Next, rural people even though have limited income tend to save in more than one area, for example rural banks, credit unions, "Susu" groups, non-financial savings, and among others. For rural people, the most essential reason for saving is the possibility of accessing credit in future. Savings behaviour was not dictated by the deposit rate while lending rate was a deterrent for educing credit demand.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background of the Study

The poor in rural communities have for a long time been the target of most government development programmes, yet, there is no adequate evidence to show improved living standards for them. Savings and access to credit by the poor have continued to be major constraints, but, with the establishment of rural banks, it was hoped that these constraints would ease. Like other sub-Saharan countries, rural Ghana had traditionally experienced low productivity, low income levels, low domestic savings, unemployment, malnutrition and among others. It was in this vein that the Ghanaian government, through the Bank of Ghana, established rural banks to mobilize rural savings and channel credit to productive rural ventures to promote rural development.

Ghana's rural economy (which is normally informal in nature) is dominated by small-scale producers which constitute peasant farmers, petty traders, and small-scale industrialist such as food processors, craftsmen and weavers. The informal sector is actually characterized by businesses that do not demand large capital for start-up, accounting for the dominance of informal business activities among rural communities in Ghana. Ironically, many of the people involved in these economic activities have limited income as a consequence of the nature of their businesses, hence, very low level of output.

Sadly enough, most rural communities are dominated by non-institutional credit sources such as moneylenders, relatives, friends, traders, commission agents, co-operatives, consumers, distributors of farm inputs, and processors of agricultural products. Research has shown that the most common providers of loans in rural areas are friends and relatives who usually charge no interest or require any collateral. With the rising level of poverty among most rural dwellers, social networks have begun giving way to money lenders as a major source of rural credit.

The rural poor therefore continue to depend on local moneylenders whose exorbitant interest rates coupled with unrelenting enforcement of repayment tend to impoverish them. Thus, their capacity to expand output by adopting modern methods and techniques in agricultural production and other small-scale economic activities remain a remote possibility as these require substantial capital outlay.

An attempt to alleviate these credit constraints necessitated the establishment in 1965 of the Agricultural Development Bank (ADB), which was originally, an offshot of Bank of Ghana's Rural Credit Unit. The performance of ADB was also constrained by high cost due to processing and administering of numerous loans and poor repayments. In effect, small–scale rural producers were discriminated against in the granting of credit, as collateral security demanded by ADB favoured traders and large-scale commercial farmers than the rural poor and small-scale farmers.

These constraints made it obvious that a specialized rural financial intermediary that understood the circumstances of the rural poor was needed to mobilize savings and redistribute credit; otherwise, the hope of small-scale rural producers to expand their productive capacities was bound to be in danger. The Bank of Ghana in line with the Banking Act of 1970 undertook a study into rural credit needs of the country, which culminated in the introduction of rural banking in 1976. The cardinal objective of rural banks was to mobilize rural savings for the economic development of rural communities, and to ensure the availability of institutional credit to rural dwellers, thereby assisting them to increase their production and raise their standards of living with the first rural bank was established in 1976 at Agona Nyarkrom in the central region of Ghana.

This study seeks to find out how rural banks are able to mobilize savings in the generally poor rural environment, and how these savings are channelled to the poor for improvement in their economic activities especially, with the implementation of Ghana's policy of financial sector liberalization programme.

1.2 The Financial Sector Liberalization

The desire of governments, particularly those of developing countries to accelerate economic development in order to raise the level of welfare of their people always bring to the fore, the importance of savings and investment.

However, in a developing country like Ghana, where majority of the people live in rural areas with limited banking services, it was estimated that about 40% of money in supply remain immobilized (Governor of Bank Of Ghana, 1997).

The low financial savings in rural areas of Ghana seems to suggest that there was inadequate financial resource that consequently led to low investment and low growth rate. This low savings reinforced the cyclical trend whereby low savings lead to low investment, low output, low growth rate, low incomes and back to low savings.

However, there was increasing evidence (IPC, 1988) that rural people have an alternative way of savings, which was done in non-financial or rural assets. This could be due to lack of banking services, unattractive interest rate on savings, inability of banks to effectively market their products (lack of innovation), lack of confidence in banks, and people's high expectations on return from non–financial assets.

The banking sector became insolvent as a result of bad management practices in the face of governmental controls. There were ceilings on interest rates and credit, which resulted in the inefficiency of resource allocation and investment. The precipitation of these conditions necessitated the Economic Recovery Programme (ERP) to be launched and implemented by the government of Ghana in 1983 to reverse the deterioration of the economy and to stabilize it through macroeconomic measures. Within the first few years of implementing ERP, it became apparent that the structures of institutions were becoming an impediment to development and progress. In consultation with the IMF and the World Bank therefore, the government decided to shift the emphasis of the ERP toward Structural Adjustment Programme (SAP). The objectives of the SAP included:

- To stimulate growth by encouraging savings and investment and strengthen the balance of payment.
- To improve resource use and direct resources to key areas of adjustment while ensuring fiscal and monetary stability.

As part of the SAP, the Financial Sector Adjustment Programme (FINSAP) was also launched in 1987 to improve the financial sector. The aim was to arrest the financial system of the economy that had become dysfunctional as the result of years of state control as well as poor policies and regulations.

The major reforms which specifically applied to the rural banks included:

- Amendment of the Banking Law to set capital adequacy and reserve requirements;
- Deregulation of interest rates and the abolishment of direct controls on credit;
- Introduction of restructuring plans and measures to reduce operating costs of banks to improve their efficiency.

With the financial sector liberalization, rural banks have asserted greater influence through financial intermediation in the rural communities in Ghana.

1.3 Problem Statement

Rural banking was introduced in rural communities in Ghana primarily to mobilize idle funds and channel them into productive economic activities such as farming, cottage industries and trading. Savings by rural banks have grown from year to year as the number of banks, their agencies and account-holders have increased.

The questions that arose in an attempt to address the problem of the impact of banking activities on rural savings mobilization in its catchment areas were as follows:

- What has been the trend in deposits from 1976-2006?
- What is the pattern of savings in terms of duration?
- How has the establishment of urban agencies affected the volume and pattern of deposits?

- What products have the banks developed over the years to mobilize savings and what has been the impact of these products on savings and supply of credit?
- To what extent have the banks mobilized deposits affected the supply of credits?

1.4 Study Objectives

The main purpose of this study is to determine the impact of rural banks on rural savings mobilization. The following specific objectives are also intended to be achieved:

- To describe the trend in deposits from 1976-2006
- To analyze the pattern of savings in terms of duration
- To determine the effect of established agencies on the volume and pattern of deposits
- To identify products developed by the bank to increase savings.
- To assess the extent to which the bank's savings have affected the supply of credit.

1.5 Relevance of the Study

There is adequate justification for research into the impact of the rural banking system on savings mobilization. The study concerns a sector that has majority of Ghana's population forming the productive banes of the economy and contribute substantially to GDP, and yet, receives less attention in terms of financial resources than it serves.

The main issues to be studied involves inadequate savings and lack of access to credit that has been cited as two of the major factors responsible for low output and small size of agricultural enterprises in Ghana, especially into the rural areas (Financial Post, 2001). The current study seeks to address issues concerning the establishment of agencies in the urban centers, its impact on savings mobilization and the supply of credit to agriculture. The research findings would give policy recommendations to the central Bank of Ghana to either review or uphold its policy guidelines on the establishment of urban agencies.

1.6 Hypotheses

The following hypotheses were formulated and tested for the study.

1. H_0: There is no effect of FINSAP on the mode of savings mobilization by rural banks in Ghana.

   H_1: There is a positive effect of FINSAP on the mode of savings mobilization by rural banks in Ghana.

2. H_0: There is no effect of FINSAP on credit allocation by rural banks.

   H_1: There is a positive impact of FINSAP on credit allocation by rural banks.

1.7 Scope of the Study

The scope of the study covers rural banks in the entire country with much emphasis on their ability to mobilize savings and how they intend to improve the economic activities of people in rural communities in Ghana. Next, secondary data on these rural banks from 1976 to 2006 were sourced and also be used.

1.8 Limitations of the Study

The study faced a number of limitations. Among others included the use of proxy variables and lack of up-to-date data on most of the variables. Further, due to the scope of the research, time was also a limiting factor.

1.9 Organization of the Study

The study is presented in five chapters. Chapter one comprises the general background information of the study, problem statement, objectives of the study, relevance of the study, hypothesis, scope of study, limitations and organization of the work. Chapter two is dedicated to the review of literature relevant to the study on historical, theoretical and empirical basis. Chapter three outlines the methodology used in the study. Chapter four discusses the results and analysis of data from rural banks used in the empirical work. Finally, chapter five presents the conclusions and policy recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews the historical, theoretical as well as empirical frameworks with respect to the effects of financial liberalization on savings mobilization and credit allocation by rural banks.

2.1 Historical Framework

The economy of Ghana began to show signs of deterioration since the early 1970s. The productive capacity of industries fell coupled with a decline in output as a result of lower output of major commodities such as cocoa, timber and minerals in 1983. Terms of trade were against the country, resulting in persistent balance of payment deficits.

The banking sector became insolvent as a result of bad management practices in the face of governmental controls. There were ceilings on interest rates and credits, which resulted in inefficiency of resource allocation and investment. The precipitation of these conditions necessitated some reforms which were espoused by the Bretton-Woods institutions and other donor agencies captioned, the 'Economic Recovery Programme' (ERP) in the mid 1980's.

