MAKERERE UNIVERSITY

BUSINESS SCHOOL

FACTORS AFFECTING NON-INTEREST INCOME IN COMMERCIAL BANKS IN
UGANDA; A CASE OF COMMERCIAL BANKS IN UGANDA

BY

PETER KATSIBAYO KAGUMYA

2004/HD10/2736/U

SUPERVISED BY:

Dr Samuel Sejjaaka

Mr. Charles Malinga

A DISSERTATION SUBMITTED TO MAKERERE UNIVERSITY IN PARTIAL

FULFILLMENT FOR THE AWARD OF A MASTER OF SCIENCE DEGREE IN

ACCOUNTING AND FINANCE OF MAKERERE UNIVERSITY

October 2011

i

Declaration

I, **Kagumya Katsibayo Peter**, do hereby solemnly declare that, to the best of my knowledge this dissertation is my original work and has never been submitted for the award of a degree in any university and that the material that is not original work has been indicated and/or acknowledged accordingly

Signed:………………………………………..   Date:…………………….

Kagumya Katsibayo Peter

<u>RESEARCHER</u>

Approval

This is to certify that this dissertation has been submitted in partial fulfillment of the requirements for the award of the Degree of Master of Science, in Accounting and Finance of Makerere University, Kampala- Uganda, with our approval as university supervisors:

Signed:…………………………..   Date:…………………..

Dr Samuel Sejjaaka

Makerere University Business School

Signed:…………………………..   Date:…………………..

Mr. Charles Malinga Akol

Makerere University Business School

Dedication

I dedicate this research to my family.

Acknowledgment

Many thanks to my family and colleagues at work who have accorded me the time to finish up this dissertation and supervisors Dr Samuel Sejjaaka and Mr. Malinga Charles for the professional guidance and encouragement provided to me.

Table of Contents

List of Tables and Figures

Abstract

The study examined the factors affecting non-interest income in Uganda's commercial banks.

The study was guided by specific objectives namely; to study the effect of deregulation and technological advances, analyze the effect of financial performance of commercial banks and analyze the significance of market conditions like globalization, and bank sector penetration on Non-interest income in commercial banks in Uganda.

The study adopted an empirical time series study designed using secondary data in from returns sent to Bank of Uganda by the licensed commercial banks operating between financial years of 2000 and 2007. In measurement of variables, risk adjusted performance, productivity, globalization, sector concentration as well as deregulations and technological advancements were considered. The study used Multivariate analysis using a regression model adopted from DeYoung and Rice (2003).

Findings reveal that despite the rise in aggregate levels of non-interest income in Uganda, its relative percentage share to total income for the industry was averaging 32.45 % annually over the period under review.

There was a significant effect of globalization and financial performance on overall Net non interest income.

Findings further suggested no significant effect from both technological advances and sector concentration to non interest income.

In conclusion, though the growth of non-interest income in Uganda's banking industry was trending upwards, net non interest margin analysis indicated that the industry still suffers a loss which means the cost of raising total non interest income is high. It is therefore, recommended that commercial banks in Uganda need to cut or effectively control their operating cost to enhance the financial performance of the industry.

CHAPTER ONE

1.0   INTRODUCTION

1.1   Background to the study

Bank's operating income is derived from primarily two sources namely; interest income from loans given out and non interest income derived from fees and charges from offering other financial services (Kwast, 1989).

Commercial banks differ markedly in their reliance on the sources of income. Some focus largely on business lending, like mortgages and venture capital lending while others on household lending, and some on fee-earning activities. Previously, these banks predominantly depended on traditional banking, which generated interest incomes; however, apparently commercial banks in Uganda operate new banking products that generate non-interest incomes (De Young, 2003).

Diversification across various sources of earnings is welcomed for it reduces risk. Whether it does of course depends on how independent of each other the various earnings sources are. Traditionally, fee income has been very stable and has been a small part of the earnings stream of most commercial banks (Smith, 2003).

Given the fact that Uganda's financial sector is liberalized, Non-interest income in Uganda's commercial banks is primarily determined by forces of demand and supply though in line with the laws and regulations from the Central Bank of Uganda. Non-interest income generally by definition is a heterogeneous type of income that is earned through many different activities, broken down into four primary components viz

fiduciary income, service charges, trading revenue, and fees and other income (Kwast, 1989).

While it is well known that large banks and banks with specialized strategies such as, credit card banks, mortgage banks rely more heavily on non interest income than do banks with traditional business strategies, there is little systematic understanding of why noninterest income varies across banks and how noninterest income is associated with bank financial performance (De Young, 2003; DeYoung et al, 2004; Kim,2010)

Whereas the Bank of Uganda's Structural Adjustment Programme to liberalize the financial sector was to remove artificial constraints to competition, increased savings and investment, the factors that help determine commercial banks' income and more specifically non-interest income remains an academic challenge up to today.

Table 1.0: Composition of Net Non Interest Income at Commercial banks, 2000-2007 (Shillings, Billions)

Composition of Total NET Non Interest Income at Commercial Banks, 2000-2007 (Shillings, Billions)								
Year	2000	2001	2002	2003	2004	2005	2006	2007
Total Commercial Banks' Income	248	291	261	393	481	510	584	761
Total Non-interest Income	78	86	93	123	171	168	178	251
Non-interest expense	69	90	101	157	195	210	135	208
NET Non Interest Income	9	-4	-8	-34	-24	-42	43	43

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

With respect to expanding consumer needs, there seems to be increased significance for the understanding of factors that are affecting non interest income financials for commercial banks in Uganda as illustrated in table 1.0 above, this can be evidenced by

the trend growth of average non interest income observed in financial years 2000 through to 2007 of 32.45 %, yet this still lead to an average loss of 2.125 Billion shillings for the net non interest income over the same period of all commercial banks in Uganda. This is a clear indicator that there are factors that are affecting non-interest income in Uganda's commercial banks, which this study sought to analyze.

1.2   Statement of the Problem

As part of the implementation of Uganda's structural adjustment programme, the Government of Uganda liberalized the financial sector around 1988. The argument at the time of liberalization was that by removing artificial barriers to competition, there would be rapid growth in both bank interest and non interest earnings from intermediation-based activities and non intermediation activities respectively for commercial banks.

Increased non-interest income would improve bank earnings, and also change their output mix, variable. In the United States, for instance, when non-interest income trended up during the 1990s, commentators felt that it was due to falling overall income volatility occasioned by diversification of the average commercial bank across a larger number of product lines (see DeYoung and Rice (2003)).

Several years after these financial reforms, it is evident, that non-interest income still forms a large portion of financial institutions' operating incomes, averaging 32.45 % during the financial periods 2000 to 2007 (BoU Supervision Reports(2000-2007)) and yet the net non interest income returns an average loss of 2.125billion shillings. Why then, has the contribution of non-interest income become significant in commercial banks in Uganda?

1.3   Research Objectives

The broad objective of this study was to examine the factors affecting non-interest income in Uganda's commercial banks and its relationship with the banks' financial performance. The specific objectives were;

(i)   To study the effect of deregulation and technological advances on Non-interest income in commercial banks in Uganda

(ii)   To analyze the effect of financial performance like risk adjusted performance and productivity on non interest income of commercial banks in Uganda.

(iii)   To analyze the effect of market conditions like globalization, and sector penetration on non-interest income in commercial banks in Uganda

1.4   Research questions

The study was guided by the following research questions

- What are the effects of deregulation and technological advances on non interest income in commercial banks in Uganda?
- What is the effect of financial performance like risk adjusted performance and productivity on non interest income of commercial banks in Uganda?
- What is the effect of market conditions like globalization, and sector penetration on Non-interest income in commercial banks in Uganda

1.5   Scope of the study

- **Conceptual Scope;** This study examined the factors affecting non-interest income of commercial banks. The study examined the effect of deregulation, technological advancement, financial performance (risk adjusted performance and productivity) and market conditions (globalization and sector concentration) of Commercial banks in Uganda.

