THE IMPACT OF INCOME DIVERSIFICATION ON BANK PERFORMANCE:

A CASE STUDY OF ZENITH BANK, CAL BANK AND UNIBANK

by

KNUST

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DECLARATION

I hereby declare that this submission is my own work towards the Executive Masters of Business Administration and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

The general objective of this study is to investigate the impact of income source diversification on bank performance. Pooled data of Three Universal banks was employed in this study using a linear regression analysis. The study revealed that bank income sources are diversified significantly in the Ghanaian banking industry and that both interest and non-interest activities significantly impacts positively on bank performance while bank growth in the number of branches significantly impacts negatively on bank performance. This lead to the acceptance of both H_1 which hypothesized that commercial banks in Ghana are diversified in source of income and H_2 which postulates that income source diversification improves financial performance of commercial banks.

DEDICATION

This thesis is dedicated to my family and friends.

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I wish to express my sincere gratitude to the Almighty God for seeing me through this programme successfully.

My special thanks go to my supervisor Mr. Ametefee Normanyo for supervising this thesis and offering directions, suggestions and encouragement during the entire duration of the work.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1   INTRODUCTION

This chapter provides a general introduction to the topic under consideration. The first section looks at the background of the study. This is immediately followed by statement of problem, objectives of the study, research hypothesis, justification for the study, methodology employed, the scope and limitations of the study and finally, the organization of the study.

1.2   BACKGROUND OF THE STUDY

Banks, the world over, are transcending their normal business operations and diversifying their activities in response to economic and financial sector reforms. The Ghanaian banking industry too has been seen steadily shifting away from traditional sources of revenue like loan-making etc, towards nontraditional activities that generate fee income, service charges, trading revenue and other types of non-interest income.

In recent years, deregulation and technological innovation has permitted almost all financial institutions to capture an increasing share of their income stream from non-interest sources. According to DeYoung and Rice (2004), US commercial banks, for example, generated 42% of operating income from non-interest sources in 2004 compared to 32% in 1990 and 20% in 1980. While part of the increase in non-interest income is due to diversification into lines of business such as investment banking, venture capital and insurance underwriting, growth in fee-paying and commission-paying

services linked to traditional retail banking services has also been significant. However, the shift towards non-interest income has not improved the risk-adjusted returns of banks in recent years (Hirtle and Stiroh, 2007). Clark et al. (2007) detect a recent shift in the strategic behaviour of banks in developed economies and demonstrated that a return to retail has occurred because retail business offers relatively stable returns that can help offset volatility in non-retail business.

The main motive for diversification is to minimize risk of loss. In general, banks consider costs and benefits of the different alternatives available when making investment decisions. Much analysis has been performed that indicates that portfolio asset allocation is by far the most important decision banks make, because these assets may account for up to 90% of bank earnings.

If commercial banks choose to invest in loans and advances, they risk default associated with these investments. Such investments potentially have negative consequences for bank earnings because some of the loans and advances to customers may end up as bad or doubtful debts. This risk may or may not be covered by collateral securities or high interest rates. If the risk is covered by high lending rates, these compensate for the high risks and the costs incurred in valuing collateral securities, negotiation and debt servicing.

A bank may also face the risk of illiquidity if it issues large volumes of loans and advances without attention to the ease of 'shiftability' of other asset holdings in its portfolio. This is because repayment terms and periods for bank loans and advances to customers are defined by fixed contracts that differ from customer to customer, meaning that banks cannot recall the cash in debt at will, at their convenience or when there is

need for liquidity. This situation can lead to a run on the bank if customers suspect that it does not have sufficient resources to meet their cash needs. A bank with cash holdings lower than the amounts required for its demand deposits may close down if all of a sudden it is invaded by customers making large withdrawals. Such a run on a bank arises out of customers' loss of confidence in the bank, a situation that adversely affects its deposits and profitability.

Commercial banks may choose to invest in treasury bills as their portfolio using their excess liquidity, to capitalize largely on prevailing high interest rates on the bills, which are also free from risk of default. The risk associated with treasury bills is tied to their fixed-interest nature, meaning that once a bank has invested in them it cannot transfer them to benefit from rising interest rates until they mature. For this reason, commercial banks respond according to their expectations on interest rates. If they anticipate a rise in interest rates on a particular earning asset in the near future, they hold on to their cash and invest it at the time when interest rates have reached their expected maximum. If they anticipate a fall in Treasury bill interest rates they tend to invest immediately to avoid incurring losses when interest rates fall. This policy has been shown to contribute positively to attainment of commercial banks' objective of profit maximization.

If commercial banks choose to keep all their holdings as cash, it means that they have chosen not to engage in any investment transaction. This cash does not earn interest or bear the risk of default although it risks losing value if the 'evils' of inflation set in. Moreover, cash holdings reflect some stability of the bank. Customers will be confident that if they deposit their money it will be available when they need it.

In practice, commercial banks do not put all their cash in one earning asset. They rank their alternatives in order of desirability and put their money in all the worthwhile investments. In doing this, commercial banks tend to achieve their objective of making profit from their investments. The portfolio theory of investment seems appropriate to counter the problem of investment risk that banks face.

1.3 PROBLEM STATEMENT

For banks elsewhere, several researchers have explored relationships between non-interest income and business strategies, market conditions, technological change and risk-adjusted financial performance (Gallo et al., 1996; DeYoung and Rice, 2004; Stiroh, 2004; Calmes and Liu, 2005; Landskroner et al., 2005; Acharya et al., 2006; Stiroh, 2006; Stiroh and Rumble, 2006; Carbo-Valverde and Fernandez, 2007; Laeven and Levine, 2007; Lepetit et al., 2007; Mercieca et al., 2007; Hirtle and Stiroh, 2007). Similar attention has not, however, been given to the banks in developing countries and Ghana in particular. In part this is because as financial institutions organized to meet the needs of their customers and shareholders, banks in developing countries have not had the same diversification opportunities as banks in developed economies. Nevertheless, since 2000 there has been a steady increase in the share of non-interest income in operating income for the Ghanaian banking sector as a whole.

The increasing presence of non-interest income at commercial banks has been widely documented and discussed in the industry press and regulatory publications (for example, Feldman and Schmidt 1999), but only a few academic studies have investigated the impact of increased non-interest income on the financial performance of commercial

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banks. While it is well known that large banks and banks with specialized strategies rely more heavily on non-interest income than do small banks with traditional business strategies, there is little systematic understanding of why non-interest income varies across banks and how non-interest income is associated with bank financial performance.

Research findings from developed (USA and Europe) markets on impact of income source diversification on banks financial performance differs greatly. It worsens risk-return trade-off in USA while it increases risk-return trade-off in Europeans banks. Stiroh (2004), De Young and Rice (2004), Stiroh and Rumble (2006) indicate a worse risk-return trade-off for USA commercial banks venturing into income source diversification. Chiarozza et al. (2008), Baele et al.(2007), and Staikouras and Wood (2003) show that income source diversification increases risk-return trade-off for European banks. Further, Shawn, (2002) financial sectors in most developing countries are characterized by fragility, volatile interest rates, high-risk investment and inefficiencies in the intermediation process. The industry further differs in; ownership structure, financial liberalization level and accounting treatment of various sources of income.

1.4   OBJECTIVES OF THE STUDY

Following from the problem statement, this study seeks;

- To analyze the trend of income source component and profits.
- To determine the impact of income source diversification on financial performance of commercial banks in Ghana.
- To analyze the relationship between the various income sources and bank performance.

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1.5   RESEARCH HYPOTHESES

The study was guided by the following two directional hypotheses:

H_1:   Commercial banks in Ghana are diversified in source of income.

H_{11}:   Commercial banks in Ghana are not diversified in source of income

and

H_2:   Income source diversification improves financial performance of commercial banks.

H_{22}:   Income source diversification does not improve financial performance of commercial banks.

1.6   RESEARCH METHODOLOGY

The main data source for the analysis comes from the published financial documents of the studied banks and the report on trends and progress in banking sector in Ghana. According to Saunders et al, (2008) studies that establish causal relationships between variables may be termed explanatory studies. The emphasis here is on studying a situation or problem in order to explain the relationships between variables. Hence the study opted for explanatory research since the study intended to examine relationships among variables specifically on income sources and firm's performance.

1.7   JUSTIFICATION FOR THE STUDY

The research investigates the effects of income diversification on the performance of selected commercial banks in Ghana. This study has important implications for both financial theory and practice.

From academic point of view, this study will present additional evidence concerning the search for performance drivers of financial institutions. In practice, it will help to document the performance of banks that use certain level income diversification as compared to non-users. What is more, future researchers interested in income diversification and firm's performance could use this work as a springboard for their studies. Moreover, the study will not only inform banks' decisions in order to remain competitive but also that of regulators on the appropriate level of income diversification that banks are to maintain.

1.8   LIMITATIONS OF THE STUDY

Time limits had to be adhered to and deadlines had to be met. Certain information could not be obtained from the studied banks and the researcher had to do without some information, as such the research cannot go on *ad infinitum.* The validity of the research would however not be affected. The case study nature of the research can limit its generalization ability. However, the findings can be generalized to only the studied banks. Generally, only current references were used unless the work was considered a relevant 'classic' in its area. In an attempt to overcome some literature constraints, the internet and risk management journals would be used as research sources. The above

mentioned limitations would however, not influence the validity of the study, nor would it negatively impact on the practical applications suggested in the study.

1.9   ORGANIZATION OF THE STUDY

The study is organized in five chapters as follows. Chapter one provides general background to the study. It also provides the statement of the problem in terms of research hypothesis. Again, it sets out the objectives of the study and provides the justification of the study. Chapter two reviews pertinent literature on the study from both theoretical and empirical issues reviewed in the literature and then attempt to link it to the current study. Chapter three discusses the methodological issues of the study, while chapter four discusses the analysis of the empirical results and the final chapter, chapter five, summarizes the main findings of the study and provides suggestions and policy recommendations.
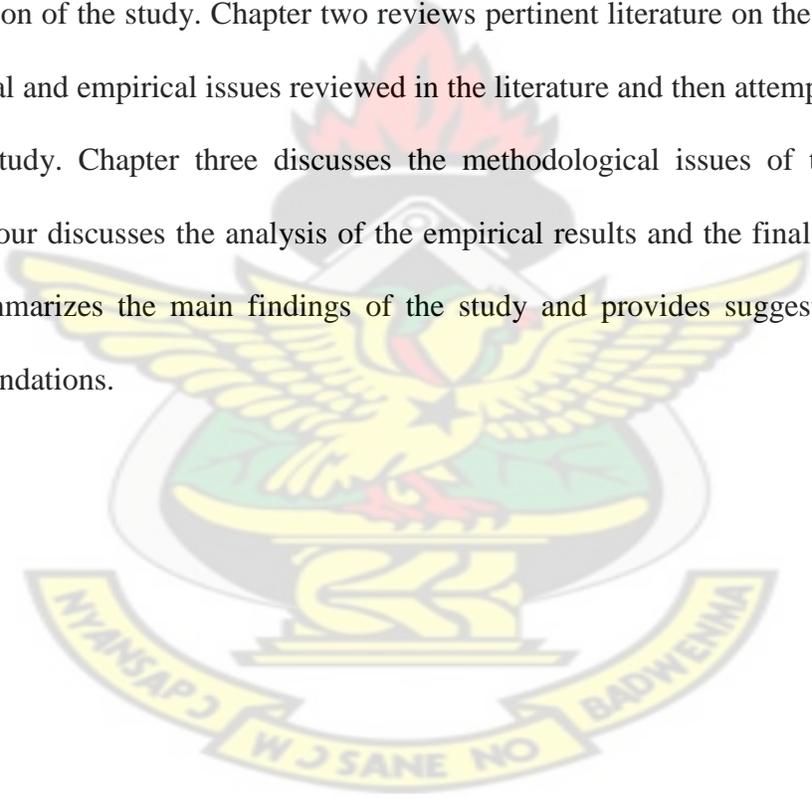
CHAPTER TWO

LITERATURE REVIEW

2.1   INTRODUCTION

This chapter begins with the concept of income diversification and provides a theoretical background to the study. The factors influencing banks' changing income and profit structure was established followed by determinants of bank performance.

