THE RELATIONSHIP BETWEEN CREDIT RISK MANAGEMENT PRACTICES AND NON-PERFORMING LOANS: CASE STUDY OF HIGHER EDUCATION LOANS BOARD

By

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D61/71911/2008

A Management Research Project presented in partial fulfillment of the requirements for the award of the Master of Business Administration degree

November, 2010

Declaration

I, John Nyakiti Gori acknowledge that this research project in its form and nature, organization, and content is a fruit of my personal effort. To the best of my knowledge and belief it contains no material previously published or written by another person, except when due reference is made in the text of the project.

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This research project has been submitted with my approval as the university supervisor:

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Abstract

This research project highlights the historical development of higher education financing in Kenya, from free university education to cost sharing and to the current public/private sponsorship. There has been a growing student population, rising costs of education and an increased dependency by students on financial assistance due to slow growth of the economy, high levels of unemployment and the impact of poverty levels in the country. This is to be seen against the background of dwindling finances from the Government, who has been the main financers of higher education. HELB needed to come up with new ways of increasing its kitty which included the managing of its non- performing loans so that it be able to meet the high demand for fund from its clients (students).

HELB being an institution mandated to manage the higher education loans programme in Kenya needed to change and modernize its strategies so as to achieve its mandate of putting in place a revolving fund. The study seeks to find out if there is any relationship between credit risk management practices put in place by HELB management and non- performing loans.

Secondary data on the core credit management factors namely credit limit, screening, credit risk measurement, client database management and loan recovery ratios was sourced from HELB. Regression analysis was then used to assess which of the credit management factors have had the greatest impact on non-performing loan reduction using the loan recovery as a proxy for non-performing loans. The study found that the dormant (non-performing) loan amount has been on a gradual decline.

ACKNOWLEDGEMENT

This research project would not have been possible without the support of many people. I wish to express my gratitude to my supervisor, Mr. Joseph Barasa who was abundantly helpful and offered invaluable assistance, support and guidance. Deepest gratitude is also due to the members of presentation panel, without whose knowledge and assistance this study would not have been successful.

Special thanks also go to all my graduate friends, for sharing the literature and invaluable assistance. I would also like to convey thanks to the Higher Education Loans Board from whom I collected data without which I could not have completed my study.

Finally I wish to express my love and gratitude to my beloved family and in particular my dearest daughter Nicole Abi Nyakiti; for the understanding and endless love throughout the duration my of studies. I say THANK YOU and May God Bless you all. Above all, I deeply thank God for his Grace that was sufficient throughout my studies.

Dedication

This work is dedicated to my dear child Nicole and wife Ivy, for enduring my absence while undertaking my Masters Degree programme. Not forgetting my Parents, for the support they have given me ever since I was child.

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Abbreviations

CAR	Capital Asset Ration
CBK	Central Bank of Kenya
CLL	Credit Limit Levels
CRM	Credit Risk Measurement
DBM	Database Management System
GDP	Gross Domestic Product
GCSLS	General Commercial Students Loans Scheme
GSSLS	Government Subsidized Students Loans Scheme
HELB	Higher Education Loans Board
IMF	International Monetary Fund
NIC	National Industrial Credit Bank
NLS	Non mean tested Loan Schemes
NPL	Non Performing Loans
SAP	Structural Adjustment Policies
SSNIT	Social Security and National Insurance Trust

CHAPTER ONE

1.0 Introduction

1.1. Background

Credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Institutions need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any lending organization (Basel committee, 1999).

Credit risk is the most common cause of financial institutions failure, causing virtually all regulatory authorities to prescribe minimum standards for credit risk management (Kabiru, 2002). The sound practices are set out to specifically address the following areas: (i) establishing an appropriate credit risk environment; (ii) operating under a sound credit-granting process; (iii) maintaining an appropriate credit administration, measurement and monitoring process; and (iv) ensuring adequate controls over credit risk. Although specific credit risk management practices may differ among institutions depending upon the nature and complexity of their credit activities, a comprehensive credit risk management program will address these four areas. The basis of sound credit risk management is the identification of existing and potential risks inherent in lending activities. Measures to counteract these risks normally comprise clearly defined policies of the institutions, credit risk philosophy and the parameters within which credit risk is to be

controlled. Credit lending institutions need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any financial institution (Basel committee, 1999).

An important efficiency objective of the higher education loan system is to facilitate access to financing with minimum cost for the government. This requires sound management right from the loan allocation process to the effective collection of student loans after maturity. From studies conducted in other countries with regard to their student loan systems, common challenges faced arise from the nature of the higher education loan fund which is mostly set up by the government, issues of adverse selection and moral hazard during the application process and the minimization of default risk. Of the challenges mentioned above, the one with the biggest impact to the fund is credit risk management. However, in an ideal situation regardless of their original social situation, after graduating students become part of society's elite. Therefore efficient collection procedures should ensure the repayment of the loans as long as there is ability to pay, thereby eliminating the problem of lack of willingness to pay (Chacha, 2004).

According to Gravenir et al. (2005) public higher education in Kenya was free from 1952 to 1973 with the public purse covering both tuition and living expenses regardless of the socio-economic ability of the students. The rationale for state subsidy of higher education was based on the country's desire to create highly trained manpower that could replace the departing colonial administrators. The universities were seen as the epicenter of social and economic development, which the newly independent state so much desired to have. To achieve its role of spurring social and economic development, it was argued that generous funding be provided.

The small number of students who accessed university education further made free provision of university education possible. In 1964/65 academic year, there were only 651 students enrolled in the then university college of Nairobi compared to 1779 in 1968/69 (Republic of Kenya as cited in Gravenir et al., 2005).

However, it wasn't long before the government support for free higher education posed a challenge to the national budget. This was because the demand for university education increased over a short period of time and it soon became a concern for the government and donors agencies. Unfortunately, the rising demand was taking place at time when the country's economic performance was on a downward trend. This made it difficult to offer free or highly subsidized university education. At the same time, this challenge was increasingly being seen from the point of view that investment in university education was not a significant priority due to what is often seen as low social returns of this level of education compared to basic education (Psacharopoulos and Woodhall, 1985).Consequently, in academic year 1973/74 cost sharing and cost recovery measures were introduced.

Coupled with the dismal performance of the economy, soaring demand for higher education and implementation of structural adjustment policies (SAP's), the Kenyan government was compelled to adjust financing and reduce expenditure on higher education. The initial response to the declining state budget for higher education was the introduction of cost sharing in 1988 as contained in Sessional paper No. 6 of 1988 (Republic of Kenya, 1988).

In an attempt to have a proactive institution, which could address the needs of the vulnerable against the implementation of the Structural Adjustment Policies (SAP's) and in order to minimize the financial demands from the treasury, Higher Education Loans Board (HELB) was

created in 1995 under an Act of Parliament (HELB Review,2002).It is an autonomous body charged with the responsibility of collecting loans already lent out to Kenyans who benefited from the scheme since 1974 and disbursing it to needy Kenyan students pursuing higher education within and outside Kenya, to date HELB as loaned to more than 275,000 Kenyans at a tune of Kshs.28 billion. HELB has more than 96,000 people who are not servicing their loans, this translates to Kshs. 10.5 billion the amount of non performing loans at the board (HELB Review, 2010).

While financial institutions have faced difficulties over the years for a multitude of reasons, the major cause of serious banking problems continues to be directly related to lax credit standards for borrowers and counterparties, poor portfolio risk management, or a lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counterparties. This experience is the same even at HELB since it has been grappling with the issue of defaulters for a long time because people had a mentality that the money was a grant from the Government and so was not meant to be repaid back.

1.2.   Statement of the Problem

Non-Performing Loans are a reflection of problems in the banking and corporate sectors.
Many Financial institutions that collapsed in Kenya since 1986 failed due to non performing loans, the costs of the collapse of these institutions were enormous, not only in terms of fiscal costs (costs to taxpayers) but also losses to the entire economy (CBK,1999).

The financing of higher education in Kenya has been a big challenge to the Government of Kenya, through Higher Education Loans Board (HELB – hereafter referred to as the Board).

There is a growing student population, rising costs of education and an increased dependency by students on financial assistance due to slow growth of the economy and the impact of poverty levels in the country. This is to be seen against the background of dwindling finances from the Government, who has been the main financers of higher education.

The Board has recognized key challenges that it must put into account in its operations. These challenges include the need for HELB to mobilize funds and become a self-sustaining organization in the long term; increasing demand for loans by Kenyan students, particularly from private and self-sponsored students; the most important one is the need to maximize the loan recovery of non- performing loans.

Alternative methods of raising funds urgently need to be looked into by the Board. The Board has to deal with the problem of non-performing loans which now stands at 42% (HELB database, Loan portfolio analysis) of the outstanding loans. Ways have to be found to get effective means of reducing the loan repayment default rate. Accordingly, this study seeks to go a step further and look into the effectiveness of credit management practices by monitoring the trends in non-performing loans at HELB.

1.3.   Objective of the Study

The objective of this study is to assess if credit risk management practices at HELB has improved over time by gauging the trends in non-performing loans.

1.4.   Importance of the Study

The result of this study will be important to the management of HELB, the student loan applicants, the Government and academic researchers. To the management of HELB, the study will shed light on the inherent reasoning of loan default and therefore, they can identify the factors contributing to the creation of NPLs and adjust their lending strategy as well. The management of HELB can have a bird's eye view regarding the results of their decision previously taken. They also can make prudent judgment in preparing further NPLs alleviating policies.

Students (HELB loan applicants), will also benefit from the study as it will give them a better understanding of the main reasons why the loans my end up being non- performing and the possible consequences of not servicing the loans. This will help them prepare in advance on how to handle the repayment of the loan and unemployment.

To the Government, this study will help in the formulation of good legal framework which will create a good working environment to HELB hence enable it to recover most of its debt on time to benefit other needy students. This will reduce HELB's overreliance on treasury to fund its operations and loan disbursement.

To the academic researchers, this study is expected to contribute to the existing body of knowledge in the area of risk management and particularly non banking institutions responses to challenges of non performing loans.

CHAPTER TWO

2.0 Literature Review

2.1. Introduction

This chapter will explore the various theories relating to credit management, studies that have been conducted in both the developed and developing countries with regard to how non-performing loans are influenced by the credit risk practices which are used by financial institutions and conclusions from the literature review.

2.2 Definition of Terms

2.2.1. Non -Performing Loan

The central bank of Kenya defines NPLs as those loans that are not being serviced as per loan contracts and expose the financial institutions to potential losses (CBK, 1997). It is important to note that non-performing loans refer to accounts whose principal or interest remains unpaid 90 days or more after due date.

2.2.2. Repayment ratio: the individual loan account

First, there are factors that are "built-in" to the scheme, as elements of its design. Lending conditions in virtually all government-sponsored loans schemes are "softer" than those on regular commercial loans; this difference represents a subsidy received by the student, in the

sense that the borrower is not required to pay back the full value of the loan received. These conditions include below-market interest rates on the loan, periods in which no interest is levied on outstanding debt (both during study and in grace periods after study completion) and repayments not linked to the rate of inflation. The effect of these built-in subsidies is amplified where amortization periods are long. The larger are these built-in subsidies, the less of the original loan is the individual borrower required to repay; the difference between original loan size and actual required repayment represents, effectively, a *"hidden grant"* to the student taking out a loan. The *loans repayment ratio* measures how much of a loan an average borrower is required to repay: it is defined as the ratio of required repayments to the loan size received, both measured in terms of present values. The *hidden grant ratio* (how much of the loan does not need to be repaid) is equal to 100 percent minus the repayment ratio (Usher, 2005).

2.2.3. Loans recovery: the overall perspective

Since the repayment ratio relates to the typical borrower; it fails to show the extent of recovery to the loans fund, from the overall viewpoint of the scheme as a whole. Even if student loans were not subsidized, and the individual student was required to repay in full, not all of the sums loaned would be recouped by the loan authorities. The extent of such a shortfall would be dependent on the level of administrative efficiency under which the loans scheme is run. Thus, overall loans recovery depends not only on the total of all individual cash repayments. It takes account also of administrative costs that are not passed on to the student borrowers and of the extent of repayment default.