- **Geographical Scope;** The study examined data for all commercial banks obtained from Bank of Uganda that were operational between 2000 to 2007 financial years.

1.6   Significance of the Study

- This study may provide bank managers with an understanding of the factors affecting non-interest income growth, which will aid them in formulating strategy for dealing with such factors in order to improve their net non interest incomes.

- The study may help others researchers in academia and other disciplines with relevant literature, insights and understanding of the non interest income dimensions within Uganda's banking industry.

1.7 Conceptual Framework

The illustration below is an adaptation from DeYoung and Rice Module (2003) that shows the relationship between the variables that independently affect the computation of non interest income in commercial banks

Illustration showing relationship between factors affecting non- interest income.
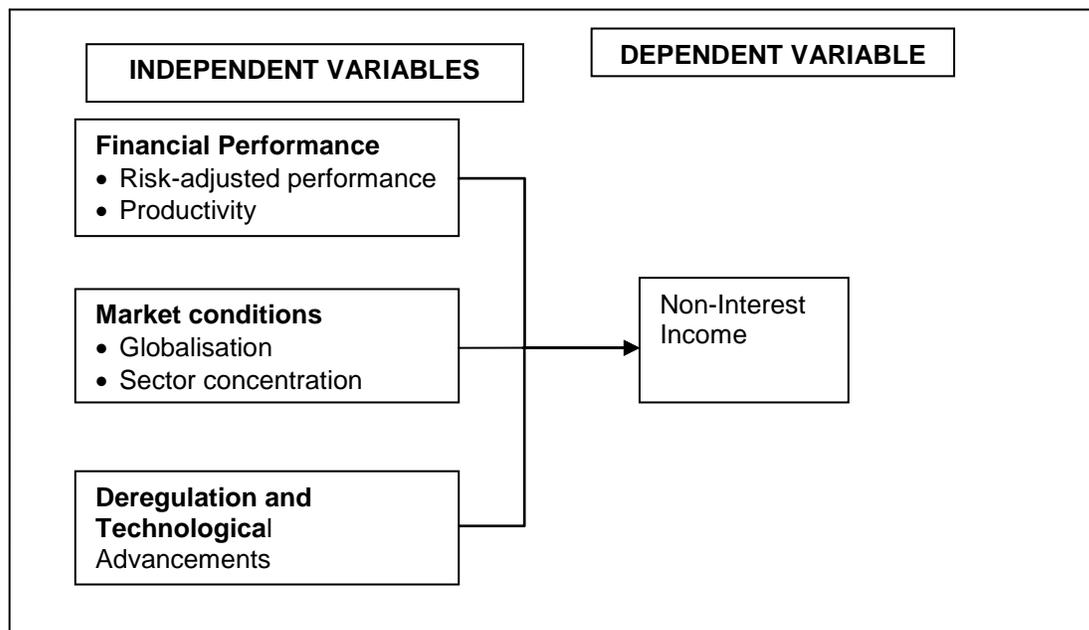
Source: drawn based DeYoung and Rice (2003) model

This conceptual framework is designed based on DeYoung and Rice (2003) model. This model was used to capture the inter-relationships between financial performance, market condition, deregulation and technological advancement and; non-interest income in commercial banks in Uganda.

CHAPTER TWO

2.0   LITERATURE REVIEW

2.1   Introduction

This chapter presents the literature review. It starts with an overview of the concept of non interest income, then focuses on the variables that have been found to influence non interest income with emphasis on those that are relevant to commercial banks in Uganda.

2.2   Non interest income

Non interest fees relate to bank and creditor income derived primarily from fees. Examples of non-interest income include deposit and transaction fees, insufficient funds (ISF) fees, annual fees, monthly account service charges; inactivity fees, check and deposit slip fees, among others. Institutions charge fees that provide non interest income as a way of generating revenue and ensuring liquidity in the event of increased default rates. Non-interest income makes up a significant portion of most banks revenue (Stiroh, 2004).

There is close relationship between noninterest income and bank characteristics, market conditions, technological progress, and bank performance. In this regard, well managed banks rely relatively less on noninterest income; that banks which stress customer relationships and service quality tend to generate more noninterest income; and that the development of new financial technologies such as cashless transactions and mutual funds are associated with higher levels of noninterest income in the banking system.

Increases in noninterest income tend to be associated with higher profitability, higher variation in profits, and a worsened risk-return tradeoff for the average commercial bank during specific periods of times (De Young & Rice 2004). These aspects are consistent with previous research findings, extend our knowledge beyond the small extant literature on this topic, and are robust to changes in estimation technique and data sub sampling.

The across-the-board growth of noninterest income at commercial banks suggests that intermediation activities are becoming a less important part of banking business strategies. If intermediation activities have become less important for banks over time, it stands to reason that the correlation between bank profitability and bank net interest margin would grow weaker over time. The average correlation of return on equity and net interest margin each year (Smith & Wood, 2003), therefore increased noninterest income is co-existing with, rather than replacing, intermediation activities at the typical commercial bank.

2.3   Non interest income and financial performance

In the banking process, an increase in noninterest income improves bank earnings; however an increase in noninterest income seldom occurs without associated changes in interest income, variable inputs, fixed inputs, and financing structure (Feldman, 1999). In 1990s as noninterest income showed an upward trend, it was generally believed that shifting banks' income away from intermediation-based activities (in which bank income was subject to credit risk and interest rate risk), and toward fee-based financial products and services, would reduce banks' income volatility. It was conventionally believed that expansion into new fee-based products and services reduced earnings volatility via

diversification effects (Bon-Sung Gu and Woojin Kim, 2004). Therefore having products that attract a significant amount of fees contributes to the financial performance of a commercial bank.

However according to DeYoung and Roland (2001) volatility factors must be considered in the process of instituting non interest incomes to for an institutions financial performance. Authors suggest three reasons why noninterest income may increase the volatility of bank earnings; most bank loans are relationship based and as a result have high switching costs, while most fee-based activities are not relationship based. Thus, despite credit risk and fluctuations in interest rates, interest income from loans may be less volatile than noninterest income from fee-based activities. Also within the context of an ongoing lending relationship, the main input needed to produce more loans is variable (interest expense); in contrast, the main input needed to produce more fee-based products is typically fixed or quasifixed (labor expense). Thus, fee-based activities may require greater operating leverage than lending activities, which makes bank earnings more vulnerable to declines in bank revenues there by influencing bank financial performance (Flannery & James, 2004).

Literature further suggests that, well-managed banks expand more slowly into non-interest activities, and that marginal increases in non-interest income are associated with poorer risk-return tradeoffs on average, (Staikouras et al (2003). These findings suggest that non-interest income is co-existing with, rather than replacing, interest income from the intermediation activities that remain banks' core financial services function.

In volatility context, most fee-based activities require banks to hold little or no fixed assets, so unlike interest based activities like portfolio lending, fee-based activities like trust services, mutual fund sales, and cash management require little or no regulatory capital. Thus, fee-based activities likely employ greater financial leverage than lending activities. Using data from U.S. banks during the 1990s, DeYoung and Roland (2001) demonstrate that three traditional streams of income from intermediation activities interest from loans, interest from securities, and service charges from deposits were all less volatile than income from fee-based activities. Hence the need to look into the non interest sources in effort to improve the financial performance of an institution.

Stiroh (2006) explained that increased focus on noninterest activities at U.S. commercial banks was associated with declines in risk-adjusted performance, but found little potential for diversification benefits across broad lines of banking business. Staikouras and Wood (2003) investigate the diversification effects of noninterest income at banks in 15 different European countries. While they also conclude that noninterest income is more volatile than interest income over time, they find negative correlations between these two income streams, which lead them to conclude that noninterest income tends to stabilize bank earnings. In contrast, universal banking has been the historic norm in many banking systems and small community banks are less prevalent. It is possible that this combination of experience, size, and expertise could allow the average bank to better exploit the diversification potential of fee-based activities.

