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Full Length Research Paper

Assessing the performance of banks listed on Ghana stock exchange: Financial ratio analysis (2005 to 2011)

Sarpong David Jnr, Winful Ernest Christian* and Owusu-Mensah Matthew

Department of Accountancy, Accra Polytechnic, Ghana.

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Banks and non-bank financial institutions, supported by efficient money and capital markets ensure the successful operation of the financial system in an economy. Efficient banking industries must be capable of measuring, analyzing and hedging or otherwise limit all types of risk faced resulting from transactions undertaken.The average efficiency of the individual banks operating in an industry reflects the industry's efficiency. The purpose of this study was to measure the efficiency of banks operating in the Ghanaian banking industry, using financial ratios. The study assessed the banks' profit efficiency, cost efficiency, efficiency in improving asset quality, liquidity, financial leverage and exposure to foreign currency exchange rate risk between 2005 and 2011. The findings of the study established that all the banks maintained sufficient capitalization but the extent of asset deterioration is amongst the highest in sub-Saharan Africa. Also, their cost and profit efficiencies have been declining gradually over the years. The banks however maintained adequate liquidity and have low exposure to foreign currency exchange rate risk and that gives credence to a performing stock market.

Key words: Financial system, stock exchange, Ghanaian banking.

INTRODUCTION

Banks and non-bank financial institutions, supported by efficient money and capital markets ensure the successful operation of the financial system in an economy. The performance of the banking industry plays a crucial role in achieving sound and accelerated economic growth since it is a critical part of the financial system in every economy (Galbis, 1977). This implies that inefficiencies in the banking sector will impact negatively on the economy by slowing growth. The banking industry has a critical role to play in the economic development process, serving as the main intermediation channels between savings and investments in an economy. Banks as financial intermediation channels provide interest earning avenues for depositors and passing on their deposits to businesses and even government that will utilize them on their operations and developmental projects, leading to business expansions and economic development.

Ghana has a diverse financial system, made up of foreign and local major banks, rural and community banks, savings and loans companies, microfinance

*Corresponding author. E-mail: ephlameswinful@yahoo.com

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institutions, leasing companies, discounting houses and insurance companies. Ghana's financial system is dominated by foreign-owned banks (BOG, 2010). Commercial banks account for 75% of the total assets of the financial system, pension funds follow distantly with a 12% share, and the insurance sector is small with 4%. The remaining percentage is held by the community and rural banks and other quasi-banking institutions and the securities industry. Of the twenty seven commercial banks operating in Ghana as at December 2012, 13 are subsidiaries of foreign banks and their market share is estimated at 51% of bank assets. British banks dominate, but the combined share of banks from the Africa region is larger, particularly from Nigeria and Togo. Given the dominance of foreign banks, cross-border contagion is an important risk (IMF, 2011). The Ghanaian banking industry is highly concentrated, with the top five largest banks controlling more than fifty percent of the total market share in terms of total assets. Foreign banks account for more than fifty percent of the market share in terms of total assets, which is relatively moderate compared to other countries in the region (see appendix).

The Ghanaian banking sector has undergone several restructuring and transformations, as part of the country's restructuring and transformation program to enable the sector offer first class services within the globalised financial system. These reforms have moved the financial sector from a regime characterized by controls to market based regime. The central bank has shifted gradually from a direct system of monetary controls to an indirect system that utilizes market-based policy instruments. These reforms have liberalized entry and encouraged foreign banks and investors to enter the Ghanaian financial services industry, leading to healthy competitions and the introduction of efficient business practices, technology, products and risk management systems (Bank of Ghana consultation paper, 2007).

Despite reports of huge profits accruing to Ghanaian banks over the years, there is a general perception that the sector is inefficient in terms of service provision and cost management (Bawumia et al., 2005; Sarpong et al. (2013)). The efficiency of the banking industry is imperative to monetary policy implementation and economic stability. The efficiency of a banking industry is measured by the average efficiency of the individual banks in the industry.The efficiency of the individual banks in the country reflects the efficiency of the whole banking industry.An efficient financial system must be capable of measuring, analyzing and hedging or otherwise limit all types of risk faced resulting from transactions undertaken.

Statement of the problem

The measurement of bank efficiency is crucial because they play vital roles in the financial system of every economy, which contributes immensely to economic stability and development. Inefficiencies in the industry can impede economic growth, since they are the main financial intermediation channels between savings and investments in every economy. Losses in the banking sector could have significant negative effects on the whole economy. The poor performance of the United States (U.S) and European Union (E.U.) banking industries has slowed down their respective economies and growth of the global economy until recent period (Said and Tumin, 2011). Therefore, the study of the efficiency of banks becomes a relevant issue which could help banks to well appreciate the current conditions of the industry they operate in and the necessary factors they should consider in making decision and formulating policies either for recovery or operational improvements.

Ghanaian banks cannot operate in isolation, since they form part of a larger global banking industry and therefore must adopt strategies that will enhance their technical, operational and resource allocative efficiencies to make them compete better if they are to survive in the global competitive environment. There have been many banking crises across the globe from the early 1980s and onward, with many of them occurring in developing countries (Demirguc-Kunt and Detragiache, 1998). According to their study, these crises were caused by inefficiencies in the operations of the banks, ranging from inadequate liquidity, excessive overhead cost, increased cost of funding due to undercapitalization and unhealthy loan portfolios arising from increased exposure to credit risk. A study undertaken by Bawumia et al. (2005) and Sarpong et al. (2013), indicated that there are inefficiencies in the Ghanaian banking industry in terms credit risk reduction, service provision and cost management.

This study is therefore aimed at assessing the efficiency of banks listed on the Ghana Stock Exchange (GSE), using financial ratios. The ratios will be used in measuring the relative strengths and weaknesses, including their profit efficiency, cost efficiency, efficiency in improving assets quality, financial leverage, liquidity, and exposure to foreign currency exchange rate risk of the banks by performing calculations on items on their income statements, statement of financial position, cash flow statements and notes to the accounts.

Literature review

According to the Centre for Policy Analysis (CEPA), (2012), the banking sector of Ghana has grown rapidly over the past five years, both on account of participation of new entrants and an increase in the size of financial assets in the industry. Banks' branch networks have been broadened across board from 374 branches in 2005 to 708 branches at the end of 2010; over the same period banking sector assets more than quadrupled from GH¢3.8 billion to GH¢17.4 billion. In spite of the intense competition and spectacular growth in the industry,

intermediation costs have continued to grow. The increased competition resulting from a broadened participation base seemed to have exerted pressure for more qualified personnel and funding costs, leading to high bank lending rates.

According to the Central Bank of Ghana (2013), total assets of the Ghanaian banking industry rose by 23%, from GH¢22.1 billion in December 2011 to GH¢27.2 billion in December 2012. The growth in banks' assets was supported by a deposit growth of 22.5% during the period and net worth which recorded a 20.8% growth to GH¢3.1 billion. GH¢206 million of the total net worth, was from bank recapitalization.The banking sector is robust since the financial soundness indicators of the sector remain strong. "The Capital Adequacy Ratio (CAR) was well above the 10% threshold and increased to 18.6% at the end of December 2012, compared to 17.4% in December 2011. The pace of growth in monetary aggregates moderated in 2012. The broad money supply (M2+) grew by 24.3% in December 2012, compared to a 33.2% growth in December 2011. The Net Domestic Assets of the banking system grew by 49.9% whilst the Net Foreign Assets fell by 10.2%. Reserve money however grew by 36% in December 2012 compared with 31.1% a year earlier.

Credit to the private sector by DMBs grew by 34.1% in December 2012, compared to 26.3% in 2011. In real terms, private sector credit growth was 23.2% in December 2012, relative to 16.3% in 2011. The Bank's latest credit conditions survey showed further easing of credit conditions for large enterprises and consumer credit. However, credit for mortgages and small and medium term enterprises were tightened in the period. The banking sector continued to be profitable and solvent. All the financial sector soundness indicators measured by earnings, liquidity, and capital adequacy recorded some growth. By the end of 2012, all banks had met the GH¢60 million revised minimum capital requirement. There was some improvement in the Non-Performing Loans (NPL) ratio which moved down to 13.2% in 2012, from 14.2% in 2011. The pace of money market rates observed during the first half year slowed down towards the last quarter of 2012 supported by improved inflation and exchange rate expectations. Cumulatively, the policy rate was raised by 250 basis points to 15% in June and maintained for the rest of the year. Asset quality has been improving over the years.

A study conducted by International Monetary Fund (IMF) (2011), on the soundness and resilience of the Ghanaian banking industry, as an update to the Financial System Stability Assessment on Ghana, showed that official financial soundness indicators do not provide an adequate picture of the soundness of the banking system due to weaknesses in banks' financial accounts. In particular, the study noted a variety of practices that result in an overstatement of capital, profitability, and liquidity in the banking sector. These include:

1. The misclassification of Nonperforming Loan (NPLs) particularly those linked to government arrears;
2. Under-provisioning for NPLs;
3. The treatment of restructured loans as current;
4. Accrual of interest on NPLs; and
5. The reporting of encumbered treasury securities among liquid assets.

Nevertheless, notwithstanding data weaknesses, capital in the banking system has on aggregate increased and liquidity remains high. The high capital levels mainly reflect the recent increase in minimum capital requirements and the significant and increasing share of zero risk-weighted treasury securities. The substantial liquidity in the banking system reflects a combination of intensified deposit mobilization efforts by banks, elevated government expenditures and increased foreign inflows, most notably foreign direct investment, remittances, and portfolio capital flows. Banks have also remained largely profitable.

However, NPLs are very high across the industry and pockets of fragility remain. At the end of December 2010, NPLs were estimated at 17.6% and several banks, including systemically important domestic banks and subsidiaries of reputable international banks, reported higher NPL ratios in the range of 20 to 40%. Though, improving misclassification and under-provisioning for loans is still a common occurrence among banks. Adjustments to the figures made by the team for some of the obvious misclassifications and lending to shareholders, suggest that some of the small and medium sized banks may be undercapitalized. The restructuring of a couple of banks previously identified weak banks is yet to be completed.

The performance of the banking sector and its ownership structure compares unfavorably with peer countries. Aggregate capital adequacy levels and bank profitability are in line with other countries, but the NPL ratio is much higher than most peer countries. As for the ownership structure, the share of foreign banks is comparable to most other countries but state ownership of banks is among the highest in the region as is the ownership of commercial banks by the central bank. Credit risk and concentrations in loan portfolios continue to present a major risk to banking system stability. At least 10 banks with an asset share of 41% continue to have concentrations where the default of a single obligor would result in them breaching the CAR and two of them, with a market share of 16%, would become insolvent. Similarly, eight banks with a market share of 27% would breach the capital adequacy requirements, if loans that are currently classified as substandard and doubtful migrate across the transition matrix, and 11 percent of current loans become nonperforming.