Repayment default is broadly defined to include payment in arrears and repayment evasion. An

efficiently managed loans scheme will both maintain administrative costs at reasonably low levels and minimize the extent of repayment default. *Loans recovery*, then, focuses more widely on the scheme as a whole, rather than on the individual borrower. It is concerned with the question of how much of the total outlays of the loans scheme (total loans disbursements plus all other costs including administration) will be recovered through loans repayment. It takes into account the fixed, built-in design factors as well as the effects of administrative efficiencies in running the scheme. Thus, if some borrowers defaulted, total repayment receipts would fall, but the individual required repayment ratio would remain unchanged. The *recovery ratio* is measured by the ratio of total (discounted) repayments to total (discounted) outlays. Clearly, the recovery ratio is always lower than the repayment ratio, because the latter takes no account of the probability of repayment default and does not include general administration costs (Usher, 2005).

2.3. Theoretical Framework

2.3.1. Theories of Financial Intermediation

According to Allen and Santomero (1996), traditional theories of intermediation are based on transaction costs and asymmetric information. They are designed to account for institutions which take deposits or issue insurance policies and channel funds to firms. However, in recent decades there have been significant changes. Although transaction costs and asymmetric information have declined, intermediation has increased.

In the traditional Arrow-Debreu model of resource allocation, firms and households interact through markets and financial intermediaries play no role. When markets are perfect and complete, the allocation of resources is Pareto efficient and there is no scope for intermediaries

to improve welfare. Moreover, the Modigliani-Miller theorem applied in this context asserts that financial structure does not matter: households can construct portfolios which offset any position taken by an intermediary and intermediation cannot create value.

Interestingly, this increase in the breadth and depth of financial markets has been the result of increased use of these instruments by financial intermediaries and firms. They have not been used by households to any significant extent. In fact, the increased size of the financial market has coincided with a dramatic shift away from direct participation by individuals in financial markets towards participation through various kinds of intermediaries. The importance of different types of intermediary over this same time period has also undergone a significant change. The share of assets held by banks and insurance companies has fallen, while mutual funds and pension funds have dramatically increased in size. New types of intermediary such as non-bank financial firms have emerged which do not raise money by taking deposits. In short, traditional intermediaries have declined in importance even as the sector itself has been expanding (Allen and Satomero, 1996).

Hence in response to this emerging events two dominant modern theories of financial intermediation have emerged namely the information asymmetry approach and the transaction costs approach.

2.3.1.1. Information Asymmetry Approach

Financial intermediaries are active because market imperfections prevent savers and investors from trading directly with each other in an optimal way. The most important market imperfections are the informational asymmetries between savers and investors. Financial

intermediaries, banks specifically, fill – as agents and as delegated monitors – information gaps between ultimate savers and investors. This is because they have a comparative informational advantage over ultimate savers and investors. These asymmetries can be of an *ex ante* nature, generating adverse selection, they can be interim, generating moral hazard, and they can be of an *ex post* nature, resulting in auditing or costly state verification and enforcement (Scholtens and Wensveen, 2003).

2.3.1.2. Transaction Costs Approach

In contrast to the first, this approach does not contradict the assumption of complete markets. It is based on nonconvexities in transaction technologies. Here, the financial intermediaries act as coalitions of individual lenders or borrowers who exploit economies of scale or scope in the transaction technology. In addition to the fixed costs of market participation there are also arguably extensive marginal costs of monitoring markets on a day to day basis. Such monitoring is necessary to see how the expected distribution of payoffs is changing and how portfolios need to be adjusted. To the extent investors are following dynamic trading strategies to create synthetic securities they will need to follow the market on a continuous basis (Allen and Santomero, 1996). Here, the role of the financial intermediaries is to transform particular financial claims into other types of claims. In other words, they screen and monitor investors on behalf of savers. This is their basic function which justifies the transaction costs they charge to the two parties (Scholtens and Wensveen, 2003).

2.3.2. Theories of Risk Management

The literature on why firms manage risk at all is usually traced back to 1984. In that year Stulz

(1984) first suggested a viable economic reason why a firm's managers, who are presumed to be working on behalf of firm owners, might concern themselves with both expected profit and the distribution of firm returns around their expected value. He provided a rationale for why firm's objective functions may be concave so they actively want to avoid risk. His contribution is widely cited as the starting point of this burgeoning literature. Since that time a number of alternative theories and explanations have been offered.

2.3.2.1. Managerial Self Interest

Stulz (1984) argued that firm managers have limited ability to diversify the significant portion of their personal wealth held in the form of stock in the firm and the capitalization of their earnings from the firm. Therefore, they prefer stability of the firm's earnings to volatility because, other things equal, such stability improves their own utility, at little or no expense to other stakeholders. This argument can be traced back to the literature on agency (Allen and Santomero, 1996).

2.3.2.2. The Non-Linearity of Taxes

Beyond managerial motives, firm level performance and market value may be directly associated with volatility for a number of other reasons. The first is the nature of the tax code, which both historically and internationally is highly non-linear. With a non-proportional tax structure, income smoothing reduces the effective tax rate and, therefore, the tax burden shouldered by the firm. By reducing the effective long term average tax rate, activities which reduce the volatility in reported earnings will enhance shareholder value (Allen and Santomero, 1996).
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2.3.2.3. Financial Distress Costs

Firms may also be concerned about volatility of earnings because low realizations lead to bankruptcy. When bankruptcy is costly the firm will try to avoid it and so will behave as if it had a concave objective function. The cost is, perhaps, more important in regulated industries, however. In these cases, large losses may be associated with license or charter withdrawal and the loss of a monopoly position. This has led some to argue that this rationale offers significant insight into why banks themselves may choose low risk strategies, for example, (Santomero, 1989).

2.3.2.4. Capital Market Imperfections

The volatility of profitability causes the firm to seek external finance to exploit investment opportunities when profits are low. The cost of such external finance is higher than the internal funds due to the market's higher cost structure associated with the factors mentioned above. This, in turn, reduces optimal investment in low profit states. The cost of volatility in such a model is the foregone investment in each period that the firm is forced to seek external funds. Recognizing this outcome, the firm embarks upon volatility reducing strategies, which have the effect of reducing the variability of earnings. Hence, risk management is optimal in that it allows the firm to obtain the highest expected shareholder value (Allen and Santomero, 1996).

2.4. Models for Granting Credit

There are two main models for granting credit namely;

Grameen Bank Model: This model is based on use of informal community delivery systems to administer credit and savings; Micro Finance Institutions organize clients into groups for purposes of attaining economies of scale from scale transactions and instituting small group

guarantee mechanism. In this model credit appraisal is based on character assessment rather than viability of projects to be financed and collateral and the focus is on financing very small business and the poor (Khandker et al, 1995).

There are two approaches of giving credit in Kenya; the integrative approach and the minimalist approach. Under the minimalist approach, only credit is provided to borrowers who formally apply for the loan and they are granted what they applied for. This model is based on believe that the provision of credit is necessary to achieve success. On the other hand, the integrative approach also provides training and relative technical assistance in matters relating to financial management in addition to the credit provided (Ledgerwood, 1999).

2.5. Credit Rationing Criteria

This normally takes two forms, firstly, the lenders may refuse to grant the loans even though borrowers are willing to pay a higher interest rate and secondly, lenders may grant the loans but restrict the size of the loans to a lesser amount than what the borrowers applied for (Mishkin, 1997).HELB does all the two forms of credit rationing.

There are two schools of thoughts that guide the lender on how much to give the applicants.
One school of thought argues that applicants know best what they want to invest in and thus they should be given what they applied for (Reinke, 2001). In Cameroon and Togo, for instance, consumer and investment credit is provided and there is no constraint as to how the loans will be used (Gurgand et al., 1994).

The other argument contends that credit should be made available according to repayment

capability based on some factors such as savings, ability to pay, character assessment, target group sought by the lenders. Gurgand et al., (1994) observe that some lenders were specifically giving credit to pre- determined target group. They target groups or individuals such as poor people who suffer from lack of capital or even women applicants. Other factors that Reinke (2001) observes that ethnicity, nationality, factors of social disadvantage such as physical disability, location and objectives of the credit institution. A study done by Rukwaro (2001) reveals that ability to repay the loan and capability were amongst the other factors considered significant in determining the amount of loan to be granted to an individual by micro finance institutions. In the case of HELB, for undergraduate loans, ability to pay is normally not considered at the time of application since the reverse is what is considered instead. Incase the of post-graduate loans HELB does consider the applicants ability and capability to pay since one has to prove that he is in formal employment and the employer must commit to deduct a given amount from the applicants salary before the loan is released.

2.6. Policies to Mitigate the Credit Risks

Large exposures: Financial institutions regulators have traditionally paid close attention to risk concentration by financial institutions. A regulator's objective in credit risk management is to prevent financial institutions from relying excessively on a large borrower or group of borrowers but not to dictate to whom financial institutions may or may not lend. Modern prudential regulations usually stipulate that a financial institution should not make investments, grant large loans, or extend other credit facilities to any individual entity or related group of entities in excess of an amount that represents a prescribed percentage of financial institution's capital and reserves. Greene and Serbien (1983) with their law of large numbers said that as the number of

events increase, the variation in the proportion of actual outcomes (risks) tends to decrease constantly and approaches zero implying that when fewer people apply for credit, the credit risk is high and gradually decreases as more applicants are granted credit. Most countries impose a single customer exposure limit between 10-25% of capital funds, (Greuning and Bratanovic, 1999).

Related party lending: Lending to connected parties is particularly dangerous form of credit risk exposure. Related parties typically include a financial institution's parent, major shareholders, subsidiaries, affiliate companies, directors, executive officers and any other person in position of influencing the credit decision. This relationship results to the ability to exert control over or influence a credit lending institution's policies and decision making especially concerning credit decisions. Kabiru (2002) observes that financial institution's ability to systematically identify and track extensions of credit to insiders is crucial. Limits should be established for aggregate lending to related parties.

Over exposure to a particular area or group of applicants: Another dimension of risk concentration is the exposure of a financial institution to a single group of applicants. This makes the credit lending institution vulnerable to a weakness in a particular group of applicants and poses a risk that it will suffer from simultaneous failures among several clients for similar reasons. It is often difficult to assess the exposure of financial institutions to various sectors of the economy as most financial institutions reporting systems do not produce such information, (Hempel et al, 1994).

2.7. Loan Classification

This is the key credit risk management tool. It is a process whereby an asset is assigned a credit risk grade, which is determined by the likelihood that the debt obligation will be serviced and debt liquidated according to contract terms (Kabiru, 2002). The mostly recognized debt classification/classes/grades are five categories namely; Standard or Pass, Watch, Substandard, Doubtful and Loss (Greuning and Bratanovic, 1999 and CBK, 2002).

Standard or Pass Grade; Includes loans which debt service capacity is considered to be beyond any doubt or those loans that are fully secured by cash or cash substitutes.

Watch Grade; Loans with potential weaknesses that may, if not checked or corrected, weaken the loan as whole or potentially jeopardize the borrower's repayment capacity. For instance, credit given through inadequate loan agreement, no collateral secured when loan is granted or loans granted to borrowers operating under adverse economic conditions.

Sub-standard Grade; These are loan categories that exist when well-defined credit weaknesses that jeopardize debt service capacity and when the targeted sources of repayment are insufficient. This category includes non-performing loans that are past 90 days overdue.

Doubtful Class; This is a loan category that resembles sub-standard loans but their recovery in full is questionable based on the analysis of economic facts. This includes non-performing loans that are past 180 days.

Loss Class; This class includes those loans that are considered uncollectible. However, this category does not mean that the loans have absolutely no recovery or salvage value but recognizing them is of great importance to concentrate recovery efforts.

2.8. Loan Loss Provisioning Policy

Loan classification provides a basis for determining an adequate level of provisions for possible loan losses. Policies on loan-loss provisioning range from mandated to discretionary depending on banking system. In many countries, particularly those with fragile economies, regulators have established mandatory levels of provisions that are related to asset classification, (Basel Committee, 1999). They should also consider the relationships between credit risk and other risks. The goal of credit risk management is to maximize a financial institution's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters.

