

**THE IMPACT OF NON-INTEREST INCOME ON THE
EARNINGS VOLATILITY OF COMMERCIAL BANKS IN
KENYA**

UNIVERSITY OF NAIROBI
LOWER KARENJE LIBRARY

By: **MUGENDI PETER KAGUAMBA**

**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF MASTERS OF BUSINESS ADMINISTRATION
DEGREE OF THE UNIVERSITY OF NAIROBI**

September 2002

DECLARATION

This Research Project is my original work and has not been submitted for degree in any other University.

Signed  _____

Date 11/10/02

Mugendi, P.K

D61/P/8503/99

This Research Project has been submitted for examination with my approval as the University supervisor.

Signed  _____

Date 11/10/02

Mrs Angela Kithinji

Lecturer

Department of Accounting

DEDICATION

This project is dedicated to my entire family, for offering relentless support through out my time in college. To my mum Susan, for her love and total commitment in everything she sets out do, including raising me, brothers John and Moses, Sisters Mary, Faith and Joyce for being such a pillar of support.

ACKNOWLEDGEMENT

The road to completion of this course has been challenging, thought provoking but also exciting and inspiring. Looking back to the time when this journey started in 2000, I can't help but remember the people who walked this journey with me, encouraging, guiding and in one way or the other making it an exciting experience. The successful completion of this research project is therefore attributed to not only my own effort but also others who in one way or the other gave of their time, expertise and resources with dedication. Honesty will be lacking in depth if this effort is not given due recognition. Although many people did contribute, the following people contributed immensely and therefore deserve individual recognition.

First of all I wish to appreciate the effort and dedication of my supervisor, Angela Kithinji who helped me model the crafty ideas I had in the beginning into a researchable topic. She gave of her time and resources and walked with me this journey her busy schedule notwithstanding. Without her help, guidance and constructive criticism, this paper would not have seen the light of the day. To her I say may the Lord bless her ever so much.

Secondly, I wish to recognize the effort and contribution of my colleagues at Barclays Bank of Kenya, Head office. They offered their constructive criticism and assisted me with their resources all that served to improve my project. Special thanks go to Carol, Sheba, Terry, Moses and Karau.

I wish to recognize the prayers and moral support of my entire family; they were always there for me. To mum, John, Joyce, Mary,

Moses and Faith, I am heavily indebted to you all for not hesitating to sacrifice something in order for me to realize my dream. To little Brian, Timothy and Wendo, you have all brought a lot of joy. Special thanks to Paul, who selflessly encouraged and supported me in the best way he knew how throughout my studies.

Special thanks to all my classmates for the teamwork demonstrated throughout the two years we spent together. Most sincere thanks to Lucy Mmari for her enthusiasm and her willingness to help without any hesitation I am heavily indebted. I also wish to appreciate the contribution of Edward Ihaji and Paul for their expertise in data analysis; to them I say it was a job well done.

Finally, I wish to appreciate the effort of the Staff of Market Intelligence Ltd who facilitated my data collection. I also wish to register my appreciation for the support accorded to me by the staff of the faculty of commerce and Jomo Kenyatta Memorial Library and Lower Kabete Library their support was invaluable.

Abstract

This research project sought out to determine the relationship between interest income, non-interest income and other incomes of commercial banks in Kenya and the impact of non-interest income on the earnings volatility of commercial banks in Kenya. to achieve these objectives, four regression models were developed using incomes for the period between 1997 and 2001. Trend analysis was also conducted to determine relationships between the three main components of incomes of commercial banks: interest income, non-interest income and other incomes.

The study found out that interest income on one hand and non-interest income and other incomes on the other are inversely related to each other. This implies as non-interest income continues to grow, interest income will continue to shrink and in the long run, interest income will no longer dominate bank revenue. This means banking will have completely shifted away from traditional intermediation role.

The study results also establishes that increase in the relative contribution of non-interest income to the total income, an ongoing trend that may be strengthened by the recent financial modernization, is associated with both higher earnings volatility and greater profitability. The increase in profitability reflects an increase in the risk premium as the banks become more risky (Increase in the earnings volatility).

TABLES OF CONTENTS

	Page
Declaration-----	(ii)
Dedication-----	(iii)
Acknowledgement-----	(iv)
Abstract-----	(vi)
Table of contents-----	(vii)
CHAPTER ONE-----	1
1.0 INTRODUCTION-----	1
1.1 Background-----	1
1.2 Statement of the Problem-----	3
1.3 Objectives of the Study-----	4
1.4 Significant of the Study-----	4
CHAPTER TWO-----	6
2.0 LITERATURE REVIEW-----	6
2.1 Earnings of Commercial Banks-----	6

2.1.1	Net Interest Income-----	7
2.1.2	Non-interest income-----	7
2.2	Sources of Non-Interest Income-----	8
2.3	Why Banks Invest in Non-interest Income-----	8
2.4	Risk Diversification Through Non-interest Products-----	11
2.5	Measures of Bank Earnings-----	13
2.6	Measures of Earnings Volatility-----	13
 CHAPTER THREE-----		15
 3.0 METHODOLOGY OF THE STUDY-----		15
3.1	Population and Sample-----	15
3.2	Data Collection-----	15
3.3	Data Analysis-----	16
3.3.1	Regression Analysis-----	16
3.3.2	Test Statistic-----	16
3.3.3	Trend Analysis-----	16

3.3.4	Graphical Analysis-----	17
3.3.5	Statistical Package for Social Sciences (SPSS)-----	17
3.4	Model Specification-----	17
3.4.1	Earnings Equation-----	17
3.4.2	Postulations-----	18
3.4.3	Estimation Technique-----	18
3.4.4	Earnings-----	19
3.4.5	Tabulation-----	20

CHAPTER FOUR

4.0 DATA ANALYSIS AND FINDINGS-----21

4.1	Introduction-----	21
4.2	Results of Trend Analysis-----	22
4.2.1	Trend Analysis of Earnings Ratios-----	22
4.2.2	Trend Analysis of Bank Incomes-----	23
4.3	Relationship Between Income and Expense-----	32
4.4	Relationship Between Income and Profitability-----	34

4.5 Regression Results-----35

CHAPTER FIVE

5.0 Summary of Findings and Conclusion-----38

5.1 Summary of Findings-----38

5.2 Conclusion-----39

5.3 Recommendations-----41

5.4 Limitations of the Study-----42

5.5 Suggestions for Further Research-----43

References-----44

6.0 Appendices-----47

6.1 Appendix 1-----47

6.1.1 Defination of Terms-----47

6.2 Appendix 2-----49

6.2.1 List of Commercial Banks-----49

List of tables

Table	Page
1.0 Income of the Industry-----	69
1.1 Incomes of Peer 1 Banks (Assets Base Kshs 50 billion)-----	70
1.2 Incomes of Peer 2 Banks (Asset Base Kshs 10-50 billion)- -	71
1.3 Incomes of Peer 3 Banks (Asset Base Kshs !-10 billion)-----	72
1.4 Incomes of Peer 4 Banks (Asset Base up to Kshs 1 billion)--	73
1.5 Percentage proportion of commercial banks –Industry-----	75
1.6 Percentage proportion of commercial banks – Peer 1-----	75
1.7 Percentage proportion of commercial banks – Peer 2-----	75
1.8 Percentage proportion of commercial banks – Peer 3-----	76
1.9 Percentage proportion of commercial banks – Peer 4-----	76
2.0 Industry’s Earnings Ratios-----	82
2.1 Peer 1 Banks Earnings Ratios-----	82
2.2 Peer 2 Banks Earnings Ratios-----	82

2.3 Peer 3 Banks Earnings Ratios-----83

2.4 Peer 4 Banks Earnings Ratios-----83

List of Graphs

	Page
1.0	Trend of the Earnings Ratios-----22
1.1	Commercial Banks' Income Trend-----25
1.2	Income Growth Rates-----27
1.3	Growth of Income Proportions-----31
1.4	Relationship between Non-interest income and Expense----32
1.5	Relationship between Interest Income and Expense-----33
1.6	Relationship between Income and Profits-----34
1.7	Peer 1 Growth in Income Proportions-----74
1.8	Relationship between ROTA, ROE and NIM – Peer 1-----78
1.9	Relationship between ROTA, ROE and NIM – Peer 2-----79
2.0	Relationship between ROTA, ROE and NIM – Peer 3-----80
2.1	Relationship between ROTA, ROE and NIM – Peer 4-----81

List of Charts

	Page
1.0	Income of Commercial Banks-----26
1.1	Industry Income Proportions-----28
1.2	Interest Income Proportions per Peer Group-----29
1.3	Non-interest income Proportions per Peer Group-----29
1.4	Other Incomes Proportions per Peer Group-----30
1.5	Incomes of Peer 1 Banks-----70
1.6	Incomes of Peer 2 Banks-----71
1.7	Incomes of Peer 3 Banks-----72
1.8	Incomes of Peer 4 Banks-----73
1.9	Income Proportions for Peer 1 Banks-----84
2.0	Income Proportions for Peer 2 Banks-----85
2.1	Income Proportions for Peer 3 Banks-----86
2.2	Income Proportions for Peer 4 Banks-----87

List of Charts

Page

1.0 Pie-chart-Trend in Income Contribution-----77

List of Abbreviations

ECB:	Earnings of Commercial banks
NONII:	Gross non-interest income of Commercial Banks
GII:	Gross interest income of Commercial Banks
OST:	Other incomes of Commercial Banks
ROTA:	Return on Total Assets
ROE:	Return on Equity
NIM:	Net Interest Margin
SPSS:	Statistical Package of Social Sciences

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Over the past decade, the traditional depository intermediaries have experienced significant new competition and have lost valuable regulatory protection. The implication of this is reduction in profit margins of lending and deposit intermediation. Thygeson (1995), argues that regulations that for instance facilitated banks to earn interest rate on loans at market rate, while on the other hand paying depositors at rates below the market rate (because of interest rate ceilings) to some extent guaranteed positive net interest margins with the introduction of financial sector liberalization coupled with heavy capital equipments by the regulators, banks have been exposed to intense competition, even from non-banking institutions leading to downward pressure on intermediation profit margins.

The long-term downward pressure on net interest margins have forced commercial banks to think of alternative sources of revenue that would ensure earnings stability and hence mitigate risk exposure (Thygeson, 1995).

Apart from interest income, banks generate revenue through other value adding activities such as service charges, fees, commissions and foreign exchange dealing. According to Ritter Silber and Udell (1996), this source of revenue has become more important in the recent times as banks have shifted from traditional interest income

to more non-traditional sources of revenue, commonly known as non-interest or fees income. The growth of non-interest income is accompanied by a significant change in the sources of such income.

Analysis of income and Expense data of commercial banks show that the dominant source of revenue is loan interest and discount. Fieldman and Schmidt (1999) found that over the last 20 years, non-interest income has transformed from a supportive role into a major contributor of bank revenue. Despite the growing importance in non-interest income there is no comprehensive study that has been conducted on commercial in Kenya banks in regard to this phenomenon.

In Kenya, interest income has been steadily declining as the relative importance of non-interest income has grown tremendously. According to the CBK (1999), the total assets in the banking system stood at Ksh.418 billion in 1999, down by 4% from the previous year. Loans and advances accounted for 55% of the total assets, whereas holding of government securities accounted for 16%. The proportion of advances to total assets has declined from a high of 62% in 1991 to 55% by 1999, and the trend is expected to continue according to the Central Bank of Kenya prediction, (CBK, 1999).

Why are the commercial banks laying more emphasis on non-interest income? What are the implications of this source of income on the bank's risk profile? This study will seek to Explore trend in the revenue profile of commercial banks in Kenya for the period after liberalization with the goal to determining whether they have achieved any risk diversification (in terms of earning steam stability).

1.2 Problem Statement

Commercial banks' lending and deposit taking business has declined in the recent years. Studies conducted (Thygeson, 1995, Fieldman and Schmidt, 1999) indicate that deregulation and new technology have eroded banks' comparative advantages and made it easier for non-bank competitor to enter these markets. Young and Roland (1999) suggest that bank's have responded to this phenomenon by shifting their product mix toward non-interest income by selling non-traditional fee based financial services such as mutual funds; by charging Explicit fees for services that used to be 'bundled' together with deposit or loan products and by adapting securitized lending practices which generate loan origination and servicing fees.

Literature suggests that one of the reason for banks' reliance in non-interest sources of revenue is risk diversification. Thygeson (1995) argues that non-interest income is less susceptible to Economic recession, which may lead to loan delinquencies and losses. Non-interest income hence serves to offset such losses brought about by interest income. Roland (1997) observes that there are abnormal returns from fee-based activities in the short run. Gardner, Mills and Cooperman (2000), state that one measure of depository institutions' risk exposure is their earnings volatility as depicted by the volatility of their Net Interest Margin (NIM), Return on Total Assets (ROTA) and Return on Equity (ROE) as measured by their standard deviation over time. In general, studies conducted find that combining banking and non-bank activities has the potential to reduce earnings volatility of commercial banks.

CBK publications record that, commercial banks were expected to diversify their revenue base into non-interest sources. This

research paper investigates the extent to which commercial banks in Kenya have adopted revenue diversification into non-interest sources, and the effect this diversification has had on the earnings volatility.

1.3 Objectives of the Study

The overall objective of this study is to establish the implications of non-interest income on earnings volatility of commercial banks in Kenya. The specific objectives include:

- i. To determine the relationship between non-interest income, interest income and other incomes of commercial banks in Kenya.
- ii. To determine the impact of non-interest income on the earnings volatility of commercial banks in Kenya.

1.4 Significance of the Study

This study will be of great importance to the academicians as it will lay a foundation and provide direction for further research in non-interest income. In the past, no significant study has been conducted in this field. The study will also add to the existing body of knowledge in commercial banks research.

Bank management is all about buying money for less than you sell it. Ritter (1999) asserts that the success or failure depends on how well a bank buys and sells money. This study will provide useful information to bankers while making investment decisions and designing their product mix. The study will shed light in the potential of risk diversification inherent in non-interest sources of income.

This study recognizes that earnings volatility is not a perfect measure of risk within the context of a diversified portfolio. Barefield and Comiskey (1979) found that earnings volatility and systematic risk are not highly correlated, but earnings forecast errors and systematic risk are highly correlated. Litzenberg and Rao (1979) draw similar conclusions. Clearly, earnings volatility per se is not the same thing as risk. To the extent that the direction and magnitude of a change in earnings is predicted, the variability will have no effect on the Required Rate of Return (RRR). However, while this logic holds for an individual investor, it doesn't necessarily hold for bank regulators or bank managers, neither of which can diversify away the risk associated with the volatility of individual banks earnings regardless of their predictability.

Bank regulators, who are vested with the responsibility of protecting the payment system from the impact of bank failures, must contend with higher probabilities of bank failures when industry earnings grow more volatile.

Bank managers whose incomes and professional reputations are clearly linked to bank earnings will fare poorly if increased earnings volatility lead to poor performance or even insolvency in extreme cases.

The study will also provide useful information to investors and shareholders in the banking industry. Investors and shareholders are interested in gathering information that would guide them in making sound/informed investment decisions. This paper will provide a key source of information that can be used to rate a banks future profitability. To the extent that changes in prices and

quantities beyond the banks' control are largely responsible for its quarterly fluctuation in revenues, revenue volatility is an exogenous determinant of profitability (Young and Roland, 2001).

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Earnings of Commercial Banks

The earnings of a commercial bank reflect long-term sustainability. The earnings play an important role in absorbing loan losses arising from provisions for bad debts. This consequently protects the capital base from erosion in circumstances where profits are not adequate to cover for bad debts, financing the internal growth of equity, which subsequently determine the growth rate of assets (Kathanje, 2000). This helps to cushion the deterioration in the ratio of equity to assets, improves investor rating of the institution who would consequently supply new capital base to the institution when need arises. Dividends are distributed to the shareholders from the earnings of the institution. An excessively high return on assets can at times indicate excessive risk taking behaviour which is potentially dangerous to the sustainability of an institution, while an extremely poor earning performance could be an indicator of a problem in the institution, especially existence of non-performing loans. With this background, it is therefore clear that earnings volatility of a commercial bank cannot be over-emphasized.

The cost of the money to the bank is recorded as interest expense, while the revenue for the sale of the same is recorded as interest

income. The difference between total interest income and interest expense is Net Interest Margin, which is the most revealing ratio of a commercial bank's performance (Ritter 1996).

Banks as profit making organizations, seek to maximize their earnings subject to the cost constraint. Literature indicates that banks earning can be broadly categorized into two:

- i) Net interest income
- ii) Non-interest income

2.1.1 Net Interest Income

Analysis of income and expense data of commercial banks shows that the largest single source of revenue is loan interest and discount. This is income from the core intermediation role of a bank. The data further shows that investment income tend to decline in proportion to total income as bank size increases. The income distribution reflects the fact that small banks tend to maintain a larger investment portfolio and a smaller loan portfolio compared to larger banks (Federal Reserve System, 1986).

However, a study conducted by Young and Roland (1999) between 1988 and 1995 on 472 U.S. commercial banks, revealed that commercial banks' lending and deposit-taking business has declined in recent years. Consequently, this has led to growth in non-interest income in the banks' product mix.

2.1.2 Non-Interest Income

Any income that banks earn from activities other than their core intermediation business (taking deposits and making loans) or from their investments is classified as non-interest income. This source

of income is also referred to as "fee income" since fees constitute the majority of non-interest income.

Ritter (1996) noted that non-interest sources of income have become more important in the recent times as banks have shifted from traditional interest income to more non-traditional sources of revenue.

2.2 Sources of Non-interest Income

Thygeson (1995) Suggest that non-interest income is generated as a result of three information-processing functions of intermediaries namely origination, servicing and portfolio management.

Origination sources comprise of loan origination fees, security underwriting and loan syndication fees. Servicing sources is made up of service charges on deposit accounts, service charges earned on loans sold, credit card transactions and service fees from data processing services sold to others. Portfolio management function sources entail loan commitment fees, third party guarantee fees, trading gains or losses on sale of assets.

2.3 Why Banks Invest In Non-Traditional Earning Assets

Ritter, Silber and Udell (1996), Fedgazette (1999), Thygeson (1995) and Honohan (1999) have identified possible reasons for the change in banks' product mix from the traditional interest earning activities to the non-traditional activities.

2.4.1 Pressure on Net-interest margins

Ritter Silber and Udell (1996) argue that the loss of large corporate loans business to the financial market has exerted downward pressure on interest margins leading to investment in non-traditional sources of revenue.

2.4.2 New Technology

Fieldman and Schmidt (1999) argue that technological advancement has facilitated development of new products in response to the changing needs and level of sophistication. The explosion of automated teller machines (ATM) is a result of advances in communication and computing power. Most generally, the advances made in computing and telecommunications make it possible for banks to directly market fee-related services in a manner not previously done.

2.4.3 Regulatory climate

Thygeson (1995) noted that the last two decades have seen traditional depository intermediaries experience significant new competition having lost valuable regulatory protection. The implication of this is reduction in profit margins of lending and depositor intermediation.

Financial sector liberalization has had distributional consequences in the form of reduced rents, increased competition and alteration of the incentives of risk taking, risk management and corporate governance (Honohan, 1999).