The ERP was launched by the government of Ghana in 1983 to reverse the deterioration of the economy through macroeconomic measures to stabilize the economy. Within the first few years of implementation of the ERP, it became apparent that the structures of institutions were becoming an impediment to development and progress. In consultation with the IMF and the

World Bank therefore, the government decided to shift the emphasis of the ERP toward Structural Adjustment Programmed (SAP). The objectives of the SAP included among other things:

- To stimulate growth by encouraging savings and investment and strengthen balance of payment position of the economy.
- To improve resource use and to direct resources to key areas while ensuring fiscal and monetary stability of the economy.

As part of the SAP, the Financial Sector Adjustment Programme (FINSAP) was also launched in 1987 to improve the financial sector. The aim was to correct the financial system of the economy, which had become dysfunctional as a result of years of state control as well as poor policies and regulations.

Specifically, the major reforms included:

- Amendment of the Banking Law to set capital adequacy and reserve requirement for the financial sector;
- Strengthening the regulatory environment through the enactment of the banking, Non-Bank Financial Institutions and Securities Industry Law;
- Deregulation of interest rates and the abolishment of direct controls on credit;
- Setting up of a functioning Ghana Stock Exchange;
- Partial freeing of the market for government treasury instruments;
- Liberalization of the market for freeing exchange;
- Introduction of restructuring plans and measures to reduce operating costs of banks to improve their efficiency; and

- The setting up of the Non-Performing Assets Recovery Trust (NPART) to exchange the non-performing assets held by banks for Government of Ghana Bonds.

The establishment of rural banks was to mobilize savings which otherwise would have remained with rural dwellers for spending, kept in unsafe places or even turned into non-financial savings. By the end of 1998, the deepening financial intermediation process of the rural banks had resulted in total of 133 banks with over 340 agencies (Kumah, 1998), some of which were even in operation against Bank of Ghana's regulations (Bank of Ghana Notice No. BG/RB/87/4).

With respect to granting of credit, there was ample evidence that rural banks granted sizeable credit for agriculture, trading, small-scale or cottage transport and other social and domestic purposes (Asiedu–Mante, 1986). Credit of banks increased as savings increased, but showed changes in structure with the implementation of financial sector liberalization in Ghana. The sector labelled 'Others', (comprising loans mainly for social, domestic, education and health activities *et al*, dominated by salaried workers), and 'Trading' assumed growing importance, thus replacing agriculture, the priority sector under the period of financial repression (Agbogah and Essel, 1999). This was confirmed by the findings in IFAD AFRACA (2000) that financial sector reforms have resulted in the withdrawal of governments and Central Banks from lending to the agricultural sector as against the period of directed credit.

Interestingly, rural banking in Ghana had gone through periods of financial repression through to that of financial liberalization. Even though it was apparent that under the financial sector liberalization in Ghana, savings mobilization and credit allocation by rural banks have increased, it was yet to be seen and confirmed that extend of these hypothesized aspects of financial liberalization (macro) on the rural banking industry (micro) and what mode of savings mobilization and credit allocation were responsible for these.

2.2 Some Theoretical Approaches

2.2.1 Analytical Background

Financial liberalization entails reforms along a number of distinct but interrelated dimensions: liberalization of the interest rates, reduction in reserve requirements, partial or complete abandonment of directed credit, privatization of the banking and wider financial sector, establishing and fostering the development of securities markets. The above exercises in deregulation and building of market mechanisms were expected to be accompanied by an exercise in re-regulation; measures that enhanced the competitiveness of the financial environment and guarantee the soundness of operations through increased prudential oversight.

Finally, the reforms adopted on the domestic front may be accompanied by measures that increased openness. All these reform measures, individually and in combination, were expected to affect savings and investments through their effect on asset returns, their characteristics, and, on the availability and allocation of credit. We discuss in turn the models that may shed some light on the anticipated effects of financial liberalization through each one of these prime channels of influence.

2.2.1a The Interest Rate Channel

Since McKinnon (1973) and Shaw (1973), the presumption was that growth in a financially repressed environment was hindered primarily by the low level of savings, not the lack of investment opportunities. Controlled interest rates reflect capital scarcity inaccurately, inducing inefficient misallocation of resources. They prohibited appropriate risk-taking by financial institutions, as they eliminated or reduced the scope for risk premia. Lifting controls on interest rates, allowed them to increase to levels that stimulate higher savings.

Assuming a strong responsiveness of savings to interest rates, higher interest rates were expected to reduce disintermediation. Within this optimistic framework, financial liberalization produces higher interest rates and higher savings that, in turn, induces higher and better quality investment, and, ultimately economic growth. Of course, within the standard intertemporal model the effect of a change in interest rates on consumption and saving was ambiguous. Thus, its income and substitution effects work in opposite directions. A higher return on savings raises the stream of future income and wealth, raising current consumption. At the same time, postponing current consumption allow for higher future consumption, as returns on savings had gone up. In such a framework the intertemporal elasticity of substitution is crucial in determining the direction of change in savings that follows an increase in the interest rate.

Further, Ogaki, Ostry and Reinhart (1996) had shown that the intertemporal elasticity of substitution may itself depend on the level of permanent income or wealth of a country. If households must first achieve subsistence consumption level, and then allow intertemporal considerations to guide their consumption choices for the residual of their budget left after subsistence needs are met, then, in countries where the representative household consumption was close to subsistence levels, consumption and savings would be insensitive to changes in real rate of interest in wealthier countries, consumption would decline and savings would increase following an increase in the real interest rate.

2.2.1b The Credit Channel

Not all households have access to credit markets. Consequently, some households have no ability to smooth consumption over time, at least through intermediation afforded through the formal financial sector.

Liquidity constrained households determine their consumption and savings on the basis of their current income. Relaxing the liquidity constraints on borrowers that used to be rationed out of the market, may produce a consumption boom and a decline in aggregate savings. The more binding the constraints and the greater the proportion of constrained consumers before the liberalization of the financial markets, the greater the consumption boom that may be expected after the reforms. The idea that aggregate consumption and savings patterns respond not just to changes in permanent income, but also to changes in current income was associated with the work of Campbell and Mankiw (1989, 1993). Hence, a reduction in reserve requirements would make more resources available for lending, especially to households. Also, a redirection of credit may also favour consumers, loosening their liquidity constraints. At the microeconomic level, a privatized and more competitive banking sector may search additional business for consumer lending.

Many of the past liberalization episodes unleashed a period of rapid growth in bank lending, asset price booms, and increases in consumption that often coincided with a decline in private savings rate. Many of those episodes also ended in a full-fledged financial crisis. Hence, no analysis of savings was complete without an assessment of the pervasiveness of liquidity constraints.

2.2.2 Theoretical Framework

There are some theoretical approaches to the understanding of consumption and savings behaviour. Among those relevant for our study was the life cycle model by Franco Modigliani (1983), which posits that individuals smooth consumption over their lifetimes, with income earnings low in early life, high in mid-life and low in retirement. This hypothesis suggests that savings follow the same pattern in order to smooth consumption; and with the prediction that rates of savings and consumption would be affected by the stock of wealth, the rate of growth of per capita income, and demographic factors such as life expectancy, the normal age of retirement, age distribution, family size and the size of the working population. However, Carrol and Summers (1991) showed for three industrial countries and Deaton (1989) for developing countries, that actual age-consumption profiles are not consistent with the predictions of the life–cycle theories, thereby undermining the empirical importance of this mechanism.

One of the works most relevant in explaining savings behavour among the poor was that of Angus Deaton (1989). He contended that savings was not only about accumulation but also of smoothing consumption. Deaton (1989) provided instances where the life-cycle hypothesis becomes 'dented'. These include situations where;

- Income derived from agriculture or other commodities were unpredictable due to factors such as climatic changes and unfavourable terms of trade for unprocessed products. In such a situation, savers would tend to smooth their consumption in the face of substantial income volatility (Deaton, 1989) and,
- Rural poor households have no need for accumulated or retirement savings in view of the fact that in developing countries, households tend to be only large but have generations living and sharing resources together.

The works of Giovannini, (1983, 1985) Fry (1978, 1980), Mason (1986, 1988) and Collins (1988) on the other hand, relates savings to GDP. They saw GDP growth rate as an important factor that had a positive and usually significant effect on savings. One other factor seen to be very important in explaining savings behaviour was interest rate. During periods of financial repression, governments impose low administered interest rate to help finance the public deficit at an interest rate lower than inflation, and this imposes economic costs by distorting the economy in at least four ways, as pointed out by Roe and Popiel (1990). These were:

- A bias develops in favour of current consumption as opposed to savings.
- Disintermediation takes place because savers may be encouraged to invest in their own low-yielding instruments.
- The private sector suffers through a squeeze on private credit, whilst at the same time, mobilization and allocation of financial resources is impaired.
- A bias towards capital intensive projects.

In such a situation, the bank's ability to lend was drastically reduced, denying actual and potential rural entrepreneurs the wherewithal to expand and sustain their operations. The introduction of financial sector reforms was therefore seen as a corrective measure for the removal of the economic distortions to allow financial institutions to function competitively. The degree of distortionary controls and their effects in the financial system vary across countries. However, the frequently observed characteristic can be divided into three related categories namely:

- ✓ financial repression,
- ✓ non-competitive behaviour, inefficiency and underdeveloped capital markets, and;
- ✓ institutional weakness.

The removal of these characteristics was the objective of financial market reforms. The move towards deregulated interest rates involves a shift from negative to positive levels and subsequent market determination of the market equilibrium rate. However, if the inflation rate remains high and unpredictable, and the financial condition of bank borrowers was fragile, there was a risk that banks would bid interest rates to unrealistically high levels to fund continued loans to risky borrowers. Credit rationing (in the form of interest rate ceilings) in such conditions may be desirable as it minimizes the problem of adverse selection in banks' portfolio of loans (Stiglitz, 1981).