2.9. Review of Empirical Studies in Related Areas

The issue of non performing loans has recently been given prominence by the banking industry, HELB as a financial institution can not be left behind in the issue since it is facing the same problems of non performing loans. Documentation in regards to non performing loan in institutions concentrating with lending of educational loans are scarce, most of the literature is mainly in relation to the banking sector.

In the banking literature, the problem of NPLs has been revisited in several theoretical and empirical studies. A synoptic review of the literature brings to the fore insights into the determinants of NPL across countries. A considered view is that banks' lending policy could have crucial influence on non-performing loans (Reddy, 2004).

According to an IMF report (1994) in Uganda the country's banking industry was described as extremely weak, with huge non-performing loans and some banks teetering on the verge of collapse. The report notes that reeling from years of economic mismanagement and political interference, Uganda's banking industry posted huge losses in the early 1990s. To help address credit risk management in Ugandan banks, the government introduced a statute that deals with several issues such as insider lending, following the scandal in which billions of shillings were lent without sufficient collateral to Greenland Bank by one of the then newly privatized Uganda Commercial Bank Ltd. The statute further seeks to reduce owner concentration.

According to a study by Brownbridge (1998), most of the bank failures were caused by non-performing loans. Arrears affecting more than half the loan portfolios were typical of the failed banks. Many of the bad debts were attributable to moral hazard: the adverse incentives on bank owners to adopt imprudent lending strategies, in particular insider lending and lending at high interest rates to borrowers in the most risky segments of the credit markets. According to Brownbridge (1998), the single biggest contributor to the bad loans of many of the failed local banks was insider lending. In at least half of the bank failures, insider loans accounted for a substantial proportion of the bad debts.

Fuentes and Maquieira (1998) undertook an in-depth analysis of loan losses due to the composition of lending by type of contract, volume of lending, and cost of credit and default rates in the Chilean credit market. Their empirical analysis examined different variables which may affect loan repayment: (a) limitations on the access to credit; (b) macroeconomic stability;

(c) collection technology; (d) bankruptcy code; (e) information sharing; (f) the judicial

system; (g) prescreening techniques; and (h) major changes in financial market regulation. They

concluded that a satisfactory performance of the Chilean credit market, in terms of loan

repayments hinges on a good information sharing system, an advanced collection technology,

macroeconomic performance and major changes in the financial market regulation.

Lis, *et al.,* (2000) used a simultaneous equation model in which they explained bank loan losses

in Spain using a host of indicators, which included GDP growth rate, debt-equity ratios of firms,

regulation regime, loan growth, bank branch growth rates, bank size (assets over total

size),collateral loans, net interest margin, capital asset ratio (CAR) and market power of default

companies. They found that GDP growth (contemporaneous, as well as one period lag term),

bank size, and CAR, had negative effect while loan growth, collateral, net-interest margin, debt

equity, market power, regulation regime and lagged dependent variable had positive effect

on problem loans. The effect of branch growth could vary with different lags.

Nishimura *et al.,* (2001) state that one of the underlying causes of Japan's prolonged economic

stagnation is the non-performing or bad loan problem. They explain that some of the loans made

to companies and industries by financial institutions during the bubble era became non-

performing when the bubble burst. This delayed structural reforms and prevented the financial

intermediary system from functioning properly.

Bloem *et al.,* (2001) suggested that a more or less predictable level of non-performing loans,

though it may vary slightly from year to year, is caused by an inevitable number of 'wrong

economic decisions' by individuals and plain bad luck (inclement weather, unexpected price changes for certain products, *etc.*). Under such circumstances, the holders of loans can make an allowance for a normal share of non-performance in the form of bad loan provisions, or they may spread the risk by taking out insurance. Enterprises may well be able to pass a large portion of these costs to customers in the form of higher prices. For instance, the interest margin applied by financial institutions will include a premium for the risk of nonperformance on granted loans. Altman, *et al.,* (2001) analyzed corporate bond recovery rate adducing to bond default rate, macroeconomic variables such as GDP and growth rate, amount of bonds outstanding, amount of default, return on default bonds, and stock return. It was suggested that default rate, amount of bonds, default bonds, and economic recession had negative effect, while the GDP growth rate, and stock return had positive effect on corporate recovery rate.

In another study of Chile, Fuentes and Maquieira (2003) analyzed the effect of legal reforms and institutional changes on credit market development and the low level of unpaid debt in the Chilean banking sector. Using time series data on yearly basis (1960-1997), they concluded that both information sharing and deep financial market liberalization were positively related to the credit market development. They also reported less dependence of unpaid loans with respect to the business cycle compared to interest rate of the Chilean economy.

Mohan (2003) conceptualized 'lazy banking' while critically reflecting on banks' investment portfolio and lending policy. In his study of institutional finance structure and implications for industrial growth, Mohan (2004) emphasized on key lending terms of credit, such as maturity and interest-terms of loans to corporate sector. The Indian viewpoint alluding to the concepts of

'credit culture' owing to Reddy (2004) and 'lazy banking' owing to Mohan (2003) has an international perspective since several studies in the banking literature agree that banks' lending policy is a major driver of non-performing loans (McGoven, 1993,).

Jimenez and Saurina (2003) used logit model for analyzing the determinants of the probability of default of bank loans in terms of variables such as collateral, type of lender and bank borrower relationship while controlling for the other explanatory variables such as size of loan, size of borrower, maturity structure of loans and currency composition of loans. Their empirical results suggested that collateralized loans had a higher probability of default, loans granted by savings banks were riskier and a close bank-borrower relationship had a positive effect on the willingness to take more risk. At the same time, size of bank loan had a negative effect on default while maturity term of loans, *i.e.,* short-term loans of less than 1-year maturity had a significant positive effect on default.

Reddy (2004) critically examined various issues pertaining to terms of credit of Indian banks. In this context, it was viewed that the element of power has no bearing on the illegal activity. A default is not entirely an irrational decision. Rather a defaulter takes into account probabilistic assessment of various costs and benefits of his decision

In Ghana, eligible students are granted a loan after they have entered into agreement with the Social Security and National Insurance Trust (SSNIT) which administers student loans. A recipient of the loan is registered by the SSNIT and given a provisional social security number and membership certificate. On completion of studies, the provisional social security number

becomes the graduate's permanent social security number (Ziderman and Albrecht, 1995).

The student loan program collects payments through the social security system. Graduates repay their loans through their standard social security deductions which go to their education budget rather than to their own benefit account. Students therefore, repay their loan through an increased social security tax rate rather than by differing contributions to their own retirement accounts until that loan are repaid. Each borrowing students must have three guarantors who are wage earners and thus traceable by the government. As a result of this effective guarantee system Ziderman and Albrecht (1995) find that default rates are negligible.

There are two national students' loans schemes in China, both formally established in 1999, one is subsidized by government, the second operates on commercial lines (Shen, H and Li, W. 2003). The Government Subsidized Student Loans Scheme (GSSLS) is the main loans scheme in China. It is aimed at poor students enrolled full-time in regular public universities. Loan capital is provided by four state-owned commercial banks. While educational institutions initially process loan applications, the commercial banks are responsible both for selection, lending out of loans and collection of due repayments; they also bear most of the default risk. The banks receive the commercial rate of interest on loans, half of which is paid by government. While the commercial banks put up the loan capital, the total loan volume is constrained by the system of institutional 'quotas', based on the total amount of interest support available from government and by the willingness of commercial banks to provide loans. There are no formal guarantors on loans; students own personal credit acts by way of guarantee, with no consideration of an applicant's credit history. Repayment is due four years after graduation (Shen, H. 2004).

Unlike the government-subsidized scheme, the General Commercial Student Loans Scheme (GCSLS) operated by commercial banks (and rural credit co-operative unions) is open to students in private as well as public universities, and regardless of socio-economic status. Interest on loans is charged at the commercial market rate, without government subsidy. Repayment periods differ, because the various participating banks have their individual loan regulations. Shen H. (2004) observes that since loans are guaranteed through the assets of parents/guardians, the risk of default is minimized, but on the downside the scheme is limited in practice to students from middle and upper class families with the required assets for collateral.

Due to the nature of their business, commercial banks expose themselves to the risks of default from borrowers. Prudent credit risk assessment and creation of adequate provisions for bad and doubtful debts can cushion the banks risk. However, when the level of non- performing loans (NPLs) is very high, the provisions are not adequate protection. According to the CBK (July, 1999) the level of NPLs in 1998 was estimated at Shs. 80 billion or 30% of advances, up from 27% in1997 as compared to 81.3 billion or 33.4% of total loans in November 2001. This can be compared with levels of NPLs in other countries. According to Shirazi (2002), the NPL ratio among Taiwanese banks was estimated at 7.7 percent by the end of 2001, while the ratio among grassroots financial institutions was 16.37 percent. In the Philippines non-performing loans ratio as at July 15, 2001 stood at 16.81 percent of the total loan portfolio, up from 16.76 percent a month before, Comparing, the ratio of non performing loans in Kenya of 33% to similar African economies as at the end of 2000, the ratio is much lower in Zimbabwe (24%), Nigeria (11%) and

South Africa (3%) (CBK 2001).

Kenya has experienced banking problems since 1986 culminating in major bank failures (37 failed banks as at 1998) following the crises of; 1986 - 1989, 1993/1994 and 1998 (Kithinji and Waweru, 2007). The crises were mainly attributed to NPLs (Ngugi, 2001). For example, Daima bank, according to Ngugi (2001) was placed under statutory management for failing to meet the minimum core capitalization threshold - among as well as poor management of loan portfolios.

Bett (1992), while looking at financial performance of the banking sector observed that loan portfolios deteriorate as banks keep lending to their major big borrower because of fear that if they fail, the bank will equally follow suit. He also observed that failed banks were lending at high interest rates to mainly speculators and high risk operators who were unable to repay.

Matu (2001), looked at the applicability of financial crisis predictive model to bank failure in Kenya and observed that the high levels of non performing loans put pressure on banks to retain high lending rates in an attempt to minimize the losses associated with these loans.

According to Mucheke (2001), the key causes of non performing loans in the banking industry are bad lending practices, incompetence on the part of the bank risk managers, political interference in the management of state controlled banks and economic declines.

Obiero (2002), found that the 39 banks which failed during the period 1984 and 2002, 37.8% collapsed mainly due to quality of lending. Though most banks pride in clear and sound lending policies, the reality is that they have been quite reckless in their lending activities. Coupled with this the is the immense pressure particularly on government controlled banks to lend to politically connected individuals and institutions regardless of the credit standing (market intelligence).

According to Omuodo (2003), as pressure mounts on the banking industry's profitability resulting from over reliance on interest income by banks, it is strategically imperative that banks focus on other revenue streams. National Industrial Credit Bank, NIC, introduced new products to diversify revenue and to keep its head above the water. Omoudo adds that part of NIC Bank's strategy has been to diversify revenues, by expanding the scope of its activities in addition to its predominant asset finance focus and offering more general commercial banking facilities and other products. Premium financing and provision of custodial services have reduced over reliance on interest income hence.

Lalampaa (2006),in his study entitled "Response by higher education loans board to the environmental challenges of financing higher education in Kenya", noted that the environment within which the Higher Education Loans board operates presents great challenges and the situation has not been made better by the low funding from the exchequer, high level of non

performing loans, rapid growth of universities in Kenyan system hence increased number of possible beneficiaries, the ravaging HIV/Aids pandemic, migration of loanees,falsification of particulars by loan applicants so as to receive full amounts, and the high unemployment levels in the country where students lucky enough to get a university degree have no guarantee of finding employment.

The study concluded that the board had various strategies in response to the challenges which includes partnering up with various stakeholders to enhance it loan recovery to boost its funds for further loaning e.g. Kenya revenue authority and National Social Security Fund,establishmet of electronic fund transfers, setting up of disaster recovery site to ensure that it does not lose any data of its loan beneficiaries, and the board has an Act that would see those who give false information being liable to prosecution when found and their loans cancelled.