2.2   THE CONCEPT OF INCOME DIVERSIFICATION

Financial institutions in recent years have increasingly been generating income from "off-balance sheet" business and fee income. Albertazzi and Gambacorta (2006) as cited by Uzhegova (2010) noted that the decline in interest margins, has forced banks to explore alternative sources of revenues, leading to diversification into trading activities, other services and non-traditional financial operations. The concept of revenue diversifications follows the concept of portfolio theory which states that individuals can reduce firm-specific risk by diversifying their portfolios. However there is a long history of debates about the benefits and costs of diversification in banking literature. The proponents of activity diversification or product mix argue that diversification provides a stable and less volatile income, economies of scope and scale, and the ability to leverage managerial efficiency across products (Choi and Kotrozo, 2006). Chiorazzo*et al* (2008) noted that as a result of activity diversification, the economies of scale and scope caused through the joint production of financial activities leads to increase in the efficiency of banking organizations. They further argued that product mix reduces total risks because income

from non-interest activities is not correlated or at least perfectly correlated with income from fee based activities and as such diversification should stabilize operating income and give rise to a more stable stream of profits (Uzhegova, 2010).

The opposite argument to activity diversification is that it leads to increased agency costs, increased organizational complexity, and the potential for riskier behavior by bank managers. Kotrozo and Choi (2006) mentioned that activity diversification results in more complex organizations which "makes it more difficult for top management to monitor the behavior of the other divisions/branches. They further argued that the benefits of economies of scale/scope exist only to a point. The costs associated with a firm's increased complexity may overshadow the benefits of diversification. As such, the benefits of diversification and performance would resemble an inverted-U in which there would be an optimal level of diversification beyond which benefits would begin to decline and may ultimately become negative.

Using annual bank level data of all Philippines commercial banks Sufian and Chong (2008) found a positive relationship between total non-interest income divided by total assets, a proxy for income diversification and bank profitability. Uzhegova (2010) using a HH index of interest income, commissions, fee income, trading income, non-interest income and other operating income found empirical support of the idea that banks involved in diversification activities expect some benefits. While Kotrozo and Choi 2006, using a similar index found that activity diversification tends to reduce performance compared to banks more focused in their activities.

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2.3   THEORETICAL BACKGROUND

Theory provides conflicting predictions about the impact of greater diversification of activities on the performance of financial intermediaries. Existing theories of financial intermediation imply increasing returns to scale linked to diversification. As suggested by the work of Diamond (1991), Rajan (1992), Saunders and Walter (1994) and Stein (2002), banks acquire customer information during the process of making loans that can facilitate the efficient provision of other financial services, including the underwriting of securities. Similarly, securities and insurance underwriting, brokerage and mutual fund services and other activities can produce information that improves loan making. Thus, banks that engage in a variety of activities could enjoy economies of scope that boost performance.

There is also a cost linked to intermediary risk and a better diversified intermediary has less risk and thus lower costs. In models of insurance or liquidity provision (Diamond and Dybvig, 1983; Chari and Jagannathan, 1988; Jacklin and Bhattarcharya, 1988; Gorton and Pennacchi, 1990), investors are risk averse and face some risk which the intermediary can pool and diversify on their behalf. Moreover, diversification makes it cheaper for financial institutions to achieve credibility in their role as screeners or monitors of borrowers. As shown by the models of delegated investment monitoring or evaluation (Campbell and Kracaw, 1980; Diamond, 1984; Ramakrishnan and Thakor, 1984; Boyd and Prescott, 1986), the possibility of bad outcomes allows the intermediary to hide proceeds or to claim that bad luck rather than lack of effort led to the bad outcomes; an intermediary with better diversified investments has less chance of very bad

outcomes, reducing associated costs. Thus, that it is optimal for a bank to be maximally diversified across sectors.

Experts of diversification argue also that lenders such as banks and finance companies are typically highly levered and diversification across sectors reduces their chance of costly financial distress. Similarly, the conventional view is that greater competition has increased the need for banks to diversify: lower profits leave less margin for error, so diversification provides a necessary reduction in risk. Only a simple policy prescription for regulators is suggested by the traditional theory: the banking sector should be left relatively unrestricted, which should in turn lead to an equilibrium with a few large, well-diversified and competitive banks.

The Winton's models (1997, 1999) results of the proverbial wisdom of "not putting all your eggs on one basket" suggest that the opposite can be true. Increased competition may magnify the "Winner's Curse" problem (the adverse selection in the borrowers pooling) faced on entry into a new sector, making diversification very costly. In unregulated settings where intermediaries are new or the market is growing rapidly, there should be substantial entry, with many risky intermediaries coexisting: investors cannot coordinate their actions and debt overhang makes the cost of capturing market share through rate competition highest when the potential for diversification is greatest. Over time, banks will fail and survivors will gain an incumbency advantage simply by becoming the focus of investor beliefs. Banks facing greater competition may therefore find it more attractive to specialize. In related work, several models (Dell'Arricia, Friedman, and Marquez, 1999; Marquez, 1997; Dell'Arricia, 1998; Gehrig, 1998) suggest that regardless of the bank's efforts, loans in the new sector are likely to perform worse

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than loans in the bank's home sector. Worse performance for new sector loans also makes diversification more likely to increase the bank's chance of failure and less likely to improve the bank's monitoring incentives; indeed, diversification may even undermine incentives to monitor home sector loans. Overall, diversification is more likely to be unattractive.

Considerable literature exists on banks' non-traditional activities, it looks at different financial activities separately and shows that these activities affect differently the level of risk at an individual bank (e.g. Avery and Berger, 1991; Boot and Thakor, 1991; Hassan, 1992, 1993; Hassan et al. 1994; Hassan and Sackley, 1994). By definition, diversification involves moving into economic sectors that differ from the bank's home base. Effective loan monitoring requires that the lending institution have a thorough understanding of these differences, but building such organizational knowledge takes time and effort. Alternatively, diversification of activities within a single financial conglomerate could intensify agency problems between corporate insiders and small shareholders (Jensen, 1986; Jensen and Meckling, 1976). Since, it is difficult for outsiders to directly observe the lending process that a bank is following, with adverse implications on the market valuation of the conglomerate.

There has been some work on bank specialization and loan performance. A somewhat closer study is Besanko and Thakor (1993), who model insured banks allocating loans across two uncorrelated sectors. Diversified banks forfeit gains from risk-shifting but increase their odds of surviving to collect informational rents on continuing lending relationships; free entry reduces these rents, discouraging diversification. In addition to

the winner's curse problem facing new entrants, Boot and Thakor (1998) examine incentives to specialize in the face of increased competition.

Nonfinancial corporate diversification literature (Denis et al., 1997; Rajan, Servaes and Zingales, 2000; Maksimovic and Philips, 2002) generally argues that any firm –financial institution or other– should focus on a single line of business so as to take greatest advantage of management's expertise and reduce agency problems, leaving investors to diversify on their own (Jensen, 1986; Berger and Ofek, 1996; Servaes, 1996, Denis et al., 1997). Linked corporate literature regarding the "diversification discount" finds also that the market value of financial conglomerates that engage in multiple activities are lower than if those financial conglomerates where broken into financial intermediaries that specialize in the individual activities. According to Demsetz and Strahan (1997), the diversification discount may be caused by that too many operating items make the banks lose their focus on specialized field. Another reason may cause the diversification discount including the inefficient internal resource allocation (Lamont, 1997; Scharfstein, 1997), the informational asymmetries between head office and divisional managers (Harris, Kriebel and Raviv, 1992).

But the features that distinguish banks and other lenders from nonfinancial firms are lenders' greater use of debt finance (leverage) and the way in which lenders' efforts affect their return distributions. With high leverage, worst-case outcomes loom large both in terms of underinvestment problems and in terms of outright failure. Although pure diversification tends to reduce the frequency of both worst-case and best-case outcomes, diversification that lessens monitoring effectiveness may increase the frequency and severity of worst-case outcomes, increasing failure probability and underinvestment

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problems (Winton, 1999). Furthermore, Winton (1999) consider that "pure" diversification increases the central tendency of the bank's return distribution, which generally reduces the bank's chance of failure. Nevertheless, if its loans have sufficiently low exposure to sector downturns ("downside"), a specialized bank has a low probability of failure, so the benefit of diversification is slight. Also, if its loans have sufficiently high downside, diversification can actually increase the bank's chance of failure. Thus, all else equal, diversification's benefits are greatest when the bank's loans have moderate levels of downside risk and when the bank's monitoring incentives need strengthening.

Broadly speaking, diversification per se is no guarantee of a reduced risk of failure and/or an increased return. Contrasting views suggest that neither diversification nor specialization always dominates; some circumstances and bank specific differences can favor one strategy or the other. More generally, "diversification discount" models predict that firms can differ in terms of expansion opportunities capabilities and ability to exploit market occasions. For example, the Maksimovic and Phillips model (2002) of optimal resource allocation of firms shows that as a firm's returns within an industry diminish, the firm limits its growth within the industry and moves into other industries. The optimal number and size of industry segments a firm operates depends on its comparative advantage across industries, arising from managerial skill in producing within an industry. Firms that are very productive in a specific industry have higher opportunity costs of diversifying. Thus, inefficient and efficient firms should optimally invest differently when industry conditions change.

Similarly, greater size is required for better diversification at the same time large institutions have substantial scale economies linked to improved diversification (Roger

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and Sinkey, 1999). Participation in certain non-traditional activities generally requires employees with special knowledge to work in some of these areas. Moreover, a bank might need to employ relatively advanced technology for some activities. Larger banks are better equipped to use new technology and exploit the resulting cost savings and/or efficiency gains (Hunter and Timme, 1986).

A more diversified bank may have also greater relative need for equity capital, especially if diversification involves expansion into sectors where the bank is less effective (Winton, 1995). Banks do use debt for much of their financing, equity capital serves as a buffer to absorb losses and reduce the probability of financial distress. In addition, by reducing possible shortfalls on payments to debtholders, equity capital reduces the bank's incentive to engage in risk-shifting by not monitoring. Also, high bank profits can be seen as to reduce the likelihood of costly bank runs and bank default resulting from bank involvement into new activities.

In another way, Barth et al. (2004) arguments' for restricting activities suggest that it improves the banking system by avoiding banks from the problems like conflicts of interest, complexity, moral hazard and monitoring difficulties. As banks expand to new activities, the restrictions may direct banks to less risky and less complicated activities and thus improve bank diversification performance. However, if this is not the case, the restrictions may misdirect banks to riskier and more complicated activities and thus decrease diversification performance.

2.4 FACTORS INFLUENCING BANKS' CHANGING INCOME AND PROFIT STRUCTURE

Interest margins of commercial banks have constantly been declining since the mid eighties. This development has been accelerated by globalization but, on the other hand, globalization also leads to a rapid growth of international trade which in turn provides opportunities in the fee business (Gischer and Jüttner, 2003). Hence, to compensate for the adverse development in the interest business banks look for other income sources (Koetter et al., 2004). For some banks it has opened up new markets, particularly in trading, asset management and investment banking activities (Davis and Tuori, 2000). The introduction of new regulatory requirements (Basel I and Basel II) also impairs banks' non-interest income activities. Since regulatory requirements have affected compliance and the cost of capital, banks have to look more closely at different assets on their books and price them accordingly. In this context it is often argued that the increase in off-balance sheet activities, which can be observed in some European countries, largely results from lower capital requirements for off-balance sheet items and not from on-balance sheet activities.