Proponents of financial liberalization posit that savings was a function of deposit rate of interest, and that increasing the interest on deposits does not only increase savings, but also, rations out many low yielding investments previously financed, thus, increasing the average efficiency of investment. McKinnon (1973) and Shaw (1973) were two of the best proponents of this theory. They proposed that the positive relationship between savings and interest rates was relevant for developing countries only when those countries were liberated from financial repression, hence, freeing interest rates from governmental controls. The McKinnon-Shaw hypothesis therefore espoused that financial liberalization increases savings as well as credit. This was supported by Fry (1978) and Belassa (1989) who found statistical evidence that higher real interest rates contributed to higher real savings. Fry (1988) however conceded in his recent book that though the coefficient was statistically significant, the magnitude of the effect was small. In contrast to Fry's work, Giovannini (1983) found out that interest rate did not contribute significantly to explaining savings, and that the earlier work of Fry was accounted for by two observations in Korea in the 1960's when interest rates were very high. Re-informing Giovannini's assertion and refuting the McKinnon-Shaw hypothesis was Diaz Alejandro (1983) among others, who contended that there was no theoretical justification for real rate of interest to be positively related to aggregate savings. This suggests that there was no easy way to establish the positive responsiveness of savings to interest rate changes.

It was within the framework of these proposition of McKinnon and Shaw (1973) Giovannini, (1983, 1985) Fry (1978, 1980), Mason (1986, 1988), Collins (1988), et al, that we looked at how financial sector liberalization in Ghana had affected the mode of savings mobilization and of credit allocation by rural banks. This study becomes more important because it concerns a sector that employs majority of Ghana's population, forms the productive base of the economy and contributes substantially to GDP, and yet receives less attention in terms of financial resources than it deserves. If the rural sector continues to be under-resourced in terms of finance in spite of the establishment of rural banks, then, there was the need to examine closely the sources of rural bank finance as well as the mode of funds distribution.

2.3 Review of Empirical Literature

The empirical literature tends to reflect the theoretical ambiguities presented above. Though it mostly confirms the separate importance of subsistence consumption and the pervasiveness of liquidity constraints for the understanding of saving patterns in developing countries, it remains inconclusive on their relative weight and their ultimate combined effect on savings after financial reform. There was little consensus, however, on the interaction between savings and the real rate of interest. Some research detected only unimportant effects of changes in real interest rates on domestic savings in developing countries. For example, Giovannini (1985), who examines this issue for eighteen developing countries, concludes that for the majority of cases, the response of consumption growth to the real rate of interest was insignificantly different from zero. One should therefore expect negligible responses of aggregate savings to the real rate of interest.

In a model with a single consumption good, Ostry and Reinhart (1992) confirmed these findings. However, when they use a disaggregated commodity structure to account substitution between traded and nontraded goods, they found higher and statistically significant estimates of the sensitivity of consumption to interest rates. On the other hand, Ogaki, Ostry and Reinhart (1996) established that, where subsistence consumption considerations are important, the savings elasticity was not very sensitive to the level of the real interest rate. In their results, if the country in question was at the lower end of the income spectrum, higher savings rate may not follow, even after large increases in real interest rates. The growth effects of higher interest rates would also tend to be small for the relatively poor countries. Savings may be less responsive to changes in real interest rates in low-income than in middle-income countries because of the way the credit channel was working in less developed financial systems.

Rossi (1988), for example, argued that in low-income developing countries that are characterized by pervasive liquidity constraints, consumption growth was more likely to follow income growth than changes in expected rates of return. The empirical evidence confirms the pervasiveness of liquidity constraints in many developing countries. However, Haque and Montiel (1989) highlight that the severity of these constraints varies considerably across countries.

Vaidyanathan (1993) also found that financial liberalization in developing countries reduced the severity of borrowing constraints. Although no direct tests were undertaken, the implication would be that financial liberalization, by reducing the fraction of households for which liquidity constraints are binding should increase the interest-rate sensitivity of private savings.

Bayoumi (1993) shows that in an overlapping generations framework, deregulation increases the sensitivity of savings to wealth, current income, real interest rates and demographic factors. Following deregulation, savings declined, to recover only partially over time. The scenario was tested successfully with U.K. data. Though his results imply that much of the decline in savings was caused by the rise in wealth, financial deregulation also played an important role.

Lehmussaari (1990) provided a similar evidence for a sharp decline in savings and increased sensitivity of consumer responses to real wealth after deregulation in the Nordic countries, testing a model inspired by the life-cycle tradition. Jappeli and Pagano (1994) generalized the decline-in-savings result for the OECD countries for the period from 1960 to 1987. In their overlapping generations model, capital market imperfections, in the form of liquidity constraints on consumers, increase saving and strengthen the effect of growth on saving. Their empirical tests suggest that deregulation of the 1980's contributed to the decline in savings in the OECD countries.

Bandiera *et al.*,(2000) attempted thoroughly to assess the impact of financial liberalization in a sample of eight developing countries Chile, Indonesia, Korea, Malaysia, Mexico, Turkey, and from Africa, Ghana and Zimbabwe form 1970 to 1994. In country-by-country estimations, they found no evidence of a positive effect of the real interest rate on saving. In most cases the relationship was negative, and significant only in the cases of Ghana and Indonesia. The effects of the financial liberalization index were mixed; they were negative and significant for Korea and Mexico, but, positive and significant for Turkey and Ghana. The long run impact of liberalization was sizeable. Corresponding to the realized change in the index, the estimated model indicated a permanent decline in the savings rate of 12% and 6% in Korea and Mexico, and a rise of 13% and 6% for Turkey and Ghana respectively. Nevertheless, they were not able to pin down whether financial liberalization relaxes liquidity constraints. In summary, they identified no strong and reliable real interest rate effect on saving, while the aggregate liberalization index had a mixed record.

Although empirical work by Cho (1988) for the case of Korea and by Galindo, Schiantarelli, and Weiss (2002) for several developing countries suggests that financial liberalization has been associated with a substantial improvement in the efficiency of credit allocation in these countries, allocative efficiency was intrinsically hard to measure and we would, therefore, leave this topic to future research.

Love (2003) studies the relationship between financial development and financing constraints on a firm-level for a sample of 40 countries. She found a strong negative relationship between the sensitivity of investment to the availability of internal funds and an indicator of financial market development, and concludes that financial development reduces the effect of financing constraints on investment. This result provided evidence for the hypothesis that financial development reduces informational asymmetries in financial markets, leading to an improvement in the allocation of capital and ultimately to a higher level of growth.

The main issues to be studied involved inadequate savings and lack of access to credit, which have been cited as two of the major factors responsible for low output and small nature of enterprises in Ghana, especially the rural areas. The introduction of the financial section liberalization was therefore expected to create conditions or modes that would make available more savings and credit for investment purposes. Under financial liberalization, unfortunately, competition among the commercial banks seems to have improved savings but restricted credit to medium and large-scale enterprises, thus leaving a gap (unfinanced micro enterprises) to be filled by rural banks. It therefore becomes imperative for such a study to ascertain the effect of financial sector liberalization on the rural banking sector.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter reviews the main methodological issues that impinge upon the specification, and methods employed to gather data for the study.

3.1 Research Design

To conceptualise the problem and place it in a perspective that would aid data collection and analysis, and produce results that are not misleading, a good research design must be developed (Singleton, Jnr. *et al.*, 1993). It therefore behoves the researcher to ensure a proper design to achieve good results.

3.1.1 Sampling

Ten rural banks were selected randomly with one from each region respectively. Those that were not able to provide the required data were replaced using purposive sampling technique. The respondents (*that is* savers and credit beneficiaries) were selected using the random and convenient sampling techniques. The convenient sampling technique was adopted alongside random sampling because of the difficulty in reaching rural bank's clients many of whom were geographically dispersed, coupled with the absence of some of them.

3.1.2 Fieldwork

Access to research sites was one of the ethical requirements which often receive very limited attention in research. In Ghana, both public and private organizations have specific regulations which govern the conduct of research and the release of information to non-employees. Thus, permission to study the organization was sought from top management for which approval was given. Various categories of workers who had been selected for interviewing were contacted with the support of officers who had been appointed to assist in the administration of the questionnaires.

To ensure confidentiality and avoid being reported by colleagues for giving certain information, and more so, to avoid one's answer influencing the other; respondents were interviewed on a face-to-face basis. The researcher did field editing by checking that all questions in an interview schedule were answered and clearly marked, and made sure that responses were consistent. Questionnaires which had many of the questions unanswered, especially those bordering on explanations to answers, were given back to respondents to complete fully. Thus, the results obtained from the survey were adequate for the study because the questions were well answered and responses were very encouraging.

3.1.3 Questionnaire

The questionnaire was one of the main instruments for gathering data from respondents. From 'the angle of how usable a research tool` such as the questionnaire might be, Oppenheim (1992) advises that, questionnaires should be easy to administer. In addition to this, he points out that, there was the need to make the content of the questionnaire user-friendly. Robson (1993) indicated that the best quality of answers was likely to be gained from specific questions about important things. Oppenheim (1992) adds that questions should be worded simply because questions which were phrased in terms that were too sophisticated for the target group were likely to be unproductive in applied research. Indeed, the researcher suggests that questions should be phrased so that they are tailored specifically for the target group or respondents. In this context, they advised that pejorative terms and leading questions should be eliminated since they may bias the survey results. Oppenheim (1992) remarks that vague questions should be avoided since they were likely to lead to meaningless responses.

All the questionnaires were filled in during the interviews by the interviewees themselves. The interviewees were asked to fill the questionnaire in and encouraged to
'think aloud' or to comment on the issues in the questionnaires as they filled them in.

The questionnaire consisted of closed ended, followed by open-ended ones which sought to probe further. This allowed a broad coverage of theoretical issues that the study aimed to address. Although only one type of instrument was designed and used to collect data from all respondents in the survey, the mode of administration differed from one category of respondents to the other.