2.4.4 Capital Requirements

The failure of many savings and loans savings banks and commercial banks in America between 1980s and 90s resulted in legislative- and regulator mandated increases in capital requirements. As a result, banks had to develop operating strategies that do not rely on leveraging capital by acquiring assets (Thygeson, 1995).

Most non-interest earning activities do not involve adding large amounts of assets to the balance sheet. This means financial institutions can pursue revenue-raising activities, without incurring additional regulatory capital requirements.

2.4.5 Less Subject to Business Cycle

Thygeson (1995) argue that financial institutions pursue non-interest income generating activities in order to reduce the firm's vulnerability to business cycle. Studies show that business activities tied to gross volume of sales transaction do not fluctuate significantly over the course of business cycle. Even during recession, the nominal volume of sales usually rises, which means non-interest income activities related to the payment system service, continue to increase.

2.4.6 Risk Reduction

Fieldman and Schmidt (1999) asserts non-interest income could lead a bank to be less risky if it leads to greater diversification. This diversification would only be achieved if changes in interest income were not associated with changes in the same direction and of the same magnitude for non-interest income. A study conducted between 1984 and 2000 indicate that the correlation between the two variable is very close to zero.

Thygeson (1995) argues that non-interest income serves to diversify risk in the sense that it offsets the losses brought about by Economic conditions to which interest income is susceptible.

2.4 Risk Diversification Through Non-interest Product Mix

Over the past two decades, a substantial number of studies have investigated whether commercial banks reduce risk by tilting their product mix towards fee-based activities and away from traditional lending activities.

The earliest group of studies provided suggestive evidence that banks could reduce their riskness by diversifying into non-bank activities. Johnson and Meinster (1974), Heggested (1975), Wall and Eisenbeis's (1984), and Litan (1985) used industry level data from 1950s, and 1970s to compare the aggregate earning streams of the banking industry to the aggregate earnings stream of other financial industries (e.g. Securities firms, insurance companies, real estate brokers, leasing companies and thrift institutions). While the results of these studies did not always agree across industries, a common thread run through the studies: over long periods of time, banking industries earnings and non-bank industry earnings were quite uncorrelated with each other, and in extreme cases, these correlations were close to zero or even negative. This basic result suggested that if banks were allowed to add some non-bank financial products to their traditional mix of banking services, the resulting portfolio diversification effects could potentially increase banks' expected returns without increasing their riskness or equivalently reduce banks' riskness without reducing their expected returns.

A study conducted to investigate the risk-reducing abilities of non-interest sources of income, covered a period of 15 years between 1984 and 1999 amongst U.S. banks. The study revealed that the movements in net interest and non-interest income sources are essentially uncorrelated (that is, the correlation statistic is very close to zero). As a result, banks that add non-interest income in their product mix could be diversifying and hence becoming less risky, (Fedgazette, 1999). This study however could not rule out the possibility of a bank increasing its risk by investing in non-traditional earning assets.

Young and Roland (1999) used industry data from 472 US commercial banks between 1988 and 1995 to test whether fee-based activities are more stable, hence able to reduce bank risk through diversification. They used a new "degree of total leverage" framework which conceptually links bank's earning volatility to fluctuations in its revenues to the fixity of its expenses and to its product mix. They found that as banks tilt their product mix towards fee-based activities and away from traditional lending activities, their revenue volatility, degree of total leverage and the level of earnings all increase.

Roland (1997) found that abnormal returns from fee-based activities exist, although they are less persistent in the long run.

Other firm-level studies have found that diversifying into non-bank activities can reduce bank risk, although these gains tend to be limited in size, scope or practice. Boyd et al (1980) measured the correlations between accounting returns at the bank and non-bank affiliates of BHCs during 1970s and found that the potential for risk reduction was there, but exhausted at relatively low levels of non-

bank activities. Ciallo et al (1996) found that high levels of mutual funds activity were associated with increased profitability but only slightly moderated risk levels, between 1987 and 1994.

Wall et al (1993) constructed synthetic portfolios based on the accounting returns of banks and non-bank financial firms and concluded that banks would have experienced higher returns and lower risk had they been able to diversify into small amounts of insurance, mutual funds securities brokerage, or real estate activities during the 1980s. Using both accounting data, and market data, Boyd et al (1993) concluded that BHCs could have reduced their riskness by merging with life insurance or property casualty insurance firms, but would likely have increased their riskness by merging with securities or real estate firms.

Allen and Jagtiani (2000) used stock market data to construct return streams for synthetic "universal banks" consisting of a commercial banking company, a security firm, and an insurance company, and found that exposure to market risk increased with addition of these non-banking activities.

2.5 Measures of Bank Earnings

Literature emphasizes three key measures (ratios) of a commercial bank's earning. According to Gardner, Mills and Cooperman (2000), an institutions earnings can be determined by the following accounting ratios; Return on Total Assets (ROTA), Return on Equity (ROA) and the Net Interest Margin (NIM).

2.6 Measures of Earnings Volatility

Roland and Young (2001) observe that revenue and earnings volatility can be measured through the standard deviations around

their means over a period of time. They used the standard deviation measure while constructing their degree of total leverage framework in the determination of the impact of product mix on the earnings volatility of commercial banks.

Gardner, Mills and Cooperman (2000) argues that one measure of a depository institution's risk is earnings volatility as defined by the standard deviation of the Net Interest Margin, Return on Total Assets and the Return on Equity over time.

CHAPTER THREE

3.0 METHODOLOGY OF THE STUDY

3.1 Population and Sample

This study investigates the impact of non-interest income on the earnings volatility of commercial banks in Kenya. As such, the population of the study covered all commercial banks registered and licensed under the banking act. Due to the sensitivity of the study, the sample size covered all registered commercial banks. Data was therefore collected from all commercial banks that were in existence as at 31st December 2001. The period of study was from 1997 and 2001. The choice of a period of 5 years is taken to be reasonable because average ratios shift over time (Altman 1968) and also due to availability of necessary data. This period is after financial sector liberalization and as such, all the effects of the liberalization will be incorporated.

3.2 Data Collection

This study made use of secondary data to carry out the analysis. This is a set of financial ratios that are derived from annual reports and accounts statements of commercial banks in Kenya.

The accounts details were obtained from the financial statements of individual commercial banks in Kenya. These were supplemented with data from various government publications such as Central Bank publications (Annual bank Supervision Reports) and the Central Bureau of Statistics data (Economic Surveys).

3.3 Data Analysis

3.3.1 Regression Analysis

The Regression Analysis statistical tool was employed to conduct data analysis. The regression function establishes a relationship between the dependent variable and the predictor variable including the direction of the impact. The variables used were financial ratios extracted from accounting records. Studies reviewed in the preceding chapter, such as Gardner, Mills and Cooperman (2000) indicate that banks' earnings can be estimated using the following financial ratios; Net Interest Margin, Return on Total Assets and Return on Equity.

3.3.2 Test Statistic

Test statistics were computed using the Statistical Package for Social Sciences to determine the validity of the model. Tests were conducted on the following:

- i. The significance of each predictor variables; Non-interest income, Interest income, other income and the error term.
- ii. Correlation between the dependent and the predictor variables.
- iii. The contribution of each variable in a multi-variety basis
- iv. The overall predictive power of the model.

3.3.3 Trend Analysis

Trend analysis was conducted to establish the relationship between gross revenues (Interest revenue, Non-interest revenue and other revenues) and their associated expenses. This relationship will possibly explain the magnitude of the earnings volatility.

3.3.4 Graphical Analysis

Graphs were used to improve the presentation of the analysis results for ease of interpretation. While actual ratio levels are important, its trend over time adds more information value to its analysis and graphical representation reflects this better.

3.3.5 Statistical Package for Social Sciences (SPSS)

The above analysis relied on Statistical Package for Social Sciences (SPSS). The package was used for regression between earnings (Y) as the dependent variable and the interest income (X_1), non-interest income (X_2) and other income (X_3) as the independent variables.

3.4 Model Specification

Regression analysis was used to assess the determinants of earnings volatility of commercial banks in Kenya.

3.4.1 Earnings Equation

The regression equation is specified as:

$$ECB = f(\text{NONII}, \text{GII}, \text{OSI})$$

Where;

ECB = Commercial banks' earnings as defined by the following ratios; Return on Total Assets, Return on equity and the Net interest Margin.

NONII = Gross non-interest income expressed as a proportion of the total income.

GII = Gross interest income expressed as a proportion of the total income.

OST = other bank income expressed as a proportion of total income.

3.4.2 Postulations

NONII, GII and OST coefficients should be positive as they impact on the earnings of commercial banks in a positive manner.

3.4.3 Estimation Technique

Four regression equations were developed for this study:

$$ROTA = Y_{ROTA} = \alpha_i + \beta_{i1}X_{i1} + \beta_{i2}X_{i2} + \beta_{i3}X_{i3} + \varepsilon_i \text{-----(i)}$$

$$ROE = Y_{ROE} = \alpha_i + \beta_{i1}X_{i1} + \beta_{i2}X_{i2} + \beta_{i3}X_{i3} + \varepsilon_i \text{-----(ii)}$$

$$NIM = Y_{NIM} = \alpha_i + \beta_{i1}X_{i1} + \beta_{i2}X_{i2} + \beta_{i3}X_{i3} + \varepsilon_i \text{-----(iii)}$$

Where;

Y_{ROTA} = Earnings as measured by Return on Total Assets

Y_{ROE} = Earnings as measured by Return on Equity

Y_{NIM} = Earnings as measured by Net Interest Margin

$$X_1 = \frac{\text{Gross Non-interest income}}{\text{Total Income}}$$

$$X_2 = \frac{\text{Gross Interest Income}}{\text{Total Income}}$$

$$X_3 = \frac{\text{Other income}}{\text{Total Income}}$$

3.4.4 Earnings Ratios

$$\text{Net Interest Margin:} = \frac{\text{Interest Income} - \text{Interest Expense}}{\text{Earning Assets}}$$

$$\text{Return on Total assets:} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

$$\text{Return on Equity} = \frac{\text{Net Income} - \text{Preferred Dividend Required}}{\text{Average Total assets}}$$

3.4.5 TABULATION

Year	Interest income		Non-interest income		Other income		Total income	
	Value	Prop	Value	Prop	Value	Prop	Value	Prop
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000								
2001								

CHAPTER FOUR

4.0 DATA ANALYSIS AND FINDINGS

4.1 Introduction

The data analysis was guided by the research objectives presented in chapter one. The body of the report only contains tables that directly relates to the study objectives. The appendices however contain the other useful statistics. The two main methods used for data analysis are trend and regression analyses.

Trend analysis was conducted to establish three relationships. The first relationship is between interest income, non-interest income and other incomes. The second relationship is between income and expenses and the third is between income and profits.

This study heavily relies on the Statistical Package for Social Sciences (SPSS). The package has been used for regressing Earnings (Y) as the dependent variable and Interest Income (X1), Non-interest income (X2) and other income (X3) as the independent variables (Tables 1.0) Regression analysis was conducted for the entire industry first and then for each of the peer groups of the banks. Correlation tests are carried out between dependent variable (Y) and the independent variables, (X1, X2, and X3) to determine the relevance of each of the variables. The analysis further carries out tests of significance on each of variables.

Earnings ratios were computed for each institution in each year and an industry average obtained for the period under study. The earnings ratios used are; Return on total assets, Return on equity and the Net-interest margin.

4.2 RESULTS OF TREND ANALYSIS

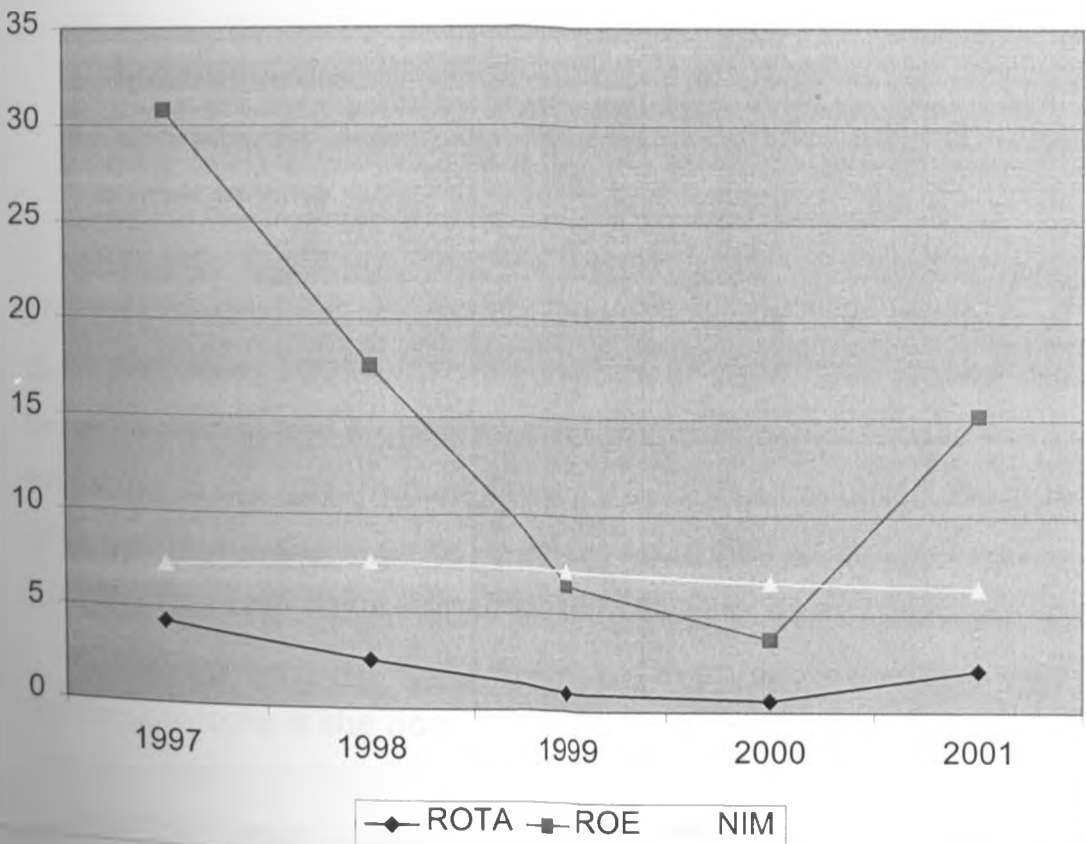
4.2.1 Trend Analysis of Earnings Ratios

The results of data analysis are presented in tables and graphs for ease of interpretation. Tables 1.0 to 1.9 present data on the trend analysis conducted on the key earnings ratios and income proportions. Tables' 1a to 16c present the results of regression analysis.

Each of the three earnings ratios is regressed against the independent variables. Trend analysis of the ratios indicates that they move in the same direction. See graph 1.0

1.0 Trend on the Earnings Ratios

Industry Ratios



Source: Research data

The trend analysis of the earnings ratios indicates a declining trend of commercial banks earnings between 1997 through to 2000, after which recovery started.

Tables 2.0 to 2.4 show the earnings ratios per the four peer groups, classified in order of their asset base. Peer number one is made up of the three biggest banks with assets base of over Kshs. 50 billion and above. These banks are; Barclays bank, Kenya commercial bank and the Standard chartered bank.

4.2.2 Trend Analysis of Bank Incomes

The income of commercial banks has been categorized broadly into three categories namely:

1. Interest income
2. Non-interest income
3. Other income

The total incomes of commercial banks in Kenya have been declining, since 1997 with the exception of 1998. This growth can be explained by the high rates of returns that banks earned from investing in the government Treasury Bills. The weighted average effective interest rate on government securities as at 1999 was 18.1%. This rate has declined steadily to 11% as at 2001.

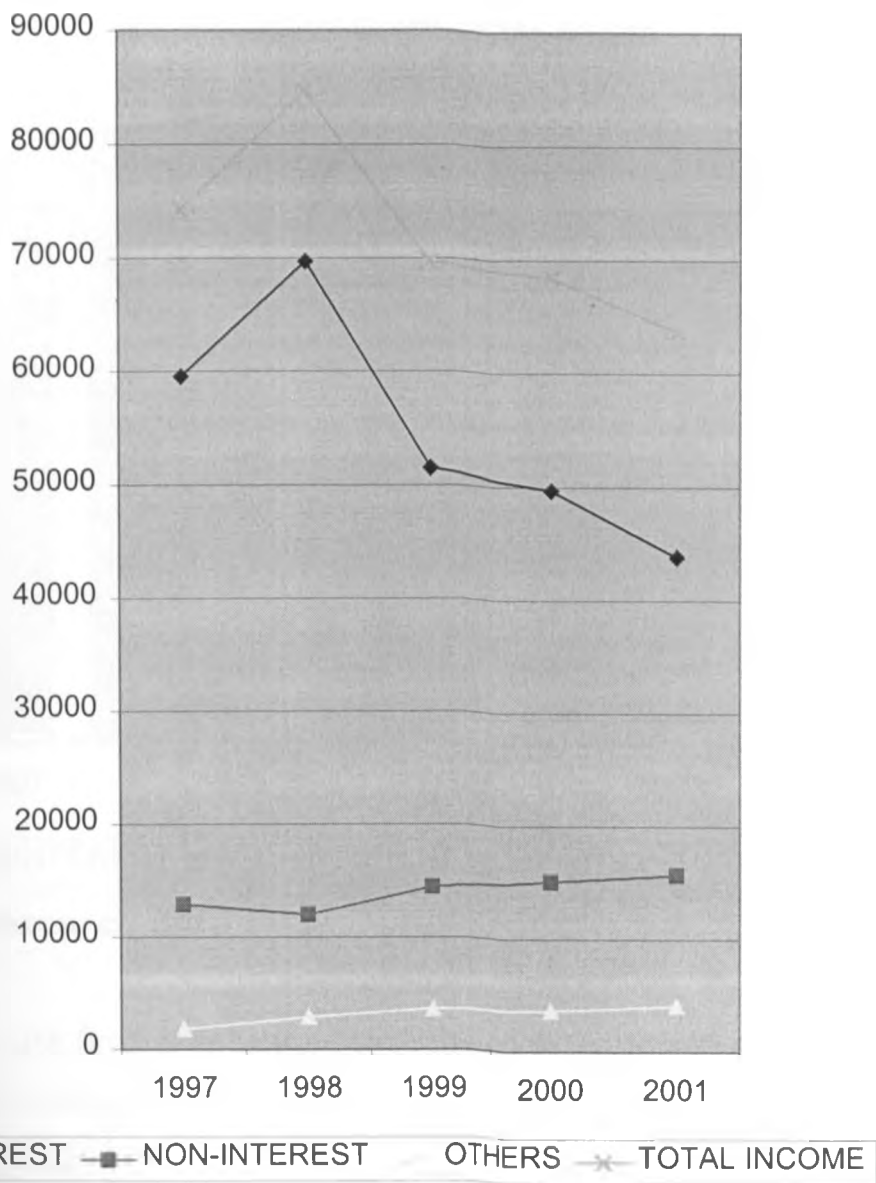
Interest income is the dominant source of income for the entire industry (Bar Chart 1.0 and Pie chart 1.0). This means that commercial banks in Kenya have relied more on the traditional

intermediation role of lending. This can be explained by the fact that the industry has not taken advantage and adopted modern technology that would boost the growth of non-interest income. Bank size does not seem to have any significant implication on this trend, as it is consistent across the industry (Bar Graphs 1.5 to 1.8).