Moreover, lower risk-weights for inter-bank loans lead to an increase in this balance sheet position. Since inter-bank loans have lower interest margins than loans to non-financial clients, non-interest income declined (Davis and Tuori, 2000). In addition, expanding consumer needs caused the creation of new types of bank activities.

In response to demographic changes, growing wealth on the part of individuals and the expected loss in the pension system, a larger proportion of the population engages in portfolio investments. Furthermore, there has been a change in technology (e.g. automated teller machines and internet banking are now more common than years ago) which also affects banks' cost structure (Hawtrey, 2003).

Finally, the costs of collecting and processing information have decreased. This has, for example, lead to more efficient "production" of financial information and better techniques for evaluating and pricing risk. Some banks have even specialized in the monitoring of credit exposures (as agents rather than principals), e.g. in the context of loan securitization which increases the share of non-interest income. Innovation in financial products has facilitated a rearrangement of the income structure and the balance sheet of banks. In general, the possibility of removing risk from capital has caused an increase in off-balance sheet activities, as some banks have been encouraged to take part in the process of securitization by undertaking investment banking activities (Davis and Tuori, 2000).

2.5   DETERMINANTS OF BANK PERFORMANCE

Research on the determinants of bank performance has focused on both the returns on bank assets and equity, and net interest rate margins. It has traditionally explored the impact on bank performance of bank-specific factors, such as risk, market power and regulatory costs.

More recently, research has focused on the impact of macroeconomic factors on bank performance. Using accounting decompositions, as well as panel regressions, Al-

Haschimi (2007) studies the determinants of bank net interest rate margins in 10 Sub-Saharan African countries. He finds that credit risk and operating inefficiencies (which signal market power) explain most of the variation in net interest margins across the region. Macroeconomic risk has only limited effects on net interest margins in the study.

Using bank level data for 80 countries in the 1988–95 periods, Demirgüç-Kunt and Huizinga (1998) analyze how bank characteristics and the overall banking environment affect both interest rate margins and bank returns. In considering both measures, this study provides a decomposition of the income effects of a number of determinants that affect depositor and borrower behavior, as opposed to that of shareholders. Results suggest that macroeconomic and regulatory conditions have a pronounced impact on margins and profitability. Lower market concentration ratios lead to lower margins and profits, while the effect of foreign ownership varies between industrialized and developing countries. In particular, foreign banks have higher margins and profits compared to domestic banks in developing countries, while the opposite holds in developed countries.

Gelos (2006) studies the determinants of bank interest margins in Latin America using bank and country level data. He finds that spreads are large because of relatively high interest rates (which in the study is a proxy for high macroeconomic risk, including from inflation), less efficient banks and higher reserve requirements. Although Al-Hashimi (2007) does not test explicitly for market power, the large association he finds between high operating costs and net interest margins could be evidence of market power.

In a study of United States banks for the period 1989–93, Angbazo (1997) finds that net interest margins reflect primarily credit and macroeconomic risk premia. In addition, there is evidence that net interest margins are positively related to core capital, non-interest bearing reserves and management quality, but negatively related to liquidity risk. Saunders and Schumacher (2000) apply the model of Ho and Saunders (1981) to analyze the determinants of interest margins in six countries of the European Union and the US during the period 1988–95. They find that macroeconomic volatility and regulations have a significant impact on bank interest rate margins. Their results also suggest an important trade-off between ensuring bank solvency, as defined by high capital to asset ratios and lowering the cost of financial services to consumers, as measured by low interest rate margins.

Athanasoglou, et al. (2006) studies the profitability behavior of the south eastern European banking industry over the period 1998–02. The empirical results suggest that the enhancement of bank profitability in those countries requires new standards in risk management and operating efficiency, which, according to the evidence presented in the paper, crucially affect profits. A key result is that the effect of market concentration is positive, while the picture regarding macroeconomic variables is mixed.

Athanasoglou, et al. (2006b) apply a dynamic panel data model to study the performance of Greek banks over the period 1985–2001, and find some profit persistence, a result that signals that the market structure is not perfectly competitive. The results also show that the profitability of Greek banks is shaped by bank-specific factors and macroeconomic control variables, which are not under the direct control of bank management. Industry structure does not seem to significantly affect profitability.

More recently, a number of studies have emphasized the relation between macroeconomic variables and bank risk. Saunders and Allen (2004) survey the literature on pro-cyclicality in operational, credit and market risk exposures. Such cyclical effects mainly result from systematic risk emanating from common macroeconomic influences or from interdependencies across firms as financial markets and institutions consolidate internationally. They may ultimately exacerbate business cycle fluctuations due to adverse effects on bank lending capacity.

Using equity returns data over the period 1973–2003, Allen and Bali (2004) examine the catastrophic risk of financial institutions. Results suggest evidence of pro-cyclicality in both catastrophic and operational risk measurements, implying that macroeconomic, systematic and environmental factors play a considerable role in determining the risk and returns of financial institutions.
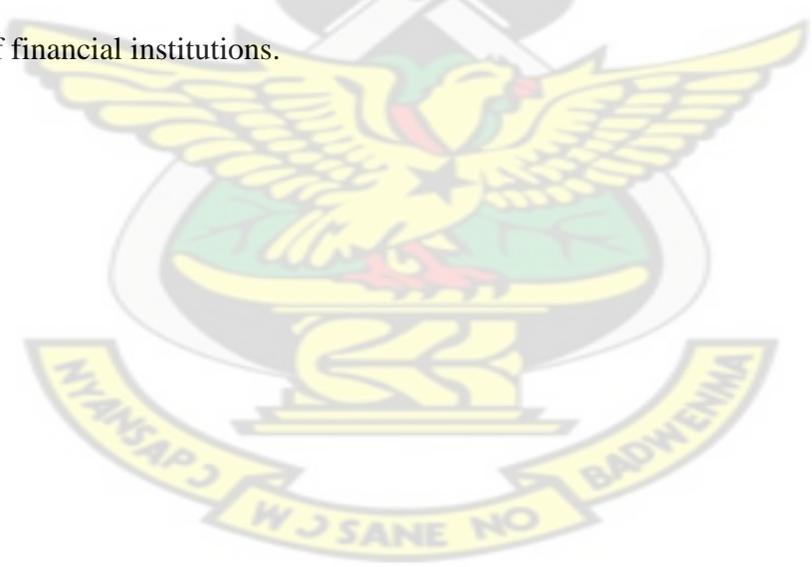
CHAPTER THREE

METHODOLOGY

3.1   INTRODUCTION

This chapter outlines the complete process of the research - how this research was carried out. The starting point is the research design used in this thesis. Then, the chapter proceed with the data source and description of variables used in this thesis. Finally, the chapter explained the data analyses and provided an overview of the studied banks.

3.2   RESEARCH DESIGN

The research design permits the study to meet the purpose of the research. It refers to the overall plan employed by the researcher to obtain answers to the research questions (Hakim, 2000). The research design may be that of an assessment, evaluation, descriptive or experimental study.   The current study is more of evaluative, descriptive and experimental studies. According to Robson, (2002) the purpose of evaluation is to make judgement about the effectiveness, relevance, efficiency or desirability of a product, process or programme. Based on this premise suggested by Robson, (2002), the study opted for evaluative studies since it is intended to evaluate the effectiveness of income diversification on the performance of the studied banks from 2006 to 2010 period. Thus, by evaluating the effects of income diversification on bank performance will enable the study find out the overall effects of the various incomes on the studied banks performance. This will also enable the study to either accept or reject some of the findings concerning income diversification of the studied banks relative to their performance.

In addition, the study also included descriptive data since it intended to gather information on the nature and composition of income of the studied banks. Since 2006 to 2010 and provide a better description of its impact on the firm's performance and then suggest possible recommendations.

What is more, the study is experimental in nature since it intended to establish causal relationship between variables; the effect that a change in one variable will have on the other and the magnitude of change. Typically, the study intended to find out the effect of income diversification on the studied bank's financial performance using profitability ratios as the benchmark. In this design, the study manipulates these variables and studies the effect on other variables.

3.3   DATA AND DATA SOURCES

There are many different ways to collect data (Hakim, 2000). The approach selected depends on the study objectives, the study design and the availability of time, money and personnel. An important consideration in deciding on the best way to collect data is whether the study is intended to produce relatively precise quantitative findings or to produce qualitative descriptive information. As mentioned earlier, the study is concerned with evaluative, descriptive and experimental in nature and is mostly concerned with quantitative measurements. The study made an extensive use of secondary sources of data. The data was obtained from the Annual Reports of the studied banks and Ghana Association of Bankers Surveys.

3.4   MEASURES OF DIFFERENT INCOME SOURCES, DIVERSIFICATION AND PERFORMANCE.

In this analysis the study considered the bank's total interest earnings (interest income, II), and total fee earnings (fee income, FI), from which is created a variable SHFEE to measure the share of fee generating activities:

$$SHFEE = (FI)/(FI + II)$$

As a profitability measure, the study considered return on equity (ROE) and total assets (ROA), which represents the ratio of operating revenues to equity and total assets respectively.

As risk measure the study employed the standard deviation (δ) of ROE and ROA, which is calculated over the entire period a bank is in the sample. Following Chiorazzo et al. (2008), this thesis constructed risk-adjusted returns (RAROE and RAROA) to risk-adjust profitability:

$$RAROE_{i,t} = ROE_{i,t} / \delta_{ROEi}$$

$$RAROA_{i,t} = ROA_{i,t} / \delta_{ROAi}$$

Interest margin (NIM) is calculated as net interest divided by total assets.

3.5   THE EMPIRICAL MODEL

3.5.1   PERFORMANCE AND NON-INTEREST INCOME

The study used the following empirical specification to analyze the relationship between fee income and profitability:

$$Yt = k + \beta_1 SHFEE + \beta_2 HHI + \beta_3 NPL + \beta_4 SIZE + \beta_5 GROWTH + \beta_6 LOANS + \beta_7 EQUITY + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

In the regression model k is a constant. The variable Y stands for ROE, ROA, RAROE, RAROA respectively. The study used the following control variables:

1. HHI is the Herfindahl index for concentration in the banks' loan portfolios, i.e. this index measures diversification in the interest earning business. We differentiate between nine sectors: (1) Agricultural, Forestry and Fishing, (2) Mining and Quarrying, (3) Manufacturing, (4) Construction, (5) Electricity, Gas and Water, (6) Commerce and Finance, (7) Transport, Storage and Communication, (8) Services and (9) Miscellaneous. Loan portfolio profitability is used to represent the above variables.

2. NPL is the share of non-performing loans relative to customer loans. This ratio measures risk in the credit portfolio.

3. SIZE is the natural logarithm of banks' total assets. This variable is added to capture bank size. Larger banks have more resources to build up know how and technologies for high-quality risk-management. Furthermore, a larger size allows the bank to exploit economies of scale. Small banks, on the other hand, might take advantage of the greater flexibility (Chiorazzo et al., 2008).

4. GROWTH is the growth rate of banks' total deflated assets. On the one hand this variable reflects a bank's growing business opportunities. On the other hand, however, it

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may also be viewed as a proxy for bank managers' preference for risk taking, assuming that risk-loving managers usually prefer fast growth. In this study the number of branch networks is used to represent growth.

5. EQUITY is the ratio of equity to total assets and describes the degree of total financial leverage. This variable also represents a proxy for bank managers' risk aversion, since risk averse bank managers tend to keep more equity than risk loving managers.

6. LOANS is the ratio of loans to total assets and is also a proxy for bank managers' risk aversion, assuming that a high degree of capitalization signals a high risk aversion and vice versa. See Appendix 1 for panel data.