3.1.4 Administration of Questionnaires

There are three main procedures through which questionnaires can be administered in a survey. These are the self-completion, face-to-face (interview survey) and telephone interviews (Robson, 2002). In this study, the administration of the questionnaire involved both self-completion and interview survey methods. The respondents, who were randomly selected, had different levels of educational abilities. The interview survey was therefore used to encourage full participation of all members, irrespective of their level of educational background and abilities.

3.1.5 Self-Administered Questionnaire

This method was used to elicit information relevant to the research from management and some workers of selected rural banks operating within the country. The questionnaires were hand-delivered and that ensured that the exact respondent received and filled them out appropriately. In addition, the method gave respondents a high degree of confidence and a sense of privacy which allowed them to provide information at their own time and pace.

3.1.6 Face-to-face interviewing

Interview questionnaire were designed for managers and some selected workers of rural banks. Although the interviews were structured, there were situations where further probing became necessary based on the type of answers the respondents provided and the kinds of questions they posed from the interactions between the interviewees and the interviewers. Besides, the use of the face-to-face interview, the researcher ensured that all questions were answered and all responses were received which saved time, reduced call backs and questionnaire mortality rate.

3.1.7 Secondary Data

The existing data documentary sources including published literature, office files/records, personal records and internet search for current publications and information were evaluated and used for the study. The relevant information from these sources was reviewed t ensure proper understanding of the subject of investigation. It also helped to give insight into existing information on the subject and identify gaps between old and current knowledge, and how these gaps could be addressed by the study or further investigated.

It should also be noted that though the literature was readily available on developing countries, access to such information on the Ghanaian situation in the area of study was difficult to obtain. This was due to the fact that such information was not readily available and where it could be obtained, such documents were mostly outdated and sometime classified.

3.1.8 Data Management

This consisted of editing and data entry. All the items in the questionnaire were coded after the office editing to detect and eliminate any error. The SPSS for Windows software was used to key in the data. The computer editing was done as soon as the keying of the data was completed.

Again, the descriptive approach was used to render in detail the analysis and presentation of results of the study. Finally, the study intended to explain the effect of financial liberalization on savings mobilization and credit allocation by rural banks in Ghana. Descriptive statistics involving tables, graphs and among others were used in addition to regression analysis to present the findings. The regression analysis was employed to help identify the factors influencing savings and credit and the extent to which they can explain savings and credit behaviour of rural banks.

3.2 Modelling Strategy

Three phases of the study was adopted to have a holistic view of the savings mobilisation and credit allocation functions of rural banks. The choice of five regions was based on the time constraint and anticipated high cost of the project.

The first phase covered secondary data on savings and credit of rural banks before and after FINSAP. The second phase covered in detail satisfactory data on rural banks which have been in operations since 1983; and the third consisted of information on credit beneficiaries from twenty banks in five regions, namely, the Northern, Brong Ahafo, Ashanti, Eastern and Central regions.

3.3 Modelling a Savings Mobilization and Credit Allocation Function by Rural Banks in Ghana

Numerous variables have been put forward in the literature as potential determinants of savings and credit allocation. The various specifications of a savings function can be classified into groups. The first specification, the most widely utilized, considers interest rate as the principal determinant of savings mobilization. The model was built as:

$$S = f(Y, R_i) \qquad (1)$$

Where S is savings mobilization, Y is domestic income and R_i, the interest rate.

Furthermore, loans and advances (Cr), dummy variable were often introduced to capture particular events that can influence savings mobilization and credit allocation by rural banks. Thus the savings mobilization function by rural banks is specified as:

$$S = f(Y, R_i, Z) \qquad (2)$$

Where Z includes other potential determinants of savings mobilization.

The general function to mobilize savings by rural banks is shown as:

$$Rsr_t = \beta_o + \beta_1 Rgdpt + \beta_2 Rs_{t-1} + \beta_3 Rc_{t-1} + \beta_4 Dum + U_t \qquad (3)$$

Where:

Rsr_t = real savings rate at period t.

$Rgdp_t$ = domestic activity variable under conventional savings formulation at period t.

Rs_{t-1} = real savings rate of previous period t.

Rc_{t-1} = credit (loans and advances) of previous period t.

U_t = error term capturing all other variables influencing savings not explicitly included in the model.

A dummy variable was introduced to capture the effect of financial liberalization on savings mobilization where '0' denotes periods before liberalization and '1' for post liberalization period of financial liberalization. Financial liberalization through easing access to savings is likely in larger savings mobilization in the economy.

Based on a priori expectations, changes real GDP, real credit and real savings for the previous year were expected to induce positive changes in real savings.

On credit allocation, lending rates have proven to influence credit allocation by rural banks, thus:

$Cr = f(Lr)$……………………………………………………………………………..(4)

Where Cr denotes credit allocation and Lr is the lending rates.

Formulating a generalized credit allocation by rural banks and its determinants is shown as:

$Rc_t = \beta_o + \beta_1 Rlr_t + \beta_2 Rc_{t-1} + \beta_3 Rs_{t-1} + \beta_4 Dummy + U_t$…………………………………..(5)

Where:

Rc_t = real credit allocation at period t.

Rlr_t = real lending rates by rural banks at period t.

Rc_{t-1} = previous real credit allocation at period t.

Rs_{t-1} = real rate of savings of previous period t.

U_t = error term which captures other determinants not included in the model but have some influence n real credit allocation by rural banks in Ghana.

Real lending (interest) rate is expected to positively or negatively influence the level of credit allocation by rural banks, coupled with previous rate of savings and credit allocation.

Since economic as well as financial theory does not provide any a priori criteria for selecting an appropriate functional form, the question of choice then becomes an empirical problem.

3.4 Variables Used, Data Set and Sources

Inadequacies of existing statistics have often discouraged researchers performing quantitative studies in Ghana. Analyzing the effect of financial liberalization on the pattern and determinants of savings mobilization and credit allocation by rural banks in Ghana in a time series perspective has proved to be an important task because of the complications that arise in compiling a suitable data set.

All time series incorporated annual observations which were transformed into natural logarithms. All the data series were transformed into their logarithmic form in order to achieve stationarity in mean and variance. The time series used were valued in real terms (i.e. constant prices). Data was mainly collected from Bank of Ghana Quarterly Bulletins, although some sources from IMF's International Financial Statistics (various issues), Ghana Statistical Service Quarterly

Reports were also used. However, most of the series were constructed from secondary sources. Statistical Package for Social Sciences (SPSS) was used to run the regression.

CHAPTER FOUR

DATA ANALYSIS AND MAIN FINDINGS

4.0 Introduction

This chapter discusses and investigates the empirical results of the variables used and interprets them accordingly.

4.1 Results of Determinants of Savings Mobilization by Rural Banks

The estimation results of equation (3) as presented in Table 1, suggests that the relationship between savings and its explanatory variables were generally, highly Ghana.

Table 1: Estimated Coefficients of Factors Determining Real Savings Mobilization

Regressors	Overall (1976-2005)	Pre-FINSAP (1976-1987)	Post-FINSAP (1988-2005)
Constant	0.0416	0.074	-0.0654
	(0.872)	(1.678)	(-0.246)
Rsr_t	0.0003	0.006	-0.0006
	(0.388)	(1.119)	(0.223)
$Rgdp_t$	-0.0055	-0.0050	0.0025
	(-1.099)	(-1.327)	(0.49)
Rs_{t-1}	0.6717***	0.667**	0.7354
	(3.223)	(2.254)	(1.49)
Rc_{t-1}	0.9802**	0.847	1.1476
	(2.286)	(1.081)	(1.18)
R-squared	0.94	0.93	0.89
F-Statistics	62.66***	16.47***	17.81***
ρ-value	0.00	0.00	0.01

Notes: a) The figures in parenthesis refer to the T-statistics of the corresponding estimates.

*b) **, *** denotes statistical significance at the 5% and 1% levels respectively.*

significant (with respect to their probability values close to 0.00 levels for overall, pre and post FINSAP) affects savings mobilization and credit allocation by rural banks in Ghana.

On *a priori* grounds, changes in real savings rate, real GDP, real credit and savings rate for the previous period were expected to induce changes in real savings. It can be inferred from the coefficient of domestic activity that aggregate savings mobilization in all the period under consideration was income elastic; including that, with a one per cent increase in income, there would be a 0.0055 per cent fall in savings mobilization by rural banks. The elasticity of income was negatively signed and significant at the 1% level (for overall and pre-FINSAP periods). The result suggests that rural incomes were already generally low, so that any increase in income will possibly filter into consumption rather than savings. This was confirmed by the result of Aryeetey *et al.*, (1991) using per capita income in explaining private savings in Ghana. The gradual positive rise in credits after FINSAP was an indication of possible gradual growth in rural income, probably, resulting in more credits extended to rural people.

In both pre and post FINSAP periods, the estimates for past real credit was not significant, implying that credit granted the previous year was not a strong factor in determining savings in the current year. Savings for the previous year in the pre-FINSAP period was encouraging, but insignificant in the post-FINSAP era. The previous year's savings in pre-FINSAP period was a strong reason for changes in the level of current savings. This may be true because of experiences from the demonetization's exercise, bumper harvest leading to high growth rate and the channeling of worker's salaries through banks located in rural areas in the mid 1980s.

Next, the estimated coefficient of real deposit of real deposit rate registered the expected positive sign for the pre-FINSAP period, although the post-FINSAP recorded a negative sign (i.e. Rsr). In all cases, the estimate was not statistically significant and therefore showing that real deposit rate over the sample period may be a weak factor in the determination of the level of savings. Additionally, in the post–FINSAP period, the negative estimated coefficient could be attributed to the gradual rise in the rate of inflation from the mid-1990s in the face of low deposit rate (i.e. between 13% and 18%) offered by rural banks in Ghana. This was confirmed by data from fieldwork, which indicated that majority (77.6%) of rural banks savers did not know or have any idea about the level of interest rate that should accrue on their savings per annum (see Table 2).