While the interest income has been on decline from 1998 through to 2001, non-interest income has been increasing steadily. This means that the relative importance of non-interest income has been growing across the industry. Other income sources on the other hand have been increasing steadily between 1997 and 2001. The total income of commercial banks has therefore been declining because of the decline in interest income, which is the largest contributor.

1.1

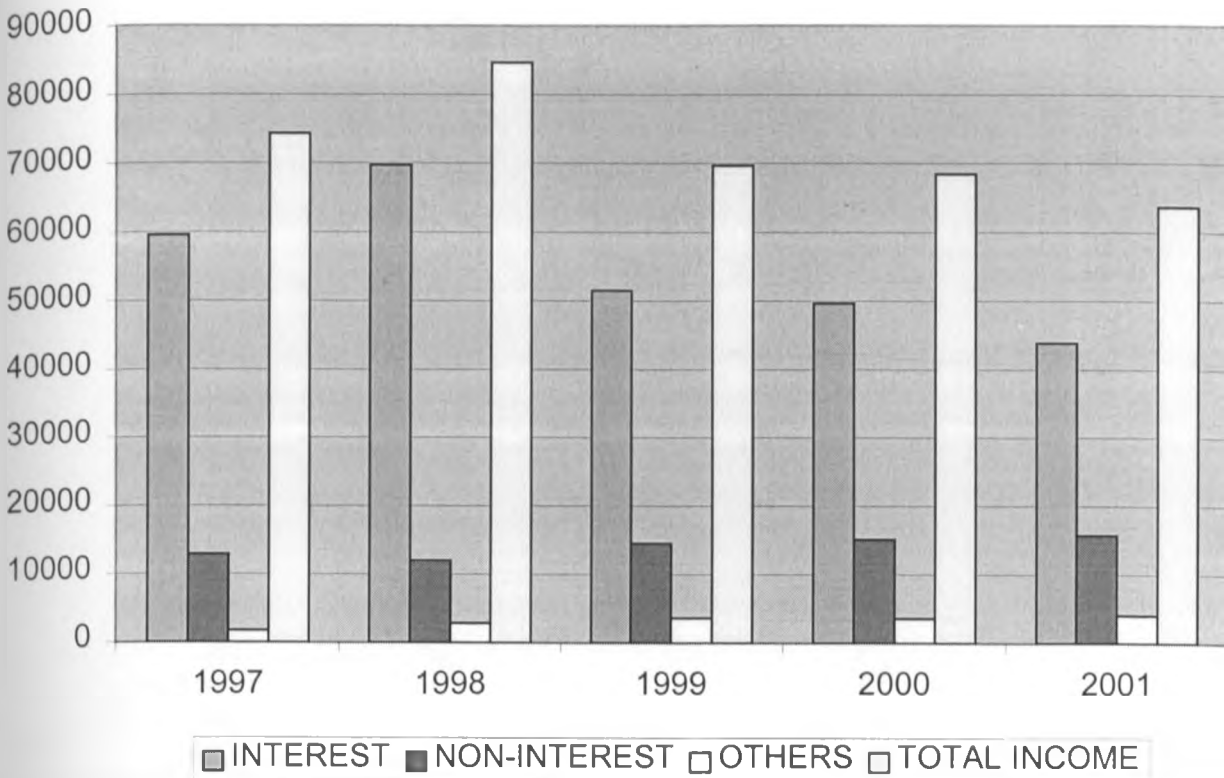
Commercial banks' income trend



Source: Research data

1.0 Income of Commercial Banks

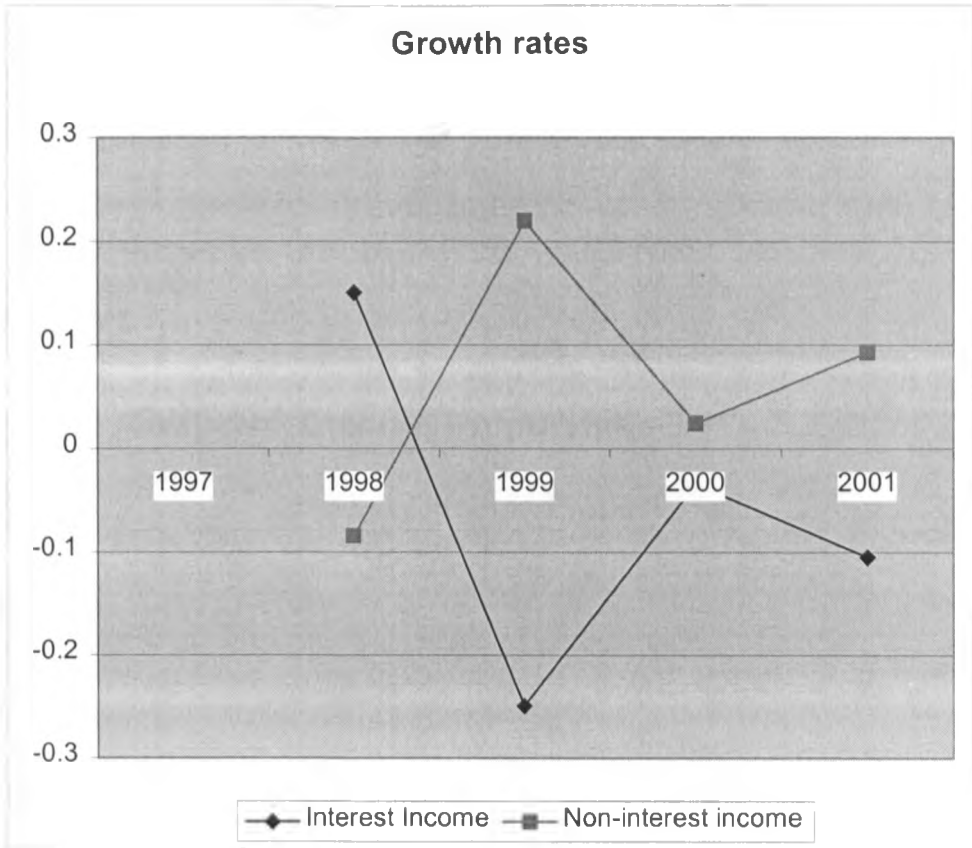
2.0 INCOME OF COMMERCIAL BANKS



Source: Research data

Review of data further indicates that the contribution of non-interest income to the banks' earnings has been increasing at an increasing rate, while that of interest income has been declining (Graph 3). This means that the dominance of interest income is not likely to be sustained in the long run. The growth rate of non-interest income has increased from -8.4% in 1998 to 9.3% in 2001, while interest income has been declining at an average rate of 12% annually (Graph 1.2).

1.2 Growth Rates for Interest and Non-interest Incomes



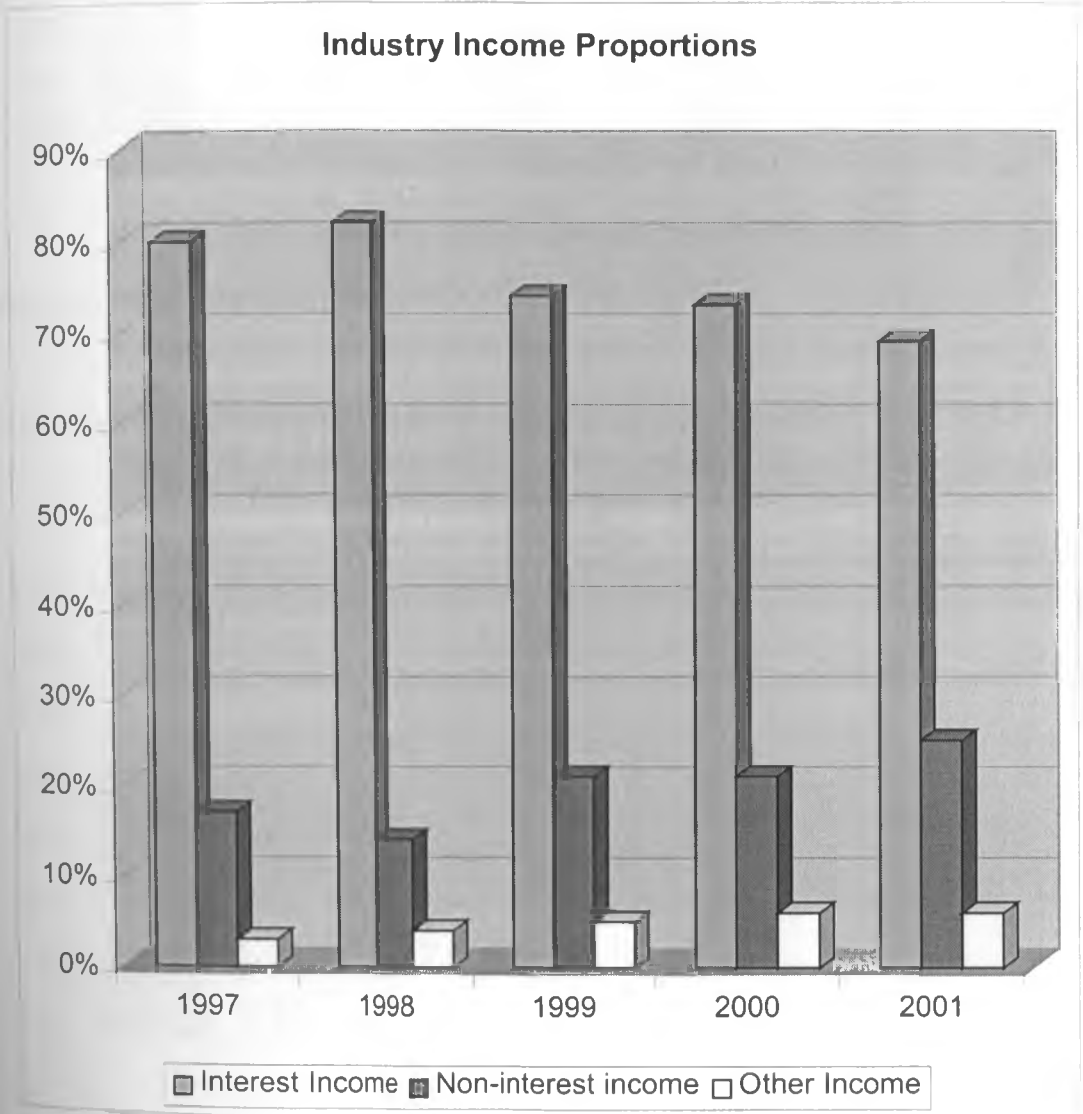
Source: Research data

Both large banks(those with assets greater than Kshs. 50 billion) and small banks have experienced a shift towards non-interest sources of income. Small banks have however registered consistently lower levels of non-interest income as compared to the large banks. Non-interest income accounted for 23.45% of the total revenue in 1997,19.53% in 1998, 28.1% in 1999, 29.08% in 2000 and 32.96% in 2001 averaging to 26.62% (Tables 1.5-1.6 and Bar graphs 1.1 – 1.3). For small banks on the other hand, non-interest income accounted for 11.4% of the total revenue in 1997, 10.2% in 1998, 10.48% in 1999, 14.72% in 2000 and 14.15% in 2001, averaging to 12.21% (Tables 1.7-19).

Other incomes have also taken an upward trend, though at a moderate pace. They account for about 4% of the total bank

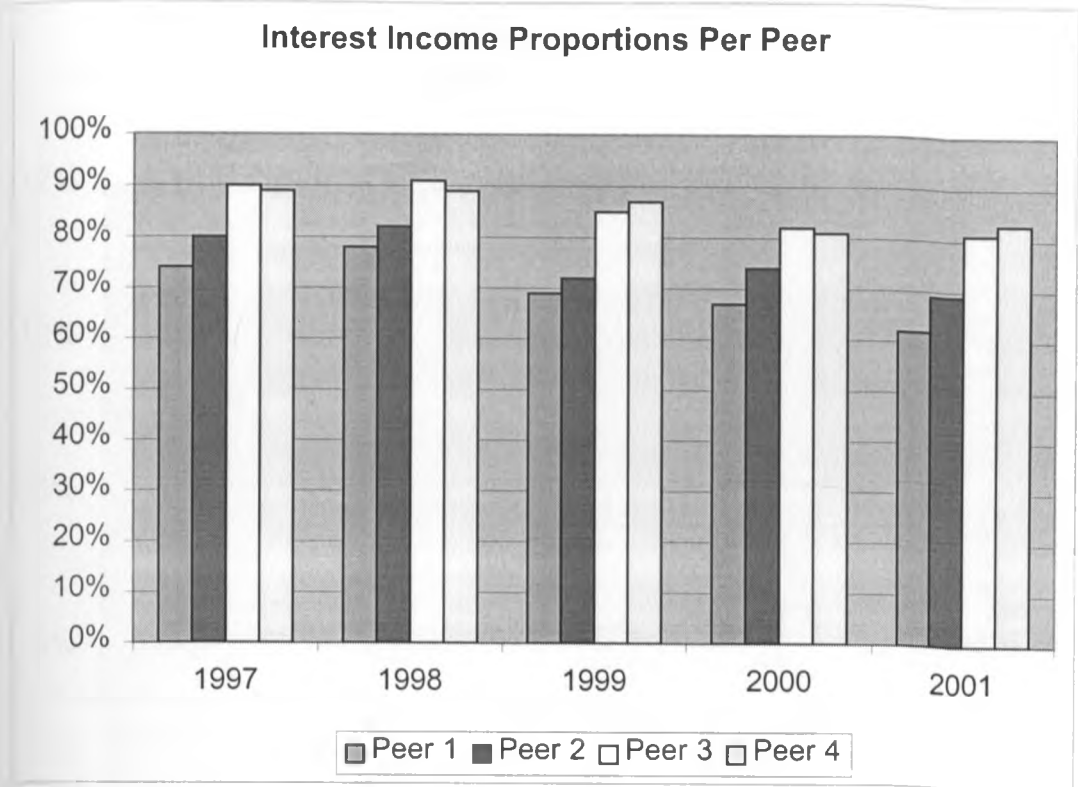
incomes. The distribution of these incomes does not follow any consistent pattern across the peer groups. Peer group 2 however has the largest proportion of other incomes (Bar graph1.3). This is probably due to the fact that most middle size banks have interest in other lines such as insurance, real estate among others. Large banks on the other hand have shifted towards concentrating on the core business of banking, and hence lower proportions of other incomes.

1.1 Industry Income Proportions



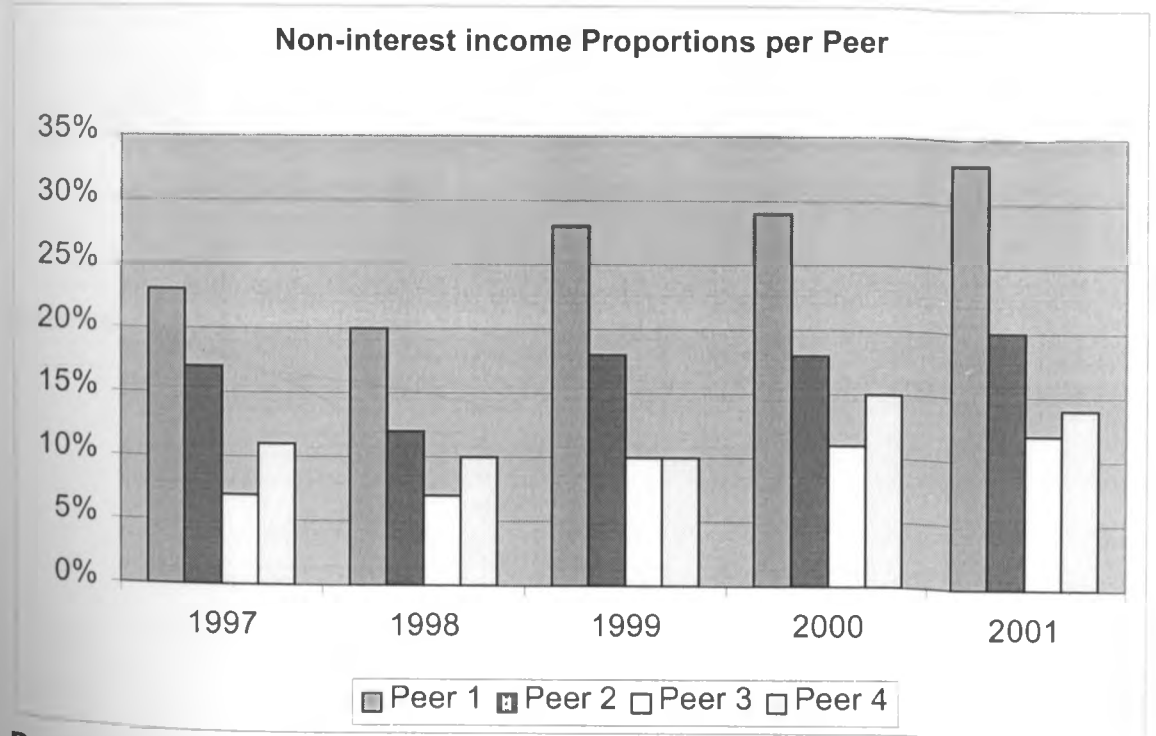
Source: Research data

1.2 Interest Income Proportions Per Peer



Source: Research data

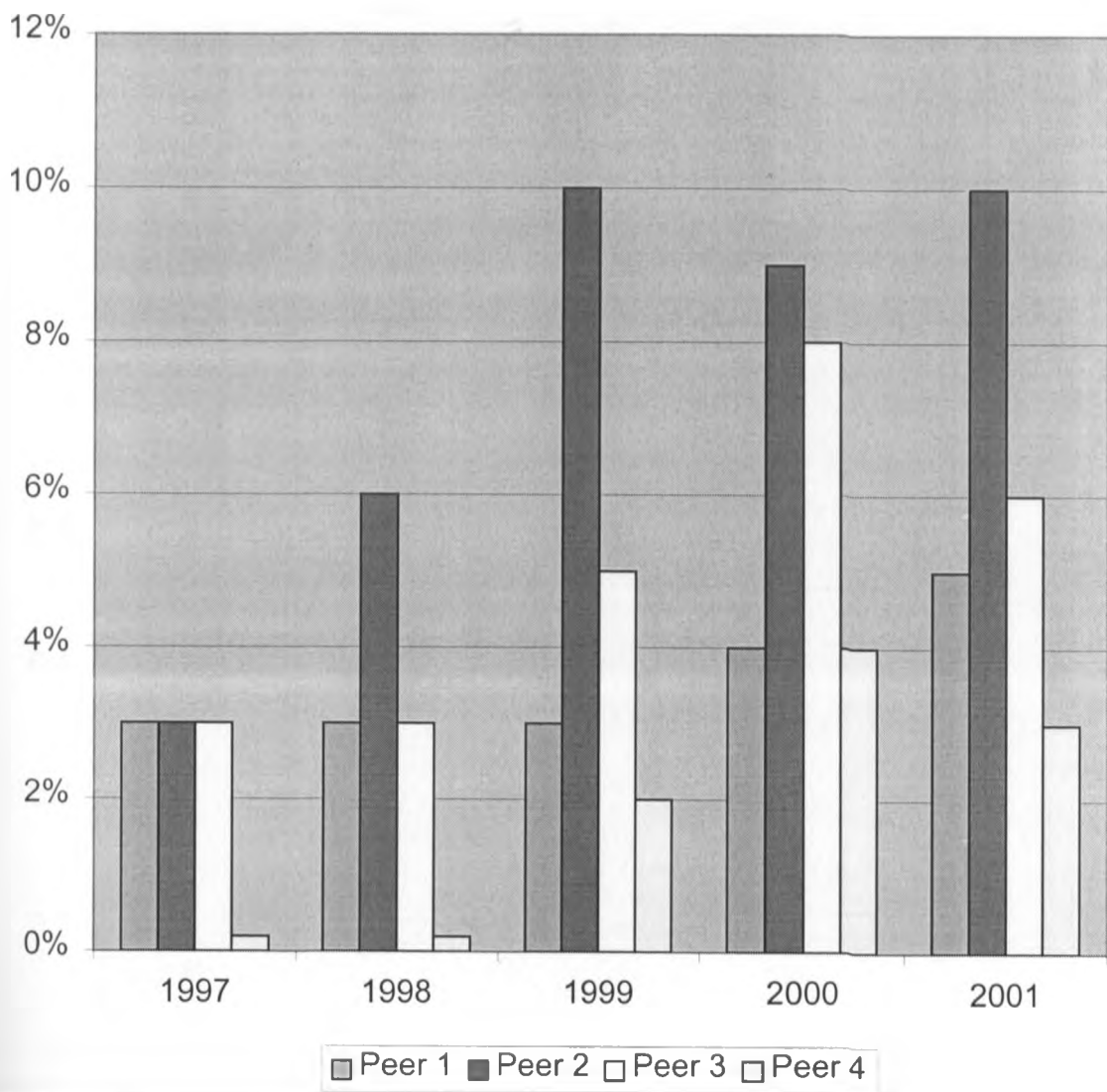
1.3 Non-Interest Income Proportions per Peer