2.10. Conclusion

From the review of past studies above, it is clear that the issue of non performing loans poses a great challenge within the banking and non banking sector. The major factors which have been highlighted as the major contributors of non performing loans includes high interest charged to borrowers, poor quality of lending, political interference especially within the state owned institutions, incompetence on the part of the bank risk managers and poor management of loan portfolios among others. This therefore calls for a study to investigate, the credit risk practices and non performing loans at HELB as compared to other financial institutions (banks), and effectiveness and efficiency of the Kenyan student loan scheme recovery mechanisms.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1.   Introduction

This section highlights the type of research design that were used in the study, the population and sample size, sampling procedure, the data collection procedure and data analysis and presentation.

3.2.   Research Design

The study used empirical cross-sectional design in which data was gathered just once in a single point in time over a period of time between 1995 and 2009 in order to answer the research question. The empirical study was conducted using data from HELB to establish the pattern and effectiveness of credit management practices at HELB vis-à-vis trends in non-performing loans at HELB.

3.3. The Population and Sample

The population and sample was drawn from the Higher Education Loans Board (HELB) because this is a case study of the organization. Emphasis was on the credit management system in the period before the year 2004 when HELB had not developed DBMS and the period after the adoption of the same.

3.4. Data Collection

Secondary data on the core credit management factors namely credit limit, screening, credit risk measurement, client database management and loan recovery ratios was sourced from HELB from 1995 to 2009. Regression analysis was then be used to assess which of the credit management factors have had the greatest impact on non-performing loan reduction using the loan recovery as a proxy for non-performing loans.

3.5. Data Analysis

On collection of the secondary data from HELB an analysis of regression analysis in the manner stated below was undertaken using SPSS statistical package to determine whether there is significant variation between trends in non-performing loans (1 – Loan Recovery Ratio) and key credit management variables.

$$(1 - Loan\ Recovery\ Ratio) = \beta_0 + \beta_1\ CLL + \beta_2\ SCR + \beta_3\ CRM + \beta_4\ DBM + \varepsilon$$

The variables constituting the index are defined as follows:

CLL – The maximum credit limit level (CLL) for each year

SCR – is a dummy variable that is 1 in the years whereby HELB had an established student screening process and 0 in the years that screening mechanisms had not been established.

CRM – is a dummy variable that is 1 in the years whereby HELB had an established credit risk measurement (CRM) system and 0 in the years that risk measurements had not been established.

DBM – is a dummy variable that is 1 in the years whereby HELB had an established database management system (DBM) system and 0 in the years where such a system had not been put in place.

The coefficients β_1, β_2, β_3 and β_4 were used to test the significance of the relationship between the loan recovery ratio variable, which is a proxy for non-performing loans, for each of the independent variables stated in the regression model.

CHAPTER FOUR

4.0 DATA ANALYSIS AND FINDINGS

4.1 Descriptive Statistics

Table 1: Students loan awards -All universities

Financial year	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009
No. Awarded	31844	32039	31548	34776	38864	40113	39951	40065	42566	68498
% Change		0.61%	-1.53%	10.23%	11.76%	3.21%	-0.40%	0.28%	6.24%	60.92%

Loan awards have been very unstable from the financial year 1999/2000 to 2001/2002 this was due to the fact that allocations from the treasury were on a downwards trend and hence HELB had to revise its allocation criteria to measure up with the available funds and still remain to be fair. The allocation from the treasury increased from the period 2001/2002 to 2003/2004 hence

HELB was able to lend to more students. From 2005/2006 to 2008/2009 there was a steady increase in loan awards but 2008/2009 witnessed a sharp increase in awards due to fact that module II students were co-opted.

Table 2: Analysis of loan Recoveries, Disbursement and Non- performing loans

	Total Disbursements		Total Recoveries		Total Loans Serviced		Loans not Serviced	
	CAGR	STDEV	CAGR	STDEV	CAGR	STDEV	CAGR	STDEV
1975-79	58.09%	91.49%	62.14%	100.13%	110.91%	282.53%	53.20%	82.67%
1980-84	9.79%	163.40%	14.70%	164.98%	38.27%	167.54%	2.00%	159.69%
1985-89	17.77%	22.31%	18.20%	21.02%	19.31%	18.20%	16.77%	25.50%
1990-94	12.15%	68.18%	11.98%	70.40%	11.62%	76.88%	12.57%	64.26%
1995-99	0.65%	44.89%	0.17%	41.47%	-0.76%	35.10%	2.15%	55.76%
2000-04	3.51%	34.59%	0.39%	33.65%	-7.38%	32.20%	11.02%	37.47%
2005-09	14.39%	20.21%	13.91%	14.28%	11.94%	118.08%	15.19%	32.77%

CAGR – 5-year Compounded Annual Growth Rate

STDEV – 5-year Standard Deviation in the Growth Rate

The first ten years of education loan activity to 1984 witnessed momentous growth and by extension higher standard deviation was witnessed in this period. This maybe largely attributed

to increased loan uptake in this period in line with student population growth. The next ten years to 1994 witnessed normalized growth in loan activity and on the inception of HELB in 1995, growth in loan activity slackened somewhat to single digits and even negative growth in the case of loan servicing in the 1995 – 2004 period. However, the 2005 – 2009 periods has witnessed increased loan activity with disbursements, recoveries and loan servicing, all improving to double digits. This increased loan activity in this period is likely to have been boosted by the increase in private universities whose students are also eligible for HELB loans and the accommodation of module II students into the loaning programme. The period also so a marked increase in the number of students awarded loans in all universities.

Table 3: Analysis after Database Management System was Introduced

	% of total loan amount cleared	% of non-matured amount	% of performing loan amount	% of dormant loan amount
2003/2004	0.96%	15.12%	30.46%	53.46%
2004/2005	1.65%	19.17%	32.24%	46.93%
2005/2006	2.54%	19.64%	32.95%	44.87%
2006/2007	5.23%	22.23%	31.90%	40.65%
2007/2008	6.98%	21.38%	34.82%	36.82%
2008/2009	7.90%	20.71%	35.86%	35.52%
2009/2010	9.52%	24.49%	35.99%	30.00%
Mean	4.97%	20.39%	33.46%	41.18%
Standard Deviation	3.33%	2.92%	2.13%	7.89%

Since the inception of the database management system in 2003, there had been a gradual improvement in loan clearance from 0.96% in the 2003/04 financial year to 9.52% in the 2009/2010 financial year. Similarly, the non-matured amount had witnessed a gradual improvement largely due to increased student lending, with the total loan value having risen from Kshs 14.16 billion in 2003/04 period to Kshs 27.9 in 2009/10 period. The performing loan amount also posted a steady rise over the seven year period to 35.99% in the 2009/10 financial

year.

On the other hand, although the dormant loan portfolio has recorded considerable improvement over the seven year period, it continues to constitute a sizeable chunk of the total loan portfolio with a seven year mean of 41.18%. Hence on average, over a seven year period 41.18% of the loans were not being serviced thereby severely restricting the ability of HELB to lend students. However, the declining trend in dormant loans and the relatively large standard deviation of 7.89% in the same period are indicative that HELB has major sizeable headway in reducing its bad debt exposure and as a result its lending efficiency is on the mend.

4.2 Time Series Analysis

Figure 4.2.1: Total Loan Disbursed Between 1975-2008

Total Loan Per Year
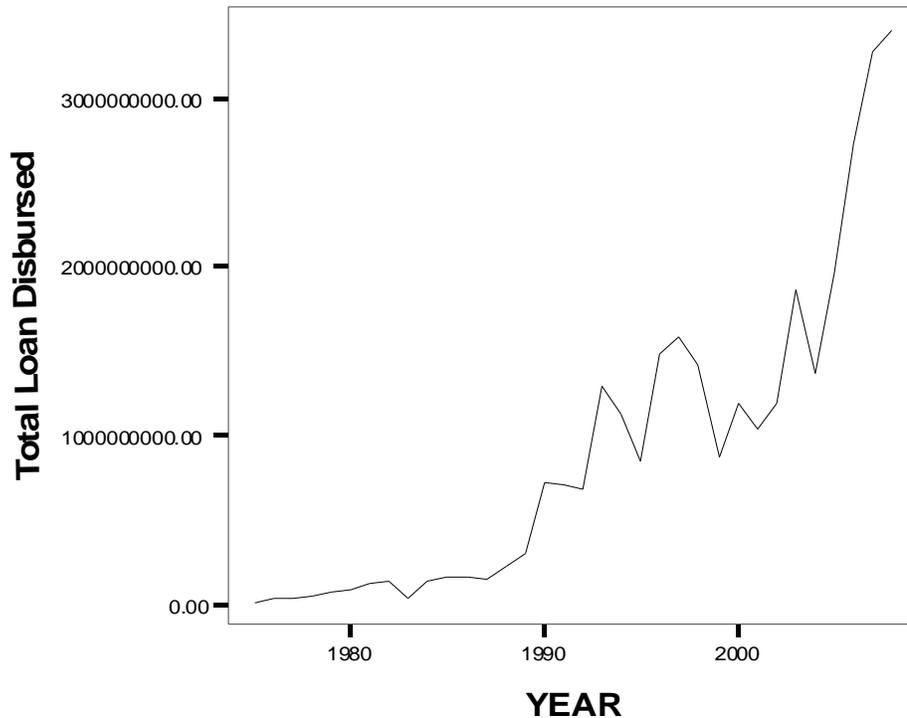
Loan disbursement has been on the increase since 1975, the university loan scheme then was being managed by the Ministry of Education. Loans were being awarded based on the course one was taking i.e. science based courses had higher loans than arts based courses. There has been a steady increase in the amounts disbursed from 1975 to early 1980's, the period 1982 to 1983 there was a decline in the same and this can majorly be attributed to the aborted coup of 1982 where many university students were expelled and universities were closed for a while hence less money was actually disbursed. From Mid 1980's to late 80's there was a steady increase in the disbursement of loans occasioned by an increase in the number of public universities and the number of students joining them. The years 1989 to 1990 experienced a sharp increase in the disbursements and this can be attributed to the double intake of students by the universities

which was necessitated by the change in the education system in Kenya. The situation stabilized in the early 90's, HELB came into being in 1995 and for the first 3 years i.e. 1995,1996 and 1997 HELB was actually concentrating on setting structures hence most of the loan applicants were being awarded full loans hence the sharp increase in the disbursements.

A new lending criteria was put in place in 1998 and this showed a very sharp decrease in the figures disbursed since awards per students declined based on how needy the person was. Disbursements were stable from the year 2000 to 2003 when HELB now introduced a database management system, coupled with the increase in the number of both universities which now included private, ever increasing number of applicants and low funding from the Government, HELB revised its lending criteria again which further reduced the amount disbursed in 2004.From the year 2005 to date a number of both public and private universities have increased tremendously so is the number of loan applicants and the co-opting of the module II students has led into the amount being disbursed by HELB to been on the increase since then.