This was due to the fact that, prior to FINSAP, savings was considered as important collateral for granting credit. It was not until late 1985 that the Accounting Manual for Rural Banks issued by the Bank of Ghana made it a requirement. On the other hand, the post–FINSAP estimated positive co-efficient, was indicative of the rural people's response to savings as a criterion for accessing credit.

Table 2: Knowledge of Level of Interest Rate that Accrues on Savings

	Frequency	Per cent	Cumulative Per cent
Yes	67	22.4	22.33
No	233	77.6	100
Total	300		

Source: Author's Survey, (2008)

Of the 22.4 percent respondents who knew the rate of interest that accrued on their savings, some could only mention the rate in monetary terms (as this was explained to them by their bankers) which points to the low literacy level of the rural population. Even among some fairly educated people, knowledge about the precise rate of interest on savings was absent; denoting how less important interest on savings was to them. In other words, customers had other motives for saving with banks, and that interest rate was just one of them.

4.2 Other Motives for Savings

i. Nearly about (90%) of beneficiaries agreed that saving with banks open the way for them to have access to rural bank credit (the first criteria for accessing credit was that one should have an account with the bank for at least 6 months)

ii. Security was also mentioned as another reason for savings with rural banks. It is not uncommon to see and hear of bush fires destroying properties and monies of rural dwellers especially in the dry season in farming communities. People therefore find the banks as a secure place for their money.

iii. Most salaried workers with accounts in the banks attributed their savings to government policy in the mid eighties authorizing the Accountant General's Department to route salaries of civil and public servants through the banks. Thus, since the monies already come to them through the rural banks by way of promity, they are somehow compelled to leave some little amount of money to keep their accounts active.

iv. Many respondents saw the banks as the best medium to facilitate their accumulation of savings until such a time that it becomes reasonably substantial for use or investment in local micro-enterprises. Such respondents have the dual benefit of accumulation in a safe place and earning some interest as well.

v. The desire of rural bank clients to be able to manage emergency situations was one of the main reasons why people save with rural banks. Situations such as unexpected sickness, funerals or the payment of some demands of children or wards in school were mentioned as other things that also necessitate savings.

vi. Some people also save with banks in order to avoid misuse of funds through frivolous spending. Such savings, the people said, instilled some discipline on them.

vii. People save towards pension.

4.3 Mode of Savings Mobilization by Rural Banks

The need to grow and be more functional in the environment where rural banks operate had led banks to adopt modes or strategies that enhance their savings mobilization. Data from the ten selected rural banks showed that, financial sector reforms have made some impact on the mode of savings mobilization of most rural banks. The decontrol of the rural banks through financial sector liberalization have given the banks the freedom to adopt any efficient means to enable them compete effectively with other financial intermediaries for funds, particularly, in rural areas, where the incentives to save are minimal. The financial sector liberalization had encouraged competition among rural banks and commercial banks. Thus, rural banks face some challenges, which require them to be innovative and resourceful. Among these was the "craze" by rural banks to open more agencies and mobilization centres as a way of reaching out to more people, hence, increasing their savings. This desire to expand operations has even led to some banks operating agencies beyond the 25 miles radius allowed by Bank of Ghana. Again, many have also gone ahead to open agencies or mobilization centres in even urban areas without the authorization by Bank of Ghana.

The introduction of innovations and new financial products are other modes that financial liberalization had forced on banks. Competing among established commercial banks, credit unions, savings and loans companies, various informal "Susu" groups and moneylenders, had left these rural banks with no other option than to innovate to get fair share of rural folks' savings. Many banks have adopted "Susu" banking by integrating the informal "Susu" system into mainstream banking. Such banks have "Susu" agents they have engaged or employed to go round market areas and or places where economic activities are dominant. Through these "Susu" banking activities, contributors are assured of increased access to credit after a period of about six months. This system appeal to people and have high patronage in places practiced. Some banks have it in the form of 'mobile banking'. This is especially true of banks, which have joint programmes with Freedom from Hunger, an NGO (such as Lower Pra and Brakwa Breman Rural Banks).

Mobile banking involves performing both savings and leading functions outside the banks' offices on a smaller scale particularly for groups and other individuals. No wonder some commercial as well as merchant banks in recent times especially Barclays Bank Ghana Limited et al, had realized the importance to reduce their minimum requirements to open an account as well as resort to "Susu" organizations to roll more customers into their fold coupled with some innovative products.

Rural banks in general also require lower deposits (as low as ¢20,000) that suits the circumstances of the poor for opening accounts, while such commercial banks as Standard Chartered and Barclays Banks have minimum requirements of ¢500,000.00. This mode, which allows even small savings, has attracted lots of small account holders to the rural banks, whose resources would otherwise have been lost to the banking system. From 451,904 account holders with deposit of ¢2.1 billion in 1986, just before the introduction of financial sector liberalization, the number had grown by over twice that figure to 992605 at the end of 1999 with deposits of ¢ 149.6 billion (Bank of Ghana, 2000).

Liberalization in the communication sector had also enhanced activities in the financial sector. With increased demand for local FM stations, rural banks have taken advantage of this in rural communities to advertise and market themselves using the local languages of their respective areas to expand their deposit base. Rural banks also undertake educational campaigns as their social responsibility to the community in which they are situated and take advantage of local durbars and rallies to explain to community members the importance of banking and the role members of the community can play to that effect (i.e. patronizing the activities of the banks).

Another mode, which may not be directly attributed to, the financial sector liberalization have with clients and people in the community. Their participation in durbars and other programmes in these small communities coupled with their contribution to community development efforts in the form of provision of furniture for schools, boreholes, community centre, electrification projects, and scholarships for some needy pupils etc., members of he community are induced to support the banks through savings.

4.4 Savings in other Areas

Given the benefits one will derive from saving with rural banks, why would rural people still want and wish to save in other areas? Among some of the numerous reasons identified were as follows:

i. Higher interest rates on loans from banks has been cited as one of the factors for saving in other areas, compared with that of other semi formal institutions such as credit unions.

ii. The desire of savers not to pull all eggs in one basket so as have some options or relief in urgent situations.

iii. Easy access to loans on more flexible terms in other areas such as Credit Unions whose control lies with peers, and with little bureaucracy.

4.5 Credit Operations

Credit delivery with respect to savings by rural banks increased in both nominal and real terms. In 1976, the only one existing bank granted credit of about ¢20,000.00, with the growth in the number of banks, total credit granted rose to ¢10.7 billion in 1990, ¢14.4 and 860 billion cedis in 1995 and in 2000 respectively as showed in Table 3. Table 3 below shows that the credit–deposit ratio before the financial sector reforms was 12.0 per cent (recorded in 1985). After 1987, however, the ratio became relatively higher, reaching about 47 per cent in 1990 and 43 per cent in 1995, over hundred percent in 2000 and about 44 percent in 2005. The marginal effects of the Rural Finance Project (1990) which resulted in the classification of 18 rural banks as distressed and many others as mediocre. Recommendations of the consultants of the project led to restricted and cautious lending by the banks in the next few years immediately following the rural finance project, which was completed in 1994. In all, there was relative increase in rural banks' credit, which raised questions on whether the increase was attributed to the financial sector liberalization or some other factors.

Table 3: Credit-Deposit Ratio of Rural Banks (On a 5–Year Interval, million cedis)

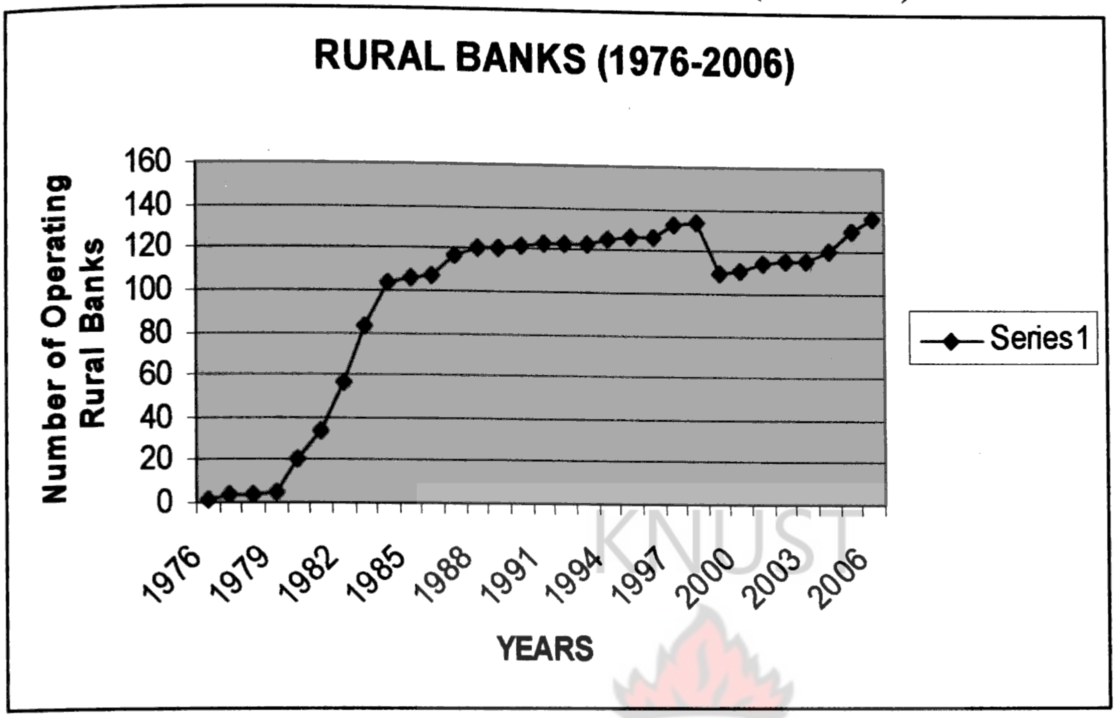
Year	Deposit	Credit	Credit/Deposit (%)
1980	44.70	29.60	66.22
1985	1260.34	151.02	11.98
1990	5917.70	2772.44	46.85
1995	33513.23	14419.87	43.02
2000	2166.99	860132.84	396.93
2005	6064.55	2664.24	43.93

Source: Compiled from Rural Bank monthly returns submitted to the Bank of Ghana

4.6 Analysis of Number of Operating Rural Banks

Emergence of operating rural banks in Ghana over the years have kept on soaring since the mid 1970's to date (that is from 1 in 1976 to 140 in 2006 from Figure 1 below). The introduction as well as implementation of both ERP and FINSAP saw a persistent increase in the establishment of rural banks across the country from the mid 1980's to the late 1990's. Despite a gradual fall in the number of operating banks across the country between 1998 and 2000, the opening of such banks saw a gradual increase as of 2001 to date. This further explains why most rural banks were present at least in every region of the country to serve rural dwellers where most merchant and commercial banks failed to open branches in such areas.