Research: Research data

1.4 Other Incomes Proportions per Peer

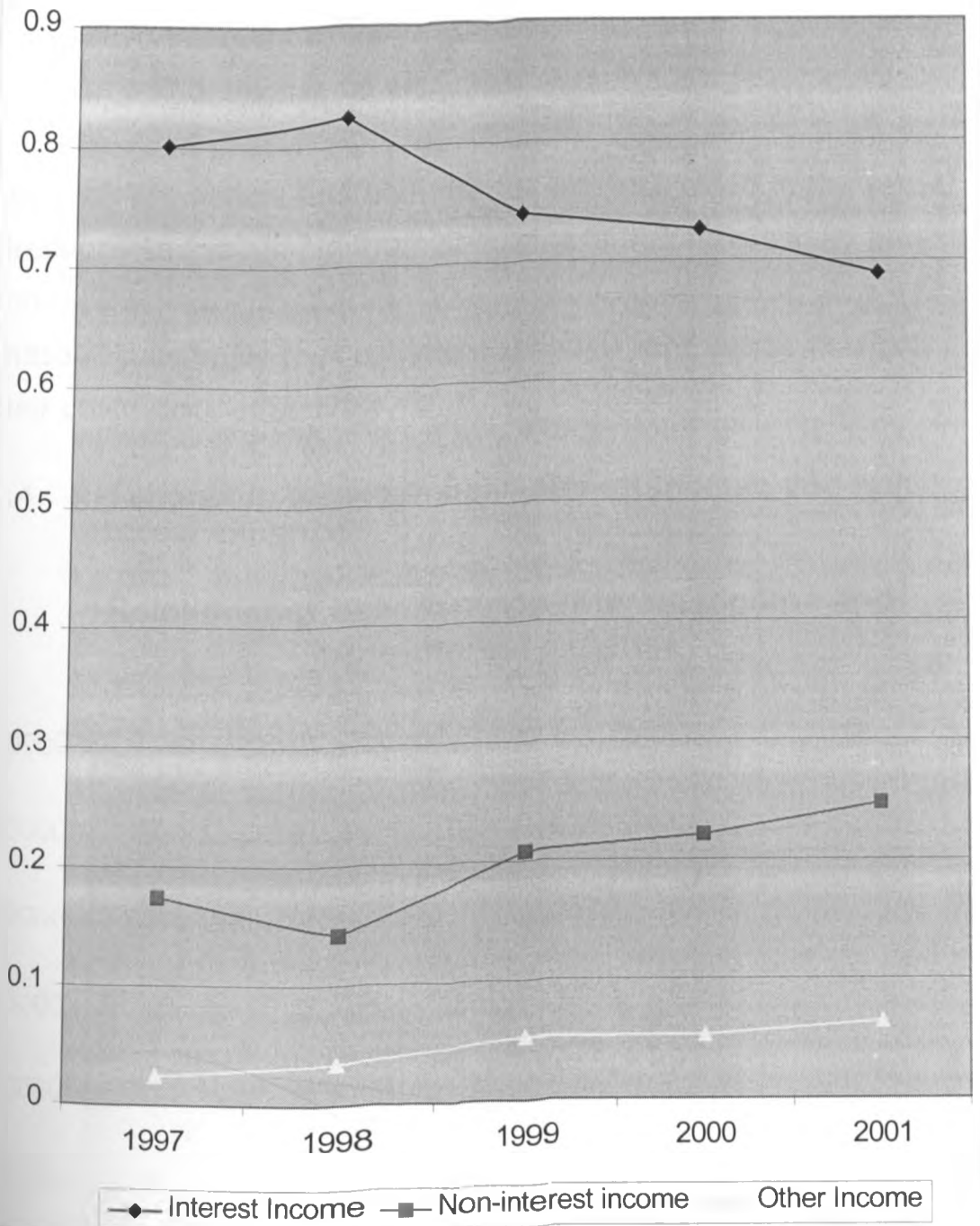
Other Incomes Proportions per Peer



Source: Research data

1.3 Growth of income proportions

Growth in income proportions



Source: Research data

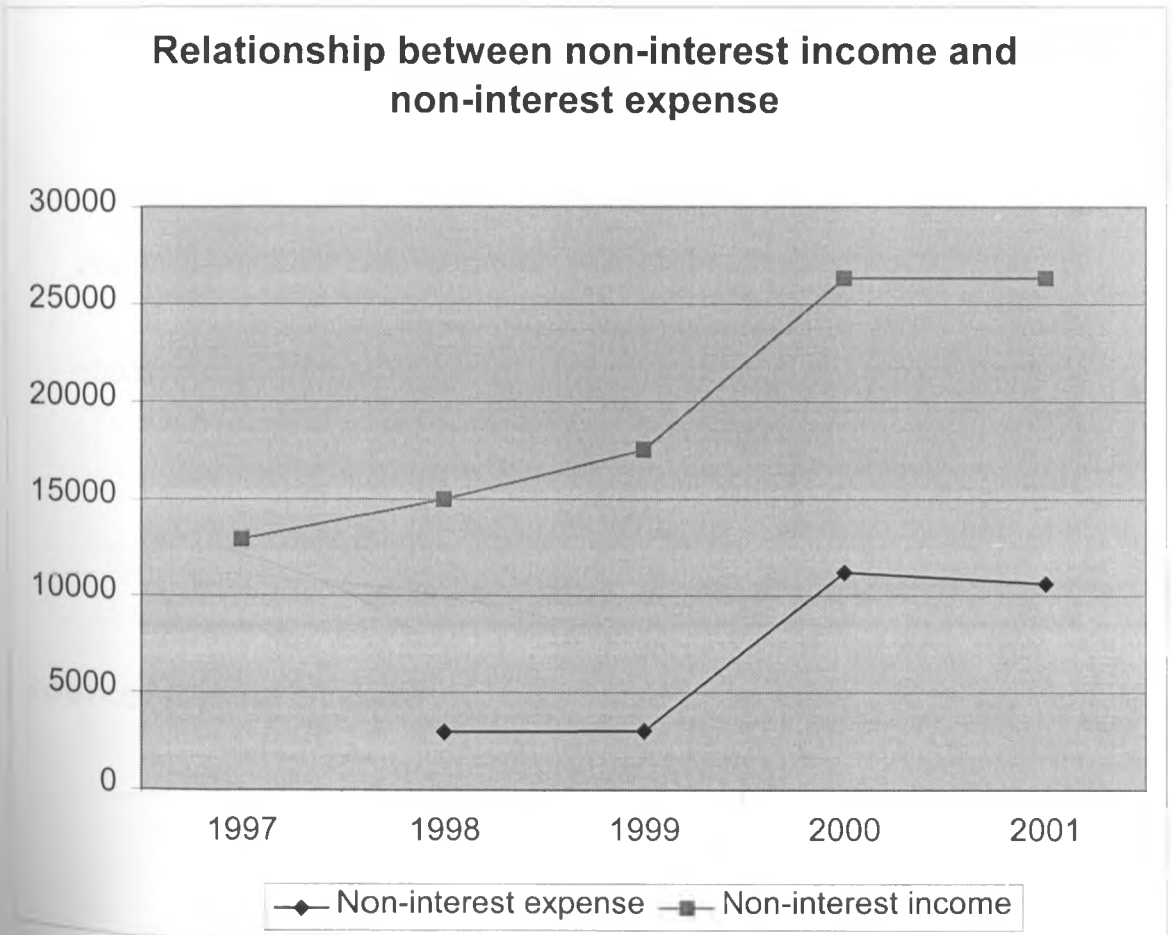
4.3 Relationship Between Income and Expense

The results of trend analysis indicate that interest income and interest expense are directly and positively related to each other. Increase in interest income is associated with an increase in interest expense and the converse also holds (Graph 1.5).

Non-interest income and non-interest expense move in the same direction. An increase in interest income is accompanied by an extra non-interest expense (Graph 1.4).

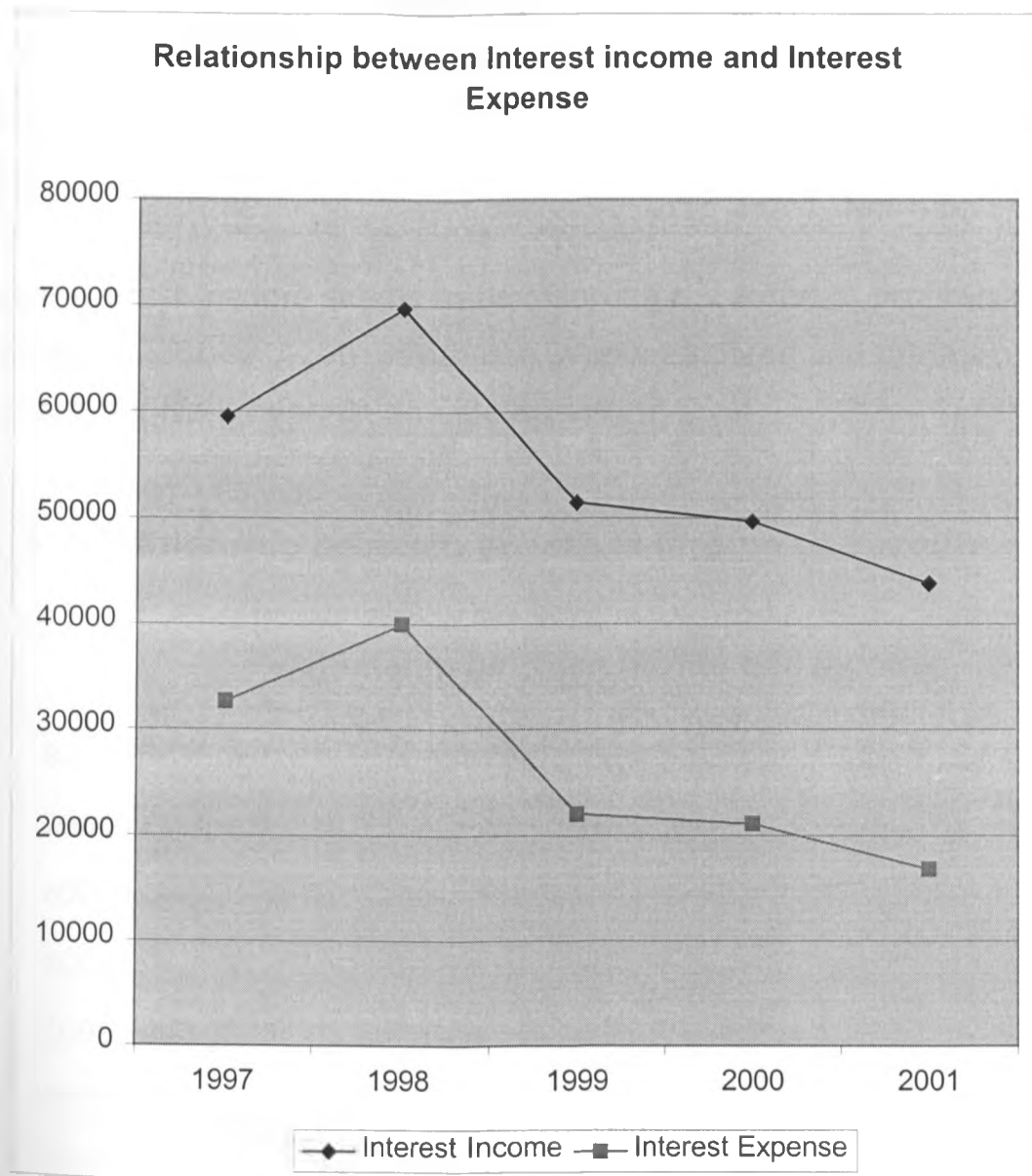
These results imply that commercial banks have been managing their costs quite effectively.

1.4 Relationship between non-interest income and non-interest expense



Source: Research data

1.5 Relationship between interest income and interest expense



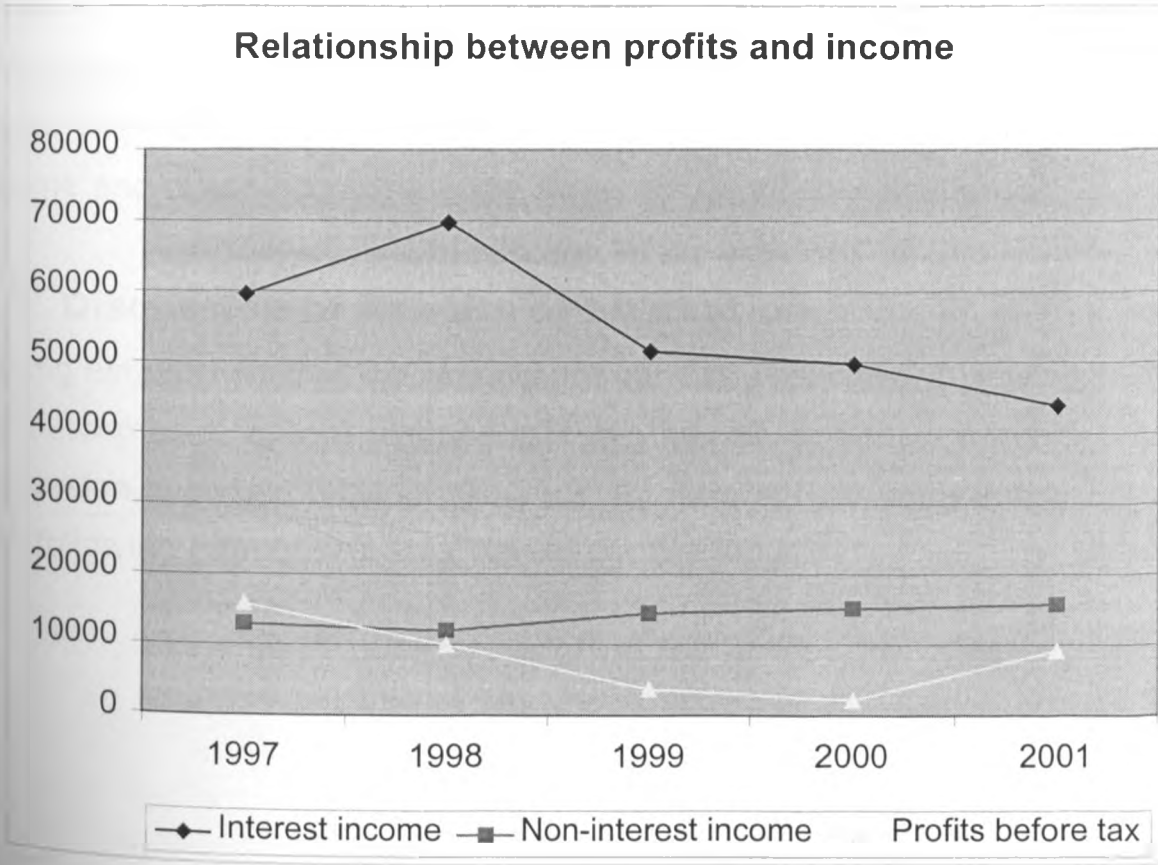
Source: Research data

4.4 Relationship Between Income and Profitability

Analysis indicates that interest income is inversely related to bank profitability. Between 1998 and 2001, interest income has been declining while industry profitability has been on the rise for the same period (Graph 1.6). This is probably explained by the high provisioning due to the increase in the non-performing loan portfolio which impacts negatively on profitability.

Non-interest income seems to be following the trend of profitability. Between 2000 and 2001, both non-interest income and profits before tax have been on an upward trend.

1.6 Relationship between growth in income and profits



Source: Research data

4.5 REGRESSION RESULTS

The three components on bank income (Interest income, non-interest income and other income) were regressed against the three earnings ratios namely Return on total assets, Return on equity and the Net-interest margin using the Statistical Package for Social Sciences (SPSS). Correlation and hypothesis testing were also conducted using the same package.

The regression model was specified in logarithmic form and as a consequence the data was also transformed into logarithmic form. This was done so as to linearise the data.

Regression analysis was conducted on the whole industry and also for each of the four peer groups. Twelve regressions were hence conducted. Tables' 1a to 16c reports the results of ROTA, ROE and NIM regressions along the lines of equations (i) to (iv) in chapter three. The independent variables (Interest income, non-interest income and other income) are the same across all specifications.

4.5 Discussion of Results of Estimation

Having established that the models are correctly specified, following the outcomes of various diagnostic tests, the results obtained from regression analysis (Tables 1a to 16c) can now be fully analyzed. The following relationship was yielded for the industry:

UNIVERSITY OF NAIROBI
LOWER KABETE LIBRARY

$$\text{ROTA} = \ln Y = 600.93 - 21.72X_1 - 38.10X_2 + 0.003X_3$$

$$\text{ROE} = \ln Y = 662.61 - 23.91X_1 - 41.94X_2 + 0.104X_3$$

$$\text{NIM} = \ln Y = 0.25 + 0.28X_1 - 0.144X_2 + 0.00X_3$$

Table 1b of regression results on Return on Total Assets indicates that the determinants identified in this model (interest income, non-interest income and other income) accounts for 94.2% of the total variations in earnings of commercial banks, while other factors not in the model account for the remaining 5.8% of the variations. Both interest and non-interest incomes were found to be significant at 5% level. Table 2b on Return on Equity indicated that the determinants identified in the model accounts for 95.8% of the total variations in earnings of commercial banks. Other factors not considered in the model account for the remaining 4.2% of the total variations. Among the variables considered, both interest and non-interest incomes were found to be significant at 5% level while other income was not significant. Table 3b on Net-interest Margin indicated that the determinants identified accounted for 86.2% of the total variations in commercial banks' earnings. Other factors not considered in the model accounts for the remaining 13.2% of the total variations. All the variables considered in this model were however found to be insignificant at 5% level.