3.5.2   FEE INCOME AND INTEREST MARGINS

In this section the study examined the link between studied banks' interest rate setting and the shift towards fee generating activities. From the latter, the researcher would expect opportunities in the interest business, i.e. for the cross-selling of loans. The study employed a dealership based model of the bank which allows the researcher to derive the determinants of the interest margin (Ho and Saunders, 1981). In this model, the studied banks are considered a risk-averse intermediary between lenders and borrowers. In so doing, the banks are exposed to competitive pressures, as well as interest rate and credit risk which determine their interest margins. As proposed by Maudos and Fernández de Guevara (2004) they additionally control for managerial efficiency measured by the cost-income ratio, assuming that less efficient banks are obliged to charge higher margins. A bank's net interest margin (NIM) is defined by total interest income minus total interest expenses. The model setup is as follows:

$$NIMt = k + \beta_1 SHFEE + \beta_2 BDR + \beta_3 EQUITY + \beta_4 CIR + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (2)$$

1. BDR is a measure of borrower default risk, which is either presented by theratio of loan loss provisions relative to customer loans (LLP) or by the share of non-performing loans relative to customer loans (NPL).

2. EQUITY is the ratio of equity to total assets. This variable has two interpretations; first, it is a proxy for the degree of banks' risk aversion and second, it accounts for the effect of leverage on risk levels and the required risk premium.

3. CIR is the cost-income ratio, calculated as operating expenses relative to gross income. The literature provides mixed results on the expected coefficients. On the one hand, a lowering in the cost structure should decrease interest rate margins.

On the other hand, screening and monitoring of borrowers require higher personnel costs, which could also result in an increase of CIR and a lowering in default risk premium charged on loans.

From a theoretical point of view, the average transaction size positively influences the interest margin. Since this variable cannot be computed from our data, and is also ignored in most of the other studies (Lepetit et al., 2008), this research also disregarded this indicator. In an extended version of the model the study interacted credit risk with the fee-income share. By including this indicator the study test how credit pricing, assuming given credit risk, varies according to banks' share of fee business. This interpretation only holds provided fees are charged at an identical flat, meaning that the same conditions apply for any customer, or if fees are not risk dependent.

3.6 BACKGROUND OF UNIBANK GHANA LIMITED

uniBank (Ghana) Limited was incorporated as a private company in December 1997 to operate as a bank. It is a wholly owned Ghanaian bank and authorized to undertake a broad range of banking business. The bank opened its door to customers in January 2001. The objective of the bank is to see the growth of small and medium sized enterprises (SMEs) into giants that can propel the economy to great heights. Financially, in spite of the challenges that characterize the financial crisis in recent times, uniBank recorded some appreciable level of performance. Profit before tax increased by 66% from GHS 1.9 million in 2008 to GHS 3.2 million during 2009. This saw Profit after tax surging by 73% to GHS 2.5 million in 2009 from GHS 1.5 million in 2008. Asset recorded 89% growth from GHS 116.6 million in 2008 to GHS 220 million in 2009. Similarly, the loans and advances book grew by 70% from GHS 65.2 million to GHS110.8 million. The bank's deposits increased significantly by 106% from GHS 89.9 million in 2008, to GHS 184.8 million as at the end of 2009. This performance was achieved as a result of the aggressive sales and deposit mobilization drive pursued by the bank. Net Worth of the bank grew from GHS 17.4 million in 2008 to GHS 20 million at the end of the year 2009. Return on Equity which stood at 9.57% in 2008 improved significantly to 13.52% in 2009. Shareholders fund grew from GHS 17.43 million in 2008 to GHS 19.96 in 2009 through internally generated fund.

The bank has shown remarkable strength in the face of stiff competition and endeared itself to the hearts of customers. In the short period of Nine (9) years since it started operations, it has won several awards from Corporate Initiative Ghana (CIG), ranging from customer care through to product innovation. The bank's operations are currently

centered in Accra, Kumasi and Takoradi where there are concentrations of small and medium-scale enterprises. The bank is at a very important phase of growth and is therefore positioning itself to exploit the opportunities and manage the unfolding threats within the industry. It is for this reason that the choice of the bank as a case for this study is very important and timely looking at the segment of market they serve.

3.7   BACKGROUND OF CAL BANK

CAL Bank commenced operations in July 1990, and is considered to be one of the most innovative banks in Ghana. The Bank mobilizes resources in world financial markets and channels them to the Ghanaian market. In this way, CAL Bank supports the development of the national economy, focusing particularly on the manufacturing and export sectors.

With its highly skilled professional staff, CAL Bank plays an important role in the Ghanaian financial sector by providing wholesale banking services to corporate clients with sound financial bases and competent management. Emphasis is placed on the economic viability and technical feasibility of each project, as well as the marketability of the client's products and services.

Having recently acquired a Universal Banking License in 2004, CAL Bank has significantly developed its retail banking operations with specialized products and services to cater for the retail market. To complement retail banking and in line with its expansion programme, CAL Bank has developed a network of over 48 ATM's and 18 branches and is in the process of opening several branches in major cities and business districts in Ghana.

The group reported an annual operating profit before tax of GH¢12.6 million and a profit after tax of GH¢9.5 million in 2010 compared to GH¢10.5 million and GH¢8.3 million respectively in the previous year. These represent an increase of 20% and 14% respectively.

There was an appreciable level of increase in income levels with net interest income increasing by 64% in 2010 above the previous year's amount and net fees and commission income increasing by 43%, an indicator of the Bank's operating efficiencies. Other income however declined by 26% in 2010 due to a difficult trading environment during the year. The bank has therefore put in place measures to address these challenges and expect a turnaround this year.

In spite of the sterling performance, the bank however had to recognize some challenges and weaknesses in the retail loan portfolio resulting in a significant increase in our impairment charge. Profitability therefore suffered as the bank took a fairly significant provision on the retail loan portfolio. The bank is however pursuing these debts and is hopeful to recover a significant amount of it.

Total assets size of the group increased from GH¢453 million in 2009 to GH¢510 million in 2010, representing an increase of 12.6%. Growth in total assets resulted from a 56.7% growth in investment in government securities, a 19.5% increase in loans and advances and 82.1% increase in property, plant and equipment as a result of revaluation of the bank's landed properties and an increase in the branch network in line with the strategic plan of the bank.

These were funded by growth in deposits base of 6.8% which increased from GH¢277 million to GH¢296 million at the end of 2010. Borrowings also increased by 18% from

GH¢93 million to GH¢109million as a result of assessing additional facilities from institutional development agencies. Shareholders equity also realized a significant increase of 34.9% resulting from additional equity injection, revaluation reserves and profit retention.

3.8   BACKGROUND OF ZENITH BANK

Zenith Bank (Ghana) Limited ("Zenith"), a financial services provider, was incorporated in April 2005 under the Banking Act 2004 (Act 673) as a private limited company and commenced universal banking operation in September 2005. It is a subsidiary of Zenith Bank Plc, one of the largest banks in Nigeria by all measures, with "AAA" ratings, and the Euromoney Best Bank in Africa for 2007.

Zenith currently operates twenty-four branches and agencies, connected online, real time and with ATM facilities. It operates with the objective of making banking easier and better than anything customers have ever experienced. Among its most distinguishing traits are its cutting edge ICT platform which sets it apart from competitors, its passionate staff and its devotion to the development of systems and products to satisfy customer specifications.

The bank in 2010 celebrated the fifth anniversary of our operations in the country to commemorate the contribution we have made to the dynamism of the Ghanaian banking industry through improvements in customer service. We have over the years improved our capacity, size, market share and industry rankings in all parameters. We have built financial, structural and technological muscle, established our presence in all four corners of the country and have created a beacon of innovation and service excellence in the

Ghanaian banking industry. Zenith continues to play a major role in the transformation of the banking industry into an intensely competitive, customer oriented, more efficient and technologically inclined industry. Indeed, before Zenith commenced operations relationship banking was novel, e-banking was almost restricted to ATMs, banking was limited to a few hours in the day and weekend banking was almost non-existent.

The bank pioneered several of the innovations currently prevalent in the industry. For our efforts, the bank was adjudged the Bank of the Year in Ghana as well as the Best Bank in Financial Performance in the country for the 2008 financial year, in addition to other awards won over the years at the Corporate Initiative, Ghana Banking Awards, 2009. Zenith is re-defining banking on many other fronts. Through immense investments we have acquired the ability to stay in the forefront of such fast-growing operations as internet banking, mobile banking, electronic payments and in recent times, Visa payment systems, as well as many other key programs that provide customers with greater speed, accuracy and options. The result, as Zenith builds this technology across the country, will be a nationwide, well-connected bank developed to the specifications of its customers and other stakeholders to give them great value. Its highly skilled and dedicated staff promise and deliver superior banking as well as professional excellence in service delivery. Zenith's core values are: Belief in God, Integrity and Keeping the Service Promise

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS OF RESULTS

4.1   INTRODUCTION

In this chapter, the trend of variables and the regression analysis have been presented to meet the objectives of the research.

4.2   TREND ANALYSIS OF VARIABLES

Figure 1 shows the trend of movement of non-interest income of the studied banks. The Figure depicts that there have been upward and downward movement in the share of fee income of the various banks. In 2006 uniBank Ghana recorded a share of fee income of 35.12% and this saw an upsurge to 44.11% in 2007. However, the share of fee income for uniBank has consistently declined to 32.60% in 2008, 21.74% in 2009 and a further reduction to 20.97% in the year 2010. Cal Bank on the other hand also registered a consistent decline in share of fee income from 2006 to 2010 as depicted in Figure 1. However, Zenith Bank saw an up and down movement in its non-interest income. As shown in the Figure 1 the percentage of fee income decline from 35.88% in 2006 to 31.22% in 2007 and again declined to 29.28% in 2008 from the previous year. The downward trend was curtailed in the next year with share of fee income increasing to 36.00% in 2009 but the increase could not be sustained as the indicator saw a decline to 33.38% in 2010.

FIGURE 1: SHARE OF FEE INCOME
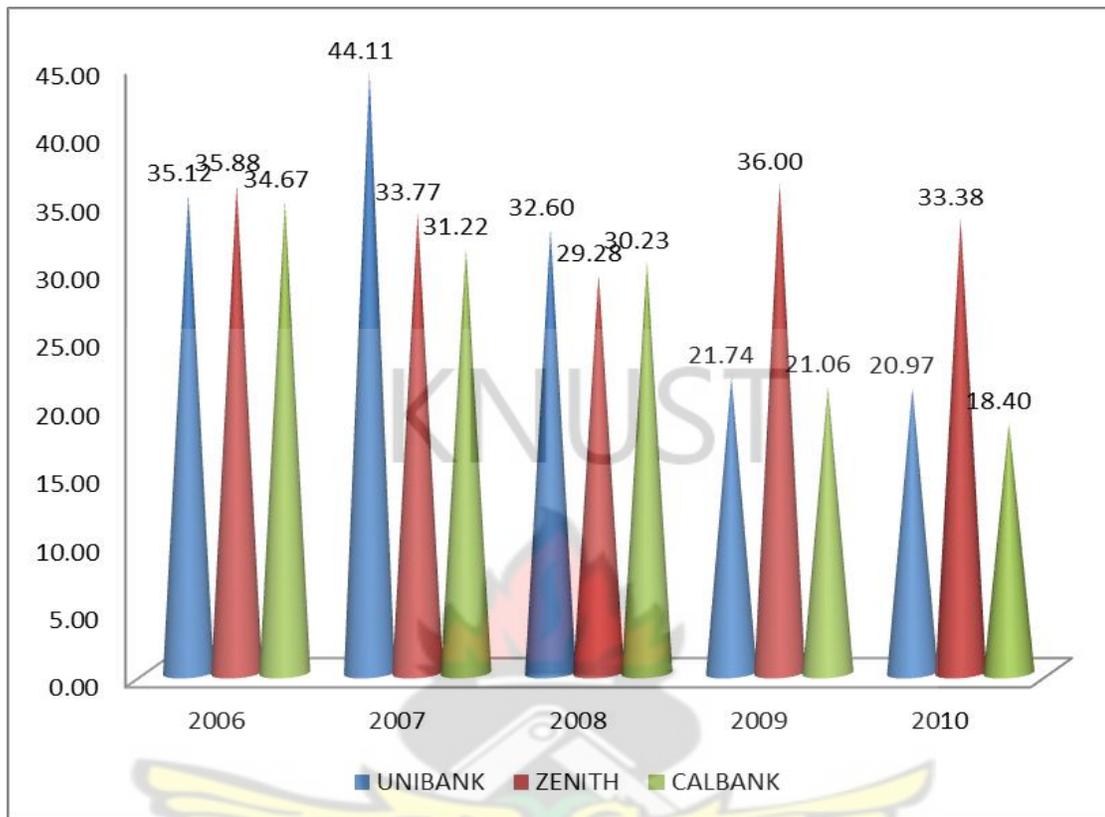
Source: Authors own compilation from the research.