Figure 1: Number of Operating Rural Banks in Ghana (1976-2006)

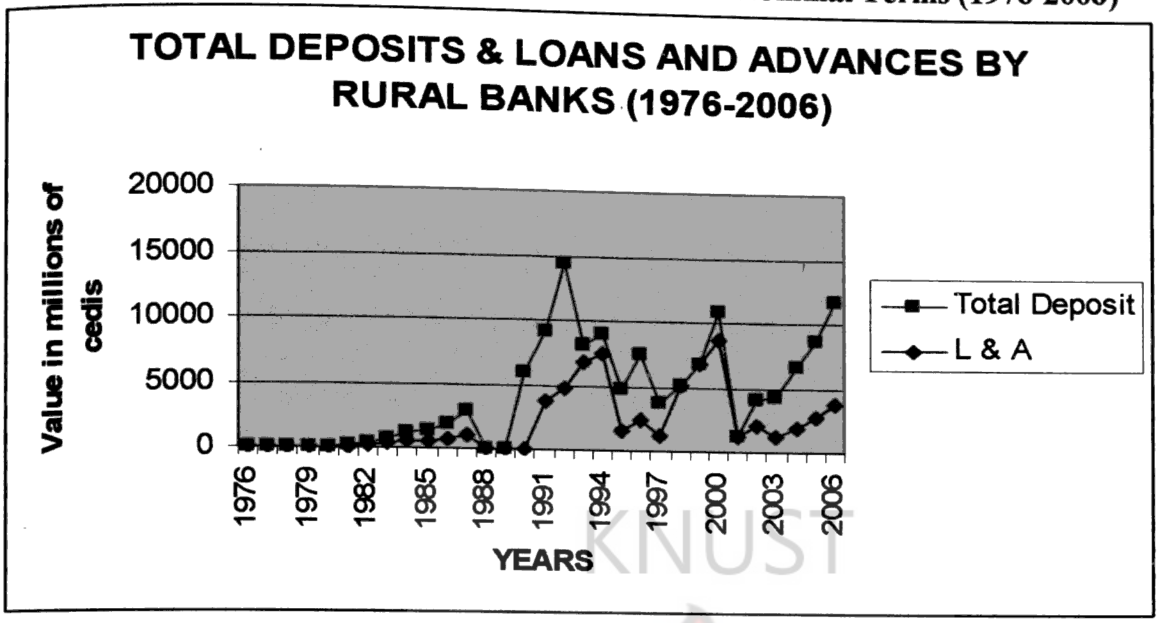


Source: BOG Annual Bulletins, various issues.
Note: Graph legend (i.e. series) represent trend in number of rural banks

4.7 Trends in Total Deposits, Loans and Advances

From Figure 2, total deposits by rural banks was increasing at a decreasing rate during the early years of their presence in most rural communities in Ghana which however exceeded total advances and loans issued to their customers (i.e. over a period of ten years). An increase in both deposits as well loans and advances made to and by customers

Figure 2: Total Deposits & Credits by Rural Banks in Nominal Terms (1976-2006)



Source: BOG Annual Bulletins, various issues.

to most rural banks especially after the implementation of FINSAP to date with total deposit by rural banks reaching its peak (i.e. about 15 billion old Ghana cedis) ever recorded within the period of study. One the other hand, total loans and advances was persistently issued to customers by most rural banks especially in the late 1980's through to the mid 1990's but however declined in the mid 1990's. A gradual increase in both total deposits on one hand, and loans and advances on the other by rural banks was observed after 2000 to date which outweighed periods before the implementation of FINSAP.

4.8 Reasons for Increased Credit by Rural Banks

Several reasons were identified for increased credit. These could broadly be divided into two: those that could be attributed to the financial sector liberalization on one hand and those that could not on the other.

4.8.1 The Financial Sector Liberalization and Rural Bank Credit

(i) The introduction of financial sector liberalization provided the impetus for banks to compete to mobilize more savings and allocate much more credit via rigorous education campaigns and new schemes such as the 'Susu' and mobile banking. More savings in the hands of banks mean more credit could be given to both usual and potential borrowers. This may explain the increase in both credit deposit ratio and the number of account holders.

(ii) The removal of sectoral ceilings on loans opened the way for rural banks to allocate their resources to the most efficient use. The rural banks before the financial reforms were compelled to grant about 50 per cent of their credit resources to agriculture which is a high risk business in Ghana, leading to the general deterioration of rural banks' loan portfolio. With the financial sector reforms therefore, the major target for rural bank credit is salaried workers whose repayment rates are known to be very high. Since their salaries pass the bank continue to grant more and more loans to such workers in addition to traders, who handle money daily rather than farmers.

(iii) The Rural Finance Project as part of the financial reforms brought improvement in the administration of rural banks and introduced new accounting standards which sought to reduce expenditures of banks and made more funds available for lending.

(iv) Deregulation of interest rates enabled the banks to set interest rate levels that are very competitive. Thus, the financial sector reforms helped them to set lending rates that are lower (average of 31% from 1988-1999) than the banking average of the commercial land development banks (38%-48%), even though in the rural environment, that level still remained high. The rural banks are therefore able to attract more borrowers because there are very limited alternative sources in the rural communities.

Using data from selected rural banks (1976-2006), the relationships between credit and other related variables were estimated as denoted in Table 4 below.

Table 4: Estimated Coefficients of Factors Determining Credit Allocation

Regressors	Overall (1976-2006)	Pre-FINSAP (1976-1987)	Post-FINSAP (1988-2006)
Constant	-0.0070	0.0190	-0.0269
	(0.39)	(1.05)	(-0.66)
Rlr_t	-0.0002	-7.9670	-3.1900
	(-0.751)	(-0.3)	(-0.03)
Rc_{t-1}	1.1337***	0.9180***	0.9732***
	(6.19)	(3.47)	(3.46)
Rs_{t-1}	1.1337***	-0.0212	0.1348
	(6.19)	(-0.23)	(0.87)
R-squared	0.95	0.85	0.94
F-statistics	115.37***	13.26***	34.33***
Durbin-Watson	1.73	1.44	2.32
ρ-value (F-stat)	0.00	0.00	0.00

Notes: a) the figures in brackets refer to the t-statistics of the corresponding estimates.

*b) **, *** denotes statistical significance at the 5% and 1% levels respectively.*

A priori, a change in real lending rate was expected to be negatively related to a change in real credit, while changes in the past real savings and real credit was expected to be positively related. The parameters of the estimated coefficient of past savings for the pre-FINSAP was negative, while changes in the past real savings and real credit were expected to be positively related. The estimated coefficient of past savings for the pre-FINSAP was negative, but was positive in the post-FINSAP. However, the estimates in both periods were not statistically significant, generally implying that changes in savings for the past year were not a very strong determinant of credit in the current year. This was due to the fact that, prior to FINSAP, savings was considered as important collateral for granting credit. It was not until late 1985 that the

Accounting Manual for Rural Banks issued by the Bank of Ghana made it a requirement. On the other hand, the post-FINSAP estimated positive coefficient was indicative of the rural people's response to savings as a criterion for accessing credit.

The estimated coefficients of the previous real credit for the pre-and post–FINSAP were positive and statistically significant. Thus, the previous year credit strongly explains credit granted by rural banks in the current year. Rural banks credit delivery was based on the repayment performance of borrowers on the previous facility (this explains the increase in leading to salaried worker). The estimated co-efficient for the post–FINSAP period showed a marginal increase over the pre-FINSAP in explaining current level of credit.

The estimated coefficients of real lending rate registered the expected negative sign for both periods, but were not statistically significant implying that lending rate may not explain credit demand by rural people. This is because rural period do not consider the lending rate as a major factor when assessing credit. After FINSAP, the lending rate has risen, therefore making borrowing more expensive in the post-FINSAP in which lending rates had risen by 3.19 per cent, yet rural people borrowed from banks as shown by responses from the fieldwork in Table 4.

4.7.2 Other Reasons for Increased Credit by Rural Banks

According to fieldwork as depicted in Table 5 below, other reasons for increased credit were:

(i) The channelling workers' salaries through banks by the Government enhance repayment, the certainty of which determines banks' preparedness to lend. Also, higher salary levels increase savings particularly as the banks require account holders to maintain a minimum operational balance of between ¢5,000.00 to ¢20,000.00.

(ii) Credit beneficiaries maintained that loss of value of the cedi means that more and more cash is needed to purchase the same amount of goods and services they were buying before, hence their increased demand for credit. Aware of this, the banks grant more credit than before.