Liquidity risk is less of a systemic threat but there are some pockets of vulnerability. Updated stress tests indicate that two banks remain highly vulnerable to

liquidity risk. These two banks depend heavily on public sector deposits to finance their asset growth, and if the central government and public institutions were to withdraw their deposits from commercial banks, they could see their liquid asset ratio falling below 10%. More generally, small banks are more exposed to liquidity risk than big banks. This is because big banks have a network of branches through which they are able to tap low-cost deposits, while smaller banks rely heavily on public sector and other wholesale deposits. Some of the smaller banks also use their t-bills as security for corporate deposits and the encumbered assets would not be available to meet deposit withdrawals.

Market risk is not significant but indirect credit risk has not been quantified. Stress tests performed by the team showed that direct balance sheet effects of an exchange rate change were minimal, and latest data show that banks have continued to maintain low open positions. Similarly, banks exhibit resilience to changes in interest rates, in large part because most lending is at variable rates. However, exchange and interest rate changes can erode the incomes and debt service capacity of borrowers, thus, the balance sheet of banks would be indirectly affected through increased credit risk. Ghana is amongst the countries with high NPL ratios in Africa, over the past five years (As shown in appendix 1 to 4 Sarpong et al., (2013)). Several banks in Ghana, including systemically important domestic banks and subsidiariesof reputable international banks — reported high NPL ratios in the range of 20 to 40%.This state of affairs reflects the interplay of several factors, one of the most important being the state‘s involvement in bank‘s operations. It is argued, for example, that the state has controlling interests in five banks, which together account for 29% of the banking system assets. The performance of these state-owned banks (SOBs) has however been poor, due to lending practices that focus on objectives other than prudential considerations (CEPA, 2012).

Many studies have been made on the efficiency of banks operating in particular industries, each of them focusing on particular types and measures of bank efficiency. The different efficiency dimensions include cost efficiency, profit efficiency, technical efficiency, allocative efficiency and managerial efficiency. Different variables were defined and theoretically included as inputs and measured against calculated outputs. Some studies also sought to establish the relationship between particular efficiencies and factors like stock performance, concentration, size, structure and mergers. Different studies have used different models in measuring bank efficiency, ranging from parametric, non-parametric, stochastic and deterministic to ratio analysis. Cost efficiency (optimality) can be described as the ability of a bank to minimize the costs associated with a given output. Cost efficiency measures the ability of a bank to maintain minimum cost, comparable to what it would have cost a best-practice institution for producing the same output under the same conditions. To measure the cost efficiency of banks, a comparison should be made of the observed cost-and-output-factor combinations with optimal combinations determined by the available technology (efficient frontier), (Fiorentino et al. 2006).

Many studies have been made on the cost structure of banks in different countries. Dietsch and Wiell (2000), determined the impact of environmental factors on the cost efficiency of French and Spanish banking industries using distribution-free approach. Fries and Taci (2004), studied the cost efficiency of 289 banks in 15 east European countries using stochastic frontier approach and the results showed that banking systems in which foreign-owned banks have a larger share of total assets record lower cost and that the association between a country’s progress in banking reform and cost efficiency is non linear. Allen and Rai (1996), estimated the overall cost function of 194 international banks across 15 countries over the period 1988 to 1992 in order to determine the inefficiencies of inputs and outputs. They concluded that the inefficiencies of inputs are higher than outputs. Drake and Weyman-Jones (1996), used stochastic frontier approach and data envelopment analysis to estimate the cost efficiency of 46 British building societies. They observe different mean efficiency scores. The rank correlation is however high, with a spearman co-efficient of 97.15%.

Financial ratios are also used in the measurement of cost efficiency of banks. Cost efficiency ratio is a measure of the relationship between income and overhead expenses. It is a way of measuring the proportion of operating revenues or fee income spent on overhead expenses. The efficiency ratio indicates the ability of the bank’s management to keep overhead costs low and defined as operating overhead expenses divided by gross income (interest income, commissions and fees). (Said and Tumin, 2011).

Technical efficiency is the ability to produce the maximum output for a given quantum of inputs. Rangan and Grabowski (1988), used a non-parametric frontier approach to measure the technical efficiency of a sample of U.S. banks. The results indicate that these banks could have produced the same level of output with only 70% of the inputs actually used. In addition, most of this inefficiency is due to pure technical inefficiency (wasting inputs) rather than scale inefficiency (operating at non-constant returns to scale). Finally, regression analysis indicates that the technical efficiency of the banks is positively related to size, negatively related to product diversity, and not at all related to the extent to which branch banking is allowed.

Pastor et al. (1997), studied the technical efficiency of different countries by means of data envelopment analysis model. The study extended the efficient cross-country comparisons to ten European countries in order to know how different or similar current banking performances are. They did two types comparisons. They

evaluated the average technical efficiency by means of a data envelopment model called the “basic” model. The model includes only banking variables. The second model called “complete”, does consider environmental variables together with the banking variables of the basic model. The empirical results recommended them to substitute the original environmental variables with codified variables. Finally, the non homogeneity of the country-samples, observed after performing individual data envelopment analysis for each country, was decisive for considering models based on a modified sample. The comparison between the two models show that the country specific environmental conditions exercise a strong influence over the average efficiency score for each country.

Dietsch and Weill (2000), also measured the technical efficiency of 93 European banks using data envelopment analysis and found that bank size have no significant impact on technical efficiency and that cooperate and savings banks are more efficient than commercial banks. Tahir and Haron (2008), studied the technical efficiency of the Malaysian commercial banks over the period of 2000 to 2006, using stochastic frontier approach. Their findings showed that Malaysian commercial banks have exhibited overall efficiency of 81%, implying an input waste of 19%. The result also found that the level of efficiency had increased during the period of the study. They also found that domestic banks were more efficient relative to foreign banks. Akoena et al. (2009), studied the technical efficiency and economies of scale of Ghanaian banks, to obtain a sense of what might happen to efficiencies in the industry when banks get bigger and also to see whether large banks have been more efficient than small banks. They used data envelopment analysis on the annual bank data from 2000 to 2006. They concluded that the technical efficiency of large banks as a group and small banks as another are similar. However, the small banks have larger scale efficiencies than the large banks. This meant that on the average the large banks in Ghana are more removed from the point of their lowest average cost than the small banks and the central bank should be careful about encouraging banks to be bigger if its objective is to prove scale efficiency.

Profit efficiency is the ability to generate maximum profit for a given output. A profit efficient bank, from the investor's perspective, is profit inefficient from the perspective of the economy and the value chain. Profit efficiency measures the ability of banks to maximize profit for given input prices and outputs. Lozano (1997), examined the profit efficiency of savings banks in Spain over 1986 to 1991, using thick frontier approach, and estimating using both alternative and standard profit function specification to illustrate the effect of different assumptions regarding the competiveness of the output market. The study showed that average profit of Spanish savings banks fell by forty percent between the periods studied. Olsen and Zoubi (2011), did a comparison of accounting-based and economic-based measures of efficiency and profitability of banks in ten Middle East and North Africa (MENA) countries. To examine the factors that explain bank profitability in the MENA region, they used income statement, statement of change in stock-holders’ equity, balance sheet, statement of cash flows, and the notes to the financial statements for the period of 2000 to 2008 and external variables affecting bank performance (inflation GDP, concentration). Accounting variables help explain cost and profit efficiency, but cost efficiency has little impact on profitability and profit efficiency. Their results suggest that researchers perhaps should focus more on profit efficiency than cost efficiency. MENA banks are slightly less cost efficient than European banks, but similar to banks in developing economies. However, MENA banks score well in terms of profit efficiency relative to banks world-wide. Finally, almost all banks in the MENA region are below optimal size.

Berger and Mester (1997), applied an alternative model for measuring profit efficiency. The model compared profit to input prices and output volumes instead of output prices. Measuring profit efficiency in this shows the ability of banks to generate profits for the same level of outputs and thereby minimizes the scale bias that might be present when output levels are allowed to fluctuate freely. Financial ratios are tools used to assess the relative strength of companies and industries by performing calculations on items on income statements, balance sheets, cash flow statements and notes to the accounts. Ratios are used to measure the cost efficiency, profit efficiency, asset quality, liquidity and solvency of banks, giving investors, regulators and the general public more relevant information for informed economic decisions than raw financial data. It also measures the exposure to foreign currency exchange risk. Investors and analysts can gain profitable advantages in the stock market by using the widely popular, and arguably indispensable, technique of ratio analysis. Different ratios provide information on different issues concerning the business. The ratio of non-interest expense to gross income, net interest income to gross income and non-interest expense to net interest income are used to measure the cost efficiency of banks. Return on assets and return on shareholders fund are used to measure the banks’ profit efficiency. The ratio of non-performing loans to gross loans, loan-loss provision to non-performing loans and non-performing loans (net of provisioning) to capital are used to measure the banks’ efficiency in improving asset quality. Ratio of liquid assets to total assets and liquid assets to short-term liabilities are used to measure the liquidity of the banks. The ratio of shareholders equity to total risk weighted assets and tier 1 capital to total risk weighted assets measure the financial leverage (capital adequacy) of the banks and the higher the ratio the lower the leverage.

Financial ratios enable the determination of the cost

efficiency, profit efficiency, asset quality, liquidity, financial leverage and exposure to foreign currency exchange rate risk of the individual banks, since they are calculated separately for each bank. Financial ratios simplify the comprehension of financial statement, showing a clear picture of performance and changes in the financial condition of the business. It provides necessary data for inter-firm comparison. Ratios highlight key factors associated with successful, sound and correctly valued firms. Ratios allow a clear picture of the performance of banking institutions or industry. It must be noted however that ratios are based on past financial data and therefore measure past performance. Forecasts for the future may be constrained since several other factors like market size, market conditions, concentration, management policies technology, etc. may affect the future operations. They are also subject to the limitations of financial statements.