Figure 4.2.2: Total Loan Recovered Between 1975-2008

Total Loan Recovered
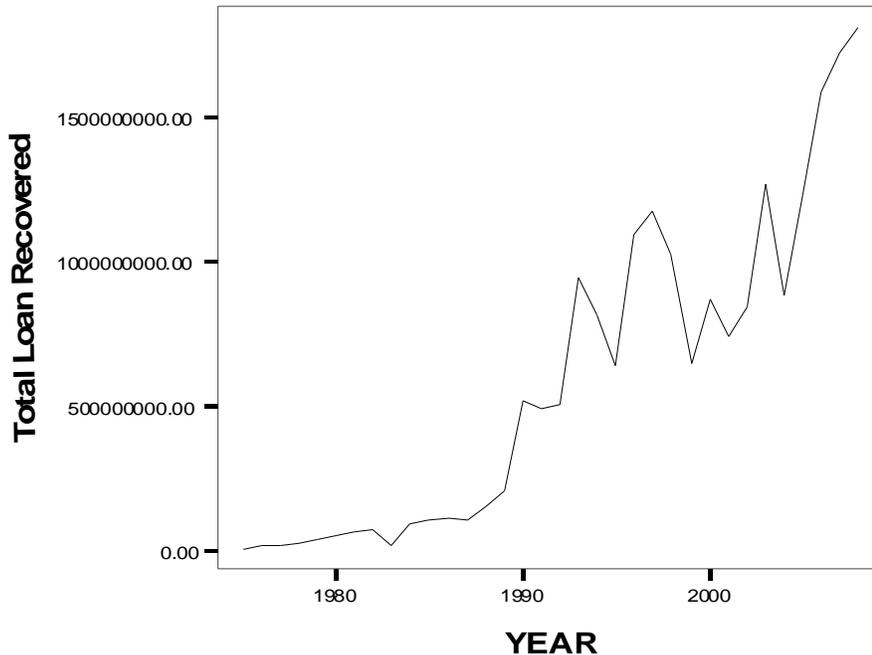
Loan recovery from 1975 to 1982 was increasing steadily until it was affected by the coup attempt as shown in the graph. From mid 1980's to early 1990's the economy was fairly able to absorb most of the graduates hence boosting the recovery of loans since most of the graduates were employed by the government or government agencies. From around 1993 to 1994 there was a lax by the ministry officials who were in charge of recovery since they knew that the department was being transferred to another semi autonomous body later to be called HELB.

During the transition to HELB the recoveries for the year 1995 went down since HELB was required to start from scratch. The period 1995 to early 2000, HELB was highly under staffed, it was still working on putting the records inherited from the ministry in order, and Technology was a big challenge since everything was being conducted manually, so basically its recoveries

heavily relied on volunteers hence the unstable trends. The year 2004 saw the introduction of database management system and data sharing with strategic partners like Kenya Revenue authority, national social security fund and even national hospital insurance fund to track loanees and positive publicities which helped in the annual recoveries being experienced to date.

Figure 4.2.3: Non-Performing Loans Between 1975-2008

Non-Performing Loans
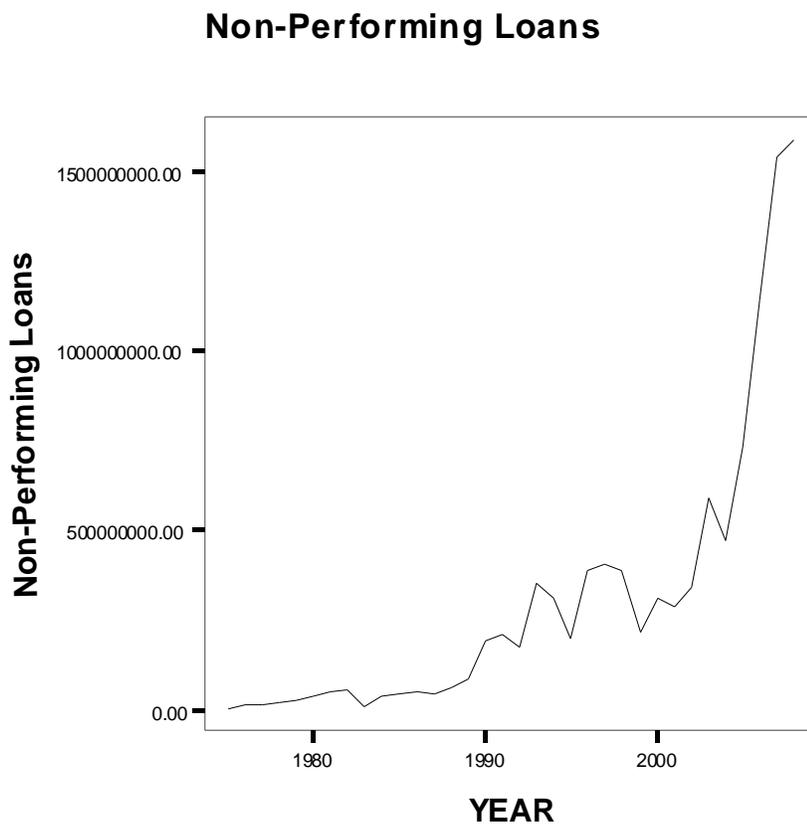
Non-performing loans have been on the general increase since 1975.Between 1975 and late 1980's there was almost an equal yearly increment in the non-performing loans. The figure went up in the early 1990's before HELB came into being basically because of the effect of the double intake of the late 1980's and the general poor performance of the economy since it could not

absorb all the graduates at that particular time. From 1995 when HELB was created, it brought some changes with it in that students were required to apply for loans and the same could be awarded based on the need status of the students and not based on the course one was undertaking. The maximum figure one could get then was kshs. 42,000. The non-performing loans increased sharply in the first year of operation of HELB since structures were still being put into place. From 1998 to date the figure has been on an upward trend partly due to the increase in the maximum credit limit from kshs. 42,000 to kshs. 55,000 and the current kshs. 60, 000, increase in the number of beneficiaries and the general high level of unemployment in the country has highly effected contributed to the ever increasing non-performing loans at HELB.

Figure 4.2.4: Performing Loans Between 1975-2008
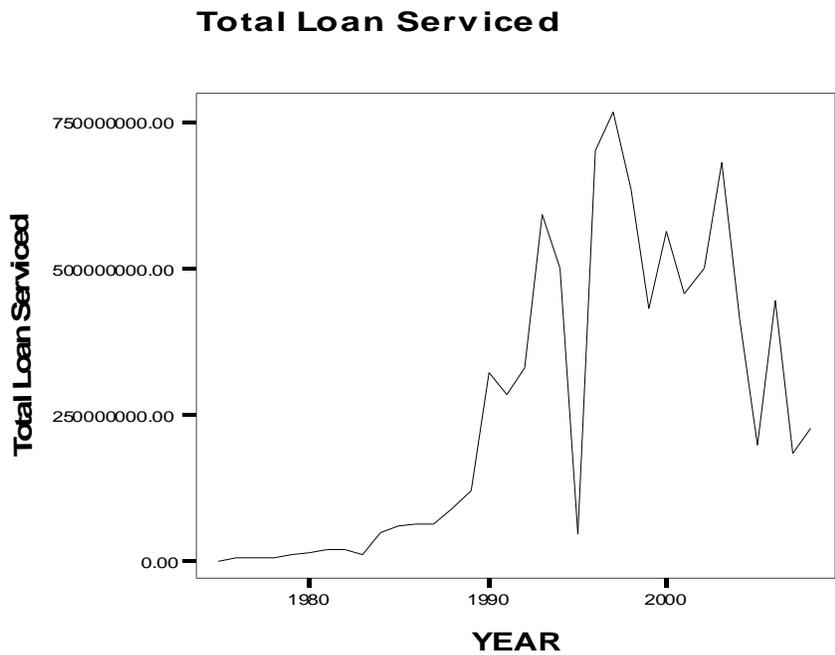
There has been a gradual increase in the performing loans from 1975 to late 1980's, this can be attributed to the low number of students who were actually graduating at this period and the fact

that the economy was able to absorb most of these graduates and in particular the public sector making it easy for the ministry to recovery the money from the past loanees.The effects of the double intake in late 1980's was felt in early 1990's when the performing loan figures sharply reduced and went to its lowest in the year 1995 when HELB came into being. Performing loans improved after HELB was created to around 1998 and then the figures went down partly due to the general increase in the unemployment rates, increase in number of loan beneficiaries due to increase in the number of universities. From the year 2000 to date performing loans have been fluctuating up and down due the fact that the maximum credit limit was revised upward, number of universities increased so is the number of students, the economy has been unable to absorb all the graduates hence many are unable to repay their loans and when they become due.

Figure 4.2.5: Non- Performing Loans As a Percentage of Total Loans Between 1975-2008
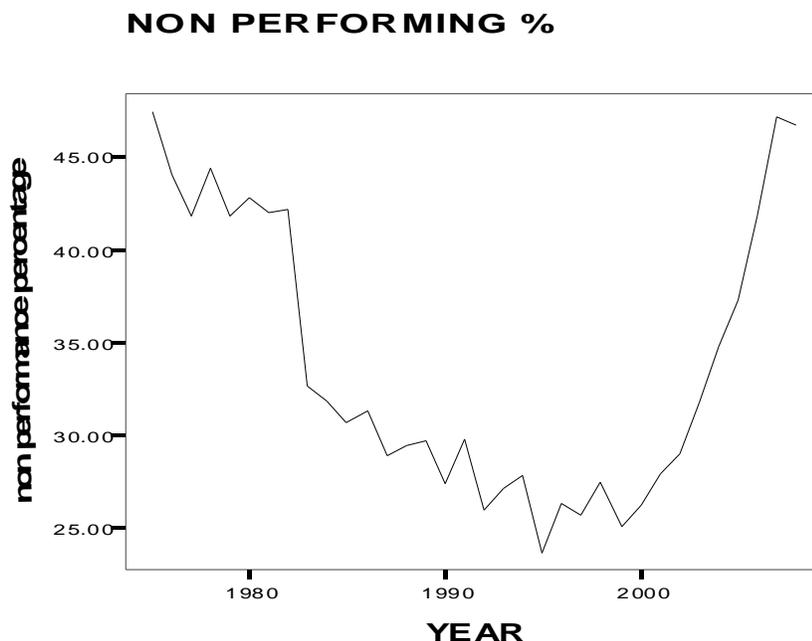
Non-performing loans as a percentage of total loans have been on the decline since 1975 to mid

1990's.This can majorly be attributed to the fact that the economy was able to absorb most of the graduates into employment hence they were able to repay their loans on time. From 1995 to around 1999 the figure was on an upward trend due to the change of system and an increment in the maximum loan amount and the general increase in the number of students in the universities. After 1999 the figure has been on the rise because HELB adjusted its maximum loan amount twice from Kshs. 42,000 to first Kshs. 55,000 then Kshs. 60, 000, another reason for the increase in the figure is the fact that the number of applicants increase due to the fact that private universities and module II students were also co-opted into the lending system.

Figure 4.2.6: Performing Loans As a Percentage of Total Loans Between 1975-2008
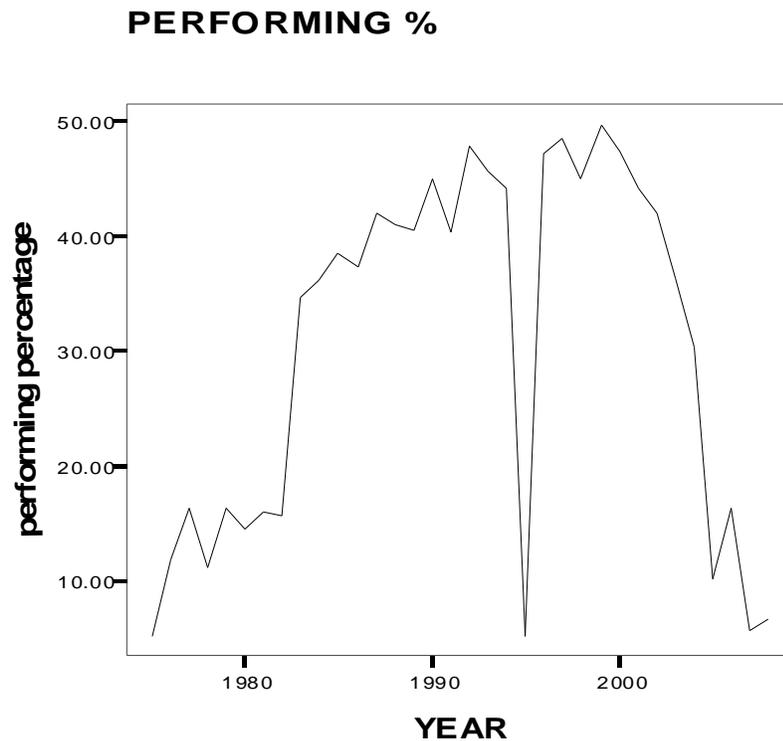
Performing loans on the other hand has been on the increase from 1975 to early 1990's, again

this is attributed to the fact that the economy was able to absorb most of the graduates hence recovery was easy since most of the graduates were joining public service. Performing loans figure went down drastically in the year when HELB came into being and this is because by then there was a transition from Ministry of education to HELB hence a lot of energy was being used to set up structures of the new organization. There was a better improvement in the performing loans after HELB came into being but the figure stated going down due to poor economic conditions, large number of students joining public universities, the inclusion of private universities students in accessing the loan facility and the eventual co-option of module II students in the same.