(iii) More people request for credit through public education by the rural banks. The banks themselves desire to give more credit as they hope to earn more than they would have earned even on Treasury Bills.

(iv) Relaxation of the conditions for credit such that sometimes, only a guarantor is required facilitates credit delivery by rural banks as against the commercial banks. Thus, some of the poor are able to access credit with minimum security.

Table 5: Rural Bank Borrowing Despite High Lending Rates

	Frequency	Percent	Cumulative Percent
Yes	233	77.6	77.6
No	67	22.4	100
Total	300		

Source: Author' Survey, 2008

4.9 Mode of Credit Allocation by Rural Banks

The financial sector liberalization had influenced the mode of credit allocation of rural banks to a limited extent that is:

i. The removal of credit ceilings meant hat banks could lend to whatever area the earning performance and repayment will be good. To the rural banks therefore, developing a mode that favours salaried workers whose salaries pass through the banks became and is the norm. The higher interest repayment rate naturally makes them attractive to the rural banks as against agriculture. This is corroborated by 88 per cent of credit beneficiaries interviewed, who claimed they requested for more loans despite the high interest rate. Beneficiaries claimed that even though the rural bank-lending rate was high, it was still far better than those of moneylenders and the traditional commercial banks. Again such rural bank credit had more flexible repayment terms. It is interesting to note that whereas knowledge of interest rate on savings was little (indicating lower motivation to save), beneficiaries were fully aware of the interest charges on the loans they collect.

ii. To effectively compete with other financial intermediaries in the credit market, majority of the rural banks make flexible their conditions for credit to the point of even allowing potential borrowers to use salaried workers (whose salary pass through the banks) as guarantors for loans. This is done so that in the event of default by the borrower, the salaried guarantor will have the amount deducted at source form his salary over a limited period. This encourages potential beneficiaries, particularly non-salaried worker to go for loans with the problem of having to provide a collateral security.

iii. A mode of credit delivery, which may not be directly attributed to the financial sector liberalization, is the group loan system. This has been in existence before the reform but is now more refined and encouraged. The banks themselves encourage farmers to form groups, because the banks believe that registered small and well-organized groups exert some peer pressure on individual members, which enhances repayment. The credit is given to the group in bulk, and the executives share it among the members who are all jointly and severally responsible for the entire amount. Access to further credit by the group is dependent on their repayment of outstanding loans. Where there is a genuine reason that some credit remain outstanding, but there is evidence that additional loan could revive the business and improve repayment, more credit, is granted.

iv. Another mode, which is a distinguishing feature of rural bank credit delivery, relates to the small size of credit, which in effect favours small borrowers. Due to uncertainty surrounding the Poor's ability to repay loans, rural banks prefer granting loans in bits. This is supported by majority of credit beneficiaries who said that only a fraction of credit required is granted (size of credit ranges from ¢100.000.00 -¢200.000.00) Perhaps, another reason for such a mode could be attributed to the limit of ¢2.million credit allowed by the Bank of Ghana. Any amount above this should receive ratification by Bank of Ghana, but this invariably takes a long time. Thus only a few beneficiaries are granted credit over ¢2 million.

In sum, the desire of rural banks to adopt strategies in their credit expansion policies in a manner that will promote profitability and thus ensure their sustainability has been very much enhanced by the introduction of the financial sector reform. If the banks pursue these strategies vigorously and manage to get the Bank of Ghana to increase the banks' lending limit, their impact would be better appreciated in their catchments areas.

4.10 Regression Results: The Impact of Interest Rate on Savings and Credit

This section presents regression results of the impact of interest rate (i.e. lending rate) on savings and credit flows covering the entire study period (i.e. 1976-2006) and the pre (i.e. 1976-1987) and post (i.e. 1988-2006) FINSAP regimes. The rational is to isolate the relative impact of interest rate from the other determinants of savings and credit. The table below present summary results of the regression analysis (see Appendix for detailed regression tables).

The results show that for the entire sample (1976-2006), interest rate impacted positively on both savings and credit supply. These effects were statistically significant at the 1% level. With their inelastic coefficients, the savings function reported an interest rate coefficient of 0.073397 whiles 0.07477 was recorded for the credit model. These coefficients do not differ significantly implying virtually the same magnitude of interest rate effect on both savings and credit over the entire period under investigation.

Table 6: Regression Results showing the Impact of Interest Rate on Savings and Credit

Regressors	Overall (1976-2006)	Pre-FINSAP (1976-1987)	Post-FINSAP (1988-2006)
Dep. Var.=Savings			
Constant	7.984547*** (12.34537)	3.849231*** (3.948457)	9.057072*** (12.19209)
Real interest rate	0.073397*** (4.657347)	0.023906 (1.556659)	0.100416* (1.926274)
Dep. var.= Credit			
Constant	8.596966**** (13.9321)	4.612866*** (3.517355)	9.918867*** (19.06517)
Real interest rate	0.07477*** (4.9729)	0.029039 (1.405589)	0.066595* (1.824104)

Notes: a) the figures in brackets refer to the t-statistics of the corresponding estimates.
*b) *, *** denotes statistical significance at the 10% and 1% levels respectively.*

As depicted in Table 6 above, the pre and post-FINSAP periods recorded positive impact of real interest rate on savings and credit. However, these impacts were not statistically significant. This could be due the interest rate regime operative at the time. Given the financial repressive conditions before the FINSAP regime where interest rates were administratively controlled resulting in negative real lending rates, the impact of interest rate was not expected to significantly affect both savings and credit.

The impact of the FINSAP yielded significant impact as shown by results for the post-FINSAP period. Real interest rate exerted the expected significant positive impact on savings and credit flows after the market forces were allowed to determine the rate of interest in the economy. This result confirms the theoretical postulation by McKinnon (1973) and Shaw (1973) that financial liberalization after a repressive financial regime impacts positively on savings and investment.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATIONS

5.0 Introduction

This chapter consists of the conclusion and policy recommendations for both financial authorities, rural banks, and for further research.

5.1 Conclusion

The following conclusions were drawn from the findings of the study as:

(i) FINSAP has resulted into growth of both savings and credit in absolute and real terms in the rural banking industry.

(ii) Rural people even though have limited income; tend to save in more than one area, for example rural banks, credit unions, "Susu" groups, non-financial savings, etc. for the rural people the most essential reason for saving is the possibility of accessing credit in future.

(iii) Savings behaviours were not dictated by the deposit rate. Neither was high, while lending rate a deterrent for educing credit demand.

(iv) The FINSAP has resulted in the expansion of the operations of rural banks, hence the increase in the establishment of agencies and mobilization centres.

(v) Addition, the programme has led to innovations and introduction of new financial products like the incorporation of the hitherto informal "Susu" scheme into formal banking sector.

(vi) The FINSAP has made lending to the other sectors, namely trading and facilities to salaried workers more attractive compared to the agricultural sector, which was accorded priority under the control regime.

5.2 Policy Recommendations

From the findings, the following policy recommendations suggested for the rural banks on one hand and the Bank of Ghana on the other:

5.2A Rural Banks

(i) Rural banks should consistently educate the rural people in their catchment's areas on the benefits of savings.

(ii) It is also imperative for constant revision of the deposit rate by rural banks to reflect current economic conditions so as to make savings more attractive.

(iii) Rural banks should continue to intensify the introduction of more innovative banking products in view of the rapid changes and competition in the banking industry.

5.2B Bank of Ghana

(i) The bank of Ghana should review upwards the present maximum amount that rural banks could advance to any customer.

(ii) The period for ratification of any loan above the present maximum by the Bank of Ghana should be shortened to at most one month to avoid rural banks' delay in granting credit.

(iii) The Bank of Ghana should review the present radius of operation of rural banks from the 40 kilometres to at least 50 kilometres, in view of the fact that some banks operate in areas where economic activities are not very vibrant. The expansion of their radius of operation may assist in mobilizing more savings.

(iv) The marginalisation of the agricultural sector as a result of the FINSAP could be addressed by the Bank of Ghana souring more finding specifically for the agricultural sector, and channelling them to many more rural banks. These facilities should target more small –scale and peasant farmers.

In sum, it is an undeniable fact that the rural banks have improved their modes of mobilization and credit allocation sine the introduction of Ghana's Financial Sector Reforms. This has resulted in a significant increase in the patronage of rural banks saving and credit products tremendously. If the banks pursue these strategies vigorously and manage to get the Bank of Ghana to increase the banks' lending limit, their impact will be better appreciated in their catchment areas.

BIBLIOGRAPHY

Aryeetey, Ernest and A. F. Gockel (1991):"Mobilizing Domestic Resources for Capital Formation: The Role of Informal Financial Markets" AERC Research Paper 3 Nairobi: AERC.

Aseidu-Mante, E. (1998): "Financial Markets in Ghana" in Issues in Central Banking and Bank Distress, Lagos: WAIFEM

Bayoumi, T. (1993): "Financial Deregulation and Household Saving," Economic Journal, 103, November, 1432-1443

Bandiera, G. Caprio, Honohan, P. and Schiantarelli F. (2000): "Does Financial Reform Raise or Reduce Saving?, Review of Economics and Statistics, May, 82(2): 239-263

Bank of Ghana, (1987): "Monetary Policy Measures for 1987 Financial Year" Notice No. BG./GOV/SEC/87/4. Accra

Campbell J. and G. Mankiw (1993): The Response of Consumption to Income: A cross country investigation, European Economic Review, 35, pp. 723-767

Campbell J. and G. Mankiw (1989) Consumption Income and Interest Rates: Reinterpreting the time series evidence, in O. Blanchard and S. Fischer eds. NBER Macroeconomics Annual 1989, MIT Press

Creswell, J. W (1994) Research Design. Qualitative & Quantitative Approaches. Sage: California.