Banks exist to have a sound financial stand, therefore an efficient bank must generate higher amounts of noninterest income. For example, a well-managed bank will set its fees to fully exploit market demand, and will cross-sell additional fee-based products to a larger percentage of its core customer base. Thus, holding product mix and banking strategy constant, the intensity of noninterest income is likely to be a forward-looking signal of a bank's financial success. DeYoung (1994) shows that cost-efficient commercial banks generate more noninterest income, but does not explore the causal relationship between these variables. Rogers (1998) finds similar results for profit-efficient commercial banks.

2.4   Deregulation

Deregulation is the removal or simplification of government rules and regulations that constrain the operation of market forces. Deregulation does not mean elimination of laws against fraud or property rights but eliminating or reducing government control of how business is done, thereby moving toward a more laissez-faire, free market. In recent times, the banking industry has been transformed by sweeping deregulation and rapid technological advances in information flows, communications infrastructure, and financial markets. Deregulation fostered competition between banks, nonbanks, and financial markets where none existed before. In response to these competitive threats and opportunities, many banks embraced the new technologies that drastically altered their production and distribution strategies and resulted in large increases in noninterest income. In contrast, many other banks have continued to use traditional banking strategies for which noninterest income remains relatively less important (Evanoff and Israilevich, 1991).

Banking industry deregulation across the globe removed a whole host of restrictions that had stunted the evolution of the banking industry, constrained the efficiency of financial product markets that brought about new products with a lot of non interest income, and extended the lives of thousands of poorly run and suboptimal-sized commercial banks. The phase-out of regulation interest rate ceilings allowed banks to pay market rates of interest to depositors. Banks gradually abandoned bundled pricing of retail deposit products in which they compensated depositors for below-market interest rates by providing a bundle of products free-of-charge in favor of explicit fees for individual retail deposit products (Isik and Hassan, 2003).

The rationale for financial sector liberalization arises from the view that relaxation of barriers to competition and the resulting increase in competitive pressures drive banking institutions to become more efficient, and increase productivity in the long-term that contribute to non interest incomes. Even from the theory of the firm, it is argued that managers operate efficiently to maximize profits and shareholder wealth. This implies that competition forces banks to raise productivity at least cost (Buer et al., 2003). In a free market environment, the capital market acts to penalize the under-performing bank by reducing its share price leading to its eventual take over. In addition, in a free market environment, banks that are inefficient are either acquired or driven out of the market.

The supervision of banks helps to ensure well functioning market and competitive viability, soundness and security (Wheelock and Wilson, 2005). In order to survive,

banks must run efficiently. Improved bank productivity results from better resource allocation, improved profitability, and greater amounts of funds intermediated at better prices and improvements in service quality to consumers that directly increases non interest incomes (Isik and Hassan, 2003). To improve productivity banks have had to introduce innovations in financial engineering and apply new information-processing technologies to cut costs and reduce input waste (Berger and Mester, 1997).

2.5   Technological Advancement

Advances in information and communications technology (the Internet, Automated teller machines), new intermediation technologies (loan securitizations, credit scoring), and the introduction and expansion of financial instruments and markets (high-yield bonds, commercial paper, financial derivatives) all contribute to non interest income to the bank. Deregulation allowed banks to achieve the scale to use these new technologies more efficiently, and the increased competition induced by deregulation provided banks with the incentives to adopt and adapt these new technologies. Many of these new technologies have emphasized noninterest income while de-emphasizing interest income at banks. Banks can extract fee income from customers willing to pay a convenience premium for doing their banking at ATMs or over the Internet. Banks can earn loan origination, loan securitization, and loan servicing fees to offset the interest income that they lost with the disintermediation of consumer lending (Parris, 2002).

Large amounts of noninterest income (from origination, securitization, and servicing fees) generated through technological advances are essential for the profitability of the bank. In the second of the two strategies, small community banks operating in local

markets develop relationships with their depositors and their borrowers. They add value to their depositor relationships through person-to-person contact at branch offices, and they make loans to informationally opaque, small, idiosyncratic borrowers who do not have direct access to financial markets. Although these small, locally-focused banks operate with relatively high unit costs, they can earn market returns because they earn high interest margins – they pay low interest rates to a loyal base of low-cost core depositors, and they charge high interest rates to borrowers over which they have market power (i.e., high switching costs). Noninterest income is less important for these banks, although at the margin these banks' attention to high levels of service quality will command higher fees for any given product (Baltagi, 2005).

2.6   Productivity and non interest income

Berger and Humphrey (2007) used the value added approach to describe how bank productivity contributes to non interest income and which views banks as production units that produce loans and deposits using labour and capital. In this approach, both liabilities and assets have some output characteristics that result into non interest income. Nonetheless, only those categories that have substantial value addition are treated as outputs while others are treated as either inputs or intermediate products depending on the individual attributes of each category. Another approach found in the literature is referred to as the user-cost approach. This approach described by Hancock (1991) uses the simple rule that the net revenue generated by a particular asset or liability item determines whether the financial product is an input or an output. This approach emphasizes the profitability of a bank in relation to various expenditures. Oral and Yolalan (1990) used this approach to measure the relative profitability efficiency of a set

of bank branches using their interest and non-interest incomes as outputs, and interest paid on deposits and expenses incurred by personnel, administration and depreciation generated by the operation of bank premises as inputs. While their details differ, empirically the value added and user-cost approaches tend to suggest similar classification of bank inputs and outputs with the principal exception being the classification of demand deposits as an output in most user-cost studies and as both an input and output when the value added approach is taken (Wheelock and Wilson, 1999).

The asset approach, measures inputs by the volume of deposits that attract non interest incomes and output by the volume of loans and other assets. This approach considers banks as financial intermediaries between liability holders and fund beneficiaries (i.e. debtors). Grigorian and Manole (2002) argued that this approach is appropriate for large banks that purchase their funds in big chunks from other banks and large institutional depositors. They also argue that for smaller banks, this approach fails to account for transaction services delivered to depositors underestimating the overall value added by the banking system. The activity-based production approach is the third variant, which treats the number of accounts and transactions processed as outputs produced with the application of labour and capital.

Non-interest income includes service charges on loans and transactions, commissions and other operating income. The commissions and fees included in the non-interest income and the income from transactions involving foreign exchange reported in the interest income section of the profit and loss accounts of banks are inclusive of receipts from

related off-balance sheet activities. Non-interest expenses include service charges and commissions, expenses associated with fixed assets and general management affairs, salaries and other expenses (Baltagi, 2005). Total deposits are deposits and purchased funds for bank operations and the sources of loanable funds for investment.

Productivity change is also associated with bank specific factors such as bank size, bank expense structure, income structure, asset quality, capital adequacy, earning ratios, liquidity ratios and corporate governance structure. According to De Young et al. (1998) the management quality score from regulatory bodies is associated with higher productivity, as is asset quality. The financial market is subject to asymmetric information: when making decisions, one party may know more about a transaction than the other party (Isik and Hassan, 2003). Asymmetric information creates a problem in two ways. First, through adverse selection that occurs before a transaction is entered into the system. Asymmetric information affects the quality of loan originations yet loans are a critical output of banking institutions (Kwan and Eisenbeis, 2005). According to Hawtrey (2003), the productivity of a country's banking sector is an important driver of non interest income in the banking sector. He argues that if the banking sector in a country is relatively inefficient then there would be need to charge higher fees to recover its production costs.

2.7 Market Conditions

Kibirango, (2002) explains this that fee-based services are relatively new to many Uganda's banks as the case was for the U.S in the early 1990s different from the European banks by the time of the study, and that thousands of small commercial banks in Uganda lack the size and expertise to engage in many of these activities. In contrast,

universal banking has been the historic norm in many European banking systems and small community banks are less prevalent. It is possible that this combination of experience, size, and expertise could allow the average European bank to better exploit the diversification potential of fee-based activities than the case is for Uganda.

Stiroh (2006) finds that increased focus on non-interest activities at commercial banks is associated with declines in risk-adjusted performance. In a second study, Stiroh (forthcoming b) finds potential diversification benefits within broad lines of banking business (for instance, diversifying across different types of loans, or diversifying across different sources of fee-based income), but finds little potential for diversification benefits across broad lines of banking business.