Another variable of interest is Return on Asset (ROA) represented by Figure 2. All three banks in the study have seen an upward movement in the Return on Asset from 2006 to 2008. uniBank and Cal Bank later in 2009 registered a decline in their Return on Asset, with Zenith Bank showing an increase in Return on Asset. While uniBank and Cal Bank recorded increases in the Return on Asset for 2010 over the previous year, Zenith Bank recorded a fall in the return on asset.

FUGURE 2: RETURN ON ASSET

	2006	2007	2008	2009	2010
CALBANK	3.00	2.20	2.70	1.80	1.90
ZENITH	-7.60	0.10	3.25	3.31	2.51
UNIBANK	0.74	0.96	2.01	1.89	2.23
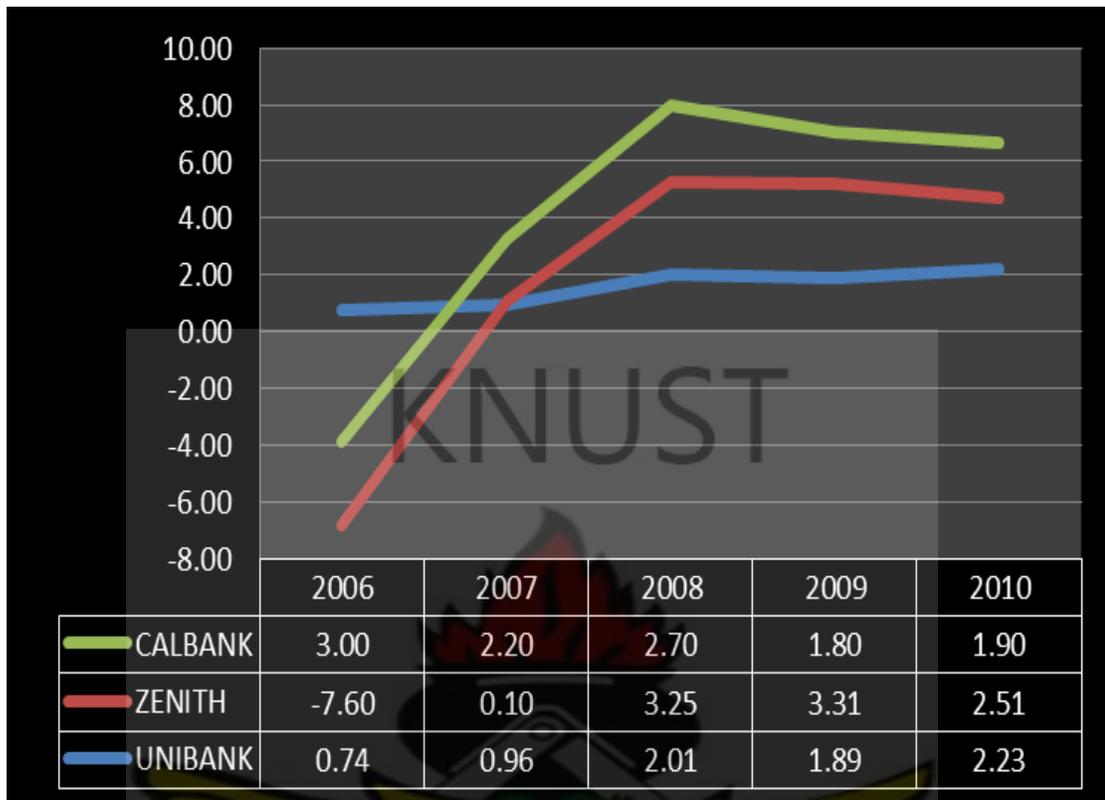
Source: Authors own compilation from the study

Figure 3 shows movements in the return on equity of the studied banks. uniBank consistently saw its return on equity increasing from 2006 to 2010. Zenith Bank and Cal Bank on the other hand have seen increases in the return on equity from 2006 to 2008 and later declined thereafter both in 2009 and 2010 as depicted in Figure 3.

FIGURE 3: RETURN ON EQUITY

	2006	2007	2008	2009	2010
CALBANK	21.20	16.70	24.50	14.20	12.00
ZENITH	-34.40	1.00	24.50	16.90	12.59
UNIBANK	4.28	5.42	9.57	13.52	15.74
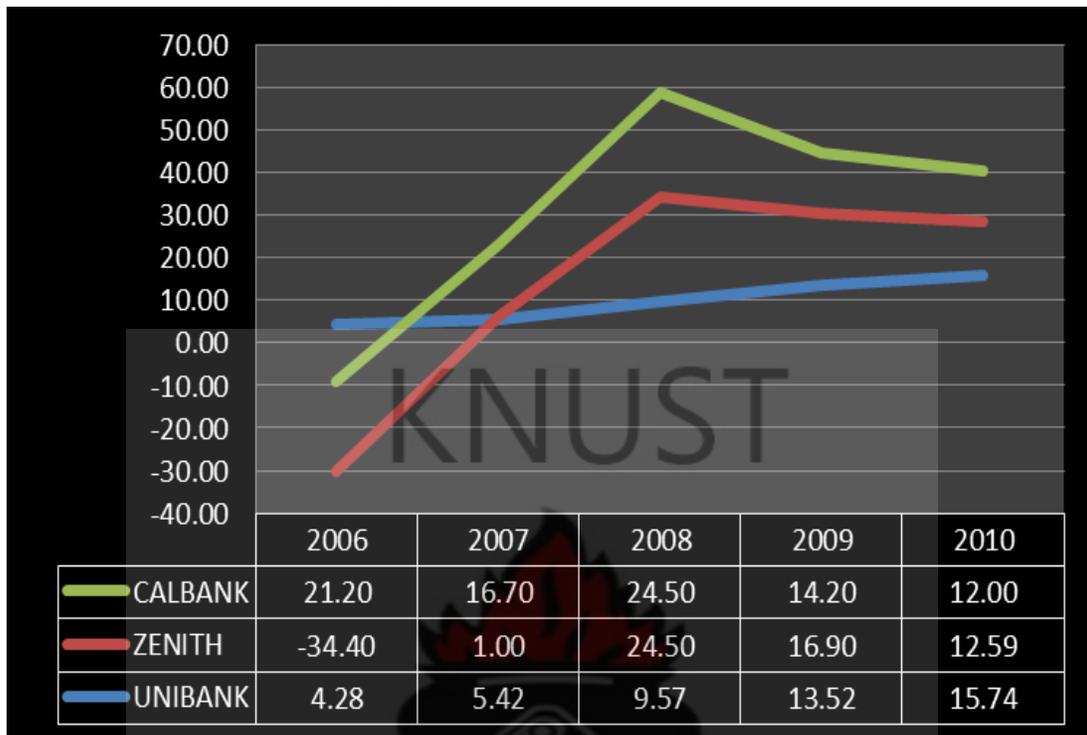
Source: Authors own compilation from the study

Figure 4 provides the trend of movement of the net interest margin of the studied banks. While uniBank saw its return on equity rising consistently over the periods of the study, its net interest margin on the other hand consistently fell over the year. As shown in the Figure 4, in 2006 net interest margin was 13.44% and fell to 10.68% in 2007, 9.6% in 2008, 7.9% in 2009 and finally 6.8% in 2010. In the case of Cal Bank, net interest margin fell from 2006 to 2008, maintained the same performance in 2009 as in 2008 and later surged up in 2010. The net interest margins over the years are 7.86%, 6.21%, 5.7%, 5.7% and 7.8% from 2006 to 2010. As in the case of Cal Bank, Zenith Bank figures also shows similar trend as shown in Figure 4.

FIGURE 4: NET INTEREST MARGIN
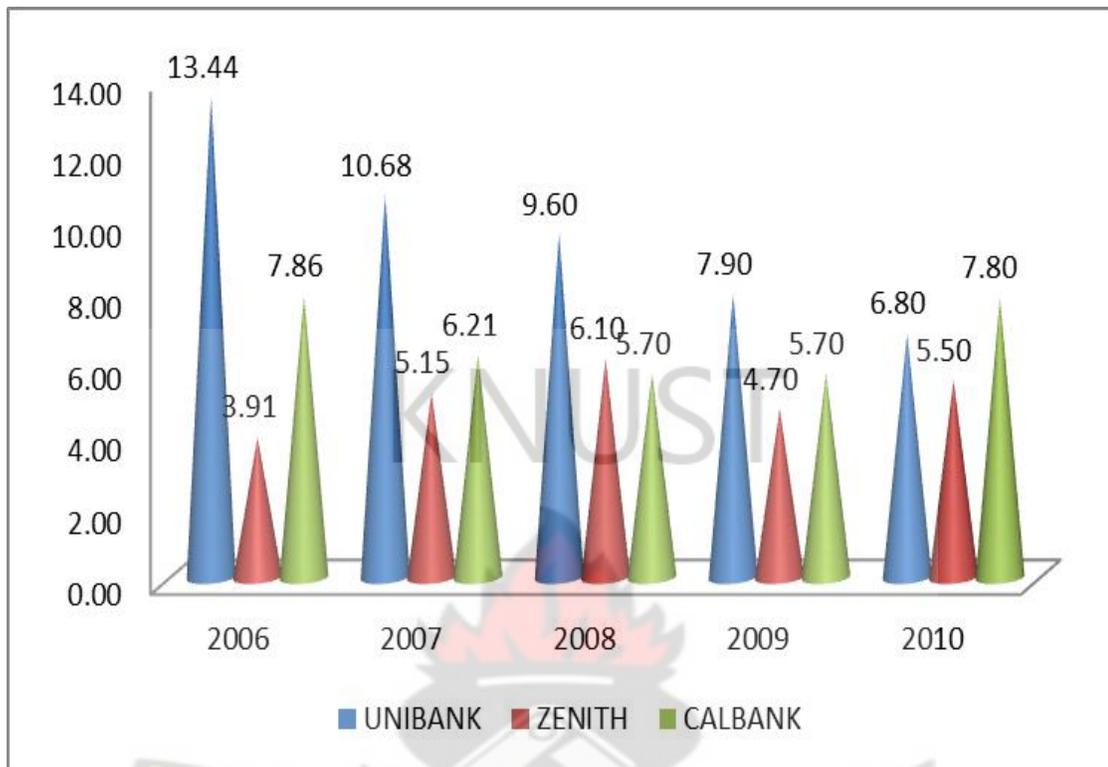
Source: Authors own compilation from the study

A final account on the trend analysis deals with the non-performing loans of the various banks. While uniBank's non-performing loans ratio has been reducing consistently as shown in Figure 5, the same cannot be said of Cal Bank and Zenith Bank. Both Zenith Bank and Cal Bank have seen their non-performing loans deteriorating in recent times. In the case of Cal Bank for instance, the non-performing loans declined from 2006 (7.90%) to 7.30% in 2007 and further fell to 5.90% in 2008. However, the non-performing loans began to deteriorate to 10.40% in 2009 and 11.40% in 2010. Zenith Bank on the other hand has seen consistent deterioration in its non-performing loans right from 2006 to 2010 ranging from 0.00% to 11.00% respectively.