4.2.7. Prediction of Loan Disbursement, Loan Recoveries and Non-Performing Loans

Loan disbursement in the next five years to 2013 are focused to increase by 54% to around Kshs.5.2 billion (Appendix VII), this can clearly be attributed to the ever increasing number of students joining both public and private universities. For example number of students who are expected to join public universities beginning academic year 2011/2012 has increased from 12,000 to 24,000 and majority of them will be relying for funds from HELB.As the demand for university education keeps increasing, there will be a general expectation that the number of universities both private and public will increase so as to help meet the demand and thus will force HELB to disburse more in line with the predicted figures.

Recoveries on the other hand are projected to increase by around 36% to Kshs. 2.4 billion in the next five years to 2013 (Appendix IV). Since one of the core mandate of HELB from inception was to set up a revolving fund, with the current trends then this is still far from being achieved.

HELB is expected to work on improving its credit risk management system, come up with better loanee tracker mechanism so as to improve on its recoveries, improve on its record management among other measures so as to ensure that its recoveries are highly increased since with the current constitution we expect to have a lot of competition for funds from treasury from various government organs of which HELB is not sure of getting priority over others. The only way out is for it to be efficient and ensure timely recoveries of its loans so that the money can be lent out to other needy students.

Non-performing loans are predicted to increase by 74% to Kshs.2.8 billion by 2013 (Appendix VI).This will impact negatively on the cash flows of HELB since lots of its cash will be tied in the non-performing loans. The major reason for this high increase is due to the large number of the beneficiaries expected as a result of high demand in university education, which will in turn produce so many graduates. The high number of graduates will result into high level of non-performing loans if they are not absorbed in the economy. HELB as an organization need to develop strategies which will help minimize the rate of non-performing loans for example having guarantors for all loans.

4.4 Regression Analysis

	Coefficients	t Stat
Intercept	-0.253058789	-1.223294586
β_{CLL}	0.000012176	2.478644759
β_{SCR}	0.012677429	0.595992066
β_{CRM}	-0.096281793	-1.163040715
β_{DBM}	0.046942097	1.39573114
Adjusted R^2	0.896955983	

*Significance at the 5% Confidence Level

The regression analysis indicates that all the four variables CLL, SCR, CRM and DBM contributed significantly to the variations in non-performing loans. However, the credit risk management recorded a negative correlation with non-performing loans implying that effective credit risk measurements (CRM) have served to reduce non-performing loans and thereby improve on loan recovery. On the other hand, the results also indicate that with regard to credit limit levels (CLL), the gradual increase in credit limit levels from Kshs 42,000 in 1995 to Kshs 60,000 in 2007 has significantly and positively contributed to the level of non-performing loans. Likewise, the screening (SCR) and Database Management Systems have also significantly and positively contributed to the non-performing loan levels.

The adjusted R^2 of 0.897 also indicates that there is a strong relationship between the trend in non-performing loans and the four credit risk management tools, hence the tools can be considered to be important in dealing with non-performing loans.

4.5 Summary of Findings

The study found that the dormant (non-performing) loan amount has been on a gradual decline constituting 30% of total loan amount in 2009 compared to 53% in 2003. With regard to regression analysis the credit risk measurement system was the only system whose implementation was found to contribute significantly to the reduction of non-performing loans at HELB.

4.6 Implications of Findings

The findings indicate a trend of general decline in non-performing loans and a significant contribution of the credit risk measurement system to the decline in non-performing loans. Consequently, the decline in non-performing loans can be attributed mainly to the implementation of an effective credit risk measurement system by HELB. However, the implementation of the other credit management tools namely, credit limit levels, screening and database management systems have served to contribute to the relatively high non-performing loan levels and as such their implementation has not effectively contributed to the reduction of non-performing loans.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The study indicated that disbursements have been on the increase since HELB came into being in 1995 to date this has been attributed to the increase in the number of both public and private universities as a result of high demand of university education. The future outlook also indicates that the figures will continue increasing in the next five years.

The recovery figures have also been on the increase though not at the same rate as disbursement and this shows that HELB is still far from meeting its key objective of creating a revolving fund. It actually imply that HELB will still be relying a lot for funds from the treasury unless better ways of dealing with default are put in place.

Non-performing loans as a percentage of total loans have actually been on the decline since 1975.The figure started increasing from around 1998 due to the fact that HELB increased its maximum loan amount and also widen its lending base to include private universities and currently module II students. Non-performing loans need to be reduced since they tend to tie the institution funds hence limiting the amount of money that can be disbursed to other needy students

The findings indicate that credit risk management has been the only effective credit risk management tool in containing non-performing loans at HELB. On the other hand, the other credit risk management tools, namely credit limits, screening and database management, have had the effect of positively contributing to the non-performing loans level.

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5.2 Policy Recommendations

There is need for HELB to review its credit management approaches with regard to credit limits, screening and database management so as to ensure that they are effectively used to clamp down on the non-performing loan portfolio. At the same time HELB should continue with the same credit risk measurement policies in place as they have proved to be effective in reducing non-performing loans.

5.3 Limitations

There are a few studies done on credit risk management of educational loan schemes. The few studies that are there, deal with the more fundamental issues of student funding by the State i.e. ensuring the youth of a country get access to higher education and equity considerations in loan allocation.

There are incomparable institutions that offer student loan facilities in Kenya that could have been used to generate comparisons of their credit risk management techniques. Most examples that have been used in this research are from data collected from banks and other non-bank financial institutions. HELB is a social fund and therefore is not comparable to other profit making financial institutions. Its financial management procedures do not match to those of other financial institutions.

Given that the database management system was introduced in 2003/04 financial year it has only

been operational for five years to 2009 and the cumulative in efficiencies, from its initiation of HELB in 1996, in credit risk management before 2003 are still reflected in the firm's credit risk management performance in the post database implementation period.

5.4 Recommendations for further studies

In view of the relatively short period since the implementation of the database management system there is need to do a similar study over a longer period of time in the future to test whether the findings reached in this study hold.

This research considered HELB as a financial institution affected by problems of adverse selection and moral hazards, but little has been said on how to counter these problems. This is an area of future research that needs to be explored.

REFERENCES

Allan. A., Santomero. A., (1996), "*The Theory of Financial Intermediation*", Working Paper Series; the Wharton Financial Institutions Center, University of Pennsylvania.

Altman, E.L., and Andrea R., (2001): '*Analyzing and Explaining Default Recovery Rates* ', A Report Submitted to the International Swaps & Derivatives Association.

Barr, R. L., (1994): "*Forcasing Banking Failure: A Non-Parametric Frontier stimation Approach*", Researches Economiques de Lovain *(60)*, 1994, 417-429.

Basel Committee on Banking Supervision (1999): "*Principles for the Management of Credit Risk",* Basel Committee.

Bett, K.A.K., (1992): *Financial performance of the Banking sector: The case of Kenyan Banks and Financial institutions*, Unpublished MBA project, University of Nairobi.

Bercoff, J.J., and Julian D.G., *(2002),'Argentinean Banks, Credit Growth and the Tequila Crisis*: A Duration Analysis.

Bloem, A.M., and Cornelis N. G., (2001): '*The Macroeconomic Statistical Treatment of Nonperforming Loans',* Discussion Paper, Statistics Department of the International Monetary Fund , December 1, 2001.

Brownbridge, M., (1998): *The Causes of Financial Distress in Local Banks in Africa and Implications for Prudential Policy*, UNCTAD OSG/ DP/ 132.

Central Bank of Kenya, (1997): *Reforming Kenya's Financial Sector,* Monthly Economic Review, Nairobi.

Central Bank of Kenya, (1999): *Bank Supervision Report, Nairobi.*

Central Bank of Kenya, (2001): *Inflation*, Monthly Economic Review, Nairobi.

Central Bank of Kenya, (2002): Monthly Economic Review, Nairobi.

Chacha, C.N., (2004): *Reforming Higher Education in Kenya: Challenges, lessons and opportunities*, a paper presented at the state university of New York workshop with the parliamentary committee on Education, Science and Technology, Naivasha, Kenya,August 2004

Chung, Y.P., (2003): *"The student loans scheme in Hong Kong"*, Bangkok: IIEP, UNESCO Bangkok.

Demirguc K., (2000): *"Inside the Crisis: An Empirical Analysis of Banking System in distress"*, IMF Working Paper WP/00/56, October.

Dynarski, S., (2003): *"Does Aid Matter? Measuring the Effect of Student Aid on college attendance and Completion"* American Economic Review vol. 93 (1).

Erik J.O., and Andreas G., (2004): *"Can Student Loans Improve Accessibility to Higher Education and student Performance? An Impact Study of the SOFES Programme in Mexico"*, Policy Research Working Paper Series *3425,* The World Bank 1818 H. Street, Washington DC.

Financial Standard., (2001): Special Report, 3rd April 2001.

Fuentes H., and Maquieira J., (1998): *Status of Non-Performing Loans in Banking Sector in Chile.* Chile University of Business and Technology Journal, 4(2), 15-26.

Fuentes H., and Maquieira J., (2003): '*Does Judicial Efficiency Lower the Cost of Credit?*' World Bank Policy Research Working Paper 3159, October 2003.

Gravenir F. Q., (2005): *"Rethinking the financing of Kenya's higher Education: Options for Enhancing Equity, Access, and Quality",* Paper prepared for the regional Conference on the Financing of Higher Education, Organized by the Higher Education loans Board, Nairobi: 27th-28th October, 2005.

Greens R. M., and Serbein N. O., (1983): *Risk Management: Text and Cases*, 2nd Edition, Reston Publishing Company, New York.

Greuning, H. V., and Bratanovic S. B., (1999): *"Analyzing banking risk: A framework for assessing corporate governance and financial risk management",* Washington DC: The World Bank Publications.

Gurgand, M., (1994): *"Outreach and sustainability of six_rural finance institutions in sub-saharan Africa"*, Washington DC: The World Bank Publications.

HELB Data base, Loan portfolio analysis.

HELB Review (2002): *Financing Higher Education in Kenya,* Issue No.2. Nairobi: Higher education loans board.

HELB Review (2003): *Financing Higher Education in Kenya,* Issue No. 3. Nairobi: Higher Education Loans Board.

HELB Review (2004): *Financing Higher Education in Kenya*, Issue No. 5. Nairobi: Higher education loans board.

HELB Review (2010): *Financing Higher Education in Kenya*, Issue No. 12. Nairobi: Higher education loans board.

Hempel, G. H., (1994): *Bank Management: Text and cases,* 4th Ed. New Jersey, John Wiley and Sons, Inc.

International Monetary Fund (IMF): *Code of Practices on Fiscal Transparency: Declaration on Principles.* Washington *DC. IMF, 1994.*

Jimenez de L., and Saurina J., (2003): *Credit Growth, Problem Loans and Credit Risk Provisioning in Spain*, Available: http://www.bde.es/informes/be/docs/dt0018.pdf (7/10).

Johnston, D. B., (2004): *"Higher education finance and accessibility: Tuition fees and*

students loans in sub- saharan Africa", Journal of Higher Education in Africa vol.2 (2), pp. 11-

36.

Kabiru J.M.G., (2002): *''The Relationship between credit risk assessments practice and the level of non-performing loans of Kenyan banks''*, Unpublished MBA Research Paper, University of Nairobi.

Khandker, R. S., (1995**):** *"Performance and Sustainability",* Washington DC, The World Bank Publications.

Kithinji, A., and Waweru, N.M., (2007): *Merger Restructuring and Financial Performance of Commercial banks in Kenya.* Economic, Management and Financial Markets Journal, 2 (4), 9-39.

Kiyai, T.K., (2003): *''Bad debts restructuring techniques and non-performing loans of commercial Banks in Kenya''*, Unpublished MBA Thesis, University of Nairobi.