Consistent with the evidence in De Young and Roland (2000), non-interest income is negatively related to the earnings volatility. The magnitude of the non-interest income is the largest as compared to the other independent variables. The high coefficient of non-interest

income (Table 1d and 2d) implies that a small change brings about a big change in the dependent variable (earnings of commercial banks). If you multiply change in Y by 100, then B will give the percentage change (volatility) of Y per unit change in X (independent variable). This implies that a unit change in non-interest income changes the Return on Total Assets by 3810%, as compared to 2172% change by interest income. A unit change in non-interest income changes the Return on Equity by 4194%, as compared to 2392% change by interest income. The Net-interest Margin regression, which gives a positive relationship between non-interest income and earnings, was however found to be insignificant at 5% confidence level (Table 3d). This means non-interest income is added into the revenue mix of commercial banks, earnings are likely to fluctuate more in an inverse manner. These results are consistent with the evidence given by Demirguc-Kunt and Huizinga (1999) that profits appear to increase with a greater proportion of Non-interest income.

Regressing the peer group data by and large produced consistent results as of the entire industry. However, most of the predictor variables were found to be insignificant.

CHAPTER FIVE

5.0 SUMMARY OF FINDINGS, CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

5.1 Summary Findings

The principal focus of this study was to determine the relationship between interest income, non-interest income and other incomes of commercial banks and also to establish the impact of non-interest income on the earnings volatility of commercial banks in Kenya. These objectives were achieved through trend and regression analyses.

The trend analysis conducted indicated that the non-interest income has been growing in its relative importance as compared to other sources of income for the period 1997 to 2001. Interest income on the other hand has been declining since 1998 at an increasing rate. These findings are consistent with those of De Young and Roland (2001) and Fieldman and Schmidt (1999). This trend is expected to continue to a point when non-interest income will be the main contributor of commercial banks revenue (Chart 1.0). Trend analysis on the peer groups of commercial banks revealed that as bank size increases, the relative importance of non-interest income increases. For big banks such as Barclays bank, Kenya Commercial bank and Standard Chartered bank non-interest income contributed about 32.96% of their total income in 2001, while for small banks non-interest income accounted for only 14.15% of their total income in the same year.

Trend analysis indicated that as the proportion of non-interest income increases, profitability also increases (Graph 1.6).

The results of the analysis discussed in the preceding chapter revealed that the factors identified as determinants of earnings volatility of commercial banks namely: Interest income, non-interest income and other incomes, are strong predictors with R square averaging at 90%. Both interest income and non-interest income were found to be significant at 5% level while other bank income were found to be insignificant.

The high Beta coefficients of non-interest income in relative terms in all regression models indicates that non-interest income does increase earnings volatility as compared to both interest and other income of commercial banks. This finding is consistent across the peers of commercial banks. De Young and Roland come to the same conclusion using their degree of total leverage model.

Analysis of the expense data indicates that both interest income and non-interest incomes are positively related to their respective expenses (Graphs no.1.4 and 1.5). As interest income increases interest expense also increases and vice versa. On the other hand, non-interest income moves in the same direction as non-interest expense. This implies that earnings volatility may not be attributed to poor management of the costs.

5.2 Conclusion

Over the past decade, non-interest income has outpaced interest income as a growth area for commercial banks in Kenya. Despite lack of supporting evidence it is believed that this trend is likely to reduce earnings volatility based on the assumption that non-interest income is more stable as compared to interest income. The results of this study however give differing view.

In the regression model specified, the volatility of banks earnings is a function of three independent components: variations in interest income, variation in non-interest income and variation in other operating/non-operating income. Both interest and non-interest incomes are largely determined by market forces exogenous to the bank while other operating/non-operating income is largely determined by the bank's internal policies.

Applying this theoretical framework to the data set collected, we find that both interest and non-interest income do contribute significantly to the variations in earnings of commercial banks. The high coefficients of non-interest income indicates that non-interest income leads to greater earnings volatility as compared to interest income which has a moderate coefficient across all the models developed. This means as the proportion of non-interest income increases, the earnings volatility is likely to increase. Conversely greater proportion of interest income is likely to reduce earnings volatility.

The increase in profitability as non-interest income increases implies that the extra profits partially compensates banks for any increase in risk associated with increasing volatility. These results seem to reflect the characteristics of the two sources of income. Traditional lending is a relationship business and as such, it is costly for borrowers and lenders to walk away from lending relationships because the switching costs are quite high. Consequently, interest income is likely to be stable over time. On the other hand, non-interest income is likely to be less stable because most fee activities do not require strong customer-bank relationship and competitive rivalry is high.

Large banks are likely to engage in fee-based activities, which are capital intensive. Small banks may not have the required infrastructure and resources to develop new products and utilize technology in order to generate substantial non-interest income.

5.3 Recommendations

The findings of this paper have implications on all key stakeholders in the banking industry. As the non-interest income continues its upward trend, the results of this study imply that the earnings of commercial banks will become more volatile. High earnings volatility may lead to insolvency and as such, the regulators will need to put in place a mechanism that controls the growth of non-interest income. There may be a need to introduce legislative and regulator mandated increase in capital requirement.

The growth in non-interest income and the subsequent increase in the earnings volatility imply that shareholders may need diversify their portfolio into holding non-bank stocks.

Small banks will need to merge in-order to exploit their management and production synergies, and thereby increase their non-interest income for them to remain competitive. The results of this study indicate that profitability and non-interest income are positively related.

Declining interest income is an indicator of low borrowing leading to falling investments levels in the economy. The government will need to put in place policies that encourage people to borrow for productive investment without defaulting. There is need for instance to legislate laws that deal severely with loan defaulters while at the same time creating efficiency in the judicial system.

5.4 Limitations of the Study

The study was conducted using financial data derived from financial statements of commercial banks. Such data has got some obvious limitations since it is subject to manipulation by management to suit their own needs.

Data availability was a major shortcoming of this study. This was due to the fact that commercial banks started reporting interest and non-interest income separately in their financial statement in 1996 (a requirement of the Central bank of Kenya). For this the period of study was limited to only five years. The study would have been more comprehensive if a longer period was covered.

The study was conducted within the constraint of time and resources and as such, other issues inherent in such a broad study could not be addressed adequately.

The financial ratios used in the study are generated from financial statements, which have been prepared under different accounting policies. This means the consistency of the data could not be ascertained.

Most banks disclose only the minimum statutory requirement and this means it is not possible to calculate certain ratios. The study was thus limited by such public information.

The study made use of data that was not adjusted for any price (inflationary) changes.

5.5 Suggestions for Further Research

Non-interest income of commercial bank in Kenya is a virgin field that has not been exploited. In the course of this study several gaps were identified for further research. First of all a researcher can conduct the same study using current cost accounting or price adjusted data. This will enable the behaviour of historical data to be compared to those of inflation-adjusted data in terms of earnings ratios and income.

A research can be conducted to find out whether commercial banks in Kenya have managed to diversify away risk through investment fee/commissions activities. Such a study would look at the implications of non-interest income on the different bank risks.

A study can be conducted on the determinants of earnings volatility and the practice interest risk management among commercial banks in Kenya.

REFERENCES

Allen L and Jagtiani J (2000) The Impact of New Bank Powers (Security and Insurance Activities) on Bank Holding Companies' Risk, Journal of Economics and Business

Altman E (1968) Financial Ratios, Discriminant Analysis and the prediction of Corporate Bankruptcy. The Journal of Finance, September issue

Banking Survey, 2002 Market Intelligence. The Business and Finance Journal.

Banking Survey, 2001 Market Intelligence. The Business and Finance Journal.

Barefield R and Comiskey E (1979) The Differential Association of Forecast Error and Earnings Variability with Systematic Risk. Journal of Business Finance.

Bett K A K (1992) Financial Performance of the Banking Sector: The case of Kenyan Banks and Financial Institutions, 1986 to 1990
Research paper

Boyd J H, Graham S L and Hewitt R S (1993) Bank Holding Company Mergers with Non-bank Financial Firms. Journal of Banking and Finance 17, 43-63

CBK (1999) Annual Bank Supervision Report

Cooperman E, Mills D, Gardner J (2000) Managing Financial Institutions: An Asset/Liability Approach. The Dryden Press Harcourt College Publishers, Orlando, Fl.

Demirguc-kunt, Asli and Harry Huizinga (1999) Determinants of Commercial Banks Interest Margins and Profitability: Some International Evidence. World Bank Economic Review 13, 378-408

Demirguc-kunt, Asli and Harry Huizinga (2000) Financial Structure and Bank Profitability. World Bank Research paper.

De Young and Roland K (2001) Product Mix and Earnings Volatility: Evidence from the Degree of Total Leverage Model. Research Paper. ([http:// papers.ssrn.com/sol3/papers.cfm](http://papers.ssrn.com/sol3/papers.cfm))

Fieldman R and Schmidt J (1999) Fedgazette Journal (1999) Edition.

Honohan P (1999) Financial Liberalization: How Far? How Fast? Research Paper.

Kathanje M N (2000) An Evaluation of the Financial Performance of the Kenyan Banking Sector, 1987 to 1999, Research Paper

Mayo B H (1998) Financial Institutions Investments and Management: An introduction. The Dryden Press, Harcourt College Publishers, Orlando, Fl.

Nyamai C M (1989) The Structure and Growth of the Banking Industry in Kenya. Research Paper.

Otieno L (1987) Ratio Strengths and Weaknesses. The Accountant (ICPAK) July/September Issue

Ritter S, Silber W and Udell G (1997) Principles of Money, Banking and Financial; Markets. Addison Wesley Longman, Inc. New York.

Saunders Anthony (2000) Financial Institutions Management: A modern perspective. Irwin McGraw-Hill, Boston.

Thygeron J and Kenneth (1995) Management of Financial Institutions. Harper Collins College Publishers, New York, N.Y.

Yeager F.C (1999) Financial Institutions Management. Hall, Englewood Cliffs, N.J.

6.0 APPENDICES

6.1 Appendix 1

6.1.1 Definition of Terms

Bank:

According to the banking act Chapter 488, a bank is any company, which carries on banking business in Kenya and includes Co-operative bank of Kenya, but does not include Central bank of Kenya. All branches and offices in Kenya of a bank incorporated outside Kenya are deemed to one bank.

Financial Institution:

A company other than a bank which in Kenya accepts deposits of money from the public payable on demand or after a fixed period or after a notice and employs these deposits in whole or in part by lending or any other means for the account and risk of the person accepting the deposits and other company carrying out financial business which the minister of finance by notice in the Kenya Gazette, declares to be a financial institution.

Banking Business:

Any business which includes the accepting of deposits of money from the public repayable on demand or after a fixed period or after a notice, the employing of those deposits in whole or in part by lending or any other means for the account and the risk of the person accepting the deposits and the paying and collection of cheques.

Interest Income:

Interest income refers to the revenue that commercial banks earn from their core intermediation business of taking deposits and making loans.

Non-interest Income:

Any income that commercial banks earn from activities other than their core intermediation business, or from investment is classified as non-interest income. This type of income is often referred to as 'fee income' since fees constitute the majority of non-interest income.

6.2 Appendix 2

6.2.1 List of banks

1. African Banking Corporation
2. Akiba Bank Ltd
3. Bank of Baroda Ltd
4. Bank of India Ltd
5. Barclays Bank of Kenya Ltd
6. Biashara Bank Kenya Ltd
7. Bullion Bank Ltd (Under statutory management)
8. CFC bank Ltd
9. Chase Bank Ltd
10. Charterhouse Bank (K) Ltd
11. CitiBank,N.A
12. City Finance Bank Ltd (Under statutory management)
13. Commerce Bank Ltd
14. Commercial Bank of Africa Ltd
15. Consolidated Bank of Kenya Ltd
16. Co-operative Bank of Kenya Ltd
17. Co-operative Merchant Bank Ltd
18. Credit Agricole Indosuez
19. Credit Bank Ltd
20. Daima Bank Ltd
21. Development Bank Ltd

22. Diamond Trust Bank Ltd
23. Equatorial Bank Ltd
24. Euro Bank Ltd
25. Fidelity Commercial Bank Ltd
26. Fina Bank Ltd
27. First National Finance Bank Ltd
28. First American Bank
29. Guardian Bank Ltd
30. Giro Bank Ltd
31. Guilders Bank Ltd
32. Habib Africa
33. Habib AG Zurich
34. Habib Bank Ltd
35. Imperial Bank Ltd
36. Industrial Development Bank Ltd
37. Investment and Mortgage Bank Ltd
38. Kenya Commercial Bank Ltd
39. Mashreq Bank Ltd
40. Middle East Bank Ltd
41. National Bank of Kenya Ltd
42. National Industrial Credit Bank Ltd
43. Paramount Bank Ltd
44. Prime Bank Ltd

45. Prudential Bank Ltd (Under statutory management)
46. Reliance Bank Ltd (Under statutory management)
47. Southern Credit Banking Corporation
48. Stanbic Bank Ltd
49. Standard Chartered Bank Ltd
50. The Delphis Bank (Under statutory management)
51. Transnational Bank Ltd
52. Trust Bank (Under statutory management)
53. Universal Bank Ltd
54. Victoria Commercial Bank Ltd

REGRESSION RESULTS FOR THE WHOLE INDUSTRY

Regression - ROTA

Table 2a

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROT

Table 2b

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.970 ^a	.942	.767	.3810

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 2c

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.343	3	.781	5.381	.305 ^a
	Residual	.145	1	.145		
	Total	2.489	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROT

Table 2d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	600.930	212.799		2.824	.217
	LOGNINT	-21.722	7.975	-4.913	-2.724	.224
	LOGNON	-38.098	13.743	-5.438	-2.772	.220
	LOGOTH	.003	.975	.001	.003	.998

a. Dependent Variable: LOGROT

Regression – ROE

Table 3a**Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROE

Table 3b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.979 ^a	.958	.834	.3410

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 3c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.684	3	.895	7.693	.258 ^a
	Residual	.116	1	.116		
	Total	2.800	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROE

Table 3d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	662.610	190.469		3.479	.178
	LOGNINT	-23.914	7.138	-5.099	-3.350	.185
	LOGNON	-41.939	12.301	-5.643	-3.409	.182
	LOGOTH	.104	.872	.040	.119	.925

a. Dependent Variable: LOGROE

Regression – NIM**Table 4a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON		Enter

a. All requested variables entered.

b. Dependent Variable: LOGNIM

Table 4b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.928 ^a	.862	.448	5.308E-02

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 4c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.018	3	.006	2.080	.462 ^a
	Residual	.003	1	.003		
	Total	.020	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGNIM

Table 4d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.251	29.647		.008	.995
	LOGNINT	.281	1.111	.703	.253	.842
	LOGNON	-.144	1.915	-.227	-.075	.952
	LOGOTH	.000	.136	-.001	-.002	.998

a. Dependent Variable: LOGNIM

PEER GROUP 1- Asset Base Kshs 50 Billion and above

Regression – ROTA

Table 5a

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROT

Table 5b

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.426 ^a	.182	-2.273	.7716

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 5c

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.132	3	4.411E-02	.074	.965 ^a
	Residual	.595	1	.595		
	Total	.728	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROT

Table 5d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-79.006	2430.663		-.033	.979
	LOGNINT	4.121	106.162	1.624	.039	.975
	LOGNON	4.279	152.530	1.221	.028	.982
	LOGOTH	-5.85E-02	5.331	-.031	-.011	.993

a. Dependent Variable: LOGROT

Regression – ROE**Table 6a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROE

Table 6b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.504 ^a	.254	-1.983	.7478

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 6c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.191	3	6.358E-02	.114	.941 ^a
	Residual	.559	1	.559		
	Total	.750	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROE

Table 6d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-107.400	2355.479		-.046	.971
	LOGNINT	5.551	102.878	2.155	.054	.966
	LOGNON	6.182	147.812	1.737	.042	.973
	LOGOTH	-.248	5.166	-.127	-.048	.970

a. Dependent Variable: LOGROE

Regression – NIM

Table 7a**Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGNIM

Table 7b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.976 ^a	.953	.813	.0272

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 7c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.015	3	.005	6.810	.273 ^a
	Residual	.001	1	.001		
	Total	1.591E-02	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGNIM

UNIVERSITY OF
LOWER KABELI UNIVERSITY

Table 7d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-25.320	85.822		-.295	.817
	LOGNINT	1.364	3.748	3.635	.364	.778
	LOGNON	1.640	5.386	3.164	.305	.812
	LOGOTH	-.187	.188	-.661	-.994	.502

a. Dependent Variable: LOGNIM

PEER GROUP 2 – Asset Base Kshs 10 to Kshs 50**Regression – ROTA****Table 8a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT ^a , LOGNON		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROT

Table 8b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.958 ^a	.918	.671	.7878

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 8c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.917	3	2.306	3.715	.360 ^a
	Residual	.621	1	.621		
	Total	7.538	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROT

Table 8d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-232.049	110.402		-2.102	.283
	LOGNINT	9.983	4.024	1.407	2.481	.244
	LOGNON	18.767	9.700	1.152	1.935	.304
	LOGOTH	-1.858	.782	-.749	-2.375	.254

a. Dependent Variable: LOGROT

Regression – ROE**Table 9a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROE

Table 9b**ANOVA^a**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.560	3	2.853	3519.402	.012 ^a
	Residual	8.108E-04	1	8.108E-04		
	Total	8.561	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROE

Table 9c**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-54.679	3.990		-13.702	.046
	LOGNINT	1.832	.145	.242	12.599	.050
	LOGNON	7.248	.351	.418	20.671	.031
	LOGOTH	-2.845	.028	-1.076	-100.604	.006

a. Dependent Variable: LOGROE

Regression – NIM**Table 10a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGNIM

Table 10b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.993 ^a	.986	.944	.036

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 10c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.089	3	.030	23.567	.150 ^a
	Residual	.001	1	.001		
	Total	.090	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGNIM

Table 10d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-20.638	4.979		-4.145	.151
	LOGNINT	.938	.181	1.206	5.167	.122
	LOGNON	1.906	.437	1.068	4.356	.144
	LOGOTH	-.248	.035	-.913	-7.031	.090

a. Dependent Variable: LOGNIM

PEER 3 – Asset Base Kshs 1 – 10 Billion**Regression – ROTA****Table 11a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROT

Table 11b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999 ^a	.998	.991	.040

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 11c**ANOVA^a**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.741	3	.247	151.108	.060 ^a
	Residual	.002	1	.002		
	Total	.743	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROT

Table 11d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.618	6.246		4.742	.132
	LOGNINT	-.461	.289	-.207	-1.592	.357
	LOGNON	-2.822	.553	-.700	-5.106	.123
	LOGOTH	-.557	.116	-.521	-4.793	.131

a. Dependent Variable: LOGROT

Regression – ROE**Table 12a****Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT _a , LOGNON		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROE

Table 12b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.978 ^a	.957	.827	.4572