Staikouras and Wood (2003) investigated the diversification effects of non-interest income at banks in 15 different European countries. While they also conclude that non-interest income is more volatile than interest income over time, they found negative correlations between these two income streams, which lead them to conclude (in contrast to the U.S. studies) that non-interest income tends to stabilize bank earnings. Structural and regulatory differences may explain why these findings for European and the U.S banks are different from the current state of Uganda's banks.

All else equal, an efficient bank should generate higher amounts of non-interest income. For example, a well-managed bank will set its fees to fully exploit market demand, and will cross-sell additional fee-based products to a larger percentage of its core customer base. Thus, holding product mix and banking strategy constant, the intensity of non-interest income is likely to be a forward-looking signal of a bank's financial success.

Surprisingly, little work has been done on this potential relationship in Uganda. DeYoung et al (1994) shows that cost-efficient commercial banks generate more non-interest income, but does not explore the causal relationship between these variables. Rogers (1998) finds similar results for profit-efficient commercial banks.

Most banking theories characterize banks as intermediaries between small, information-poor agents with excess liquidity and larger, informationally opaque agents with liquidity needs. According to these theories, banks earn profits by purchasing transactions deposits from the former set of agents at a low interest rate, then reselling those funds to the latter set of agents at a higher interest rate that the bank sets based on its comparative advantage at gathering information and underwriting risk. Until recently, the typical commercial bank closely resembled the banks in these theoretical models. But over the past decade, Uganda's commercial banks have come to rely to an increasing extent on non-interest income, much of which is unrelated to either deposit-taking or loan-making.

It is tempting to conclude that interest-based, intermediation activities have become less central to the financial health and business strategy of the typical commercial banks, and that fee-based, non-intermediation financial services have become more important. This is because, the solvency of any commercial bank depends on a lot of factors key among which is its total assets of which non-interest income contribute in supplement to other incomes such as interest income and others. This study attempts to examine the determinants and/or factors affecting non-interest income at commercial banks in Uganda. This literature analyzes; which bank characteristics, market conditions, financial performance and technological and regulatory developments have been most closely

associated with the factors determining non-interest income at commercial banks over the past one decade. With regard to the above, previous studies in other countries suggest that large banks generate relatively more non-interest income; that well-managed banks rely less heavily on non-interest income; that relationship banking tends to generate non-interest income; and that some technological advances (for example, cashless transactions, mutual funds) are associated with increased non-interest income while other technological advances (for example, loan securitization) are associated with reduced non-interest income at banks. However, our interest in regard to this study objective is to examine and analyze the determinants, drivers and/or factors affecting non-interest income at commercial banks in Uganda.

CHAPTER THREE

3.0   RESEARCH METHODOLOGY

3.1   Introduction

This chapter presents the research design, data sources, and data analysis techniques as well as the limitations to the study.

3.2   Research Design

This research employed an empirical time series study designed using secondary data from Uganda's banking industry for all licensed commercial banks. Quarterly data on the variables of study were collected between 2000 and 2007 financial years. This corresponds to 32 observations. The data set was tested and corrected for normality using the **Jarque bera** test statistic and thereafter tested for stationality using the Unit root test and specifically the Augmented Dickey-Fuller (ADF) tests. The study is also quantitative in nature, aimed at examining the relationship between non interest income (dependent variable) and bank performance, market conditions, deregulation and technological advancements (explanatory variables).

3.3   Sources of Data

The researcher used largely secondary data obtained from Bank of Uganda archives due to the nature and sensitivity of the study. The researcher also obtained information from related literature relevant to the subject under study (non-interest income and its

determinants) in commercial banking obtained from previous studies, journals and reports from Bank of Uganda.

3.4   Sampling Design

3.4.1   Study Population

The study population consisted of all licensed commercial banks of Uganda between 2000-2007 financial years.

3.4.2   Sample size

The study considered all industry data from all commercial banks operating between 2000-2007 financial years was used.

3.5   Measurement of Variables

Financial Performance

3.5.1   Risk adjusted performance

Financial Performance was measured quantitatively on the basis of profit before tax and total assets in a given financial year to get the return on asset (ROA) defined as (Profit before tax)/(Total assets).   According to Hawtrey (2003), the higher the average measured deviations of risk adjusted performance for a given country over time, the more 'risky' it's banking sector returns are by world standards and the greater would be the expected non interest income levy for the industry.

In this study, the researcher denoted country's industry risk-adjusted performance in year j by the symbol r_j defined as: $r_j = ROA_j / ROA_{mean}$

3.5.2 Productivity

The productivity of a country's banking sector is the considered as an important driver postulated. If banking industry in a country is relatively inefficient, then it is likely to charge higher interest and/or fees to recover its production costs. Productivity in year j was denoted by p_j and measured as; p_j= *Operating expenses /Total assets.*

Market Conditions

Banks with large amounts of noninterest income have been shown to suffer declines in risk-adjusted performance, ceteris paribus, while banks with high-quality management (which is reflected in risk-adjusted performance) should be better at generating noninterest income, ceteris paribus. Our econometric model recognizes these inter-relationships

3.5.3 Globalization

Openness to international capital markets and competition from overseas banks is posited as a potential factor in a country's non interest income patterns (Hawtrey, 2003).

It is argued that the more integrated the banking industry is internationally, the more choice customers have and the more likely domestic banks are to benchmark themselves against their international competitors. This variable was measured as g_j = *Total assets of banks obtained from abroad.*

3.5.4   Sector concentration

According to the 'oligopoly' argument, when the level of concentration of the banking sector is low, banks are more likely to continue charging higher fees. This is because the banking industry operates in the hands of the few. This variable was measured as the number of branches of all commercial banks in a given year; d_j= *number of branches in year j.*

3.5.5   Deregulation

In some countries, the authorities apply stricter capital requirements, and this amounts to a differential impost on the cost of doing business that puts the industry at a competitive disadvantage. This would have a direct bearing on the fees charged in order for the industry to balance the cost of doing business. This was denoted as **zj** and measured as;

z_j = *total bank capital /total bank assets*

in year j, where bank capital equals Total Net Capital Resources

3.5.6   Technological Advancements

Over the recent years, banks have invested huge amounts in new technology such as ATM technology. The cost expended on this is high and needs to be recovered by banks from their customers. The growth in the number of ATMs was used as a proxy to measure technological advancements within the industry. t_j= *number of ATMs in a given year.*

Summary of the measurement of variables.

	Variables		Definition
1	Risk Adjusted Performance	R	ROA_j / ROA_{mean}
2	Productivity	P	Operating expenses /Total assets.
3	Globalization	G	Bank assets due from Abroad
4	Sector Penetration	D	No. of Bank Branches
5	Deregulation	Z	Total bank Capital/Total bank Assets
6	Technological Advancements	T	No. of Automated Teller machines

3.6   Data Analysis

3.6.1   Model Specification

The researcher used various statistical data analysis and presentation techniques such correlations to obtain relationships between variables, descriptive statistics and graphical methods to display trends in the data.

Multivariate analysis was performed using a regression model adopted from DeYoung and Rice (2003) with non-interest income as the dependant variable in order to obtain the determinants of non interest income. The explanatory variables as extracted from literature reviews resulted into the model below;

$$NOM = \beta_1 + \beta_2 [\text{risk}] + \beta_3 [\text{productivity}]$$
$$+ \beta_4 [\text{sector concentration}]$$
$$+ \beta_5 [\text{globalization}]$$
$$+ \beta_6 [\text{regulatory cost}]$$
$$+ \beta_7 [\text{technological advancement}]$$

$$\mathbf{NOM = \beta_1 + \beta_2\, r_j + \beta_3\, p_j + \beta_4\, d_j + \beta_5\, g_j + \beta_6\, z_j + \beta_7\, t_j + \mu}\ldots\ldots\ldots\ldots\ldots\ldots\ldots\mathbf{Eqn\ldots3.1}$$
Where the β_i are estimated coefficients (β_1 is a constant) and μ is the error term.