Koigi, J., (2006): *"Inside Story: Billion Shillings Loan Scandal at Public Universities"*, Daily nation, May 1, 2006.

Lalampaa, T.J., (2006): *"Responses by the Higher Education Loans Board to the Environmental challenges of financing higher education in Kenya",* Unpublished MBA Research Paper, University of Nairobi.

Ledgerwood J., (1999): *"Micro finance handbook, an institutional and financial perspective:*

sustainable banking with the Poor", Washington DC, The World Bank Publications.

Lis, S.F., (2000): *'Credit Growth, Problem Loans and Credit Risk Provisioning'* In Spain, Banco de España — Servicio de Estudios, *Documento de Trabajo* no 0018.

Market intelligence banking survey., (2001): *A comprehensive analysis and ranking of 46 Kenya banks.*

Matu M., (2001): *Applicability of Financial Crisis Predictive Model to Bank Failures in Kenya,* Unpublished MBA Thesis, University of Nairobi.

McGovern, J., (1993): '*Why bad loans happen to good banks'*, The Journal of Commercial Lending. Philadelphia: Feb 1993. Vol. 75, Issue. 6.

Mohan, R., (2003): *'Transforming Indian Banking: In Search of a Better Tomorrow', Reserve Bank of India"*, Speeches, Reserve Bank of India Bulletin, January.

Mohan, R., (2004): '*Finance for Industrial Growth'*, Reserve Bank of India Bulletin, Speech article, March 2004.

Mudiri, J.L., (2003): *''Credit management techniques applied by financial institutions offering micro credit in Kenya''*, Unpublished MBA Thesis, University of Nairobi.

Mucheke, J.G., (2001): *Determinants of NPLS in Kenya.* The Case for Commercial Bank, Unpublished MBA Thesis, University of Nairobi.

Ngolovoi, M.,(2009):*"Brief Description of the Higher Education System in Kenya."*Maryngolovoi.cgpublishers.com.

Ngugi, R., (2001): *An empirical analysis of interest rate spread in Kenya.* AERC research paper 106, African Economic Research Consortium, Nairobi, 2001.

Nishimura, K., (2001): *The Disposal of Non-Performing Loans and Its Potential Influence* Available:http://www5.cao.go.jp/keizai3/2001/0628furyousaiken-e.pdf.

Nyaundi, O. A., (2001): "*Student loans in Kenya. How reliable is the awarding process?"* unpublished M.A Thesis, Kampala, Makerere University.

Obiero, D., (2002): *The banking sector regulatory framework: Its adequacy in reducing bank failures,* unpublished MBA project, University of Nairobi.

Odebero, O.S., (2008): *''Equity in access to university Education in Kenya through HELB loans in relation to demand, supply and effectiveness in loan recovery''*, Unpublished Phd Thesis, Egerton University.

Omoudo, M., (2003): *The quest for diversification,* Available: http://www.mi.co.ke/banking.
Onono, R., (2006): *''Credit management in the service industry, the case study of Telkom Kenya''*, unpublished MBA Thesis, University of Nairobi.

Psacharopoulos, G. and Woodhall, M., (1985): *"Education for development, an analysis for investment choices"***,** 2nd edition, Washington D.C., Oxford University Press.

Reddy, Y.V., (2004):*"Credit Policy, Systems, and Culture"*, Reserve Bank of India Bulletin, March 2004.

Reinke, J., (2001): ***"Variations in Micro Finance Design: Some Important Variations"*** Journal of Development Studies*,* Vol.34 No. 3 February 2001.

Republic of Kenya., (1988): *"Report of the Presidential working paper on Education and manpower for the next decade and beyond (Kamunge report)"* Nairobi, Jomo Kenyatta foundation.

Republic of Kenya., (2005): Sessional paper no. 1 of 2005 on a policy framework for education, training and research Nairobi, Ministry of Education, Science and Technology. *''Access equity and quality of tertiary education and training''*.

Santomero, A., (1989): *"The changing structure of financial institutions: a review essay"*, Journal of Monetary Economics, vol. 24, pp. 321-328.

Scholtens, B. and Dick V. W., (2003): *"The Theory of Financial Intermediation: An essay on what it does (Not) Explain."* The European Money and Finance Forum Vienna (SUERF) Studies, Vol. 1.

Shen, H., Li, W. (2003): *"A review of the student loans scheme in China"*. Bangkok, IIEP; UNESCO.

Shen, H., (2004):*"The most urgent problem in student loans scheme in China: repayment."* In: Harvard China Review, spring,   pp. 93-97.

Shirazi, J., (2002): *The East Asian Crisis: Origins, Policy Challenges, and Prospects,* The world Bank Group.

Stulz, R., (1984): *"Optimal hedging policies"*, Journal of Financial and Quantitative Analysis, vol. 19, pp. 127- 140.

Tilak, J.B.G., (1992): "*Student Loans in Financing Higher Education in India*" Higher Education vol. 23, No. 4.

Usher, A., (2005)*: Global debt pattern: An international comparison of student loan burdens and repayment condition.* Toronto: Educational Policy Institute.

Van Horne, J.C., (1989): *Financial Management and Policies,* Strategic Finance, August, 2002 pp45.

World Bank., (1988): "*Education in Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion",* Washington DC: The World Bank Publications.

Ye, Yanfei., (2003): "The Way of Dealing with Non-performing Loans and Its effects on Maco-statistics in China", *National Bureau of Statistics, China*.

Ziderman, A., and Albrecht, D. (1995): *"Financing Universities in Developing Countries''*. London: The Falmer press.

Ziderman, A., (1999): *"The student loans scheme in Thailand: a review and recommendations for efficient and equitable functioning of the scheme",* Report prepared for UNESCO Bangkok, as part of the Asian Development Bank Loan Programme, in the framework of the education management and Finance Study (Project TA 2997896-THA). Bangkok: UNESCO.

Ziderman, A., (2002): *"Financing student loans in Thailand: revolving fund or open-ended commitment?"* Economics of Education Review, vol. 21(4), pp. 367-380.

Ziderman, A., (2002):*"Alternative objectives of national student loans schemes: implications for design, evaluation and policy"*, The Welsh Journal of Education, vol. 11(1), pp. 37-47. Reprinted in: Peking University Journal of Education, April 2004.

Ziderman, A., (2003): *"Student loans in Thailand: are they effective, equitable, sustainable?"* Bangkok: IIEP; UNESCO Bangkok.

Appendix I: Loan Portfolio Analysis Cumulative (Source: Recovery System of HELB)

FINANCIAL YEAR	TOTAL LOAN VALUE	AMOUNT CLEARED	AMOUNT NONMATURED	AMOUNT PERFORMING	AMOUNT NON-PERFOMING
2003/2004	14,161,455,758.25	135,349,018.00	2,141,105,428.20	4,314,160,231.65	7,570,841,080.40
2004/2005	15,977,331,908.25	264,417,189.00	3,063,396,447.00	5,151,668,013.45	7,497,850,258.80
2005/2006	17,587,971,458.25	446,319,834.80	3,454,974,502.40	5,795,657,237.65	7,891,019,883.40
2006/2007	20,239,861,158.25	1,057,585,037.00	4,499,110,536.80	6,456,177,305.05	8,226,988,279.40
2007/2008	22,234,084,818.25	1,552,203,350.20	4,753,463,555.60	7,742,298,872.65	8,186,119,039.80
2008/2009	24,268,194,518.25	1,918,357,756.35	5,027,139,186.00	8,702,724,178.70	8,619,973,397.20
2009/2010	27,897,227,318.25	2,656,837,080.52	6,832,417,544.00	10,039,089,601.23	8,368,883,092.50

Source: HELB Data, 2009

Appendix II: Loan Recoveries and Non-performing Loans Data (1995 – 2009)

Year End	Total Loan Recovered	Performing Loans	Non- Performing Loans	Total Loan	Non-Performing Loans	Performing Loans
	Kshs.	Kshs.	Kshs.	Kshs.	Percentage	Percentage
1995	644,416,935.20	444,079,106.20	200,337,829.00	844,754,764.20	24%	76%
1996	1,094,934,195.25	702,565,562.85	392,368,632.40	1,487,302,827.65	26%	74%
1997	1,175,112,096.07	768,024,005.67	407,088,090.40	1,582,200,186.47	26%	74%
1998	1,025,165,173.30	636,169,081.50	388,996,091.80	1,414,161,265.10	28%	72%
1999	648,908,369.40	430,805,204.00	218,103,165.40	867,011,534.80	25%	75%
2000	874,768,656.00	562,361,829.20	312,406,826.80	1,187,175,482.80	26%	74%
2001	746,362,353.30	457,180,056.10	289,182,297.20	1,035,544,650.50	28%	72%
2002	843,906,445.20	499,084,503.60	344,821,941.60	1,188,728,386.80	29%	71%
2003	1,273,904,786.00	680,044,301.60	593,860,484.40	1,867,765,270.40	32%	68%
2004	888,385,126.20	413,773,260.80	474,611,865.40	1,362,996,991.60	35%	65%
2005	1,234,382,364.20	499,133,699.20	735,248,665.00	1,969,631,029.20	37%	63%
2006	1,589,704,252.40	446,215,500.80	1,143,488,751.60	2,733,193,004.00	42%	58%
2007	1,726,264,759.00	183,675,296.40	1,542,589,462.60	3,268,854,221.60	47%	53%
2008	1,812,985,629.60	225,828,120.00	1,587,157,509.60	3,400,143,139.20	47%	53%
2009	2,078,281,347.60	783,721,280.00	1,294,560,067.60	3,372,841,415.20	38%	62%

Source: HELB Data, 2009

Appendix III :Table showing loans recoveries and Disbursements   from 1975 to 2008

Year End	Total Loan Disbursed	Total Loan Recovered	Performing Loans	Non-Performing Loans
	Kshs.	Kshs.	Kshs.	Kshs.
1975	11,027,680.00	5,798,840.00	570,000	5,228,840.00
1976	33,895,067.00	18,958,887.00	4,022,707.00	14,936,180.00
1977	34,710,900.00	20,195,930.00	5,680,960.00	14,514,970.00
1978	49,618,595.00	27,569,795.00	5,520,995.00	22,048,800.00
1979	68,877,837.00	40,078,112.00	11,278,387.00	28,799,725.00
1980	90,973,814.00	52,044,423.00	13,115,032.00	38,929,391.00
1981	117,761,154.00	68,319,009.00	18,876,864.00	49,442,145.00
1982	129,921,864.00	75,083,055.00	20,244,246.00	54,838,809.00
1983	29,373,355.40	19,772,525.40	10,171,695.40	9,600,830.00
1984	132,198,430.63	90,065,207.63	47,931,984.63	42,133,223.00
1985	155,044,100.00	107,385,860.00	59,727,620.00	47,658,240.00
1986	165,198,885.00	113,442,175.00	61,685,465.00	51,756,710.00
1987	149,897,565.00	106,491,550.00	63,085,535.00	43,406,015.00
1988	219,342,200.00	154,632,650.00	89,923,100.00	64,709,550.00
1989	298,247,468.20	209,627,357.20	121,007,246.20	88,620,111.00
1990	714,572,057.10	518,318,842.30	322,065,627.50	196,253,214.80
1991	703,062,044.70	493,577,595.70	284,093,146.70	209,484,449.00
1992	687,223,553.30	508,324,483.30	329,425,413.30	178,899,070.00
1993	1,297,824,523.40	945,519,639.40	593,214,755.40	352,304,884.00
1994	1,130,271,460.00	815,140,470.00	500,009,480	315,130,990.00
1995	844,754,764.20	644,416,935.20	444,079,106.20	200,337,829.00
1996	1,487,302,827.65	1,094,934,195.25	702,565,562.85	392,368,632.40
1997	1,582,200,186.47	1,175,112,096.07	768,024,005.67	407,088,090.40
1998	1,414,161,265.10	1,025,165,173.30	636,169,081.50	388,996,091.80
1999	867,011,534.80	648,908,369.40	430,805,204.00	218,103,165.40
2000	1,187,175,482.80	874,768,656.00	562,361,829.20	312,406,826.80
2001	1,035,544,650.50	746,362,353.30	457,180,056.10	289,182,297.20
2002	1,188,728,386.80	843,906,445.20	499,084,503.60	344,821,941.60
2003	1,867,765,270.40	1,273,904,786.00	680,044,301.60	593,860,484.40
2004	1,362,996,991.60	888,385,126.20	413,773,260.80	474,611,865.40
2005	1,969,631,029.20	1,234,382,364.20	499,133,699.20	735,248,665.00
2006	2,733,193,004.00	1,589,704,252.40	446,215,500.80	1,143,488,751.60
2007	3,268,854,221.60	1,726,264,759.00	183,675,296.40	1,542,589,462.60
2008	3,400,143,139.20	1,812,985,629.60	225,828,120.00	1,587,157,509.60