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 12c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.626	3	1.542	7.377	.263 ^a
	Residual	.209	1	.209		
	Total	4.835	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGROE

Table 12d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	69.020	70.610		.977	.507
	LOGNINT	-4.307	3.272	-.758	-1.316	.414
	LOGNON	.516	6.249	.050	.083	.948
	LOGOTH	-4.390	1.313	-1.612	-3.345	.185

a. Dependent Variable: LOGROE

Regression – NIM

Table 13a**Variables Entered/Removed^b**

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNINT, LOGNON ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGNIM

Table 13b**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.772 ^a	.596	-.617	.1481

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

Table 13c**ANOVA^b**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.032	3	.011	.491	.751 ^a
	Residual	.022	1	.022		
	Total	.054	4			

a. Predictors: (Constant), LOGOTH, LOGNINT, LOGNON

b. Dependent Variable: LOGNIM

Table 13d**Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-24.46	22.877		-1.069	.479
	LOGNINT	1.25	1.060	2.072	1.178	.448
	LOGNON	1.87	2.024	1.717	.924	.525
	LOGOTH	.04	.425	.151	.102	.935

a. Dependent Variable: LOGNIM

PEER 4 – Asset Base up to Kshs 1 Billion

Regression – ROTA

Table 14a

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNON, LOGNINT ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROT

Table 14b

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.561	3	.187		^a
	Residual	.000	0			
	Total	.561	3			

a. Predictors: (Constant), LOGOTH, LOGNON, LOGNINT

b. Dependent Variable: LOGROT

Table 14c

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.213	.000			
	LOGNINT	-1.482	.000	-.324		
	LOGNON	.916	.000	.448		
	LOGOTH	-.495	.000	-1.470		

a. Dependent Variable: LOGROT

Regression – ROE

Table 15a

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNON, ^a LOGNINT		Enter

a. All requested variables entered.

b. Dependent Variable: LOGROE

Table 15b

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.092	3	1.697		. ^a
	Residual	.000	0			
	Total	5.092	3			

a. Predictors: (Constant), LOGOTH, LOGNON, LOGNINT

b. Dependent Variable: LOGROE

Table 15c

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.075	.000			
	LOGNINT	2.751	.000	.200		
	LOGNON	-5.611	.000	-.911		
	LOGOTH	-6.97E-02	.000	-.069		

a. Dependent Variable: LOGROE

Regression – NIM

Table 16a

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	LOGOTH, LOGNON, ^a LOGNINT ^a		Enter

a. All requested variables entered.

b. Dependent Variable: LOGNIM

Table 16b

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	1.000	1.000	

a. Predictors: (Constant), LOGOTH, LOGNON, LOGNINT

Table 16c

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.513	3	.171		^a
	Residual	.000	0			
	Total	.513	3			

a. Predictors: (Constant), LOGOTH, LOGNON, LOGNINT

b. Dependent Variable: LOGNIM

TABLE 1.0 Incomes for the Industry

YEAR	1997	1998	1999	2000	2001
Interest income	59561	69735	51513	49702	42860
Non-interest income	12922	12009	14496	15127	15728
Other income	1809	2896	3670	3620	4091
Total	74292	84640	69679	68449	63679

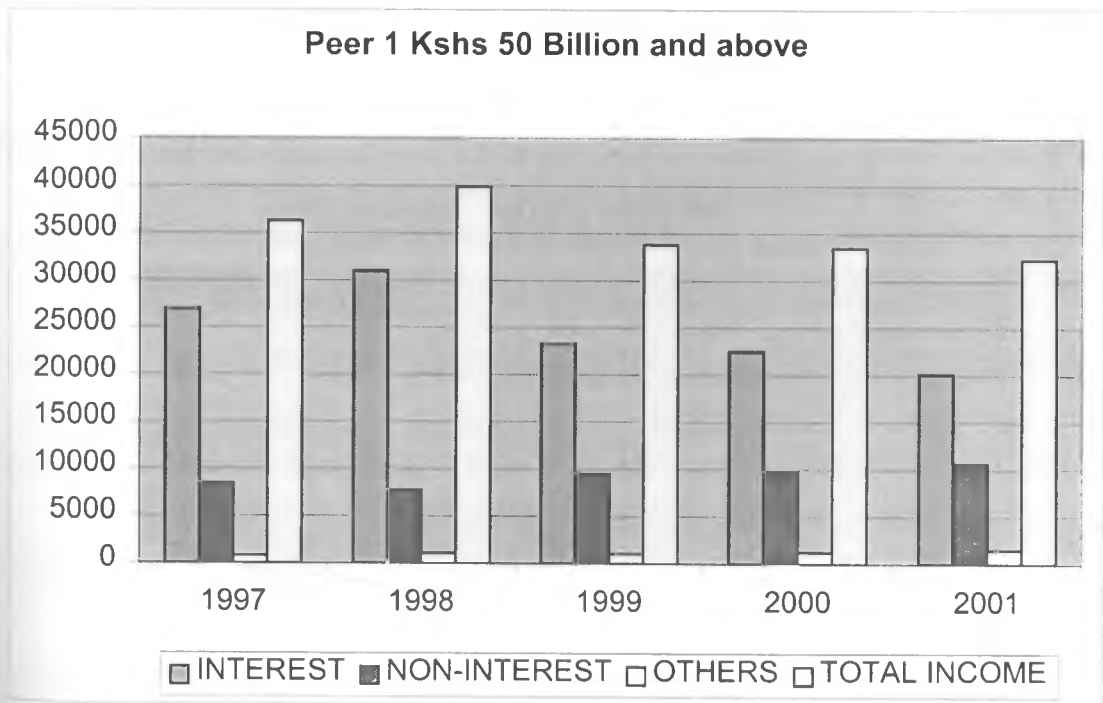
Source: Research data

Table 1.1 Incomes of Peer 1 Banks (Kshs 50 Billion)

YEAR	INTEREST	NON-INTEREST	OTHERS	TOTAL INCOME
1997	26928	8506	835	36269
1998	30985	7789	1105	39879
1999	23267	9502	1041	33810
2000	22472	9733	1258	33463
2001	20119	10640	1521	32280

Source: Research data

**1.5 Commercial banks income
Asset base Kshs. 50 Billion and above**



Source: Research data

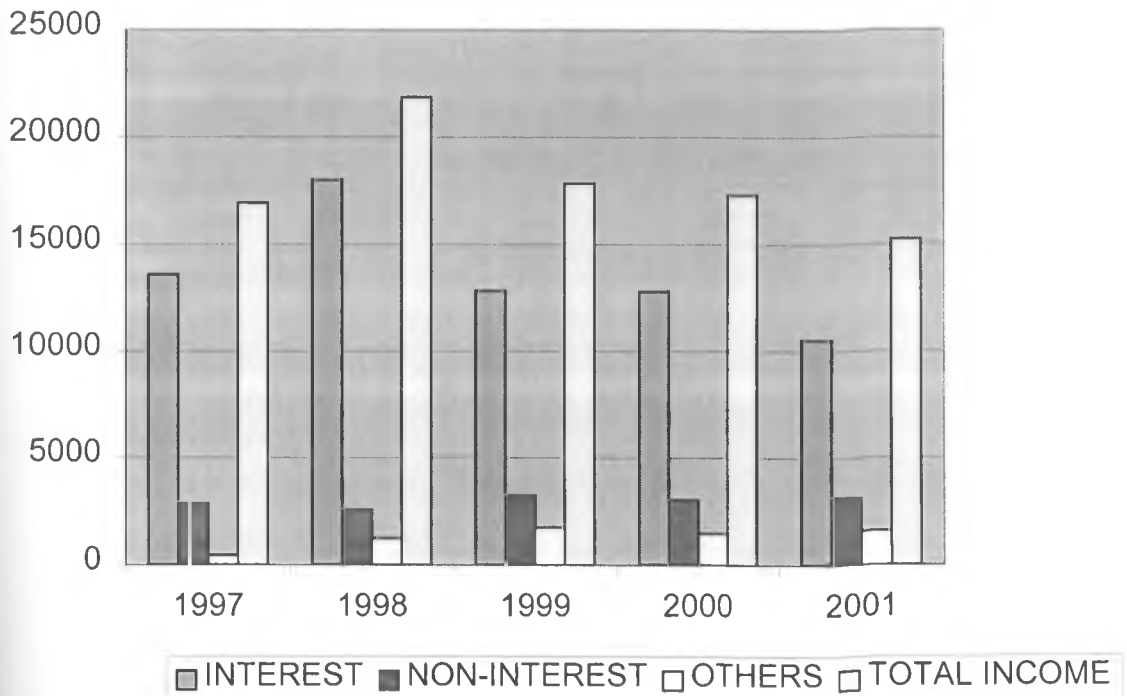
Table 1.2 Income of Peer 2 (Kshs 10-50 Billion)

YEAR	INTEREST	NON-INTEREST	OTHERS	TOTAL INCOME
1997	13586	2907	452	16945
1998	18005	2609	1255	21869
1999	12838	3248	1766	17852
2000	12805	3040	1472	17317
2001	10520	3127	1591	15238

Source: Research data

1.6 Commercial banks income
Asset base Kshs 10-50 Billion

Income for Peer 2 Kshs 10-50 Billion



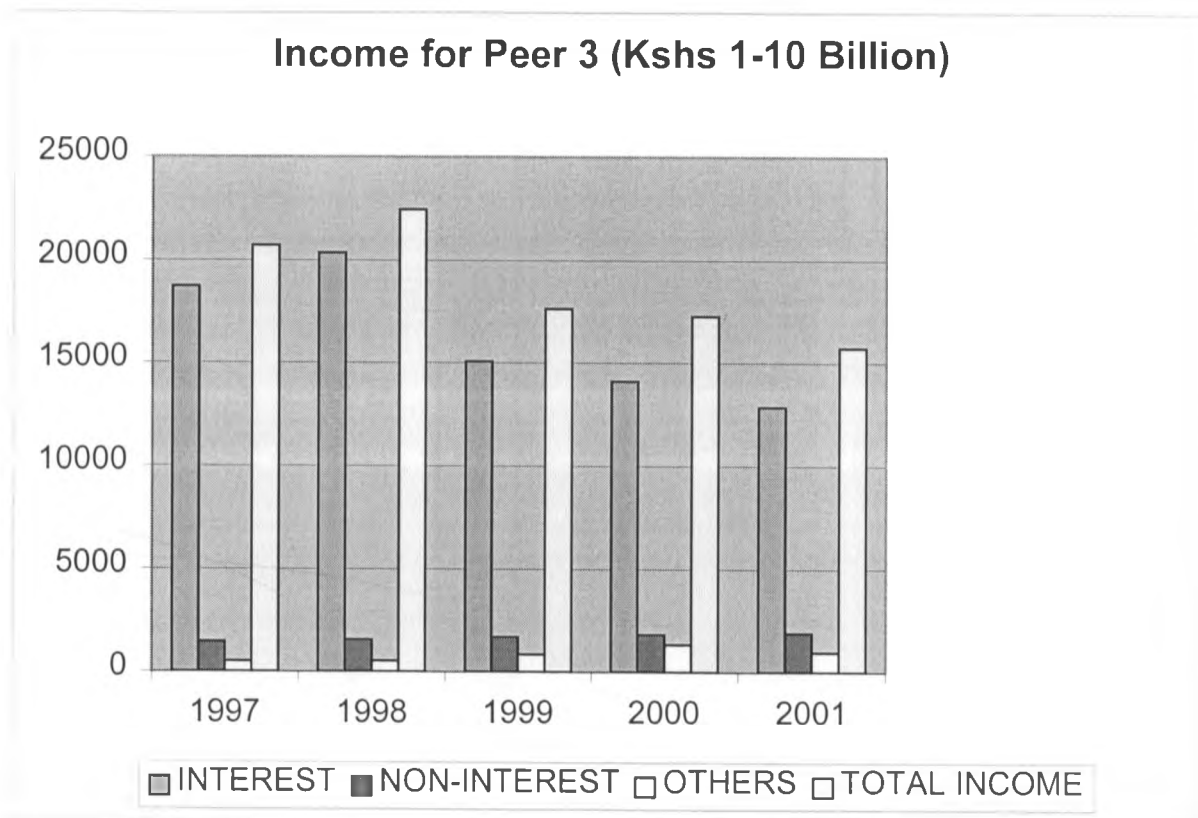
Source: Research data

Table 1.3 Incomes for Peer 3 (Kshs 1-10 Billion)

YEAR	INTEREST	NON-INTEREST	OTHERS	TOTAL INCOME
1997	18723	1467	522	20712
1998	20359	1567	535	22461
1999	15083	1707	855	17645
2000	14112	1827	1343	17282
2001	12865	1901	965	15731

Source: Research data

**1.7 Commercial banks income
Asset base Kshs 1-10 Billion**



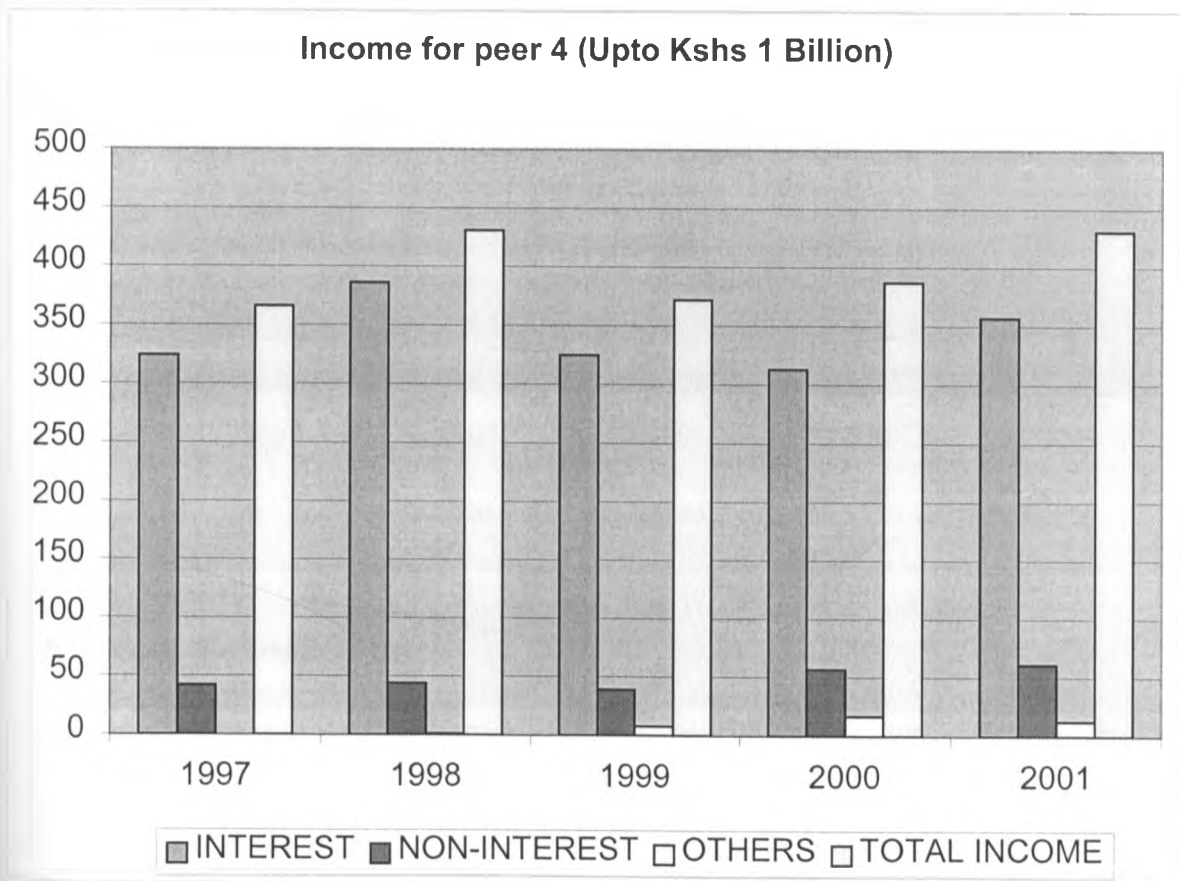
Source: Research data

Table 1.4 Income for peer 4 (Up to Kshs 1 Billion)

YEAR	INTEREST	NON-INTEREST	OTHERS	TOTAL INCOME
1997	324	42	0	366
1998	386	44	1	431
1999	325	39	8	372
2000	313	57	17	387
2001	357	61	13	431

Source: Research data

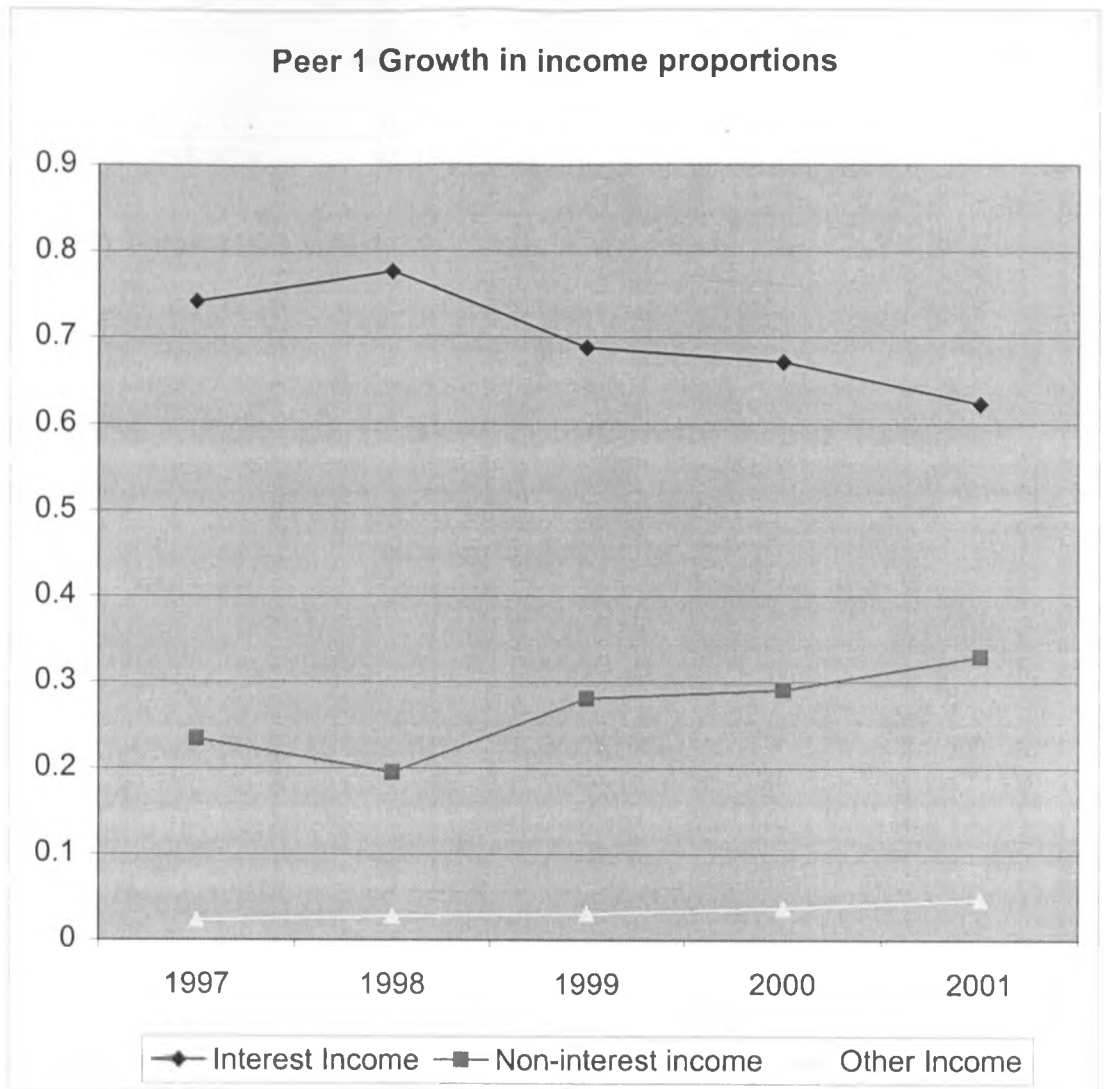
**1.8 Commercial banks income
Asset base up to 1 Billion**