Said and Tumin. (2011), employed two measures of profitability, Return on Average Assets (ROAA) and Return on Average Equity (ROAE), to measure financial performance of banking institutions in China and Malaysia. ROAA reflects the ability of a bank's management to generate profits from the bank's assets and it is calculated as the ratio of net profit after tax toaverage assets. ROAE, on the other hand, indicates the return to shareholders on their equity and is calculated as the ratio of net profit after tax toaverageshareholders fund. Average assets and average equity are used in order to capture any differences that occur in assets and equity during the fiscal year. They employed five variables as determinants of bank performance: ratio of net loans to deposit and short-term funding, ratio of loan loss provisions to net interest revenue, ratio of equity to total assets, ratio of non-interest expense to average assets, operating expenses and size which is measured by the natural logarithm of the accounting value of bank's total assets. The liquidity risk is represented by bank's liquid assets to total assets. Holding liquid assets reduces the risk that banks may not have sufficient cash to meet unexpected deposit withdrawals or new loan demand, thereby forcing them to borrow at excessive costs. Thus, as the proportion of liquid assets increases, bank's liquidity risk decreases.

The benchmark for capital adequacy ratio (used in measuring financial leverage) is 10%, as required by bank of Ghana. The rest of the ratios do not have specified percentages but the performance of the individual banks is usually compared to that of the industry or banks of similar size.

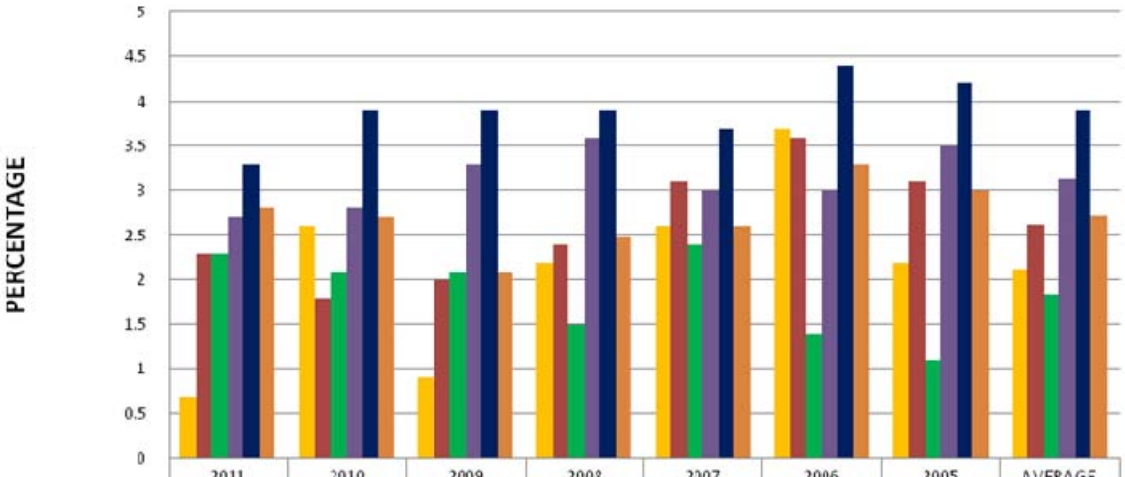
METHODOLOGY

The study made use of key financial ratios in assessing the efficiency of banks listed on the Ghana Stock Exchange, which are Ghana Commercial Bank (GCB), HFC Bank, Ecobank Ghana (EBG), SG-SSB Bank and CAL Bank. Data was obtained from the 2005 to 2011 annual reports and financial statements of these listed. Necessary financial ratios showing efficiencies in different compartments of the banks' operations were calculated based on the financial data obtained from the statement of financial position, income statements, cash flow statements and notes to the accounts. The ratios were calculated for each individual bank to assess its relative performance.This was done for each of the years and also for the entire period. Averages for the figures shown on the financial statements of all the banks will also be used to calculate the ratios to show efficiency of the whole industry. This is because the efficiency of a banking industry is measured by the average efficiency of the individual banks operating in the industry. The efficiency of the individual banks operating in a country reflects the efficiency of the county's banking industry.

Key financial ratios calculated were grouped in accordance with the Bank of Ghana's Financial Soundness Indicators for banks. They include Cost Efficiency Ratios, Profit Efficiency Ratios, Financial Leverage (Capital Adequacy) Ratio, Liquidity Ratios, Asset Quality Ratios and Exposure to Foreign Exchange Risk Ratio. The profit efficiency ratios include Return on Assets (ROA) and Return on Shareholders' Equity (ROE). ROA is calculated as net profit before tax divided by total assets. It shows the capability of the banks' management to generate returns from the assets of the banks. ROE is also calculated as net profit after tax divided by shareholders equity. This also shows the return to shareholders on their equity. Cost efficiency ratio measures the ability of the banks' management to control cost. It can be looked at from two dimensions. Ratio of net interest income to gross income and ratio of non- interest expense to gross income.

Capital adequacy requirement is to ensure that banks hold sufficient resources to absorb shocks to their balance sheets. It is basically measured as shareholders equity divided by total risk weighted assets. It is designed to assess the solvency of banks. The requirement protects the banks' depositors and lenders and also maintains confidence in the banking system. It is used to measure leverage. The higher the capital adequacy ratio, the lower the leverage. The liquidity risk is represented by bank's liquid assets to total assets. Holding liquid assets reduces the risk that banks may not have sufficient cash to meet unexpected deposit withdrawals or new loan demand, thereby forcing them to borrow at excessive costs. Thus, as the proportion of liquid assets increases, bank's liquidity risk decreases. Liquidity can be looked at from two dimensions. Ratio of liquid assets to total assets and ratio of liquid assets to short term liabilities.

Asset quality ratio determines the bank's effectiveness in screening credits and monitoring credit risk. It measures the banks' capability in ensuring that loans together with their principal are collected. It can be looked



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	0.7	2.6	0.9	2.2	2.6	3.7	2.2	2.1
CAL	2.3	1.8	2	2.4	3.1	3.6	3.1	2.6
HFC	2.3	2.1	2.1	1.5	2.4	1.4	1.1	1.8
SGSSB	2.7	2.8	3.3	3.6	3	3	3.5	3.1
EBG	3.3	3.9	3.9	3.9	3.7	4.4	4.2	3.9
GHANA AVERAGE	2.8	2.7	2.1	2.5	2.6	3.3	3	2.7

Figure 1. Return on assets
Source: Annual financial reports of respective banks

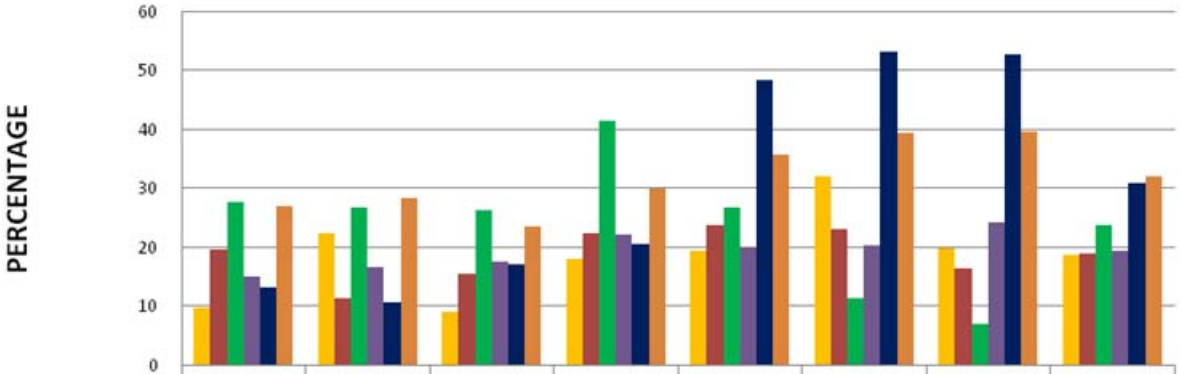
at from three dimensions. Ratio of non-performing loans to total gross loans, cumulative provision balances of banks at a particular due date to gross loans and the proportion of total exposure on gross funded loans and advances that form part of the 50 largest exposure. Foreign exchange exposure ratios measure the banks' exposure to foreign exchange risk. This can also be looked at from two dimensions. Share of foreign exchange deposit to total deposits and net open position in foreign exchange to capital.

Analysis of profitability

Profitability is crucial to the survival of every business. Several ratios can be calculated for analyzing bank profitability. The key bank profitability ratios include return on assets and return equity. Return on Assets shows what earnings were generated from the banks' assets. It measures the banks' efficiency in the utilization of their assets to earn profits. The assets of the banks are comprised of both debt and equity. Both of these types of financing are used to fund the operations of the bank. The Return on Assets figure explains how effectively the banks are converting the money it has to invest into net income. The higher the percentage, the better, because the company is earning more money on less investment.

The return on assets for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 1. It can be seen from the figure that return on assets for each of the listed banks have been declining marginally over the years, except HFC and SGSSB which experienced increases in some of the years. GCB Bank's return on assets increased sharply from 2.2% in 2005 to 3.7% in 2006. This represent 68% increase, which is the bank's highest for all the years studied. It then declined in the subsequent two years till 2010 when it rose up to 2.6%. It however declined sharply to 0.7% in 2011. The bank's return on assets trailed that of the industry for all the years. It however, on the average, generated more returns on its assets than HFC bank.

CAL bank's return on assets shot up from 3.1% in 2005 to 3.6% in 2006 and then kept on decreasing over the years till 2011 when it started increasing again. It performed better than GCB and HFC in most of the years and on the average. Its 2.6% average is however slightly lower than the industry's average for the seven year period of 2.7%. Even though HFC bank's return on assets has been increasing over the years, it had the lowest return on assets in almost all the years. This is reflected in its seven year average of 1.8% as against that of the industry of 2.7%. SGSSB bank's return on assets grew over the years to a maximum of 3.6% in 2008 and then started declining marginally for the rest of the years. It reached its lowest of 2.3 in 2011. The bank



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	9.8	22.6	9.1	18.2	19.6	32.1	19.9	18.8
CAL	19.7	11.5	15.6	22.5	24	23.2	16.6	19.0
HFC	27.9	26.8	26.4	41.6	26.9	11.4	7.1	24.0
SGSSB	15.2	16.7	17.8	22.3	20	20.4	24.3	19.5
EBG	13.4	10.9	17.2	20.8	48.4	53.3	52.8	31.0
GHANA AVERAGE	27.2	28.6	23.6	30.1	35.8	39.6	39.8	32.1

Figure 2. Return on equity
Source: Annual financial reports of respective banks

performed better than the rest of the listed banks with the exception of EBG. It also achieved an average of 3.1%, which is higher than that of the industry. The return on assets for EBG increased from 4.2% in 2005 to 4.4% in 2006 and then decreased to 3.7% the following year. It maintained 3.9% for the rest of the years till 2011 when it dropped to 3.3%. The bank performed better than both the listed companies and the industry. Its seven year average of 3.9 far exceeds that of the industry.