3.6.2   Unit Root Analysis

Classical linear regression assumes that the time series in equation 3.1 are stationary. However, as Engle and Granger (1987) have shown recently, the use of non-stationary variables could result in spurious regression results. Furthermore, the estimated coefficients are likely to be inconsistent and the standard statistical tests will be invalid (Chen, 1999). In this case, the results may suggest statistically significant relationships between the variables in the model, when in fact this is just evidence of serial correlation. The first step in the procedure is to test whether the time series are stationary using Augmented Dickey-Fuller (ADF) tests employed to identify the order of integration (the number of times a variable needs to be differenced to make it stationary). If all the variables are stationary, I(0), it is not necessary to proceed with the process of co integration since the standard time series method applies to stationary variables. If the variables are integrated of different orders, it is possible to conclude that they are not integrated. If all the variables are integrated of the same order, then it is necessary to apply the second step which involves testing for existence of co integration.

3.7   Limitations and Problems Encountered

This study was undertaken as a contribution to the understanding of factors that affect non interest income in commercial banks in Uganda. The researcher encountered some problems and limitations while carrying out the work as indicated below:

(I) Due to sensitivity of the financial data, industrial figures were obtained and the researcher couldn't get individual data for commercial banks to help explain and compare

the different variables. However, the researcher was informed that the data is gathered in a standard balance sheet form 100 (BS100) for all commercial bank and this reassurance helped in authenticating the data provided.

(ii) The research was carried out within a limited time frame that could not allow for an extensive work into the subject. However, the data was provided to the researcher in a quarterly format which helped in the formation of a time series study used.

CHAPTER FOUR

4.0   PRESENTATION OF RESULTS AND FINDINGS

4.1   Introduction

This Chapter presents the findings from the study beginning with descriptive statistics, results of test procedures and, the ordinary least squares results, the error correction model.

Descriptive statistics of non interest income structure for Commercial banks in Uganda

The table below is an illustration of the composition of income from commercial banks for the period under review, 2000 until 2007.

Table 4.1.1: Composition of Non-Interest Income at Commercial Banks, 2000-2007 (Shillings, Billions)

Composition of Total Income at Commercial Banks, 2000-2007 (Shillings, Billions)								
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Total Commercial Banks' Income	248	291	261	393	481	510	584	761
% growth in Total Income		17.34	-10.31	50.57	22.39	6.03	14.51	30.31
Total Non-interest Income	78	86	93	123	171	168	178	251
Percentage share (%)	31.45	29.55	35.63	31.3	35.55	32.94	30.48	32.98
Non-interest expense	69	90	101	157	195	210	135	208
Net Income	75	81	65	98	124	124	234	252
% growth in Net Income		8	-19.75	50.77	26.53	0	88.71	7.69

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

Table 4.1.1, revealed trend increase in the banks' total income as well as net income (profit before tax) with average growth rates of about 18% and 23 % respectively.

However, despite the rise in aggregate levels of non-interest income in Uganda, results suggest that its relative percentage share to total income for the industry was fairly stable. Specifically, industry non-interest income-to-total income fell 3 percentage points during the period 2004 to 2005.

Table 4.1.2 below shows the percentage contributors to non interest income for the period 2000 until 2007

Table 4.1.2: Percentage Distribution of non interest composition

	2000	2001	2002	2003	2004	2005	2006	2007
Inc - OBS	8.59	8.47	6.4	6.57	5.83	6.75	6.59	5.4
Inc -FX Operations	29.22	34.4	28.2	34.16	27.13	24.85	23.13	28.49
Charges & fees on deposits	11.53	10.2	12.3	14.51	17.41	21.37	23.24	23.36
Other charges, etc.	32.85	32.4	38.5	28.68	29.33	31.17	33.02	31.54
Fee Income from Advances & Discounts	5.58	5.36	6.6	7.33	5.51	7.89	7.05	5.32
Other non-interest income	12.22	9.17	7.98	8.75	14.8	7.97	6.97	5.9
TOTAL NON-INTEREST INCOME	**82.6**	**91.4**	**92.6**	**120.2**	**164.4**	**167.8**	**178.4**	**248.8**

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

Table 4.1.2 shows that contribution of non interest income from bank forex operations, charges and fees on deposits remain the single most important drivers (45%) at commercial banks in Uganda.

Figure 4.1 presents the trending Non interest income for the banking industry between financial years 2000 and 2007.

Figure 4.1: Trends in Non-Interest Income composition in Uganda (200-2007)
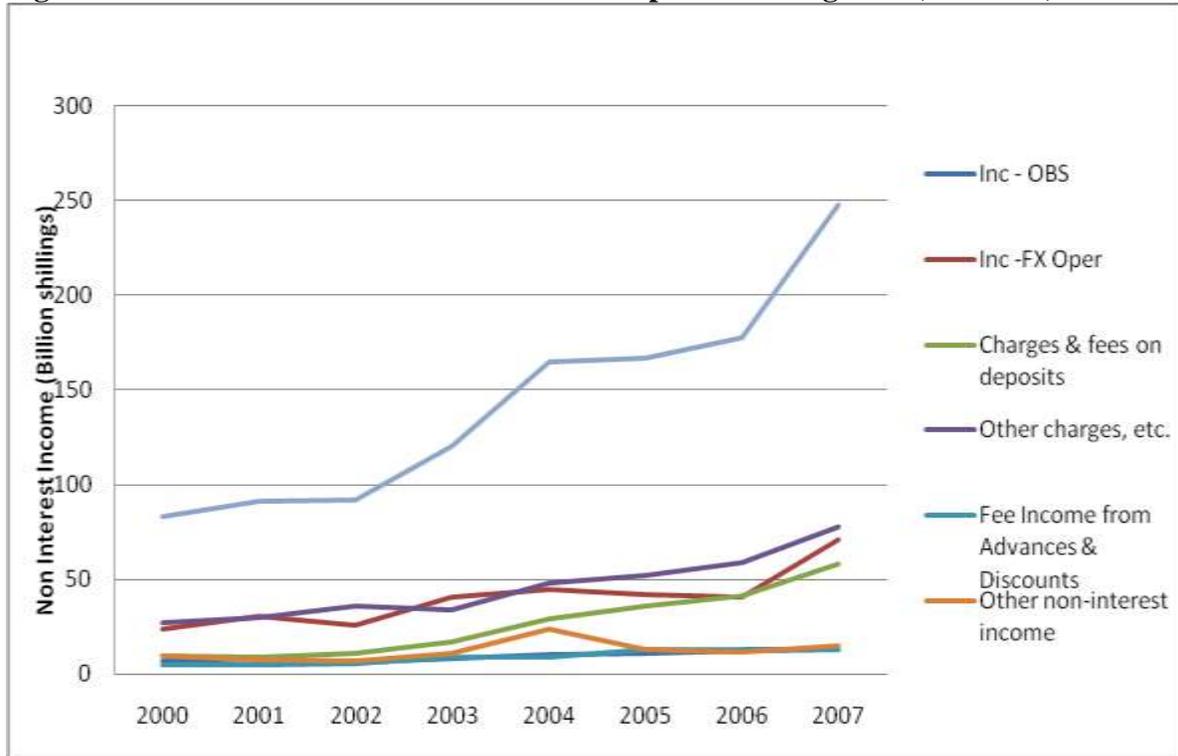
Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

It can be noted that the biggest composition of non interest income over years has been bank earning of income from forex operations, charges and fees on deposits, and other charges not fully categorized. Fee income from advances and discounts as well as other non interest income produced the least contributions over the years 2000 to 2007.

Figure 4.2 below is a graphical illustration of non interest income as a share of total bank assets from 2000 until 2007 for commercial banks in Uganda.