Source: Research data

1.7

Peer 1 growth in income proportions



Source: Research data

Table 1.5 Proportions of Commercial Banks Income

Year	INDUSTRY		
	Interest Income	Non-interest income	Other Income
1997	0.801715	0.173935	0.02435
1998	0.823901	0.141883	0.034216
1999	0.73929	0.20804	0.05267
2000	0.726117	0.220997	0.052886
2001	0.688767	0.246989	0.064244
Total	0.755958	0.1983688	0.0456732

Source: Research data

Table 1.6 Proportions of Commercial Banks Income

Year	PEER 1 (50 BILLION BANKS)		
	Interest Income	Non-interest income	Other Income
1997	0.742452	0.234525	0.023022
1998	0.776975	0.195316	0.027709
1999	0.688169	0.281041	0.03079
2000	0.671548	0.290859	0.037594
2001	0.623265	0.329616	0.047119
Total	0.700482	0.266271	0.033247

Source: Research data

Table 1.7 Proportions of Commercial Banks Income

Year	PEER 2 (10-50 BILLION BANKS)		
	Interest Income	Non-interest Income	Others Income
1997	0.80177	0.171555	0.026675
1998	0.823312	0.119301	0.057387
1999	0.719135	0.18194	0.098924
2000	0.739447	0.17555	0.085003
2001	0.690379	0.205211	0.10441
Total	0.754809	0.170711	0.07448

Source: Research data

Table 1.8 Proportions of Commercial Banks Income

PEER 3 (1-10 BILLION BANKS)			
Year	Interest Income	Non-interest Income	Other Income
1997	0.903969	0.070829	0.025203
1998	0.906416	0.069765	0.023819
1999	0.854803	0.096741	0.048456
2000	0.816572	0.105717	0.077711
2001	0.817812	0.120844	0.061344
Total	0.859914	0.092779	0.047306

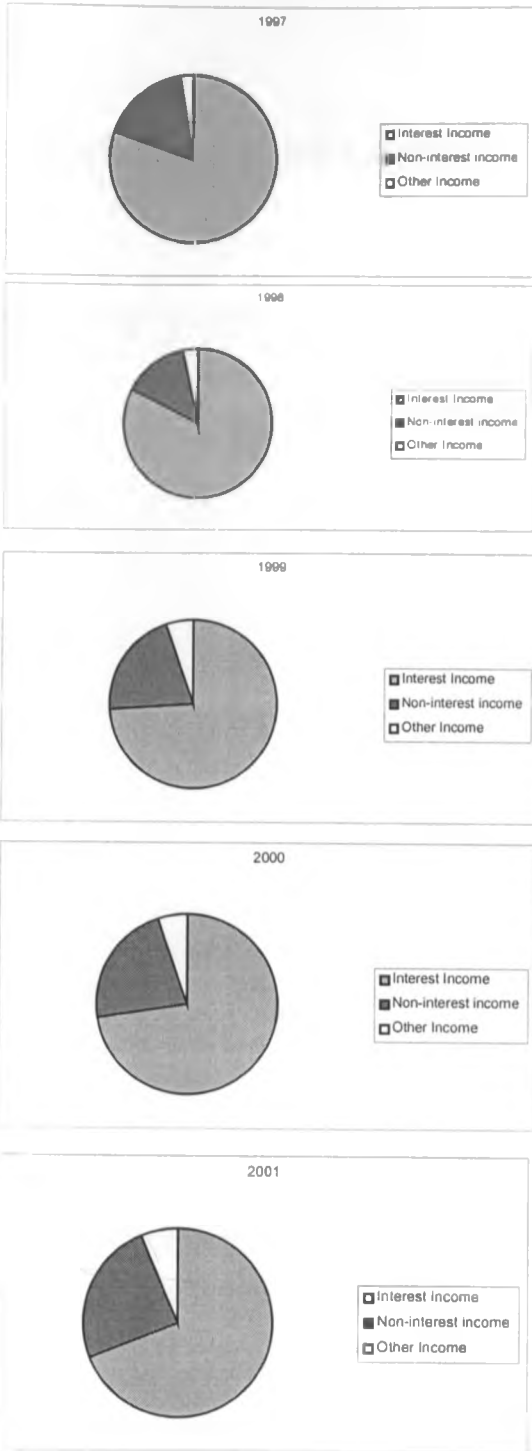
Source: Research data

Table 1.9 Proportions of Commercial Banks Income

PEER 4 (UPTO 1 BILLION BANKS)			
Year	Interest Income	Non-interest Income	Other Income
1997	0.885246	0.114754	0
1998	0.895592	0.102088	0.00232
1999	0.873656	0.104839	0.021505
2000	0.808786	0.147287	0.043928
2001	0.828306	0.141531	0.030162
Total	0.858317	0.1221	0.019583

Source: Research data

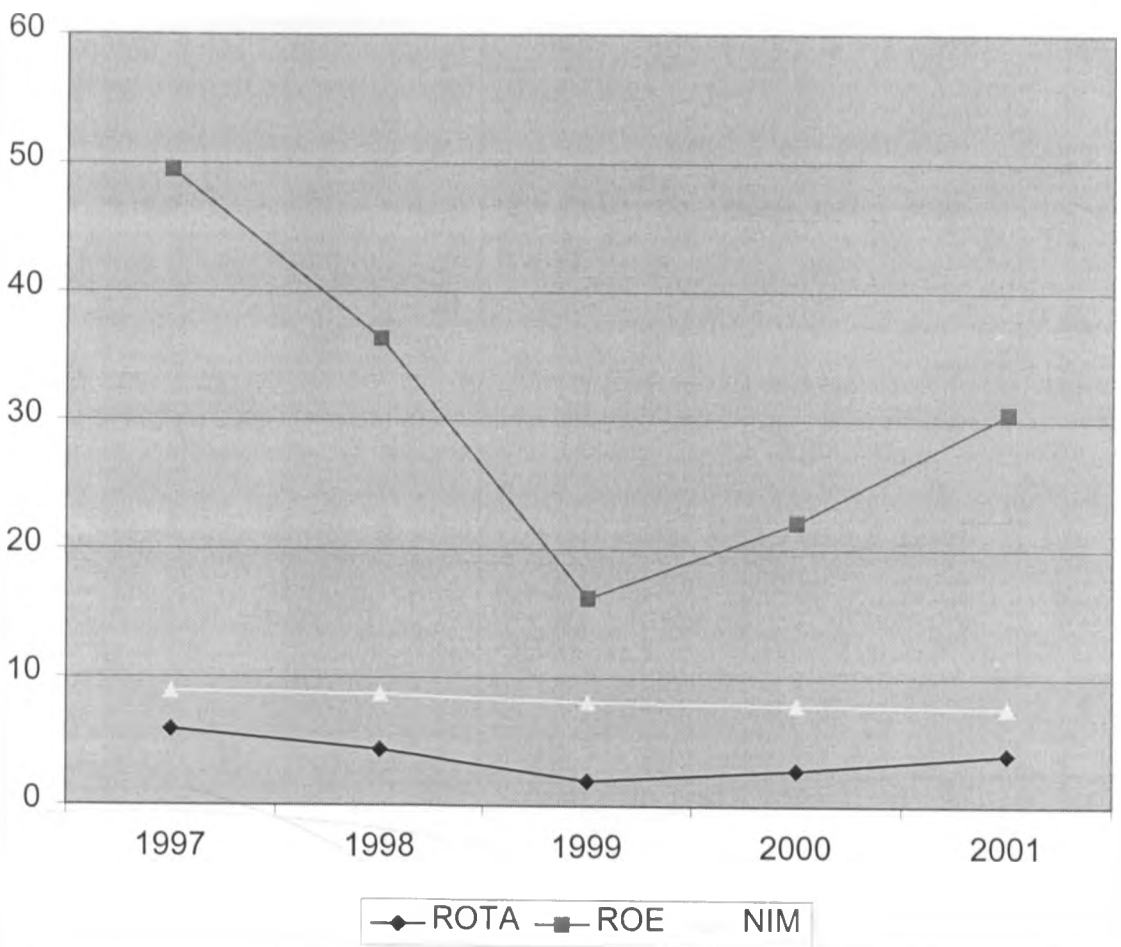
PROPORTIONS OF INCOMES



Sources: Research data

1.8 RELATIONSHIP BETWEEN ROTA, ROE AND NIM

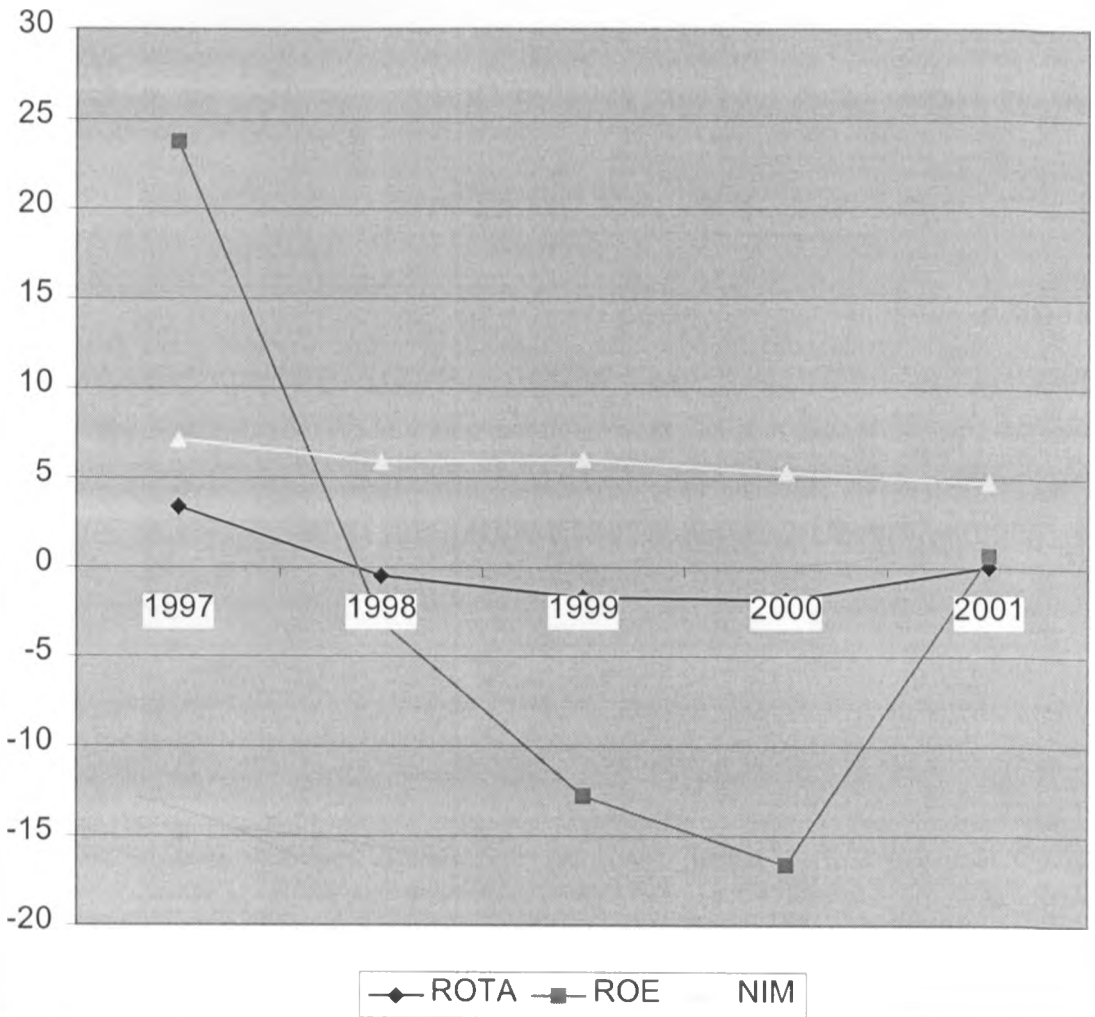
Relationship between ROTA ,ROE and NIM - Peer 1



Source: Research data

1.9 RELATIONSHIP BETWEEN ROTA, ROE AND NIM

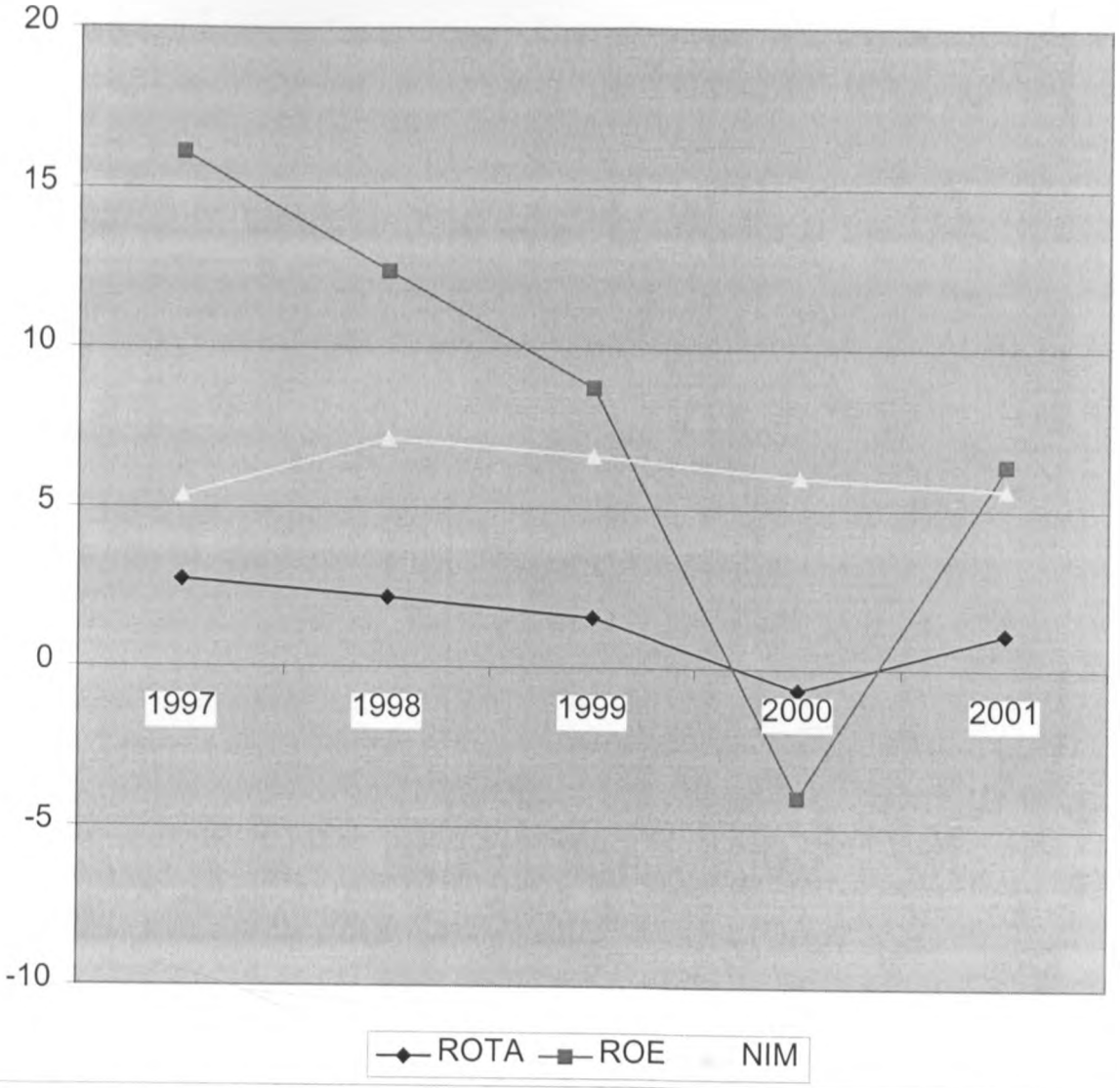
Relationship between ROTA,, ROE and NIM - Peer 2



Source: Research Data

2.0 RELATIONSHIP BETWEEN ROTA, ROE AND NIM

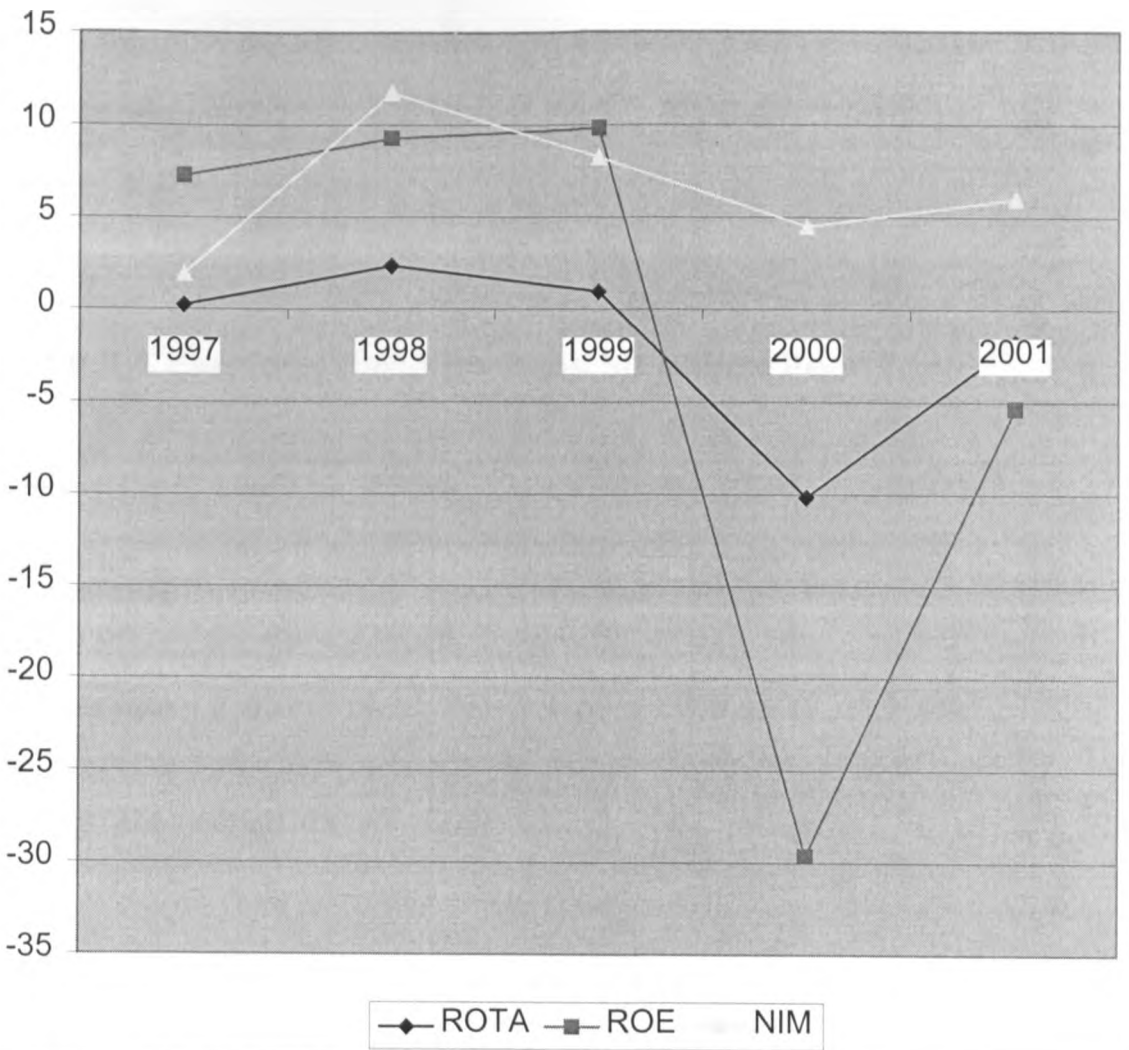
Relationship between ROTA, ROE and NIM -
Peer 3