FIGURE 5: NON-PERFORMING LOANS
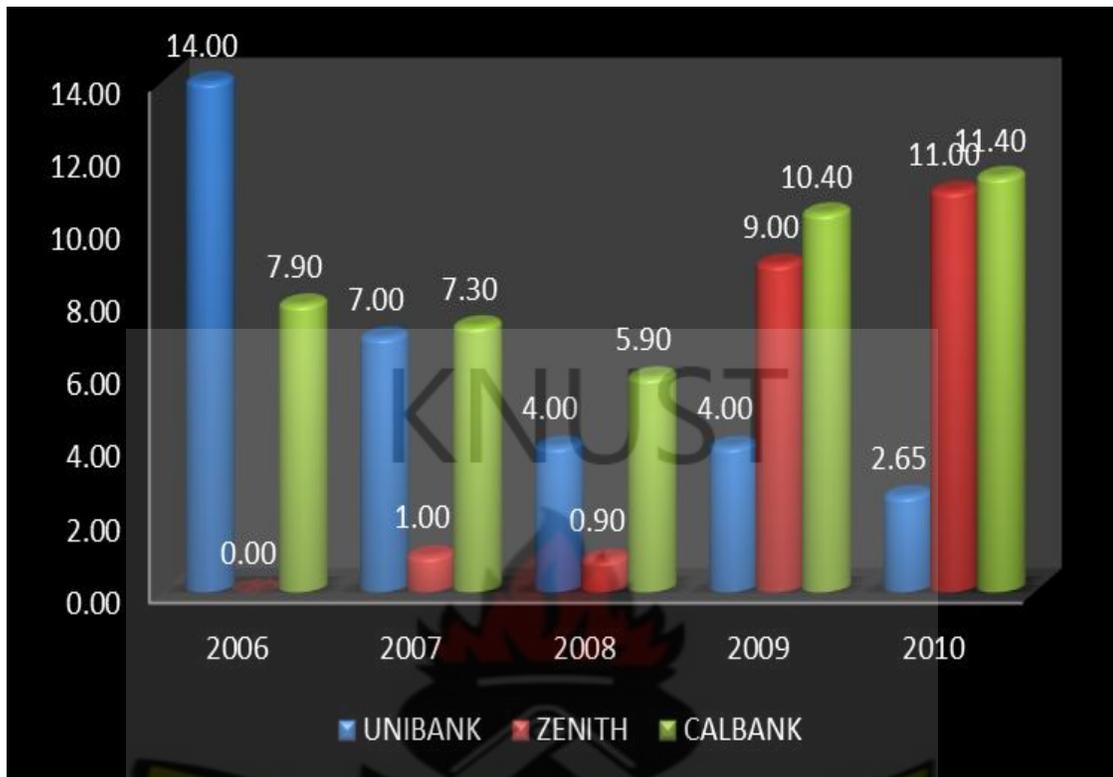
Source: Authors own compilation from the study

4.3   REGRESSION ANALYSIS

The regression analysis starts with the presentation of descriptive statistics. The descriptive procedure displays univariate summary statistics for several variables in a single table and calculates standardized values (Z- scores). Variables can be ordered by the size of their means (in ascending or descending order), alphabetically or by the order in which you select the variables. It refers the following items, mean, minimum, maximum, standard deviation, variance, range and standard error of the mean.

From Table 1, the minimum ROA is -7.6% which is attributable to Zenith Bank and the maximum ROA is 3.31% which again is attributable to Zenith Bank. The mean ROA of the three banks is 1.4% with a standard error of 0.68391 and a standard deviation of

2.64876. The ROE which measures the return on equity has a minimum value of -34.4%

and a maximum value of 24.50% with a mean of 10.51% and standard deviation of 14.18.

The HHI which represents the loan portfolio profitability of the studied banks has a mean

of 15.97%, a standard deviation of about 5.6%. The maximum loan portfolio profitability

is 27.00% and the minimum is 4.59%.

Table 1: Descriptive statistics

	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
ROA	10.91	-7.60	3.31	1.4000	.68391	2.64876	7.016
ROE	58.90	-34.40	24.50	10.5147	3.66086	14.17844	201.028
HHI	22.41	4.59	27.00	15.9680	1.44470	5.59529	31.307
NPL	14.00	.00	14.00	6.4300	1.10473	4.27859	18.306
RAROA	4.12	-2.87	1.25	.5287	.25826	1.00023	1.000
RAROE	4.16	-2.43	1.73	.7413	.25859	1.00153	1.003
SHFEE	25.71	18.40	44.11	30.5620	1.84089	7.12972	50.833
SIZE	1.01	7.81	8.82	8.4007	.08228	.31867	.102
EQUITY	14.57	4.64	19.21	12.1667	.84419	3.26952	10.690
LOANS	56.12	4.90	61.02	44.7473	3.88120	15.03181	225.955
GROWTH	.56	.78	1.34	1.0713	.04337	.16797	.028
CIR	.42	.48	.90	.7133	.03941	.15263	.023
NIM	9.53	3.91	13.44	7.1367	.65119	2.52205	6.361

The risk adjusted ROA and ROE namely RAROA and RAROE respectively have also

been presented in Table 1. The minimum RAROA is -2.87% and the maximum RAROA

is 1.25%. The RAROA produced a standard deviation of 1 and a standard error of about

0.26. The share of fee income (SHFEE) recorded a mean of 30.56% with a standard

deviation of about 7.13. The minimum SHFEE is 18.40% and the maximum statistics is

44.11%. Details of descriptive statistics for MIN, CIR, GROWTH, LOANS, EQUITY and SIZE are presented in Table 1.

4.3   CORRELATION AMONG INDEPENDENT VARIABLES

The fact that the data used was a times series cross sectional data, means that the model is likely to be affected by the presence of Multicollinearity, Heteroschedasticity and Autocorrelation. The significant presence of any of this is likely to bias the estimators, thus the coefficients are no longer BLUE (best linear unbiased estimators) since the estimated coefficients are likely to have errors in some cases. However the significance of the presence of these noises would mean that some assumptions underlying the model have been violated.

Table 2: Correlations Matrix

		HHI	NPL	ROA	ROE	RAROA	RAROE	SHFEE	SIZE	EQUITY	LOANS	GROWTH
HHI	Pearson Correlation	1	.144	.576*	.535*	.576*	.533*	-.436	.375	.145	.155	.350
	Sig. (2-tailed)		.609	.025	.040	.025	.041	.104	.168	.606	.581	.202
	N	15	15	15	15	15	15	15	15	15	15	15
NPL	Pearson Correlation	.144	1	.379	.294	.379	.295	-.033	.522*	.761**	-.158	.054
	Sig. (2-tailed)	.609		.164	.287	.164	.287	.907	.046	.001	.573	.848
	N	15	15	15	15	15	15	15	15	15	15	15
ROA	Pearson Correlation	.576*	.379	1	.972**	1.000**	.972**	-.242	.608*	.120	.456	.408
	Sig. (2-tailed)	.025	.164		.000	.000	.000	.384	.016	.669	.087	.131
	N	15	15	15	15	15	15	15	15	15	15	15
ROE	Pearson Correlation	.535*	.294	.972**	1	.972**	1.000**	-.306	.600*	.050	.477	.344
	Sig. (2-tailed)	.040	.287	.000		.000	.000	.268	.018	.859	.072	.210

	N	15	15	15	15	15	15	15	15	15	15	15
RAROA	Pearson Correlation	.576*	.379	1.000**	.972**	1	.972**	-.243	.609*	.120	.456	.409
	Sig. (2-tailed)	.025	.164	.000	.000		.000	.384	.016	.669	.088	.130
	N	15	15	15	15	15	15	15	15	15	15	15
RAROE	Pearson Correlation	.533*	.295	.972**	1.000**	.972**	1	-.306	.601*	.050	.477	.343
	Sig. (2-tailed)	.041	.287	.000	.000	.000		.268	.018	.859	.072	.210
	N	15	15	15	15	15	15	15	15	15	15	15
SHFEE	Pearson Correlation	-.436	-.033	-.242	-.306	-.243	-.306	1	-.525*	.094	-.221	-.312
	Sig. (2-tailed)	.104	.907	.384	.268	.384	.268		.044	.738	.428	.258
	N	15	15	15	15	15	15	15	15	15	15	15
SIZE	Pearson Correlation	.375	.522*	.608*	.600*	.609*	.601*	-.525*	1	.215	-.099	.567*
	Sig. (2-tailed)	.168	.046	.016	.018	.016	.018	.044		.441	.724	.027
	N	15	15	15	15	15	15	15	15	15	15	15
EQUITY	Pearson Correlation	.145	.761**	.120	.050	.120	.050	.094	.215	1	-.319	-.142
	Sig. (2-tailed)	.606	.001	.669	.859	.669	.859	.738	.441		.247	.614
	N	15	15	15	15	15	15	15	15	15	15	15
LOANS	Pearson Correlation	.155	-.158	.456	.477	.456	.477	-.221	-.099	-.319	1	.303
	Sig. (2-tailed)	.581	.573	.087	.072	.088	.072	.428	.724	.247		.272
	N	15	15	15	15	15	15	15	15	15	15	15
GROWTH	Pearson Correlation	.350	.054	.408	.344	.409	.343	-.312	.567*	-.142	.303	1
	Sig. (2-tailed)	.202	.848	.131	.210	.130	.210	.258	.027	.614	.272	
	N	15	15	15	15	15	15	15	15	15	15	15

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation matrix in Table 2 above exhibits the extent to which the independent variables relate to each other. Indeed, the independent variables are in themselves not supposed to be dependent on each other or statistically relate to each other. The correlation between NPL and SIZE and other independent variables being related significantly to each other means that there is the presence of multicolinearity.

KNUST

4.4 THE IMPACT OF SHARE OF FEE INCOME ON BANK PERFORMANCE

Table 3: Summary of Explanatory Power of Model 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.956[a]	.915	.829	1.09527

a. Predictors: (Constant), EQUITY, SHFEE, GROWTH, LOANS, HHI, NPL, SIZE

Table 3 presents the explanatory power of the estimated model. As seen in the table, the independent variables are able to explain variations in the dependent variable up to 91.5% as indicated by the R-square. This means that there are other independent variables that may determine variations in the dependent variable. The adjusted R-square is produced as 82.9%. The implication of the high explanatory power is that the independent variables put together are able to influence the behavior of the dependent variable ROA to a very high extent. The extent of explanation that the individual variables can give about the performance of the banks is strengthened by the ANOVA table below. As found in Table 4, the regression sum of square is about 89.83 with a mean square of 12.83 and significant at 1% level of significance. Thus all the independent variables put together are significantly able to explain changes in the behaviour of the ROA at 1% significant level.

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The residual sum of squares which represent the unexplained behaviour of the dependent variable is about 8.4 with a mean square of 1.2. Comparing the regression sum of squares and the residual sum of squares, it can be inferred that the model greatly explains variations in the explanatory variable ROA. In terms of goodness of fit, the F-statistic of about 10.7 indicates that the data well fits the model. In other word, the high F-statistic produced means that the data to a very high extent fits the model that has been estimated. From the ANOVA table, it is clear that the predictor variables significantly explain changes in the Return on Asset at 1% level of significant as indicated earlier.