Figure 4.2: Commercial banks' Non-interest income as share of total assets
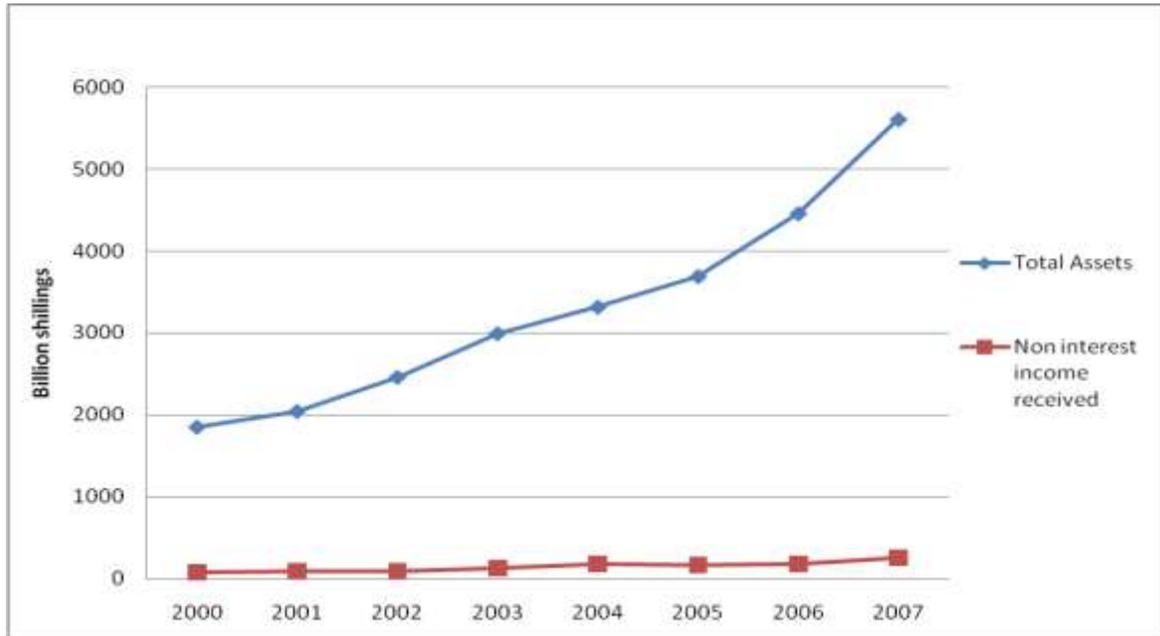
Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

Figure 4.2 showed that though industrial non interest income had a steady trend, its contribution to the industry's total assets remained very little. Total banks assets however, increased steadily from between less than 2000 billion shillings in year 2000 to nearly 6000 billion shillings in the financial 2007.

4.2   Testing for Normality

The table 4.2 introduces the results of the first test for normality on the variables under

consideration using the **Jarque bera** test statistic.

The null hypothesis was that all series were normally distributed; in this case, a small

probability value is undesirable as it leads to the rejection of the null hypothesis of a

normal distribution as observed with variable D (sector penetration).

In testing for normality of the variables, only D (sector penetration) was seen not to be

normally distributed ($p<0.05$) henceforth, the researcher performed a logarithmic

transformation (LOG(D)) to normalize the series.

Table 4.2: Normality test and Descriptive Statistics of Variables

	D	G	LOG(D)	NOM	P	R	T	Z
Mean	140.37	567.87	4.93	-2.125	0.05	1	127.68	0.113
Median	130.5	563.34	4.87	-5.39	0.04	0.97	114.5	0.116
Maximum	194	919.62	5.26	56.28	0.06	1.39	321	0.126
Minimum	122	319.87	4.80	-51.34	0.037	0.666	9	0.088
St Dev	18.58	181.04	0.12	31.66	0.006	0.21	107.46	0.009
Skewness	1.130	0.203	0.910	0.436	0.273	0.321	0.367	-0.744
Kurtosis	3.614	1.825	2.930	2.171	2.631	2.367	1.674	2.758
Jarque bera	7.319	2.061	4.424	1.931	0.580	1.085	3.061	3.032
Prob.	0.025	0.356	0.109	0.380	0.748	0.581	0.216	0.219
Observations	32	32	32	32	32	32	32	32

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

Table 4.2 shows that the average number of branches in Uganda's banking industry was

140, while the average number of ATMs was 128 for the period 2000 to 2007 financial

years. It was also noted that on average, Uganda's banking industry was making a loss of

about 2 billion shillings between the years 2000 to 2007.

4.3 Unit Root Results

According to Engle and Granger (1987), time series data need to be tested for Stationary in order to obtain meaningful results. This was performed using the Augmented Dickey-Fuller (ADF) class of unit root tests. The null hypothesis was that the time series variables were stationary and the alternative was that the time series were non stationary. The table 4.3 introduces the results of the Augmented Dickey-Fuller (ADF) test for the variables under consideration. The results are for the ADF test after second differencing of the series and lagged by one level.

Table 4.3: Augmented Dickey-Fuller (ADF) test

Variable	ADF t-Statistic	Prob.
D(NOM(-1),2)	-4.145972	0.0004
D(G(-1),2)	-4.131531	0.0004
D(LD(-1),2)	-5.974670	0.0000
D(P(-1),2)	-4.032868	0.0005
D(R(-1),2)	-4.154788	0.0004
D(T(-1),2)	-7.103580	0.0000
D(Z(-1),2)	-4.144822	0.0004

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

1% Critical Value*   - 4.3226,
5% Critical Value   -3.5796,
10% Critical Value   -3.2239
*MacKinnon critical values for rejection of hypothesis of a unit root.

If the ADF test statistic values are less than the critical values at 1%, 5% and/or 10% levels of significance, this implies that the series are stationary. The probability for the corresponding ADF statistics for all variables was significant ($p<0.05$), implying that each of the series were stationary and that the variables were integrated of the same order I(2). Furthermore, the ADF statistics of D(LD(-1),2) and D(T(-1),2) were less than the critical at 1% and the rest of the variables converged at less than the critical value at 5%.

32

4.4   Regression Analysis

In order to obtain the factors affecting non interest income and answer the objectives of the study, the researcher performed the ordinary least squares regression technique with non interest as the dependent variable. This was done using the econometric software programme Eviews 5.0 and all results presented in the appropriate tables below.

Table 4.4 presents findings from the ordinary Least squares estimation for the period from 2000 to 2007.

Table 4.4 Results of the OLS regression for the factors affecting non interest income
Dependent Variable: D(NOM(-1),2)
Method: Least Squares
Sample(adjusted): 2000:3 2007:4
Included observations: 30 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.232416	0.289852	0.801845	0.4308
D(LD(-1),2)	0.611577	9.418525	0.064933	0.9488
D(G(-1),2)	-0.022892	0.014836	-1.542978	0.1365
D(P(-1),2)	-2858.010	108.5564	-26.32743	0.0000
D(R(-1),2)	134.9178	6.514247	20.71120	0.0000
D(T(-1),2)	-0.032592	0.030438	-1.070752	0.2954
D(Z(-1),2)	400.7960	96.31712	4.161212	0.0004
R-squared	**0.987956**	Mean dependent var		-0.366670
Adjusted R-squared	0.984814	S.D. dependent var		12.54838
S.E. of regression	1.546347	Akaike info criterion		3.910631
Sum squared resid	54.99736	Schwarz criterion		4.237578
Log likelihood	-51.65947	F-statistic		314.4455
Durbin-Watson stat	**0.599158**	Prob(F-statistic)		0.000000

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

Two observations were dropped to account for the second differencing term in the series and the estimated coefficients are statistically significant under a 5% level of significance, except for change in technological advancement D(T(-1),2), change in

global contestability D(G(-1),2) and change in sector concentration D(LD(-1),2). The overall regression fit, as measured by the R^2 statistic, indicates a moderate fit.

According to the results of table 4.4, the researcher considered two significant statistics that need to be examined further, before interpreting the results. The R^2 statistic is a measure of how well future outcomes are likely to be predicted by the model (Steel, 1960) and the Durbin-Watson statistic is used to detect the presence of autocorrelations in a data set, this value is always between 0 and 4. A value of 2, means that there is no autocorrelation in the sample (Sargan and Bhargava, 1983).