It can be seen from the above that EBG performed relatively better in terms of return on assets. It is followed by SGSSB which also performed creditably. These banks were profit efficient since their average for the seven year period exceeded the industry average for the same period. The seven year average of 3.9 and 3.1% for EGB and SGSSB respectively means that on the average (over the seven years), every cedi spent on assets by the banks on their assets generate profits of 3.9 pesewas and 3.1 pesewas respectively. This implies that the banks' managements have been relatively efficient in the utilization of assets. They have been implementing strategies which continually enhance the banks' efficiency in the utilization of assets for its operations and earning more returns relatively, on their investments.

Apart from CAL bank which returns on asset on the average for the period was very close to that of the industry, GCB and more especially HFC showed a relatively poor performance. These banks on the average generated returns lower than the industry from the use of their assets and for that matter were profit inefficient. This may be due to poor asset quality, under utilization of assets and lack of appropriate cost control measures. It may also be due to management's inability to implement measures which will ensure improvements in the utilization of assets.

Return on equity is an important profitability metric, which reveals how much profit a bank earns in comparison to total shareholder equity. It measures the return generated on shareholders equity and shows how well the bank uses shareholders funds to generate profits. Generally, the higher the banks' return on equity, the better. This is because it measures shareholders returns and potential growth on their investments. Again, banks with high return on equity are more likely to generate cash internally. However, banks may experience difficulties in maintaining high return on equity since they are required to hold sufficient capital to prevent bank failures and also meet capital adequacy requirements. Holding too much capital lowers the return to shareholders.

The return on equity for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 2. The seven year average return on equity for all the listed banks fell below that of the industry. The banks generally experienced an upward trend for their return on equity till 2009 when it starting falling. Most of them however, started picking up in 2011. GCB banks' return on equity increased significantly from 19.9% in 2005 to 32.1% in 2006. It then kept on falling in subsequent years till 2010 when it again increased significantly to 22.6% and thereafter fell sharply to 9.85 in 2011. The bank performed relatively poor in terms of earning returns for

shareholders, with a seven year average of 18.8%, which is the lowest amongst the listed banks.

CAL bank's return on equity also increased significantly from 16.6% in 2005 to 23.2% in 2006 and continued the increase marginally till 2009 when it experienced a downward trend. It however, moved up to 19.7% in 2011 from 11.5% in 2010. It performed poorly on relation to all other listed banks except GBC. Its seven year average of 19% is far below that of the industry of 32.1%. HFC bank's return on equity maintained an increasing trend over the years up to 2009 when it decreased significantly from 41.6% in the previous year to 26.4%. It however, kept increasing marginally for the rest of the years. HFC bank performed better than the other listed banks except EBG. Its return to shareholders on their investments averaged 24% for the seven year period. It also maintained fairly stable returns over the years.

SGSSB bank's return on equity kept on decreasing marginally over the years till 2008 where it increased marginally from 20% in the previous year to 22.3%. It however returned to its downward trend for the rest of the years. The bank performed relatively poor in relation to return on capital. Its seven year average of 19.5% is far below that of the industry. It however performed better than GCB and CAL bank. EBG maintained high return on equity for the first three years, which far exceeded that of the industry. It however experienced a downward trend for the rest of the years. The bank performed relatively better in relation to its return to equity holders. Even though it seven year average of 31% is slightly below that of the industry, it far exceeds that of the rest of the listed banks.

It can be observed from the above that GCB, CAL bank and SGSSB performed abysmally in relation to their return on equity. Their averages for the seven year period were 18.8, 19 and 19.5% respectively, as against that of the industry of 32.1. They were able to earn returns of 18.8, 19 and 19.5 pesewas respectively for their shareholders over the period, on every cedi investment made by the shareholders, compared to 32.1 pesewas made by the industry. These banks generated relatively lower returns to their shareholders on their investments. This means that investments made by shareholders have relatively lower growth potential. This also implies that the banks are less likely to generate cash internally. This performance may be attributable to the banks' inability to efficiently utilize shareholders funds in the generation of profits. GCB and SGSSB bank have weak cost control and cost reduction mechanisms as is been reflected in their average non interest expense/gross income ratio of 56.09 and 56.45% respectively.

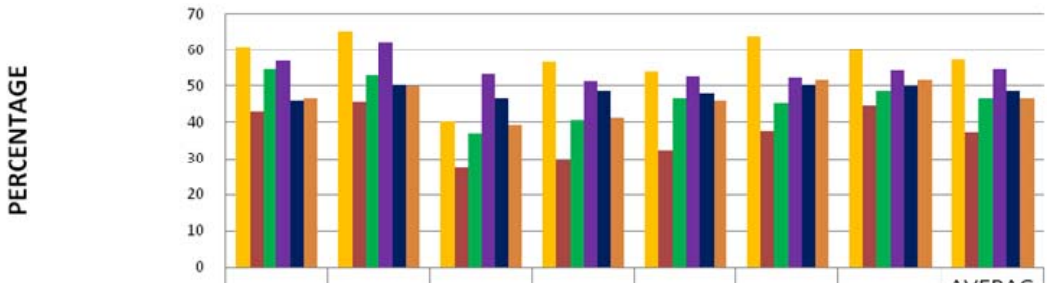
This situation reduces profits and thereby results in lower returns on equity. HFC bank's return on equity trailed that of the industry but is relatively better than all the listed banks with the exception of EBG. The bank's lower return on equity can be partially attributable to holding excessive capital, especially getting to the latter part of the period. Even though EBG bank's return on equity is slightly lower than that of the industry, it exceeds that of all the other listed banks. The bank generated relatively higher returns to their shareholders compared to the other listed banks. They also have a high potential of generating cash internally and growing shareholder investments compared to the other listed banks.

Analysis of cost efficiency

The efficiency of operational model, cost reduction enhancements and cost efficiency are essential to the growth of every business including banks. High cost efficiency allows banks to lower interest margins through lower loan rates and higher deposit rates. Typical cost efficiency ratios are net interest income/gross income and non interest expense/gross income. Net interest income/gross income indicates how much of the total income of the banks were generated from interest on loans provided by the banks, which is their core business. A lower ratio may imply that the bank depends more on other sources of income like commissions and fees, trading and some non operating income. It may also imply that the banks' managements have not been effective in exploring more lending avenues and making available innovating products that suits customer needs.

The net interest income/gross income ratio for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 3. All the listed banks experienced a decrease in their interest ratios in 2009, except SGSSB which made a marginal increase over the previous years. GCB achieved the highest seven year period average interest ratio of 57.33%, which also far exceeds that of the industry. After decreasing significantly in 2009 from 56.75% in the previous year to 40.36%, it however shot up in the subsequent years. CAL bank's average of 37.23% is the lowest amongst the listed banks and also lower than that of the industry. It decreased over the years till 2010 when it experienced an upward trend. HFC also experienced a downward trend up to 2010 where it started moving up. Its average of 46.6% is slightly below the industry's 46.73%. SGSSB kept on increasing over the years till it reached its apex in 2010 and then fell from 62.27 to 56.87% in the subsequent year. Its seven year average of 54.73% far exceeds that of the industry and all the listed banks with the exception of GCB. EBG experienced marginal decreases and increases over the years. The bank's average of 48.57% trailed behind GCB and SGSSB but exceeded that of the industry and the rest of the listed banks.

This means that GCB, CAL BANK, HFC BANK, SGSSB and EBG have on the average over the seven year period generated 57.33, 37.23, 46.6, 54.73 and 48.57% respectively of their gross income from interest earned on loans. Non interest expense to gross income is an



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	60.99	65.48	40.36	56.75	54.02	63.84	59.89	57.33
CAL	43.08	45.65	27.22	29.77	32.5	37.77	44.65	37.23
HFC	54.72	53.14	37.16	40.6	46.68	45.19	48.72	46.60
SGSSB	56.87	62.27	53.32	51.2	52.72	52.45	54.27	54.73
EBG	46.08	50.28	46.81	48.8	47.96	50.21	49.86	48.57
GHANA AVERAGE	46.8	50.1	39.4	41.3	46.1	51.8	51.6	46.73

Figure 3. Income/Gross income.
Source: calculated by researchers based on the annual financial reports of respective banks

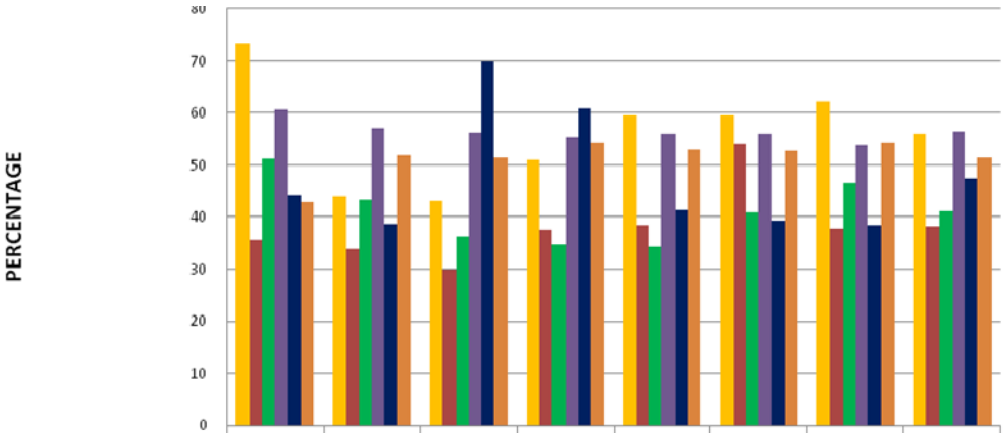
important ratio for measuring the cost efficiency of banks. It shows management's efficiency in undertaking the operations of the bank and the lower the cost to income ratio, the better. It shows how expensive it is for banks to produce a unit of operating income in terms of cost not related to interest expense. Cost efficient banks have the potential to generate more income from their resources. Banks with higher unit cost may require higher margins in order to cover their high operating cost. This may be difficult when there is fierce competition and intense rivalry in the industry.