Table 4: ANOVA[a] of Estimated Model 1

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	89.826	7	12.832	10.697	.003[b]
	Residual	8.397	7	1.200		
	Total	98.223	14			

a. Dependent Variable: ROA
b. Predictors: (Constant), EQUITY, SHFEE, GROWTH, LOANS, HHI, NPL, SIZE

Turning the focus of the study on the influence that the individual independent variables have on the performance of the banks, the analysis begins with the share of fee income and its influence on the performance of the banks. It must be recollected that SHFEE represents the share of non-interest income expressed as a percentage of total income. The result reveals that non-interest income represented by SHFEE significantly impacts positively on the performance of the estimated banks. The estimated co-efficient of SHFEE produced a positive estimate of 0.207 indicating that an increase in the share of fee income by 1% would result in an increase of 20.7% in the Return on Asset of the studied banks. Thus an increase in the fee income activities results in an increase in the

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performance of the studied banks. Juxtaposing this finding with the literature, the study gives credence to the proponents of activity diversification or product mix who argue that diversification provides a stable and less volatile income, economies of scope and scale and the ability to leverage managerial efficiency across products (Choi and Kotrozo, 2006). As noted by Chiorazzo*et al* (2008), as a result of activity diversification, the economies of scale and scope caused through the joint production of financial activities leads to increase in the efficiency of banking organizations further strengthening the argument that product mix reduces total risks because income from non-interest activities is not correlated or at least perfectly correlated with income from fee based activities and as such diversification should stabilize operating income and give rise to a more stable stream of profits (Uzhegova, 2010).

The result of this study however contradicts the opposite argument to income activity diversification which argues that income diversification leads to increased agency costs, increased organizational complexity and the potential for riskier behavior by bank managers. One of such opposing arguments by Kotrozo and Choi (2006) mentioned that activity diversification results in more complex organizations which "makes it more difficult for top management to monitor the behavior of the other divisions/branches. They further argued that the benefits of economies of scale/scope exist only to a point stating that the costs associated with a firm's increased complexity may overshadow the benefits of diversification.

A further support to income diversification cited from Sufian and Chong (2008) who by using annual bank level data of all Philippines commercial banks found a positive relationship between total non-interest income divided by total assets, a proxy for income

diversification and bank profitability. Uzhegova (2010) using a HH index of interest income, commissions, fee income, trading income, non-interest income and other operating income found empirical support of the idea that banks involved in diversification activities expect some benefits. While Kotrozo and Choi 2006, using a similar index found that activity diversification tends to reduce performance compared to banks more focused in their activities.

HHI is the Herfindahl index for concentration in the banks' loan portfolios, i.e. this index measures diversification in the interest earning business. The study differentiates between nine sectors: (1) Agricultural, Forestry and Fishing, (2) Mining and Quarrying, (3) Manufacturing, (4) Construction, (5) Electricity, Gas and Water, (6) Commerce and Finance, (7) Transport, Storage and Communication, (8) Services and (9) Miscellaneous and represented the index with Loan portfolio profitability. This analysis indicates the impact that the loan portfolio profitability has on the performance of the banks. In other words, the HHI index explains how interest income from loans has on the performance of the banks. As shown in Table 5, the interest income also significantly impacts positively on bank performance. The estimated coefficient is 0.212 indicating that an increase in loan portfolio profitability or interest bearing activities results in an increase in the performance of the bank. Specifically an increase in loan portfolio profitability by 1% would result in 21.2% increase in the Return on Asset of the banks.

Connecting the impact of the loan portfolio profitability/interest bearing activities on bank performance with the existing literature, Barth et al. (2004) arguments' for restricting activities suggest that it improves the banking system by avoiding banks from the problems like conflicts of interest, complexity, moral hazard and monitoring difficulties is affirmed by this study. As banks expand their interest bearing activities to new sectors, the restrictions may direct banks to less risky and less complicated activities and thus

improve bank loan portfolio diversification performance resulting in increase in the performance of the banks. However, if this is not the case, the restrictions may misdirect banks to riskier and more complicated activities and thus decrease diversification performance.

NPL is the ratio of nonperforming loans to total assets and it measures changes in the bank's actual default risk. The NPL as an *ex post* measure of loan portfolio quality, as this may contain information on risk differences by banks not captured by traditional measures of risk, i.e. risk-weighted assets to total assets ratio. From the study, NPL is expectedly negatively related to bank profitability and hence performance. The estimated coefficient is of -0.089% indicates that a 1% increase in non-performing loans results in about 0.09% reduction in bank performance. From the literature, the accumulation of Non-performing Loans (NPLs) is generally attributable to a number of factors, including economic down turns and macroeconomic volatility, terms of trade deterioration, high interest rates, excessive reliance on overly high-priced inter-bank borrowings, insider lending and moral hazard (Goldstoin and Turner (1996). The negative impact of NPL on the performance of the banks might be due to Kassim's (2002) suggested causes of Non-performing Loans (NPLs) such as poor management, lack of sound credit policy, inadequate credit analysis, errors in documentation and undue emphasis on profitability at the expense of loan quality. The others he mentioned are fraudulent practices, political instability/economic depression, abnormal competition, policy and regulatory inconsistencies, weak real sector and political and social influence on bank operators.

Bank size is generally used to capture potential economies or diseconomies of scale in the banking sector. This variable controls for cost differences and product and risk diversification according to the size of the financial institution. The first factor could lead to a positive relationship between size and bank profitability if there are significant economies of scale (Akhavein*et al*, 1997; Bourke, 1989; Molyneux and Thornton, 1992; Bikker and Hu, 2002; Goddard *et al.*, 2004). This assertion is backed by the findings of this study. Bank size is positively related to bank performance. This positive relationship means that the studied banks are currently enjoying economies of scale. This finding also supported the works of other researchers who conclude that marginal cost savings can be achieved by increasing the size of the banking firm, especially as markets develop (Boyd and Runkle, 1993; Miller and Noulas, 1997; Athanasoglou*et al.*, 2008). Eichengreen and Gibson (2001) suggest that the effect of a growing bank's size on its profitability may be positive up to a certain limit which confirms the case of the banks in this study. It must be noted that beyond some point, the impact of bank size could be negative due to bureaucratic and other factors. Hence, the size-profitability relationship may be expected to be non-linear as portrayed in the literature (Sufian and Chong, 2008).

This finding however, contradicts studies from Sufian and Chong (2008) for banks in the Philippines, which shows that impact of bank size, was negatively related to the profitability of Philippines banks, indicating a negative relationship between bank profitability and bank size. The negative coefficient according to them indicates that larger (smaller) banks tend to earn lower (higher) profits. To them, this provides support to the earlier studies finding economies of scale and scope for smaller banks or

diseconomies of scale for larger banks. The authors observed that, Hauner (2005) offers two potential explanations regarding how size could have a positive impact on bank performance. First, if this link relates to market power, large banks should pay less for their inputs. Second, there may be increasing returns to scale through the prioritization of fixed costs (e.g. research or risk management) over a higher volume of services or through efficiency gains from a specialized workforce (Sufian and Chong, 2008). The later argument may apply to the current study.

The study finds a significant positive relationship between bank size and bank performance. The coefficient of SIZE in the study is about 9.16 and a t-value of 4.645 with a significance level of less than 1%.

Closely related to the bank size is the number of branches (GROWTH) established by the studied banks. GROWTH is the growth rate of banks' total deflated assets. On the one hand this variable reflects a bank's growing business opportunities. On the other hand, however, it may also be viewed as a proxy for bank managers' preference for risk taking, assuming that risk-loving managers usually prefer fast growth. In this study the number of branch networks is used to represent growth. This study reveals that GROWTH is negatively related to bank performance. The estimated coefficient is -6.434 indicating that unguided increase in the number of branches or pursuance of growth in branch networks would result in the slowdown in the performance of the bank. The study showed that bank growth in the number of branches significantly impacts negatively on bank performance.

Focusing on the impact of loans on bank performance, the study revealed that loans are positively related to bank performance. LOANS in this study represent the ratio of loans and advances to total assets and is also a proxy for bank managers' risk aversion, assuming that a high degree of capitalization signals a high risk aversion and vice versa. The regression results of the ratio of total loans to total assets, shows a positive relationship between credit risk and bank performance. It must be emphasized that LOANS measures the overall credit risk exposure of the bank in its intermediation activities. Thus, LOANS may be considered as an *ex ante* measure of credit risk and the higher the proportion of lending over total assets, the higher the credit risk of bank managers. The positive coefficient of LOANS is indicative that a higher return is expected the higher credit risk the bank assumes. A 1% increase in LOANS increases ROA by 13%. This result strengthens the risk adverse nature of banks. Again, the positive relationship between ROA and LOANS is an indication that the bank's credit risk attitude remains the same across the credit cycle; thus the bank's performance increases as a compensation for the higher credit risk (Krakah and Ameyaw, 2010). LOANS are significant in explaining variations in bank performance at 1% level of confidence.

Finally the study looks at the effects of equity on bank performance. From Table 5, equity is positively but insignificantly related to bank performance. This means that the more managers are risk averse and therefore keep more and more equity fund, the more the banks performance growths.

Table 5: Coefficients[a] of estimated variables

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-84.113	16.689		-5.040	.001
	SHFEE	.207	.058	.558	3.546	.009
	HHI	.212	.063	.447	3.379	.012
	NPL	-.089	.145	-.143	-.613	.559
	SIZE	9.159	1.972	1.102	4.645	.002
	GROWTH	-6.434	2.631	-.408	-2.446	.044
	LOANS	.130	.025	.738	5.116	.001
	EQUITY	.042	.162	.052	.258	.804

a. Dependent Variable: ROA

4.5 THE IMPACT OF FEE INCOME ON INTEREST MARGINS

The next line of analysis takes a look at the impact of fee incomes on interest margin. The correlation matrix for this model is presented in Table 6. Model 2 presented an R-square of 56.9% and adjusted R-square of 39.5%. This demonstrates that the explanatory power of the independent variables in model 2, are moderately able to explain variation in the interest margin. From Table 9, it can be seen that fee income has positive impact on the interest margin of the estimated banks. The coefficient of SHFEE in Table 9 produced a value of 0.069 indicating that fee income activities could complement the performance of interest income activities. However, the share of fee income is insignificant in explaining the variation the interest margin. Details of results of model 2 are presented in Tables 6, 7, 8 and 9.

Table 6: Correlations Matrix of Impact of Fee Income on Interest Margin

		NPL	SHFEE	EQUITY	CIR	NIM
NPL	Pearson Correlation	1	-.033	.761**	-.458	.432
	Sig. (2-tailed)		.907	.001	.086	.108
	N	15	15	15	15	15
SHFEE	Pearson Correlation	-.033	1	.094	-.106	.185
	Sig. (2-tailed)	.907		.738	.708	.509
	N	15	15	15	15	15
EQUITY	Pearson Correlation	.761**	.094	1	-.258	.618*
	Sig. (2-tailed)	.001	.738		.354	.014
	N	15	15	15	15	15
CIR	Pearson Correlation	-.458	-.106	-.258	1	.202
	Sig. (2-tailed)	.086	.708	.354		.469
	N	15	15	15	15	15
NIM	Pearson Correlation	.432	.185	.618*	.202	1
	Sig. (2-tailed)	.108	.509	.014	.469	
	N	15	15	15	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7: Summary of Explanatory Power of Model 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.755[a]	.569	.397	1.95818

a. Predictors: (Constant), CIR, SHFEE, EQUITY, NPL

Table 8: ANOVA[a] of Model 2

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	50.705	4	12.676	3.306	.057[b]
Residual	38.345	10	3.834		
Total	89.050	14			

a. Dependent Variable: NIM

b. Predictors: (Constant), CIR, SHFEE, EQUITY, NPL

Table 9: Coefficients[a] of Model 2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-6.499	4.402		-1.476	.171
	SHFEE	.069	.076	.194	.904	.387
	NPL	.150	.212	.254	.705	.497
	EQUITY	.408	.255	.529	1.600	.141
	CIR	7.863	3.964	.476	1.984	.075

a. Dependent Variable: NIM

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1   SUMMARY OF MAJOR FINDINGS

The study finds that there have been upward and downward movement in the share of fee income of the various banks. In 2006 uniBank Ghana recorded a share of fee income of 35.12% and this saw an upsurge to 44.11% in 2007. However, the share of fee income for uniBank has consistently declined to 32.60% in 2008, 21.74% in 2009 and a further reduction to 20.97% in the year 2010. Cal Bank on the other hand also registered a consistent decline in share of fee income from 2006 to 2010 as depicted in Figure 1. However, Zenith Bank saw an up and down movement in its non-interest income. As shown in Figure 1, the percentage of fee income declined from 35.88% in 2006 to 31.22% in 2007 and again declined to 29.28% in 2008 from the previous year. The downward trend was curtailed in the next year with share of fee income increasing to 36.00% in 2009 but the increase could not be sustained as the indicator saw a decline to 33.38% in 2010.