Cho, Y.D. 1995. "Financial Factors and Corporate Investment: A Microeconometric Analysis of Manufacturing Firms in Korea." Oxford, United Kingdom: Oxford University. Doctoral Dissertation

Deaton, A., (1989): Saving and Liquidity Constraints, Papers, 153, Princeton, Woodrow Wilson School - Public and International Affairs.

Diaz-Alejandro (1983): C.F., "Stories of the 1930s for the 1980s," in Aspe Armella, Dornbusch, and Obstfeld, eds. Financial Policies and the World Capital Market: The Problem of Latin American Countries, (Chicago: University of Chicago Press, 1983), 5-35.

Giovannini, A. (1985): "Saving and Real Interest Rates in LDCs," Journal of Development Economics 8, (August 1985), 197-217.

Haque, N.U., and Montiel P. (1989): Consumption in Developing Countries: Tests for Liquidity Constraints and Finite Horizons," Review of Economics and Statistics LXXI, (1989), 408- 415

IFAD AFRICA (2000): Annual Report 2000. Available on http://www.ifad.org/pub/ar/2000/e/index.htm

Jappelli and Pagano (1994): "Saving, Growth and Liquidity Constraints," Quarterly Journal of Economics, 109, 83-109.

Lehmussaari. O.P., (1990): "Deregulation and Consumption: Saving Dynamics in the Nordic Countries," IMF Staff Papers, March, 37, 1, 71-93

Love, I. (2003): "Financial Development and Financing Constraints: International Evidence from the Structural Investment Model." Washington, DC, United States: World Bank. Forthcoming in *Review of Financial Studies*

Mason, A. (1986): 'National Saving Rates and Population Growth: A New Model and New Evidence," in D.G. Johnsor. and R. Lee, ed., Population Growth and Economic Development: Issues and Evidence. Madison, WI: University of Wisconsin Press.

Mason, A. (1988): 'Saving, Economic Growth and Demographic Change,' Population and Development Review, vol. 14, No. 1.

McKinnon, R., (1973): "Money and Capital in Economic Development", The Brookings Institution, Washington, D.C.

Ogaki, M., J. Ostry, and C.M. Reinhart (1996): "Saving Behavior in Low-and Middle-Income Developing Countries: A Comparison," IMF Staff Papers, (June 1995)

Oppenheim, A. N. (1992): Questionnaire design, interviewing and attitude measurement London, UK: Pinter Publishers.

Pomary, C., (1999), Developing the Gender and Education, in Elisabeth Akpalu and Esther Ofei-Aboagye, (2000), Report on Gender Mainstreaming in Ghana, Accra: DFID.

Robson, C., (1993, 2002), Real World Research: A Resource for Social Scientists and Practitioner- Researchers, Oxford: Blackwell.

Roe, A.; Popiel, P.A.(1990): The re-structuring of Financial Systems in Latin America, Banco Mundial,. Inst. de Desarrollo Económico. Washington, D.C. (EUA). 1990. 29 p.,

Rossi N. (1988): "Government Spending, the Real Interest Rate, and the Behavior of Liquidity Constrained Consumers in Developing Countries," IMF Staff Papers 35, (March 1988) 104-140.
Shaw, E., (1973): Financial Deepening in Economic Development, Oxford University Press.

Singleton, Jr., R.A., Straits, B.C., & Straits, M.M. (1993): Approaches to social research New York: Oxford University Press.

Stiglitz, J.E., and Weiss, A., (1981): "Credit Rationing in Markets with Imperfect Information", America Economic Review, Volume 71, pp.393-410.

Vaidyanathan, G. (1993): "Consumption, Liquidity Constraints, and Economic Development, "Journal of Macroeconomics 15, (Summer 1993), 591-610.

Yin, R.K. (1989): "Case Study Research. Design and Methods" (1st ed. in 1984), Sage Publications, Thousand Oaks, California, USA.

APPENDICES

APPENDIX 1: QUESTIONNAIRE

QUESTIONNAIRE TO BANKS ON THE MODE OF SAVINGS AND CREDIT ALLOCATION BY RURAL BANKS IN GHANA

This information provided herewith is solely meant for an academic research purpose only and any information given will be treated in confidentiality.

1.Name of Bank: ....
2. Location: ....
3. Region: ....
4. Date opened:.................................
5. What is your position in this bank?
....
6. How long have you worked in this position?
....
7. How long have you worked at the bank?
   a. 1-5 years   b. 6-10 years   c. 11-15 years   d. 16-20 years   e. 21^{+} years

8. Please, briefly your present role at the bank work
....
....
....
....
9. How is your typical working day like?
....
....
....
10. Have there been changes in your work lately?
    a. Yes   b. No
11. If Yes, what kinds of changes?
....
....
....
....
12. How often does your bank present new products to the market?
....
....
13. How often are new products introduced to the market by its competitors?
....
14. How many customers does your bank have on the average under one year?
....
15. Does your bank offer its customers any credit facility?

a. Yes b. No

16. In granting credits to customers by the bank you work for, do they require anything before granting such credits to its valued customers?

a. Yes b. No

17. If Yes, list the various things required by your bank before credits are granted to customers.

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18. Do you borrow from rural banks despite their high lending rates?

19. Has your bank been able to meet the credit needs of its clients all the time?

a. Yes b. No

20. If No, give reasons:…………………………………………………………………………..

…………………………………………………………………………………………………

21.What are the other sources of funding available to your bank for credit delivery?

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………………………………………………………………………………………………..

22. What strategies and or methods does your bank employ in granting more credit to its clients?

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23. In your opinion, has your bank mobilized more deposits now than the period before the financial sector reforms in 1987?

a. Yes b. No

24. If yes, what have accounted for the increase in deposits at your bank?

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25. Has potential customers of your bank decreased their level of savings with you?

a. Yes b. No

26. What other factors have inhibited your attempt to mobilize more savings?

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27. What motivates you to promote FINSAP in your day's activities at the bank?

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28. How is FINSAP present in your personal goals at work?

……

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29. How is the FINSAP present in your own work? Give an example.
……………………………………………………………………………………………………
…………………………………………………………………………………………
30. Do you feel that you have had sufficient opportunity to influence the goals related to savings mobilization in the bank?

A. Yes b. No

31. If No, how would you have wanted to influence savings mobilization at the bank if giving the opportunity?
……………………………………………………………………………………………………
……………………………………………………………………………………………………
…………………………………………………………………………………

The Future

32. How do you perceive the future of the bank based on its performance over the past five years?
……………………………………………………………………………………………………
…………………………………………………………………………………………
33. Any comments?
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……………………………………………………………………………………………………
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Thank you!

The financial sector Adjustment programme introduce included:
-Freeing interest rates, and
-Abolishing Credit Controls, including sectoral allocation of credit.

APPENDIX 2: REGRESSION RESULTS

Regression Results: Savings against Real interest rate (1976-2006)

Regression Statistics	
Multiple R	0.654144
R Square	0.427905
Adjusted R Square	0.408178
Standard Error	3.428665
Observations	31

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	254.9924	254.9924	21.69088	6.57E-05
Residual	29	340.9166	11.75574		
Total	30	595.909			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	7.984547	0.646764	12.34537	4.53E-13
Real int. rate	0.073397	0.015759	4.657347	6.57E-05

Regression Results: Credit against Real interest rate (1976-2006)

Regression Statistics	
Multiple R	0.678426
R Square	0.460262
Adjusted R Square	0.44165
Standard Error	3.271205
Observations	31

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	264.6275	264.6275	24.72974	2.74E-05
Residual	29	310.3226	10.70078		
Total	30	574.9501			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	8.596966	0.617062	13.9321	2.22E-14
Real int. rate	0.07477	0.015036	4.9729	2.74E-05

Regression Results: Savings against Real interest rate (1976-1987)

Regression Statistics	
Multiple R	0.441649
R Square	0.195054
Adjusted R Square	0.114559
Standard Error	2.46948
Observations	12

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	14.77741	14.77741	2.423188	0.150607
Residual	10	60.98331	6.098331		
Total	11	75.76072			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	3.849231	0.97487	3.948457	0.002737
Real int. rate	0.023906	0.015357	1.556659	0.150607

Regression Results: Savings against Real interest rate (1988-2006)

Regression Statistics	
Multiple R	0.423275
R Square	0.179162
Adjusted R Square	0.130877
Standard Error	2.835887
Observations	19

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	29.84103	29.84103	3.71053	0.070959
Residual	17	136.7183	8.042254		
Total	18	166.5594			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	9.057072	0.742865	12.19209	7.89E-10
Real int. rate	0.100416	0.052129	1.926274	0.070959

Regression Results: Credit against Real interest rate (1976-1987)

Regression Statistics	
Multiple R	0.40617
R Square	0.164974
Adjusted R Square	0.081472
Standard Error	3.322107
Observations	12

ANOVA

	df	SS	MS	F	Significance F
Regression	1	21.8044	21.8044	1.975682	0.190146
Residual	10	110.3639	11.03639		
Total	11	132.1683			

	Coefficients	Standard Error	t Stat	P-value
Intercept	4.612866	1.311459	3.517355	0.005563
Real int. rate	0.029039	0.02066	1.405589	0.190146

Regression Results: Credit against Real interest rate (1988-2006)

Regression Statistics	
Multiple R	0.404585
R Square	0.163689
Adjusted R Square	0.114494
Standard Error	1.986098
Observations	19

ANOVA

	df	SS	MS	F	Significance F
Regression	1	13.12504	13.12504	3.327357	0.085765
Residual	17	67.05794	3.944585		
Total	18	80.18298			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%
Intercept	9.918867	0.520261	19.06517	6.53E-13	8.821212
Real int. rate	0.066595	0.036509	1.824104	0.085765	-0.01043