The non interest expense to gross income ratio for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 4. GCB bank's cost to income ratio continued improving over the years till 2011 where it rose up from 43.86% in the previous year to 73.42%. Despite the improvements, its seven year average of 56.09% is higher than that of the industry. It is also higher than that of all the other listed banks, except SGSSB. This is due to its high cost to income ratio of 62.16 and 73.42% in 2005 and 2011 respectively. CAL bank improved over the years, recording the lowest cost to income ratio till 2011 where it went up slightly. Its seven year average cost to income ratio of 38.21% is the lowest amongst all the listed banks and also far below that of the industry of 51.46%. It performed better than the industry in terms of cost to income ratio over all the years.

HFC bank achieved relatively better cost to income ratio compared to the industry and the listed banks, except cal bank. It performed better over the years up to 2010 where it started climbing up. Its seven year average of 41.04% is slightly above CAL bank, and better than that of the rest of the banks and the industry. SGSSB performed poorly with respect to cost to income ratio. Its average of 56.45% is the highest amongst the banks and also exceeds that of the industry. EBG maintained a fairly satisfactory performance in relation to cost to income ratio, performing better than GCB and SGSSB. Its average of 47.51% is lower than that of the industry. The bank however made a higher cost to income ratio compared to HFC bank and CAL bank.

CAL bank and HFC bank were cost efficient, having ratios less than the industry and performing relatively better than the rest of the banks. Their seven year average cost to income ratios were 38.21 and 41.04% respectively. This means that on the average they spend 38.21 and 41.04 pesewas respectively of every cedi of income generated, on staff salaries, depreciation, administrative expenses and other operating expenses. These banks have been relatively cost efficient compared to the rest of the banks. The banks' managements have efficient operational models which allow them to produce operating income with relatively less cost in relation to cost not related to interest expense. They have efficient cost control and cost reduction enhancements mechanisms. They have high growth potential since they are operating with low cost structures, which will result into high profits. They also have the flexibility of reducing interest margins, due to the low cost of operations, which will enable them to be highly competitive even when competition becomes intense in the industry. This confirms the work of Bawumia et al. (2005) and Sarpong et al. (2013).

EBG spent less than 50% of its income on overhead costs, which is better than that of the industry. The bank maintained a downward trend getting to the latter part of



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	73.42	43.86	43.11	50.92	59.54	59.6	62.16	56.09
CAL	35.67	33.91	29.83	37.69	38.37	54.13	37.84	38.21
HFC	51.11	43.38	36.34	34.67	34.38	40.78	46.65	41.04
SGSSB	60.67	57.04	56.2	55.34	56.05	56.06	53.82	56.45
EBG	44.12	38.61	69.9	60.81	41.42	39.31	38.4	47.51
GHANA AVERAGE	42.95	51.8	51.4	54.2	52.9	52.7	54.3	51.46

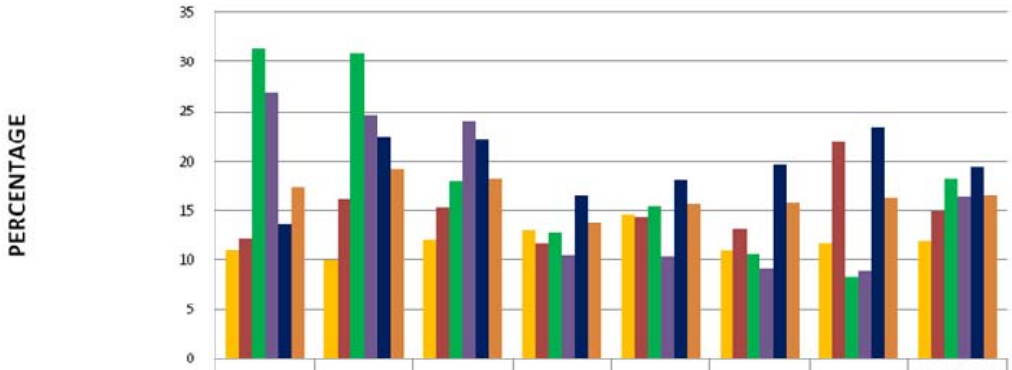
Figure 4. Non interest expense/Gross income.
Source: calculated by researchers based on the annual financial reports of respective banks

the period, which means it is working towards improving it cost efficiency. GCB and SGSSB spent more than 55% of their gross income on cost not related to interest expense. This is an indication that the banks have not been efficient in controlling cost and undertaking operations, which has resulted into generating income with high cost structure. It means that it is relatively expensive for these banks to produce income compared to the industry. They may lack sufficient cost monitoring and control systems. This situation will lead to less profit unless interest margins are increased. This situation can also slow growth, especially in highly competitive industries where is difficult to increase margins.

Financial leverage (capital adequacy) assessment

Capital adequacy requirement is to ensure that banks hold sufficient resources to absorb shocks to their balance sheets. It is designed to assess the solvency of banks. The requirement protects the banks' depositors and lenders and also maintains confidence in the banking system. It is used to measure leverage and assess whether the banks are prepared to take greater risk. The higher the capital adequacy ratio, the lower the leverage. It is designed to gauge the banks' solvency. A ratio below regulators required minimum implies that the bank is not adequately capitalized to expand its operations.

The capital adequacy ratios for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 5. All the listed banks' capital adequacy ratios exceeded the bank of Ghana minimum requirement of 10%, which serves as the benchmark. Some of them however had figures below that of the industry. All the banks experienced an upward trend from 2009. This is due to increase in the minimum capital requirement set by the central bank. GCB bank's average capital adequacy ratio of 11.91% is the lowest amongst the listed banks and also lower than that of the industry. It is however above the minimum requirement of 10%. This is followed by CAL bank which had an average of 14.95%. CAL bank's ratio reduced significantly from 21.9% in 2005 to 13.1% in the subsequent year and thereafter experienced marginal increases over the years up to 2011 where it fell marginally. HFC bank's capital adequacy ratio is better than that of the industry and the rest of the listed banks except EBG. Its ratio increased significantly in 2010 from 17.93% in the previous year to 30.92% and continued the increase in the subsequent year. SGSSB bank's average capital adequacy ratio is slightly below that of the industry and also better than GCB and CAL bank. Its ratio increased significantly in 2009 to 24% from 10.43% in the previous year and continued its increasing trend in subsequent years. EBG maintained the highest average capital adequacy ratio



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	11	10	12.06	13	14.64	10.93	11.74	11.91
CAL	12.17	16.08	15.28	11.76	14.37	13.1	21.9	14.95
HFC	31.36	30.92	17.93	12.78	15.38	10.51	8.31	18.17
SGSSB	26.9	24.52	24	10.43	10.3	9.11	8.96	16.32
EBG	13.57	22.51	22.3	16.48	18.06	19.66	23.39	19.42
GHANA AVERAGE	17.4	19.1	18.2	13.8	15.7	15.8	16.2	16.60

Figure 5. Capital adequacy ratio.
Source: Annual financial reports of respective banks

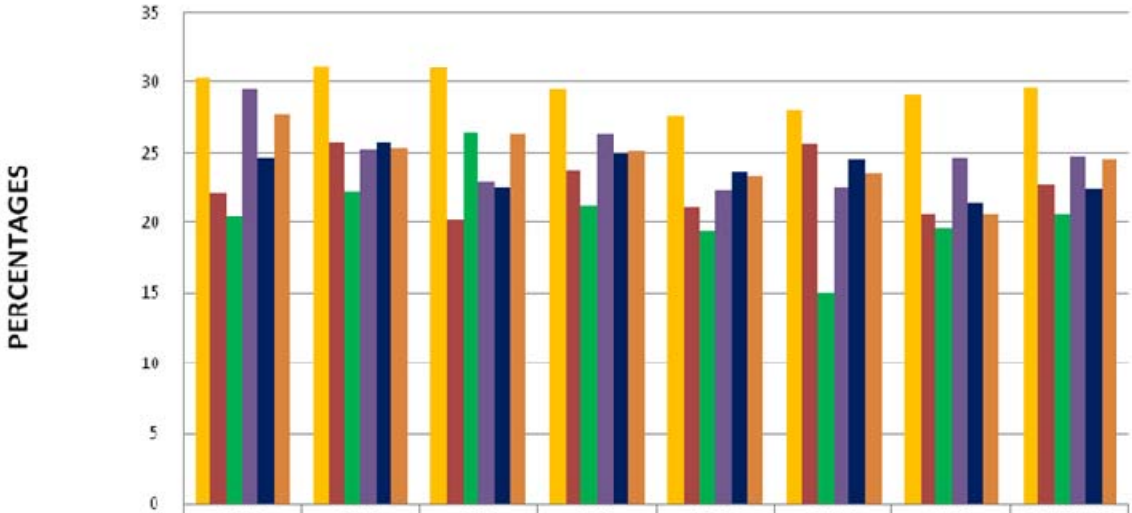
amongst the listed banks. Its ratio is also better than that of the industry.

All the banks had low financial leverage and met the regulatory requirement over the years, exceeding the minimum requirement in all the years. The rate of capitalization of the banks is sufficient and comparable to that of other banking industries in Sub-Saharan Africa (see appendix 1). This shows that the banks are solvent and their capital resources are sufficient to absorb shocks to their balance sheet. It also means that they have low financial leverage, adequately capitalized to expand operations and their depositors and lenders are adequately protected against loss. HFC bank and SGSSB bank maintained capital adequacy ratios of 31.36 and 26.9% respectively in 2011. This means that these banks are having a very low leverage and are also in a position to take greater risk. They can significantly expand their operations without affecting their solvency.

Liquidity assessment

Liquidity ratios are calculated to determine the banks' ability to turn short-term assets (assets that can be readily converted into known amounts of cash without significant loss) into cash to cover debts when creditors are seeking payments. Liquidity ratios are usually used by regulators to determine whether the banking institutions will be able to continue as viable concerns to meet credit payments. Typical liquidity ratios are short term assets to total assets and short term assets to short term liability. Holding liquid assets reduces the risk that banks may not have sufficient cash to meet unexpected deposit withdrawals or new loan demand, thereby forcing them to borrow at excessive costs. Thus, as the proportion of liquid assets increases, bank's liquidity risk decreases.