However, the high value of R^2 statistic (98%), coupled with the low value of the Durbin-Watson statistic (0.599), which is used to detect the presence of autocorrelations in a data set as reported above, indicated the presence of serial correlation in the residuals of the estimated equation. And if uncorrected, serial correlation in the residuals would lead to incorrect estimates of the standard errors, and invalid statistical inference for the coefficients of the equation.

Therefore, the researcher performed further tests to cater for serial correlation by including autoregressive (AR) term in the equation (Chen, 1999). This specification removes the lagged terms generated by cointegretion tests, replacing them with an AR(1) specification.

$$\Delta(NOM(-1),2)_t = C + \beta_2 \Delta(\log D(-1),2)_t + \beta_3 \Delta(G(-1),2)_t + \beta_4 \Delta(P(-1),2)_t + \beta_5 \Delta(R(-1),2)_t + \beta_6 \Delta(T(-1),2)_t + \beta_7 \Delta(Z(-1),2)_t + AR(1) \quad ....\textbf{Equation..3.2}$$

This is the resultant model with all variables corrected to second difference.

Table 4.5 presents results that cater for serial correlation by including the autoregressive (AR) term.

Table 4.5: Results of the Corrected model for non interest income
Dependent Variable: D(NOM(-1),2)
Method: Least Squares
Sample(adjusted): 2000:4 2007:4
Included observations: 29 after adjusting endpoints
Convergence achieved after 10 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.038100	1.066160	-0.035736	0.9718
D(G(-1),2)	-0.026300	0.007884	-3.335971	0.0031
D(LD(-1),2)	6.844112	4.211985	1.624914	0.1191
D(P(-1),2)	-2875.947	54.64861	-52.62616	0.0000
D(R(-1),2)	135.9074	3.375619	40.26148	0.0000
D(T(-1),2)	-0.015446	0.016535	-0.934134	0.3609
D(Z(-1),2)	342.0764	50.37474	6.790634	0.0000
AR(1)	0.806482	0.157207	5.130073	0.0000
R-squared	0.794729	Mean dependent var		-0.398710
Adjusted R-squared	**0.792972**	S.D. dependent var		12.76924
S.E. of regression	1.070522	Akaike info criterion		3.203120
Sum squared resid	24.06635	Schwarz criterion		3.580305
Log likelihood	-38.44524	F-statistic		566.1138
Durbin-Watson stat	**1.632037**	Prob(F-statistic)		0.000000
Inverted AR Roots	.81			

Source: Commercial banks' quarterly income statements (BoU Annual Supervision reports 2000-2007).

The adjusted R-squared shows that 79% of the observed variation in Net non interest income was explained by changes in the independent variables. Furthermore, the F-statistics probability value of less than 5% indicates a good overall model fit. The Durbin-Watson statistic observed was 1.632037 tending toward 2, a measure that would comfortable represent reduced presence of serial correlation. Hence comparison of variables and their significance to the measured outcome (NOM) can be deduced from the relationship between the coefficients and the probability.

The corrected table above (Table 4.5), revealed a significant effect of globalization and financial performance on overall Net non interest income of the banking sector. The model further indicated that in the long run, the effect of both technological advances and sector concentration on non interest income remains insignificant.

Results of the model estimation presented in Table 4.5 indicate that the majority of the coefficients are significant and have economic reasonable signs. The following discussion of the regression output focuses on those variables that affect non-interest income both in the short run and long run.

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study was conducted with a general purpose of assessing the factors affecting non-interest income of commercial banks in Uganda. In order to achieve this, it examine the effect of deregulation and technological advances on non-interest income in commercial banks, analyzed the effect of financial performance of commercial banks in relation to Non interest income in Commercial Banks and; the significance of market conditions like globalization in shaping services that contribute to non-interest income in commercial banks in Uganda. This chapter discusses the major research findings presented in chapter four, which are guided by the research questions. It also presents conclusions, recommendations and suggests others areas for further research.

5.2 Discussion of Major Findings

5.2.1 Banks Financial Performance and Non Interest Income

The analysis of financial performance of commercial banks in relation to Non interest income in Commercial Banks in Uganda was measured by two proxies; risk-adjusted performance (ROA/ROA $_{Mean}$), and productivity (operating cost/total assets) adopted from Hawtrey (2003).

Risk adjusted performance and Non Interest Income

Using the risk adjusted performance proxy, results from the regression analysis model revealed a significant positive relationship between banks risk-adjusted performance and

non interest income (Beta= 135.90, p<0.001). This implies that assuming all other variables are held constant; a unit increment in r_j would result in an increment of 135.9 units of net non interest income.

This implies that if the banking industry is highly risky, Banks would levy high charges for the services in order to recoup their investments, thereby increasing their net non interest income. With respect to the riskiness of the loan portfolio, standard finance theory argues that the more risky the banking sector portfolio the greater non-interest income should be to compensate banks' shareholders for risk (DeYoung and Rice ,2003; Staikouras et al, 2003).

Productivity and Non Interest Income

Using productivity as a proxy for performance, the study revealed a significant negative coefficient (Beta= -2875.947, p<0.001). This implies that assuming all other variables are held constant; a unit increment in p_j would result in a decrement if 2875.95 units on net non interest income.

This means that with greater efficiency in the banking industry, the pressure to earn income through increasing non interest income reduces. This was in agreement with findings by DeYoung and Rice (2003). This is further supported by Hawtrey (2003), who argues that if the banking sector in a country is relatively inefficient then there would be need to charge higher fees to recover its production costs.

5.2.2 Market Conditions and Non interest income

Globalization and Non Interest Income

The sign of the coefficient of globalization variable predicts a significant negative relationship with non interest income (Beta= -0.026300, p<0.001). This implies that assuming all other variables are held constant; a unit increment in g_j would result in a decrement if 0.026 units on net non interest income.

This is in harmony with expectations implying that economies with more openness to international practices and competition will have lower non-interest margins. This fits with intuition that fee-based activities (such as corporate finance and payments devices) are more open to globalization than many interest-based activities (Hawtery, 2003).

Sector penetration and Non Interest Income

Industry concentration was found to be insignificant in both short and long term (Beta= 6.844112, p>0.005). The probability over 5% implies that the error margin is high and therefore this variable does not affect net non interest income.

This is an important result, for it implies that the domestic industry concentration has been overtaken by the international dimension as the world economy becomes more globalised and the national banking industries part of the world stage. Moreover, in Uganda, any form of oligopolistic structure in the local banking industry makes little or no difference to interest margins or trends in fee income.

5.2.3 Deregulation and Technological Advances on Non Interest Income

Technological Advances and Non Interest Income

This technological advancement behaved as expected (Beta= -0.015446, p>0.005). The probability over 5% implies that the error margin is high and therefore this variable does not affect net non interest income in the long run.

Advanced technologies such as automated teller machines tend to generate higher levels of non-interest income per dollar of assets. However, this relationship remains significant only in the short run. The long run model, technological advancements would yield no significant effect to net non interest income as supported by Baltagi (2005). This could be because the short run involves a heavy cost of investment while in the long run the banking sector only incurs the cost of maintenance.

Deregulation and Non Interest Income in Commercial Banks in Uganda

Deregulation in the banking industry was found to have a significant positive impact to non interest income (Beta=342.0764, p<0.001). This implies that assuming all other variables are held constant; a unit increment in *zj* would result in an increment of 342.076 units on net non interest income.

According to Mugume (2009), Uganda's banking Industry has undergone unprecedented changes, caused by the deregulation of financial services, and this has brought healthy competition and concentration in the banking and financial sectors. Deregulation of commercial banking to a great extent fosters competition between banks, non-banks and financial markets, removes restrictions that act as barriers to the growth of the banking systems. As Isik and Hassan, (2003) explains, Banking industry deregulation across the

globe removed a whole host of restrictions that had stunted the evolution of the banking industry, constrained the efficiency of financial product markets that brought about new products with a lot of non interest income, and extended the lives of thousands of poorly run and suboptimal-sized commercial banks.