Appendix IV: Table showing loans recoveries Predictions for 2009 to 2013 (SPSS Analysis)

Year End	Total Loan Recovered in Kshs.	Predicted Recovered Loans in Kshs.
1975	5,798,840.00	39,907,830.63
1976	18,958,887.00	25,407,203.16
1977	20,195,930.00	26,488,035.53
1978	27,569,795.00	26,833,400.67
1979	40,078,112.00	31,450,587.96
1980	52,044,423.00	41,890,735.93
1981	68,319,009.00	54,573,986.86
1982	75,083,055.00	71,199,782.82
1983	19,772,525.40	82,478,928.22
1984	90,065,207.63	45,949,899.75
1985	107,385,860.00	78,679,416.28
1986	113,442,175.00	106,034,904.02
1987	106,491,550.00	121,713,857.63
1988	154,632,650.00	121,947,200.46
1989	209,627,357.20	154,939,987.78
1990	518,318,842.30	208,200,506.78
1991	493,577,595.70	454,007,653.90
1992	508,324,483.30	544,319,399.05
1993	945,519,639.40	585,007,906.31
1994	815,140,700.00	908,674,655.03
1995	644,416,935.20	950,328,681.49
1996	1,094,934,195.25	825,563,142.84
1997	1,175,112,096.07	1,077,970,608.70
1998	1,025,165,173.30	1,240,861,854.96
1999	648,908,369.40	1,189,536,038.35
2000	874,768,656.00	874,038,109.45
2001	746,362,353.30	880,199,940.56
2002	843,906,445.20	788,811,506.27
2003	1,273,904,786.00	816,900,251.79
2004	888,385,126.20	1,143,878,296.78
2005	1,234,382,364.20	1,014,005,292.26
2006	1,589,704,252.40	1,195,805,541.94
2007	1,726,264,759.00	1,532,527,112.31
2008	1,812,985,629.60	1,775,856,662.21
2009		**1,931,049,014.82**
2010		**2,064,186,979.23**
2011		**2,197,324,943.63**
2012		**2,330,462,908.04**
2013		**2,463,600,872.45**

Appendix V: **Table** showing Non- Performing loans Predictions for 2009 to 2013 (SPSS Analysis)

YEAR	Non-performing loans in Kshs.	Predicted Non-performing Loans in Kshs.
1975	5,228,840.00	15,507,614.21
1976	14,936,180.00	10,018,160.64
1977	14,514,970.00	18,112,584.07
1978	22,048,800.00	18,341,675.98
1979	28,799,725.00	25,504,719.94
1980	38,929,391.00	33,331,880.07
1981	49,442,145.00	44,678,515.48
1982	54,838,809.00	56,795,667.65
1983	9,600,830.00	62,971,278.17
1984	42,133,223.00	12,127,872.57
1985	47,658,240.00	36,721,587.67
1986	51,756,710.00	49,422,649.03
1987	43,406,015.00	55,975,517.41
1988	64,709,550.00	46,873,706.00
1989	88,620,111.00	67,358,246.89
1990	196,253,214.80	96,974,531.96
1991	209,484,449.00	218,622,493.80
1992	178,899,070.00	251,175,113.89
1993	352,304,884.00	211,677,735.76
1994	315,130,990.00	384,088,396.73
1995	200,337,829.00	368,818,153.61
1996	392,368,632.40	223,547,861.50
1997	407,088,090.40	397,747,198.90
1998	388,996,091.80	447,749,534.61
1999	218,103,165.40	425,827,122.61
2000	312,406,826.80	222,705,819.20
2001	289,182,297.20	283,468,884.37
2002	344,821,941.60	279,064,708.58
2003	593,860,484.40	342,283,105.57
2004	474,611,865.40	629,254,480.81
2005	735,248,665.00	546,138,981.86
2006	1,143,488,751.60	793,741,103.17
2007	1,542,589,462.60	1,274,606,163.53
2008	1,587,157,509.60	1,771,060,166.82
2009		**1,852,246,828.27**
2010		**2,079,893,960.80**
2011		**2,307,541,093.33**
2012		**2,535,188,225.85**
2013		**2,762,835,358.38**

Appendix VI : Table showing loan Disbursement Predictions for 2009 to 2013 (SPSS Analysis)

YEAR	Actual Total Loans Disbursed in Kshs.	Predicted Loan Disbursed in Kshs.
1975	11,027,680.00	48,023,204.75
1976	33,895,067.00	29,323,629.18
1977	34,710,900.00	40,302,645.71
1978	49,618,595.00	43,138,438.41
1979	68,877,837.00	55,614,749.67
1980	90,973,814.00	75,414,966.92
1981	117,761,154.00	99,888,110.95
1982	12,9921,864.00	129,505,623.69
1983	29,373,355.40	147,122,092.97
1984	13,2198,430.63	59,606,993.77
1985	155,044,100.00	118,232,595.73
1986	165,198,885.00	159,387,589.98
1987	149,897,565.00	180,236,153.41
1988	219,342,200.00	170,048,684.86
1989	298,247,468.20	224,752,425.31
1990	714,572,057.10	310,775,319.78
1991	703,062,044.70	705,465,698.57
1992	687,223,553.30	818,509,043.15
1993	1,297,824,523.40	816,319,620.01
1994	1,130,271,460.00	1,333,737,449.52
1995	844,754,764.20	1,336,693,042.22
1996	1,487,302,827.65	1,042,465,420.67
1997	1,582,200,186.47	1,484,839,038.15
1998	1,414,161,265.10	1,705,987,956.41
1999	867,011,534.80	1,599,901,379.12
2000	1,187,175,482.80	1,043,251,367.23
2001	1,035,544,650.50	1,122,055,380.70
2002	1,188,728,386.80	1,024,206,443.83
2003	1,867,765,270.40	1,132,730,259.48
2004	1,362,996,991.60	1,781,847,508.77
2005	1,969,631,029.20	1,549,231,451.81
2006	2,733,193,004.00	1,980,866,079.81
2007	3,268,854,221.60	2,791,373,169.65
2008	3,400,143,139.20	3,506,270,964.17
2009		**3,796,161,697.93**
2010		**4,159,513,775.66**
2011		**4,522,865,853.40**
2012		**4,886,217,931.13**
2013		**5,249,570,008.87**

Appendix VII: Table showing % of Performing & Non-Performing loans on Total Loan

Year End	Total Loan Disbursed	Performing Loans	Non-Performing Loans	% Loan Being Serviced	% Non-Performing Loans
	Kshs.	Kshs.	Kshs.		
1975	11,027,680.00	570,000	5,228,840.00	5.17%	47.42%
1976	33,895,067.00	4,022,707.00	14,936,180.00	11.87%	44.07%
1977	34,710,900.00	5,680,960.00	14,514,970.00	16.37%	41.82%
1978	49,618,595.00	5,520,995.00	22,048,800.00	11.13%	44.44%
1979	68,877,837.00	11,278,387.00	28,799,725.00	16.37%	41.81%
1980	90,973,814.00	13,115,032.00	38,929,391.00	14.42%	42.79%
1981	117,761,154.00	18,876,864.00	49,442,145.00	16.03%	41.99%
1982	129,921,864.00	20,244,246.00	54,838,809.00	15.58%	42.21%
1983	29,373,355.40	10,171,695.40	9,600,830.00	34.63%	32.69%
1984	132,198,430.63	47,931,984.63	42,133,223.00	36.26%	31.87%
1985	155,044,100.00	59,727,620.00	47,658,240.00	38.52%	30.74%
1986	165,198,885.00	61,685,465.00	51,756,710.00	37.34%	31.33%
1987	149,897,565.00	63,085,535.00	43,406,015.00	42.09%	28.96%
1988	219,342,200.00	89,923,100.00	64,709,550.00	41.00%	29.50%
1989	298,247,468.20	121,007,246.20	88,620,111.00	40.57%	29.71%
1990	714,572,057.10	322,065,627.50	196,253,214.80	45.07%	27.46%
1991	703,062,044.70	284,093,146.70	209,484,449.00	40.41%	29.80%
1992	687,223,553.30	329,425,413.30	178,899,070.00	47.94%	26.03%
1993	1,297,824,523.40	593,214,755.40	352,304,884.00	45.71%	27.15%
1994	1,130,271,460.00	500,009,480	315,130,990.00	44.24%	27.88%
1995	844,754,764.20	444,079,106.20	200,337,829.00	52.57%	23.72%
1996	1,487,302,827.65	702,565,562.85	392,368,632.40	47.24%	26.38%
1997	1,582,200,186.47	768,024,005.67	407,088,090.40	48.54%	25.73%
1998	1,414,161,265.10	636,169,081.50	388,996,091.80	44.99%	27.51%
1999	867,011,534.80	430,805,204.00	218,103,165.40	49.69%	25.16%
2000	1,187,175,482.80	562,361,829.20	312,406,826.80	47.37%	26.32%
2001	1,035,544,650.50	457,180,056.10	289,182,297.20	44.15%	27.93%
2002	1,188,728,386.80	499,084,503.60	344,821,941.60	41.98%	29.01%
2003	1,867,765,270.40	680,044,301.60	593,860,484.40	36.41%	31.80%
2004	1,362,996,991.60	413,773,260.80	474,611,865.40	30.36%	34.82%
2005	1,969,631,029.20	499,133,699.20	735,248,665.00	25.34%	37.33%
2006	2,733,193,004.00	446,215,500.80	1,143,488,751.60	16.33%	41.84%
2007	3,268,854,221.60	183,675,296.40	1,542,589,462.60	5.62%	47.19%
2008	3,400,143,139.20	225,828,120.00	1,587,157,509.60	6.64%	46.68%

Appendix VIII: Regression Analysis Data

Year	Non Performing Loans (1-R)	Credit Limit System Implementation CLL	Screening System Implementation SCR	Credit Risk Management System Implementation CRM	Database Management System Implementation DBM
1995	24%	42,000	0	0	0
1996	26%	42,000	0	0	0
1997	26%	42,000	0	0	0
1998	28%	42,000	0	0	0
1999	25%	42,000	1	0	0
2000	26%	42,000	1	0	0
2001	28%	42,000	1	0	0
2002	29%	42,000	1	0	0
2003	32%	42,000	1	0	1
2004	35%	55,000	1	1	1
2005	37%	55,000	1	1	1
2006	42%	55,000	1	1	1
2007	47%	60,000	1	1	1
2008	47%	60,000	1	1	1
2009	38%	60,000	1	1	1

Source: HELB Data, 2009

Appendix IX: Regression Analysis Statistics

Regression Statistics	
Multiple R	0.947077601
R Square	0.896955983
Adjusted R Square	0.855738376
Standard Error	0.030081931
Observations	15

ANOVA

	df	SS	MS	F	Significance F
Regression	4.000000	0.078770	0.019692	21.761477	0.000064
Residual	10.000000	0.009049	0.000905		
Total	14.000000	0.087819			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.253059	0.206867	-1.223295	0.249262	-0.713986	0.207869
CLL	0.000012	0.000005	2.478645	0.032618	0.000001	0.000023
SCR	0.012677	0.021271	0.595992	0.564426	-0.034718	0.060072
CRM	-0.096282	0.082785	-1.163041	0.271815	-0.280737	0.088174
DBM	0.046942	0.033633	1.395731	0.193010	-0.027996	0.121880