The liquid assets to total assets ratio provides an indication of the liquidity available to the banks to meet expected and unexpected demands for cash. As measured, the higher the value of the liquid asset ratio, the larger the margin of safety that the bank possesses to cover short-term debts or meet loan requests. The liquid assets to total assets ratios for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 6. GCB maintained an average of 29.59% which exceeds that of the industry of 24.59%. The bank experienced marginal increases in its liquidity ratio throughout the period till 2011 where it decreased slightly to 30.33% from 31.21% in the previous year. It maintained the highest liquidity ratio in all the years. CAL bank's liquidity ratio also decreased marginally over the years but rose up in 2010 and declined slightly in 2011. Its 2011 ratio is the lowest amongst all the listed banks, except HFC bank, but is sufficient. HFC bank maintained the lowest liquidity in almost all the years, maintaining 20.43% in 2011. These ratios were however sufficient. SGSSB also maintained ratios slightly below that of the industry in almost all the years. The ratio improved in 2011, moving up to 29.54 from 25.22% in the previous year. EBG



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	30.33	31.21	31.11	29.55	27.72	28.11	29.12	29.59
CAL	22.14	25.7	20.16	23.73	21.11	25.65	20.66	22.74
HFC	20.43	22.25	26.43	21.22	19.43	15.06	19.55	20.62
SGSSB	29.54	25.22	22.95	26.33	22.36	22.56	24.67	24.80
EBG	24.66	25.69	22.54	24.95	23.64	24.55	21.45	22.43
GHANA AVERAGE	27.8	25.3	26.3	25.2	23.3	23.5	20.7	24.59

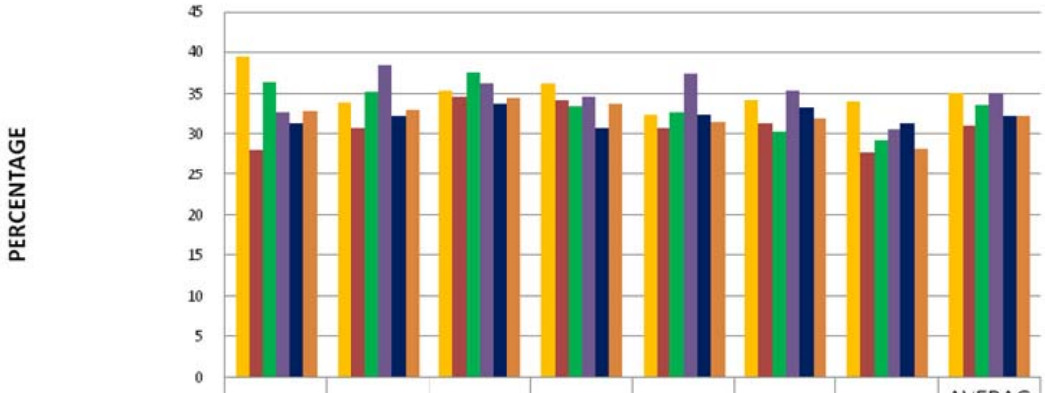
Figure 6. Liquid assets to total assets
Source: calculated by researchers based on the annual financial reports of respective banks

experienced marginal increases in its liquid assets to total assets ratio over the years. The bank maintained sufficient liquidity, with a ratio o f 24 .66% in 2011.

All the banks were highly liquid with regards to the liquid assets to total assets ratio. Their liquid assets to total assets (core) far exceeded 10%. This shows that all the banks are highly liquid and they will not experience difficulties in turning short-term assets into cash to cover debts when creditors are seeking payments. They have high liquidity to meet expected and unexpected demands for cash. GCB and SGSSB bank have larger margin of safety to cover short-term debts or meet loan requests, than the rest of the banks. Liquid assets to short term liability ratio measure the liquidity mismatch of short-term assets and short term liability. It provides an indication of the extent to which the banks can meet the short-term withdrawal of funds and other liability payments without facing liquidity problems.

The liquid assets to short term liability ratios for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 7. All the banks maintained stable liquid assets to short term liability ratios over the years and experienced marginal decreases in 2011 except GCB and HFC bank which experienced increases in 2011. GCB bank's ratio increased over the years, reaching its maximum of 39.45% in 2011. Its liquidity is the highest amongst the listed banks in almost all the years. CAL bank also maintained impressive ratios over the years, increasing marginally up to 2010 where it moved down. However, its 2011 ratio of 27.93% is the lowest amongst the listed banks. HFC bank's ratio also increased over the years, maintaining 36.33% in 2011. Its 2011 ratio exceeds that of the industry. SGSSB bank experienced an upward trend in its liquid assets to short term liability ratio over the years but fell to 32.59% from 38.43% in the previous year. The bank is liquid but slightly below that of the industry. EBG also trailed marginally to the industry in terms of liquid assets to short term liability ratio in the latter part of the period. It however maintained a high liquidity position of 31.25% in 2011.

The listed banks have been liquid over the years as indicated by their liquid assets to short term liability ratios. This implies that the banks have low liquidity risk. They are highly viable in terms of meeting credit payments. This situation will lead to relatively lower interest cost because the banks have sufficient cash to meet unexpected deposit withdrawals or new loan demand, and may not need to borrow at excessive costs. The banks are capable of meeting short term withdrawal of funds and other liability without liquidity problems. GCB and HFC



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	39.45	33.66	35.34	36.25	32.25	34.21	33.91	35.01
CAL	27.93	30.67	34.61	33.97	30.67	31.21	27.74	30.97
HFC	36.33	35.16	37.55	33.21	32.55	30.25	29.11	33.45
SGSSB	32.59	38.43	36.27	34.55	37.34	35.34	30.55	35.01
EBG	31.25	32.13	33.64	30.65	32.19	33.14	31.25	32.04
GHANA AVERAGE	32.7	32.9	34.5	33.5	31.3	31.8	28.1	32.11

Figure 7. Liquid assets to short term liability
Source: calculated by researchers based on the annual financial reports of respective banks

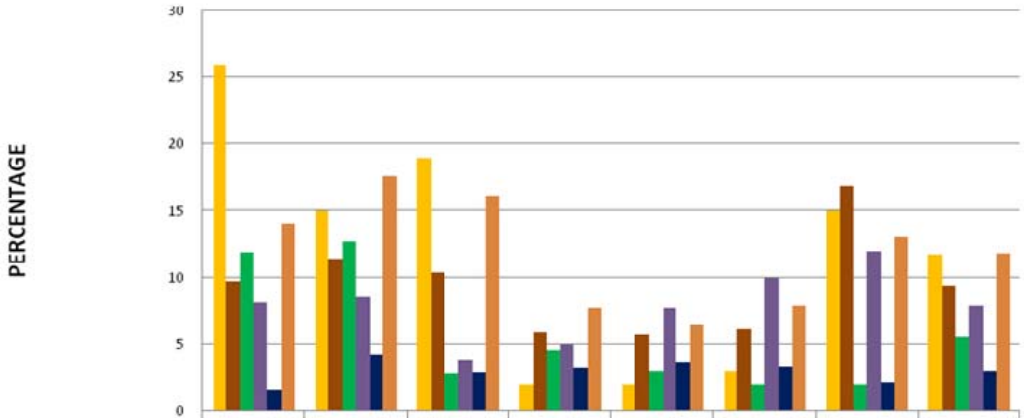
bank maintained high liquidity positions in 2011.

Analysis of asset quality

Asset quality ratios determine the bank's effectiveness in screening credits and monitoring credit risk. It measures the banks' capability in ensuring that loans together with their principal are collected. Lower ratio indicates better asset quality. These ratios are crucial to the survival of the banks since it is a key predictor of bank insolvency, (Demirguc-Kunt et al., 2000). The key asset quality ratios are non-performing loan ratio, loan loss provision ratio and 50 largest exposure ratio (gross funded and non-funded loans and advances to total exposure). The non-performing loan ratio determines the proportion of total loans that will not earn income and for which either full payment of principal and interest is no longer anticipated; the principal or interest is 90 days or more delinquent; and/or the maturity date has passed and payment in full has not been made.

The non-performing loan ratios for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 8. GCB operates with the highest non-performing ratio, making an average of 11.71% over the seven year period. Its ratio declined significantly in 2006 to 3% from 15% in the previous year. It maintained that range till 2009 where it shot up to 19% and again increased to 26% in 2011. Its average for the period is how ever slightly below that of the industry. CAL bank's non-performing ratio also declined significantly in 2006 to 6.1% from 16.9% in the previous year. It then continued declining marginally till latter part of the period when it shot up again. Its average over the period of 9.44% is also below that of the industry of 11.84%. HFC bank non-performing ratio decreased marginally over the years till 2010 where it increased significantly to 12.67% from 2.8% in the previous year. The bank's non-performing loan ratios are lower than that of the industry in all the years. SGSSB bank experienced marginal decreases in its non-performing loan ratio up to 2010 where it shot up from 3.8% in the previous year to 8.5%. It however declined marginally in the subsequent year. Its non-performing loan ratios were lower than that of the industry in all the years with the exception of 2006 and 2007. EBG bank's seven year period average non-performing loan ratio of 3% is the lowest amongst the listed banks and far below that of the industry. Even though it experienced slight increases over the years, its ratio was far below that of the rest the listed banks in the latter parts of the period, especially in 2011, where it had non-performing ratio of 1.5%.

The results show that all the listed banks' non-performing loan ratios were below that of the industry. EBG performed relatively better than the rest of the listed banks in terms of maintaining lower non-performing loans. This is followed by HFC bank which also achieved



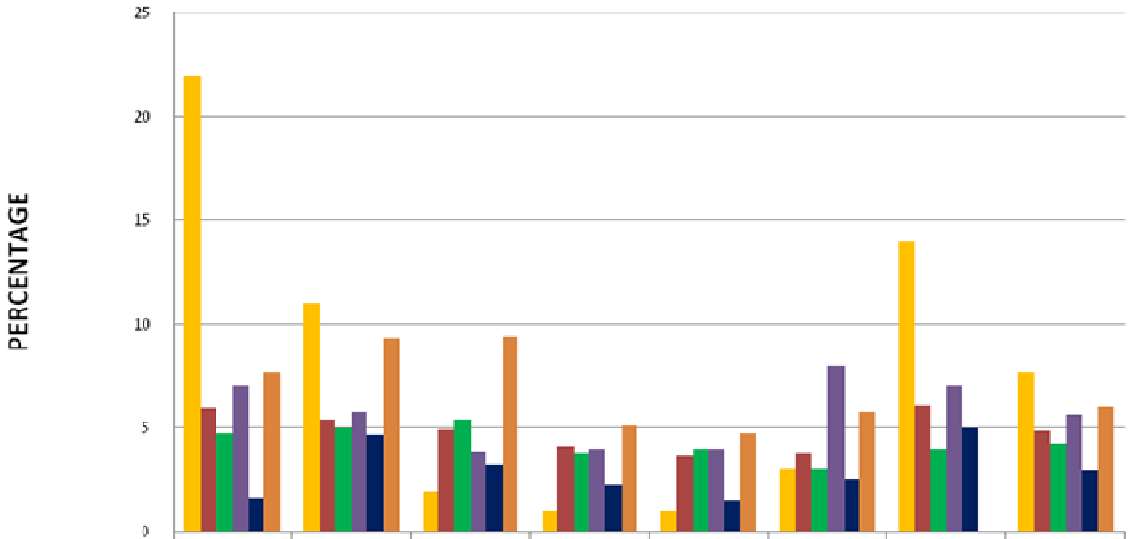
	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	26	15	19	2	2	3	15	11.71
CAL	9.7	11.4	10.4	5.9	5.7	6.1	16.9	9.44
HFC	11.87	12.67	2.8	4.6	3	2	2	5.56
SGSSB	8.15	8.5	3.8	5	7.7	10	12	7.88
EBG	1.5	4.3	2.9	3.2	3.6	3.3	2.2	3.00
GHANA AVERAGE	14.1	17.6	16.2	7.7	6.4	7.9	13	11.84