In terms of bank performance, all three banks in the study have seen an upward movement in the return on asset from 2006 to 2008. uniBank and Cal Bank later in 2009 registered a decline in their Return on Asset, with Zenith Bank showing an increase in Return on Asset. While uniBank and Cal Bank recorded increases in the Return on Asset for 2010 over the previous year, Zenith Bank recorded a fall in the return on asset.

The study showed that non-interest income represented by SHFEE significantly impacts positively on the performance of the estimated banks. The estimated co-efficient of SHFEE produced a positive estimate of 0.207 indicating that an increase in the share of fee income by 1% would result in an increase of 20.7% in the Return on Asset of the bank. Thus an increase in the fee income activities results in an increase in the performance of the studied banks. Juxtaposing this finding with the literature, the study gives credence to the proponents of activity diversification or product mix who argue that diversification provides a stable and less volatile income, economies of scope and scale, and the ability to leverage managerial efficiency across products (Choi and Kotrozo, 2006). As noted by Chiorazzo *et al* (2008), as a result of activity diversification, the economies of scale and scope caused through the joint production of financial activities leads to increase in the efficiency of banking organizations further strengthening the argument that product mix reduces total risks because income from non-interest activities is not correlated or at least perfectly correlated with income from fee based activities and as such diversification should stabilize operating income and give rise to a more stable stream of profits (Uzhegova, 2010).

The interest income also significantly impacts positively on bank performance. The estimated coefficient is 0.212 indicating that an increase in loan portfolio profitability or interest bearing activities results in an increase in the performance of the bank. Specifically an increase in loan portfolio profitability by 1% would result in 21.2% increase in the return on asset of the banks.

Connecting the impact of the loan portfolio profitability/interest bearing activities on bank performance with the existing literature, Barth et al. (2004) arguments' for

restricting activities suggest that it improves the banking system by avoiding banks from problems like conflicts of interest, complexity, moral hazard and monitoring difficulties is affirmed by this study. As banks expand their interest bearing activities to new sectors, the restrictions may direct banks to less risky and less complicated activities and thus improve bank loan portfolio diversification performance resulting in increase in the performance of the banks. However, if this is not the case, the restrictions may misdirect banks to riskier and more complicated activities and thus decrease diversification performance.

In this study the number of branch networks is used to represent growth. This study reveals that GROWTH is negatively related to bank performance. The estimated coefficient is -6.434 indicating that unguided increase in the number of branches or pursuance of growth in branch networks would result in the slowdown in the performance of the bank. The study showed that bank growth in the number of branches significantly impacts negatively on bank performance.

Fee income has positive impact on the interest margin of the estimated banks. The coefficient of SHFEE in Table 9 produced a value of 0.069 indicating that fee income activities could complement the performance of interest income activities. However, the share of fee income is insignificant in explaining the variation in interest margin.

5.3   CONCLUSION

Bank income sources are diversified significantly in the Ghanaian banking industry. The study concludes that both interest and non-interest activities significantly impacts positively on bank performance while bank growth in the number of branches significantly impacts negatively on bank performance. This lead to the acceptance of both H_1 which hypothesized that commercial banks in Ghana are diversified in source of income and H_2 which postulates that income source diversification improves financial performance of commercial banks.

5.4   RECOMMENDATIONS

- To improve bank performance banks should deepen efforts to consolidate the gains in both interest and non-interest income activities.

- Branch network expansion activities should be carried out only after a careful cost benefit analysis has been made.

- A robust credit risk management policies should be developed and carefully implemented to reduce non-performing loans that have negative impact on bank performance thereby promoting loan portfolio profitability and hence improve bank performance.

REFERENCES

Acharya, V.V., Hasan, I., Saunders, A., (2006), "Should banks be diversified? Evidence from individ-ual bank loan portfolio", *Journal of Business* 79, 1355-1412.

Baele, Lievan, Olivier de Jonghe, and Rudi Vander Vennet, (2007), "Does the Stock Market Value Bank Diversification?"*Journal of Banking and Finance*, July, 31 (7), pp 1999-2023.

Calmes, C.P.A., Liu, Y., (2005), "Financial structure change and banking income: A Canada–US comparison" Bank of Canada Working Paper 030-2005.

Carbo-Valverde, S., Fernandez, F.R., (2007), "The determinants of bank margins in European banking", *Journal of Banking and Finance* 31, 2043–2063

Chiorazzo, V., C. Milani, and F. Salvini (2008), "Income Diversification and Bank Performance: Evidence from Italian Banks", *Journal of Financial Services Research 33*, pp 181–203.

Clark, T., Dick, A., Hirtle, B., Stiroh, K., Williams, R., (2007), "The role of banking in the US banking industry: risk, return and industry structure", Federal Reserve Bank of New York, Economic Policy Review 13, 39–56.

DeYoung, R. and T. Rice (2004), "Non-interest Income and Financial Performance at U.S. Commercial Banks", *The Financial Review*, Vol. 39, No.1 pp. 456-478.

Feldman, R., and Schmidt, J. (1999), "Non-interest income: A potential for profits, risk reduction and some exaggerated claims", *Fedgazette*, 20-21.

Gallo, J.,Apildado, V., Kolari, J., (1996)"Commercial bank mutual fund activities",*Journal of Banking and Finance* 20, 1775–1791.

Hirtle, B.J., Stiroh, K.J., (2007), "The return to retail and the performance of US Banks", *Journal of Banking and Finance* 31, 1101–1133

Laeven, L., Levine, R. (2007), "Is there a diversification discount in financial conglomerates?" *Journal of Financial Economics* 85, 331-367.

Landskroner, Y., Ruthenberg, D., Zaken, D., (2005), "Diversification and performance in banking: The Israeli case", *Journal of Financial Services Research* 27, 27–49.

Lepetit, L., Nys, E., Rous, P., Tarazi, A., (2007), "Bank income structure and risk: An empirical analysis of European banks", *Journal of Banking and Finance,* in press, doi:10.1016/j.jbankfin.2007.12.002.

Mercieca, S., Schaeck, K., Wolfe, S. (2007), "Small European Banks: Benefits From Diversification?" *Journal of Banking and Finance* 31, pp 1975-1998.

Shawn, T. (2002), "Firm Diversification and Asymmetric Information: Evidence from Analysts' Forecast and Earnings Announcements," *Journal of Financial Economics* 64, pp 373-396.

Staikaouras, C. and Wood, G. (2003), "Non-interest Income and Total Income Stability" Manuscript

Stiroh, K. J. (2004), "Diversification and Banking: Is Non-interest Income the Answer?" *Journal of Money, Credit, and Banking 36, 5*, pp 853–882.

Stiroh, K.J., (2006),"A portfolio view of banking with interest and non-interest assets",*Journal of Money, Credit and Banking* 38, 1352–1361

Stiroh, K.J., and Rumble, A. (2006) "The dark side of diversification: The case of USA financial Holding companies." *Journal of Banking and Finance* 30(8): 2131-2432.

APPENDIX 1

NAME OF BANK	YEAR	FEE INCOME	INTEREST INCOME	LPP	NPL	ASSET	NO. OF BRANCHES
ZENITH	2006	1300400	2323700	4.59	0	64735400	8
ZENITH	2007	6599358	12944175	9.41	1	156248325	10
ZENITH	2008	14750371	35622501	19.6	0.9	387955070	16
ZENITH	2009	37230007	66198004	19.9	9	554662147	22
ZENITH	2010	29964000	59790000	12.4	11	654041000	22
UNIBANK	2006	17918931	33096216	18.07	14	371579362	6
UNIBANK	2007	3696186	4683226	14.61	7	69239698	11
UNIBANK	2008	8661007	17903984	21.5	4	116636839	12
UNIBANK	2009	9414128	33892289	27	4	219979940	13
UNIBANK	2010	12916595	48667332	18.7	2.65	393493496	14
CALBANK	2006	8632000	16267000	9.98	7.9	157066000	7
CALBANK	2007	11075000	24401000	15.06	7.3	233064000	8
CALBANK	2008	16490000	38059000	14	5.9	335649000	11
CALBANK	2009	17134000	64215000	20	10.4	450470000	13
CALBANK	2010	15702000	69635000	14.7	11.4	499751000	17

NAME OF BANK	YEAR	NOMINAL LOANS	SHAREHOLDERS FUND	ROA	ROE	RAROA	RAROE
ZENITH	2006	14124900	7174700	-7.6	-34.4	-2.87	-2.43
ZENITH	2007	67348632	7245061	0.1	1	0.04	0.07
ZENITH	2008	139822691	39044613	3.25	24.5	1.23	1.73
ZENITH	2009	200554498	72723378	3.31	16.9	1.25	1.19
ZENITH	2010	291079000	86591000	2.51	12.59	0.95	0.89
UNIBANK	2006	18203276.4	71394992	0.74	4.28	0.28	0.3
UNIBANK	2007	42247597	8578673	0.96	5.42	0.36	0.38
UNIBANK	2008	66327664	17431724	2.01	9.57	0.76	0.67
UNIBANK	2009	111607616	19958808	1.89	13.52	0.71	0.95
UNIBANK	2010	221526578	40356817	2.23	15.74	0.84	1.11
CALBANK	2006	85680000	21287000	3	21.2	1.13	1.5
CALBANK	2007	114918000	28941000	2.2	16.7	0.83	1.18
CALBANK	2008	190938000	35408000	2.7	24.5	1.02	1.73
CALBANK	2009	214715000	57014000	1.8	14.2	0.68	1
CALBANK	2010	256634000	76519000	1.9	12	0.72	0.85

NAME OF BANK	YEAR	SHFEE	SIZE	EQUITY	LOANS	GROWTH	CIR	NIM
ZENITH	2006	35.88	7.81	11.08	21.82	0.9	0.9	3.91
ZENITH	2007	33.77	8.19	4.64	43.1	1	0.9	5.15
ZENITH	2008	29.28	8.59	10.06	36.04	1.2	0.6	6.1
ZENITH	2009	36	8.74	13.11	36.16	1.34	0.5	4.7
ZENITH	2010	33.38	8.82	13.24	44.5	1.34	0.6	5.5
UNIBANK	2006	35.12	8.57	19.21	4.9	0.78	0.72	13.44
UNIBANK	2007	44.11	7.84	12.39	61.02	1.04	0.8	10.68
UNIBANK	2008	32.6	8.07	14.95	56.87	1.08	0.9	9.6
UNIBANK	2009	21.74	8.34	9.07	50.74	1.11	0.9	7.9
UNIBANK	2010	20.97	8.59	10.26	56.3	1.15	0.8	6.8
CALBANK	2006	34.67	8.2	13.55	54.55	0.85	0.48	7.86
CALBANK	2007	31.22	8.37	12.42	49.31	0.9	0.6	6.21
CALBANK	2008	30.23	8.53	10.55	56.89	1.04	0.6	5.7
CALBANK	2009	21.06	8.65	12.66	47.66	1.11	0.6	5.7
CALBANK	2010	18.4	8.7	15.31	51.35	1.23	0.8	7.8