Source: Research data

2.1 RELATIONSHIP BETWEEN ROTA, ROE AND NIM

Relationship between ROTA, ROE and NIM - Peer 4



Source: Research data

TABLE 2.0 INDUSTRY EARNINGS RATIO

YEAR	1997	1998	1999	2000	2001
Return on Total Asset	4.28	2.52	0.92	0.61	2.15
Return on Equity	30.78	17.63	6.49	3.77	15.19
Net-interest Margin	7.27	7.57	7.17	6.64	6.35

Source: Research data

TABLE 2.1 Earnings Ratio for Kshs 50 Billion Peer 1

YEAR	1997	1998	1999	2000	2001
Return on Total Assets	5.92	4.37	1.96	2.82	4.05
Return on Equity	49.49	36.36	16.22	22.14	30.6
Net-interest margin	8.9	8.7	8.11	7.88	7.69

Source: Research data

TABLE 2.2 Earnings Ratio for Kshs 10 to Kshs 50 Billion Peer 2

YEAR	1997	1998	1999	2000	2001
Return on Total Assets	3.40	-0.46	-1.66	-1.79	0.08
Return on Equity	23.78	-3.06	-12.75	-16.61	0.71
Net-interest margin	7.15	5.91	6.03	5.32	4.78

Source: Research data

TABLE 2.3 Earnings Ratio for Kshs 1 to Kshs 10 Billion Peer 3

YEAR	1997	1998	1999	2000	2001
Return on Total Assets	2.75	2.20	1.58	-0.65	1.12
Return on Equity	16.12	12.4	8.76	-4.03	6.40
Net-interest margin	5.37	7.14	6.64	6.00	5.65

Source: Research data

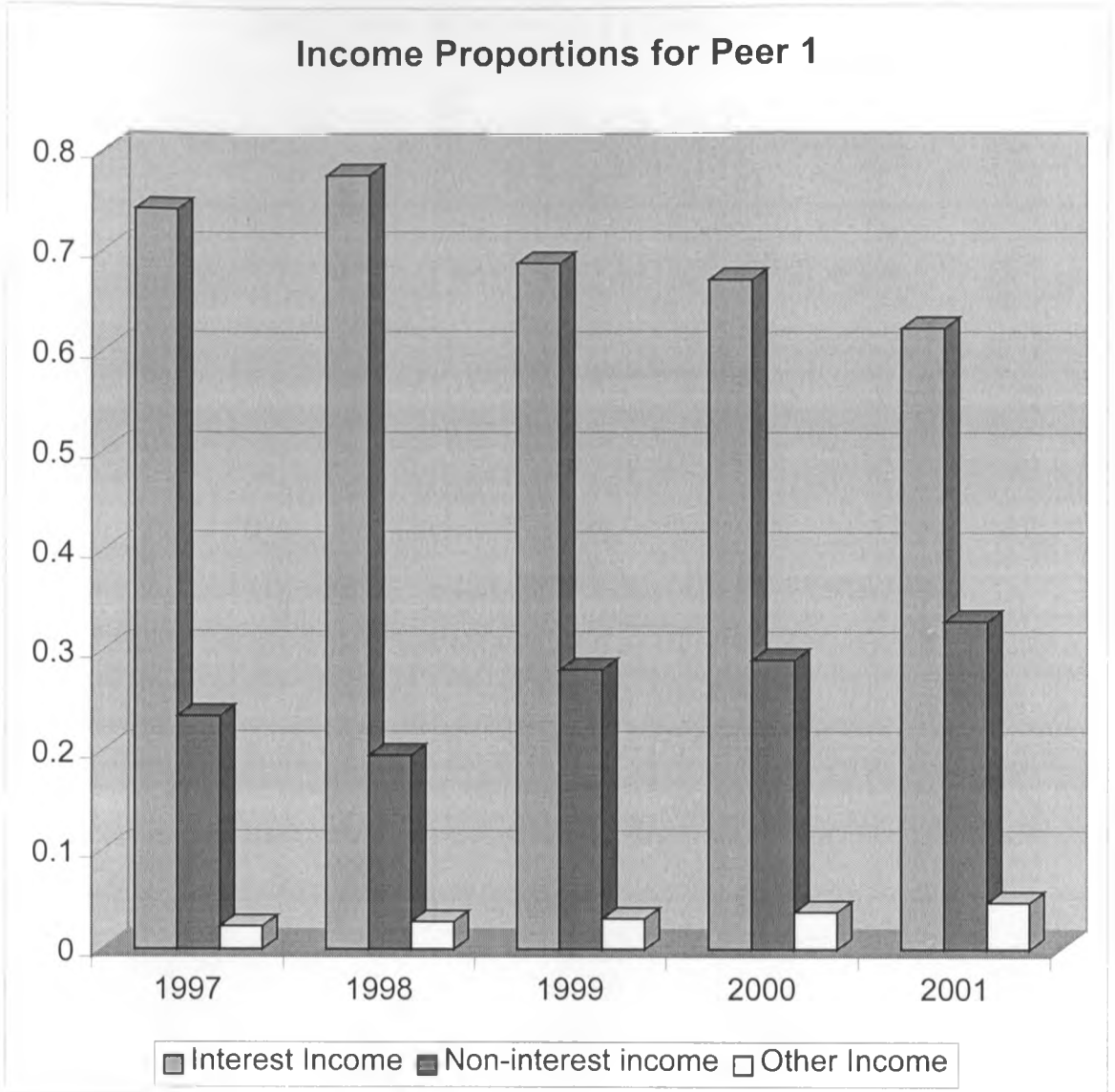
TABLE 2.4 Earnings Ratio for Kshs 0 to Kshs 1 Billion Peer 4

YEAR	1997	1998	1999	2000	2001
Return on Total Assets	2.75	2.20	1.58	-0.65	1.12
Return on Equity	16.12	12.4	8.76	-4.03	6.40
Net-interest margin	5.37	7.14	6.64	6.00	5.65

Source: Research data

2.2

INCOME PROPORTIONS FOR PEER1

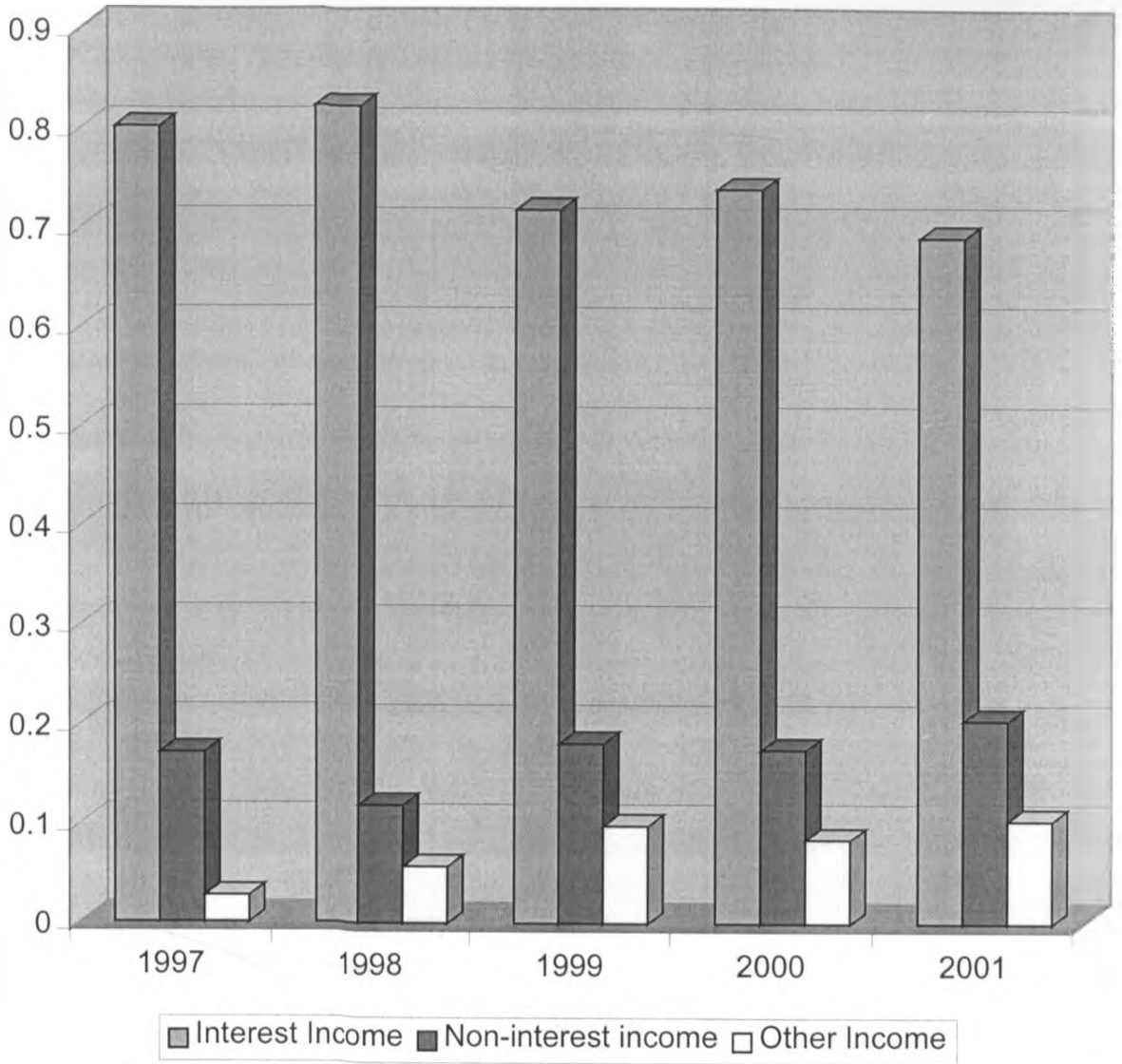


Source: Research data

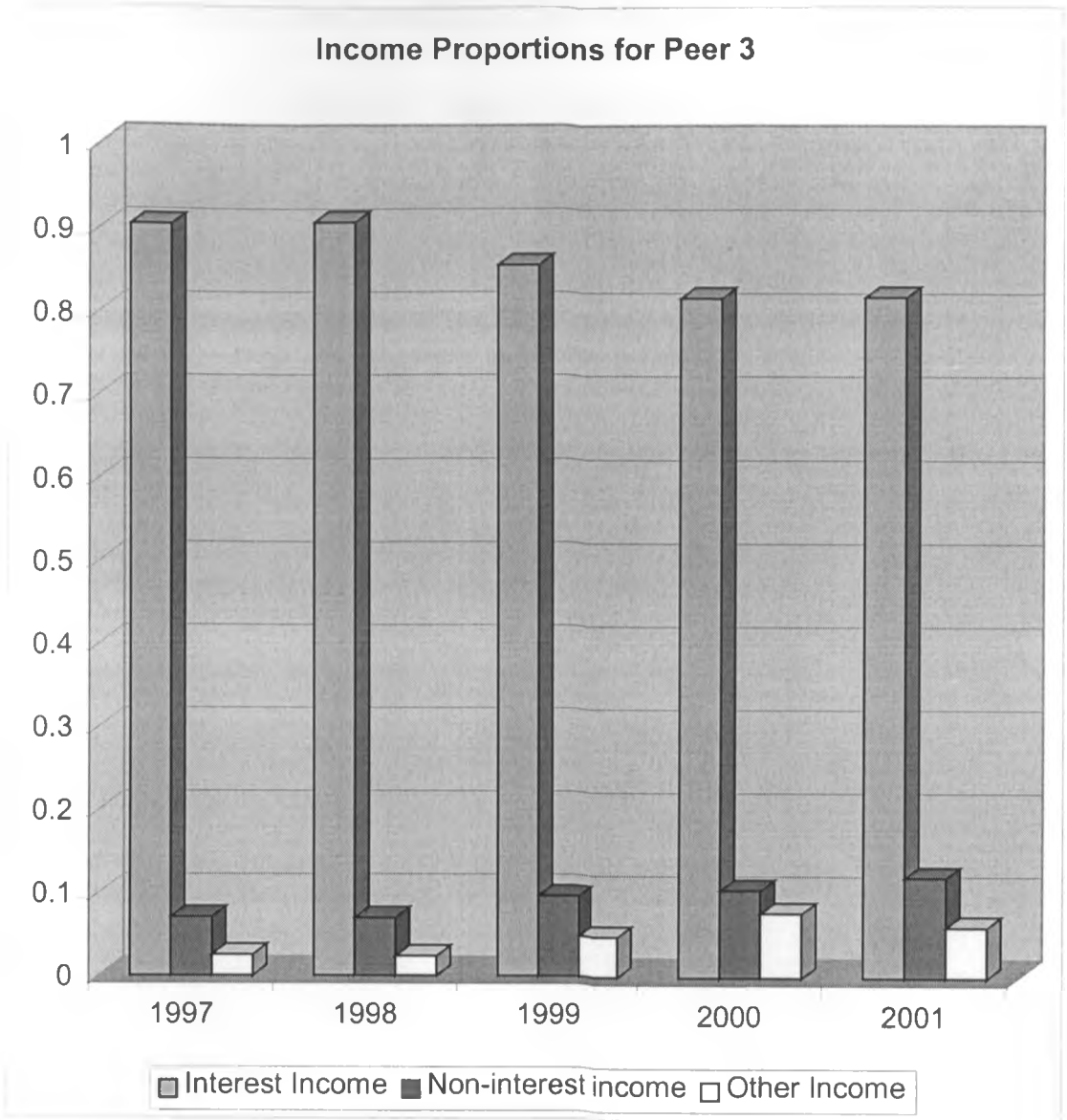
2.3

INCOME PROPORTIONS FOR PEER 2

Income Proportions for Peer 2



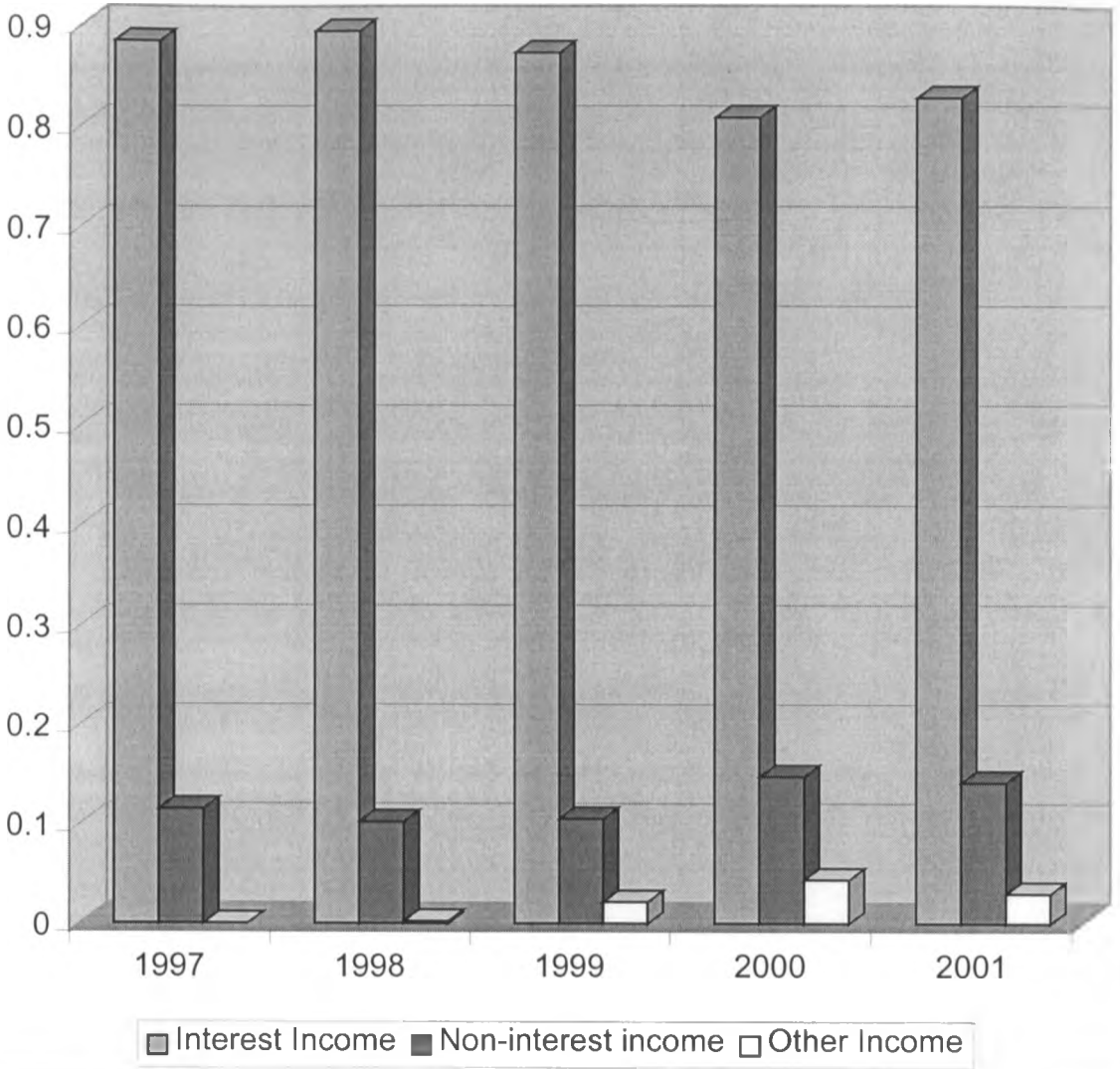
2.1 Income Proportions for Peer 3



Source: Research data

2.2 Income Proportions for Peer 4

Income Proportions for Peer 4



Source: Research data