Figure 8. Non-performing loan ratio.
Source: Annual financial reports of respective banks

an average of 5.56%. These banks have relatively better asset quality than the rest. They have efficient credit screening and monitoring mechanisms, which ensure that loans and accompanying interest are collected in due time. This means that, their portfolio of loans and advances have better credit quality compared to that of the industry and the rest of the listed banks. This also implies that only a smaller proportion (compared to the industry and the other listed banks) of their loan portfolio does not earn income or is lost in the course of operations. The low non-performing loans will enhance the profitability, capital preservation and more importantly the solvency of the banks.

SGSSB bank also performed creditably, in relation to their capability and efficiency in credit management compared to GCB and CAL bank. Its non-performing loan ratio is also lower than that of the industry. It must however be noted that the non-performing loan ratio of the Ghanaian banking industry is higher than most peer countries in Sub-Sahara Africa (see appendix 2). GCB and CAL bank performed poorly compared to the rest of the listed banks but were however better than the industry. These banks had relatively higher non-performing loan ratios. This implies that they have poor asset quality. They have not been efficient in the screening of credits and monitoring of credit risk. They have poor quality loans and advances portfolio. They have inefficient credit procedures and policies which have resulted in huge losses over the years. This situation may force the banks to increase their interest margins in order to make up for the losses resulting from their poor credit practices. Large non-performing loans worsen the extent of assets deterioration and threaten the solvency and capitalization of the banks. The loan loss provision ratio reflects the non-cash expense set aside by banks to cater for future losses on loan defaults. The ratio measures the extent to which a bank has provided buffer against the troubled part of its loan portfolio and therefore guarantees a bank's solvency and capitalization if and when loan defaults occur. The loan loss provision is based on the riskiness of loans that banks make. Thus, a bank making a small number of risky loans will have a low loan-loss provision compared to a bank taking higher risks.

The loan loss provision ratio for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 9. The provisions made by the banks increased significantly in the latter part of the period, reflecting their huge non-performing loans in those periods. GCB has been making sufficient provisions, which is comparable to losses incurred in subsequent years. The bank has been making sufficient provisions which commensurate their non-performing loans in the subsequent years, with the exception of 2010 where the non-performing loans ratio was 15% but previous provision was 2%. CAL bank did not make sufficient provisions in most of the years, especially in 2005. It however bridged the gap in 2011. HFC bank also made provisions that were comparable to



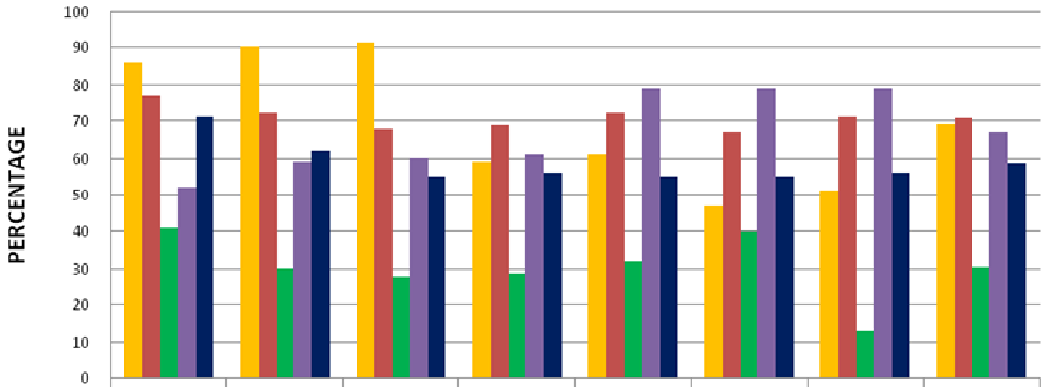
	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	22	11	2	1	1	3	14	7.71
CAL	6	5.4	4.9	4.1	3.7	3.8	6.1	4.86
HFC	4.73	5	5.4	3.8	4	3	4	4.28
SGSSB	7	5.8	3.9	4	4	8	7	5.67
EBG	1.6	4.7	3.2	2.3	1.5	2.5	5	2.97
GHANA AVERAGE	7.68	9.37	9.42	5.13	4.73	5.77		6.01

Figure 9. Loan loss provision ratio.
Source: Annual financial reports of respective banks

their non-performing loans. The gap however started stretching in 2010 and 2011. SGSSB bank made slight under-provisions in 2005 and 2006. The bank however made improvements in the next two years and then made sufficient provisions in the subsequent years. EBG made sufficient loan loss provisions over all the years. Accurate provisions that capture the movements in non-performing loans were made in all the years.

The loan loss provision ratios of the listed banks followed similar increasing trend as their non-performing loans ratios, except that the provisions increased at a slower pace for some of the banks. GCB, SGSSB bank and EBG made sufficient provisions for loan losses over the years. This implies that these banks have been assessing their credit risk accurately, which enabled them to make necessary provisions against them. They have the capability to measure credit quality of their loans portfolio in order to provide buffer for losses on loan defaults. These accurate measurements and sufficient provisions guarantees the banks solvency and capitalization should loan defaults occur. CAL bank and HFC bank made some slight under-provisions, especially in 2010 and 2011. This may be due to the fact that the high risky loans in their portfolio were not classified as such by them. It may also be due to inefficient risk assessment methodology and credit quality review processes. The situation results in inaccurate estimation of potential loan losses. The under-provisions imply that the banks have not sufficient provisions to serve as buffer against the troubled part of their loans and advances portfolios. Their under-provisions were marginal but extreme situations can threaten their solvency and capitalization.

The 50 largest exposure to total exposure ratio shows the proportion of total exposure on gross funded loans and advances that form part of the 50 largest exposure. The ratio measures loan concentration risk and large exposures to single obligors and economic sectors. The 50 largest exposure to total exposure ratio for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 10. GCB has been operating with an average exposure ratio of 69.29% over the period. Its ratio exposures went up significantly in 2010 and 2011. CAL bank also operated with high exposures over the years. Its exposure ratio kept increasing over the years. HFC bank operated with moderate exposure ratios over the years. Even though the ratios increased over the years, they were marginal. SGSSB maintained high exposure ratios over the years. It however experienced some decreases in the latter part of the period. EBG bank's exposure ratios for the years were also high even though they were slightly below the other banks except



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	86	90	91	59	61	47	51	69.29
CAL	77	72	68	69	72	67	71	70.86
HFC	41	30	28	29	32	40	13	30.43
SGSSB	52	59	60	61	79	79	79	67.00
EBG	71	62	55	56	55	55	56	58.57

Figure 10. 50 Largest exposure ration.
Source: calculated by researchers based on the annual financial reports of respective bank

HFC bank. It experienced increases over the years.

All the listed banks with the exception of HFC bank have been operating with high concentration risk over the years, especially in the latter part of the period. This may be caused by allocating significant proportion of their loans and advances portfolio to few obligors. Concentration in loan portfolios increases the credit risk of the banks. The impact will be huge on the banks if any of these obligors default. It can result in breach of the banks' capital adequacy ratios and subsequently threaten their solvency.

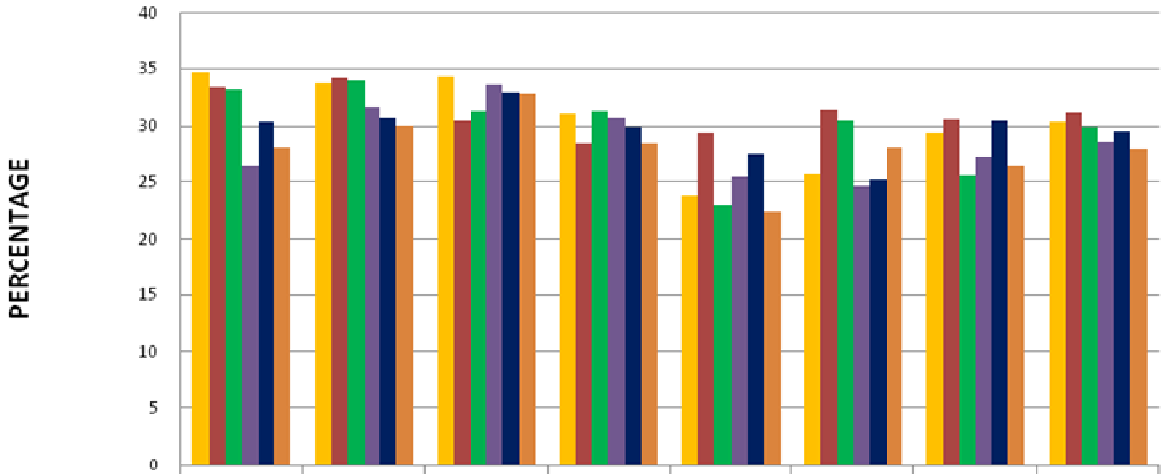
Foreign exchange exposure

Foreign exchange exposure ratios measure the banks' exposure to foreign exchange risk. The ratio measures the banks' exposure to losses if the domestic currency depreciates against foreign currencies in which it is expected to make payments in future periods. The foreign exchange ratio for the listed banks together with the industry average for 2005 to 2011, and an average for the seven year period have been shown in Figure 11. The listed banks had higher foreign exchange ratio than that of the industry in almost all the years. GCB bank's ratio declined marginally up to 2008 where it increased to 30.96% from 23.76% in the previous year. It had the highest foreign exchange ratio in the latter parts of the period. CAL bank also maintained a downward trend till 2009 where it rose up marginally over the rest of the years. Its average foreign exchange ratio is the highest amongst the listed banks.