5.3   Conclusions

The study confirmed that risk adjusted performance, productivity, deregulation, globalization have a significant relationship to net non-interest income, whereas sector penetration and advanced technology have no long term significant relationship to net non interest income in the commercial banking industry in Uganda.

From the findings of this study, though non-interest income in Uganda's banking industry seem to have an upwards trend, net non interest margins analysis indicated that the industry still suffers losses, which means that non interest operating costs are high. This may imply inefficient operations of commercial banks.

Furthermore, increases in non-interest income are not only linked to greater bank profitability but also to higher earnings volatility as was measured by risk-adjusted performance. This may boarder on exploitative tendencies by commercial banks, on the banking population in Uganda.

While these results are presented for Ugandan commercial banks, they also provide additional insights into possible generalizations to other emerging markets as well as parallels that may be drawn between emerging market banks and banks in the developing nations.

5.4   Recommendations

The fact that net non interest income margin is negative implies that the financial sector still operates in undesirable positions. Therefore, banks are inefficient and are yet to optimally operate non interest yielding activities.   Improved management of their operations is essential as opposed to increment in the fee structures, so as to release positive non interest margins.

The banking institutions need to have proper measures in place in order to deal with globalization effects (competition from foreign banks, standards, new innovations) on non interest income.   There should be more cooperation with the use of systems that help derive non interest income like the clearing house for cheques. This could be achieved by indentifying new and effective ways to handling cross bank activities and payments so that customer retention is maintained in the industry.

5.5   Areas of further research

The researcher recommends studies of non interest income using a regional (East African region) bank panel data analysis approach in order to examine the causal relationships.

REFERENCES

Baltagi, B. (2005), *Econometric Analysis of Panel Data.* John Wiley and Sons: New Jersey.

Bank of Uganda supervision report (2004): *"The annual supervision report;"* issue No.5 December.

Berger, A.N. and Mester, L.J. (1997), "*Inside the black box: what determine differences in the efficiency of financial institutions*?", Journal of Banking & Finance, Vol. 21 No. 7, pp. 895 947.

Bon-Sung Gu and Woojin Kim (2004), "How the Non-interest Income Affect the Stability of Bank,"Korean Institute of Finance.

Davis, P. E. and K. Tuori (2000). "*The Changing Structure of Banks' Income – An Empirical Investigation.*" Department of Economics and Finance Research Papers. London: Brunel University.

Ddumba-Ssentamu, (1993): *"The Role of Commercial Banks in Deposit Mobilisation in Uganda;"* Makerere University, Kampala.

De Young, R. and T. Rice (2004). "*Non-interest Income and Financial Performance at U.S. Commercial Banks.*" Financial Review, vol. 39, pp. 101–127.

DeYoung, Robert, William C. Hunter, and Gregory F. Udell, (2004): *"Whither the Community Bank? What We Know and What We Suspect;" Journal of Financial Services Research*, forthcoming

Feldman, Ron and Jason Schmidt, (1999): *"Non-interest Income, A Potential for Profits, Risk Reduction, and Some Exaggerated Claims.*" Federal Reserve Bank of Minneapolis, Fedgazette. October.

Flannery, M.J., and C.M. James, (2004), *The Effect of Interest Rate Changes on the Common Stock Returns of Financial Institutions*, Journal of Finance 34, 1141 1153.

Gischer .H. and D J Juttner, (2003): *Global Competition, Fee Income and Interest Rate Margins; Kredit und Kapital*, pp 368-94

Harvey, K. (2003), "*Banks' Non-interest Income: an International Study*", Macquarie University, mimeo.

Hilbers et al , W.C. & Timme, S.G, (2000): *"Technical change, organizational form, and the structure of bank production;" Journal of Money, Credit and Banking*, Vol. 18, pp. 152-156.

Isik, I. and Hassan, M.K. (2003), "*Efficiency, ownership and market structure, corporate control and governance in the Turkish banking industry*", Journal of Business Finance & Accounting, Vol. 30 Nos 9-10, pp. 1363-421.

Justine Nannyonjo and James Nsubuga, (February 2004): *BOU Working PAPER*, Kampala- Uganda

Kevin J. Stiroh; (2004): *Diversification in Banking: Is Noninterest Income the Answer?* Vol. 36, No. 5 (Oct., 2004), pp. 853-882, Published by: Blackwell Publishing

Kwan, S.H. and Eisenbeis, R. (2005), "*An analysis of inefficiencies in banking*", Journal of Banking & Finance, Vol. 19 Nos 3-4, pp. 733-4.

Kwast, Myron, (1989): *"The Impact of Underwriting and Dealing on Bank Returns and Ris;." Journal of Banking and Finance*, Vol. 13, 101-125.

Musinguzi, P, Bategeka, L, Katarikawe, M, (1994): "*The Effectiveness of Monetary and Financial instruments in Uganda's reform effort,*" Unpublished paper presented the institute of bankers seminar.

Parris, Y. (2002), "*The State of Electronic Banking in Barbados*", Central Bank of Barbados Economic Review, Vol. XXIX, No.3, pp.17-25.

Rogers, K. and J. Sinkey. (1999). "*An Analysis of Nontraditional Activities at US Commercial Banks.*" Review of Financial Economics, vol. 8, no. 1, pp. 25–39.

Smith, R., C. Staikoura and G. Wood (2003), "*Non-interest Income and Total Income Variability*", Bank of England Working Paper No. 198.

Staikouras, Christos, and Geoffrey Wood, (2003): *"Non-interest Income and Total Income Stabilit;."* Manuscript

Statistical Abstract, (2000): *Uganda Bureau of Statistics*

Stiroh, K.J. (2004), *"Diversification in banking: is non-interest income the answer?"*, Journal of Money, Credit and Banking, Vol. 36 No. 5, pp. 853-82.

Stiroh, Kevin J, (2006a): *"Diversification in Banking: Is Noninterest Income the Answer?" Journal of Money, Credit, and Banking*

The Republic of Uganda, (1993): *Financial Institutions Statute*.

The Republic of Uganda, (1996): *Background to the Budget (various issues)* 1996/97– 2002/03.

The Republic of Uganda, (1998): *Vision 2025, A Strategic Framework for National Development*; Vol.: II, Background Papers.

Uganda Investment Authority (UIA), (2005): *Report of the Financial Services Sector Task Force*.

Uganda Investment Authority, (2000): *Report of the Task Force of the Financial Services Sector*

Wheelock, D.C. and Wilson, P.W. (2005), "*Explaining bank failures: deposit insurance regulation and efficiency*", Review of Economics and Statistics, Vol. 77 No. 4, pp. 689-700.

Steel, R. G. D. and Torrie, J. H. (1960): *Principles and Procedures of Statistics,* New

York: McGraw-Hill, pp. 187, 287.

Sargan, John Denis & Bhargava, Alok, 1983. *"Testing Residuals from Least Squares*

Regression for Being Generated by the Gaussian Random Walk," Econometrica,

Econometric Society, vol. 51(1), pages 153-74.

Appendix 1.0

Dependent Variable: NOM
Method: Least Squares
Date: 08/27/11   Time: 16:33
Sample: 2000:1 2007:4
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2433.209	417.9651	-5.821560	0.0000
LOG(D)	501.6432	87.69760	5.720148	0.0000
G	0.016212	0.030394	0.533411	0.5985
P	-2504.922	603.0443	-4.153794	0.0003
R	193.6576	21.70329	8.922960	0.0000
T	-0.642000	0.136056	-4.718664	0.0001
Z	-372.6712	402.2565	-0.926452	0.3631

R-squared	0.840900	Mean dependent var		-2.125002
Adjusted R-squared	0.802715	S.D. dependent var		31.66215
S.E. of regression	14.06329	Akaike info criterion		8.315653
Sum squared resid	4944.404	Schwarz criterion		8.636282
Log likelihood	-126.0504	F-statistic		22.02224
Durbin-Watson stat	0.824895	Prob(F-statistic)		0.000000