HFC bank increased marginally over the years. Its 2011 ratio was however slightly lower than GCB and CAL bank. SGSSB bank had the lowest foreign exchange ratio in almost all the years. It experienced increases over the years but declined in 2011. EBG maintained slight increases up to 2010 where it made some marginal decreases. All the listed banks maintained modest foreign exchange rate exposures, even though they were slightly above the industry. Their foreign deposit to total deposits is about 30%. This means that even though they have some exposure to foreign exchange risk, it is not so significant, unless the foreign currencies appreciate hugely against the domestic currency.

CONCLUSION

GCB was not cost efficient. It was also not efficient in generating profits from the use of its assets. It also generated relatively lower returns to shareholders on their investments. This may be due to poor asset quality, under utilization of assets and lack of appropriate cost control measures. It may also be due to management's inability to implement measures which will ensure improvements in the utilization of assets. The bank was inefficient in improving asset quality. It had high non-performing loans, resulting in poor asset quality. This shows that it has ineffective credit assessment and monitoring mechanism. The bank however has low financial leverage and adequately capitalized to expand its



	2011	2010	2009	2008	2007	2006	2005	AVERAGE
GCB	34.65	33.65	34.22	30.96	23.76	25.65	29.36	30.32
CAL	33.37	34.21	30.36	28.43	29.37	31.33	30.55	31.09
HFC	33.14	33.95	31.25	31.23	22.96	30.45	25.54	29.79
SGSSB	26.34	31.63	33.56	30.66	25.33	24.55	27.29	28.48
EBG	30.33	30.67	32.92	29.77	27.43	25.14	30.41	29.52
GHANA AVERAGE	28.09	29.96	32.7	28.4	22.3	28.1	26.3	27.98

Figure 11. Foreign exchange exposure ratio.

operations. The banks maintained high liquidity over the years. This situation will lead to relatively lower interest cost because the bank has sufficient cash to meet unexpected deposit withdrawals or new loan demand, and may not need to borrow at excessive costs. It also had low exposure to foreign currency exchange risk.

CAL bank was not efficient in the utilization of shareholders funds to generate profits. It was however cost efficient. This means that, large percentage of its income is used in meeting its cost of borrowing. The bank however had relatively better asset quality and adequate capitalization. It also had sufficient liquidity and low exposure to foreign currency exchange rate risk. HFC bank was relatively efficient in generating profits for its shareholders despite the extent of deterioration of its assets utilization efficiency. This may be due to under utilization of assets. It was also cost efficient and had relatively better asset quality. The bank is highly capitalized and solvent compared to the industry and regulatory requirements, capable of expanding its scope of operations. It also has sufficient liquidity and low exposure to foreign currency exchange rate risk.

SGSSB was comparatively efficient in its assets utilization but this did not result in high profits for shareholders investments due to excess capitalization. The banks was also not cost efficient, in relation to cost not related to interest expense. This means the bank's high return on assets resulted from increased interest margins. The bank was however adequately capitalized and solvent. It also had sufficient liquidity and better asset quality compared to that of the industry. EBG was efficient in generating profits from the utilization of its assets. This resulted in high returns on shareholders investments. The bank was cost efficient and highly liquid. It has low financial leverage and maintained sufficient capitalization. The bank also had low exposure to foreign currency exchange rate risk. It had efficient credit management system, which resulted in better asset quality.

It could be seen that all the banks maintained sufficient capitalization but the extent of asset deterioration is amongst the highest in sub-Saharan Africa. Also, their cost and profit efficiencies have been declining gradually over the years. The banks however maintained adequate liquidity and have low exposure to foreign currency exchange rate risk and that gives credence to a performing stock market in the economy (Winful et al. (2012)).

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Appendix 1. Capital adequacy ratios for sub-Saharan Africa

	2011	2010	2009	2008	2007	2006	2005
Gabon	16.4	22.6	24	19.4	14.3	17.8	19.8
Ghana	17.4	19.1	18.2	13.8	15.7	15.8	16.2
Kenya	19.4	20.8	19.5	18.9	18	17	16.3
Lesotho	15.3	15.3	13.8	13.7	14.1	19	22
Mauritius	15.6	15.8	15.4	14.5	13.3	15.8	16
Mozambique	17.1	14.4	15.1	13.9	14.2	12.5	13.4
Namibia	14	15.3	15	15.5	15.8	14.2	14.6
Nigeria	9.9	7	20.9	22.6	23.4	20.5	21
Rwanda	27.2	24.4	19	15.9	16.6	13.7	14
Senegal	18.5	18.2	16.5	13.9	13.6	13.1	11.1
Seychelles	24.2	21.5	21.6	12	15.4	19.6	19.7
Sierra LEONE	27	30.7	34	43.5	35	33.3	35.7
South AFRICA	14.9	14.9	14.1	13	12.8	12.3	12.3
Swaziland	18.9	19.8	28.4	33.8	23.6	26.3	17.3
Uganda	20.3	20.2	20.9	20.7	19.3	17.9	18.3

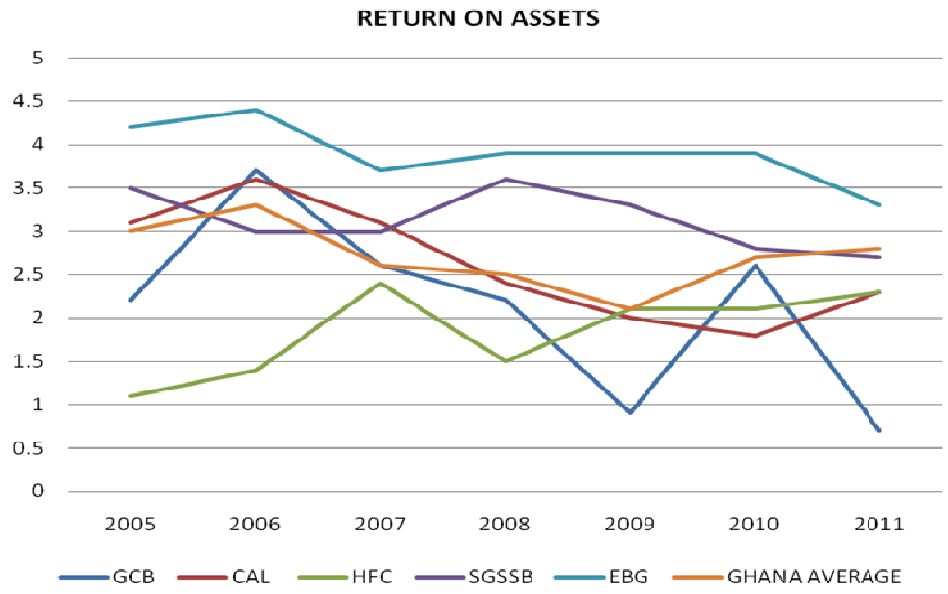
Source:IMF

Appendix 2. NON-PERFORMING LOAN RATIOS FOR SUB-SAHARAN AFRICA

	2011	2010	2009	2008	2007	2006	2005
Gabon	7.6	9.9	7.2	8.5	7.6	10.7	14.1
Ghana	14.1	17.6	16.2	7.7	6.4	7.9	13
Kenya	6.4	6.5	7.9	9	10.6	10.6	10.5
Lesotho	3.4	3.7	3.7	4	3	3	3
Mauritius	11.5	16	14.6	10.5	11.7	10.7	10.3
Mozambique	1.6	1.9	1.8	1.9	2.1	3.1	3.5
Namibia	2.1	2	2.7	3.1	2.8	2.6	2.3
Nigeria	30	30.1	29.1	0.3	9.5	6.7	6.5
Rwanda	12.6	12.4	13.1	12.6	18.1	25	29
Senegal	19.7	20.2	18.7	17.4	18.6	16.8	11.9
Seychelles	7.6	8.3	8.5	7.2	7	3.4	3.6
Sierra Leone	11.3	15.6	10.6	17.9	25.6	26.9	26.8
South Africa	4.7	5.8	5.9	3.9	1.4	1.1	1.8
Swaziland	7	8	8.1	7.6	7.5	7.7	7
Uganda	2.5	2.1	4.2	2.2	4.1	2.9	2.3

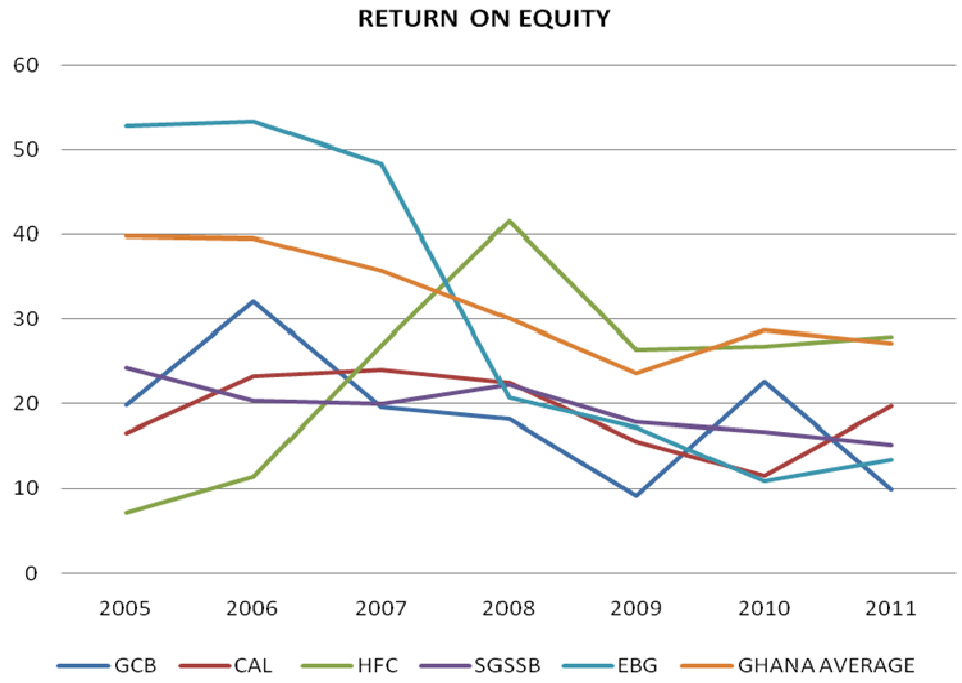
Source: IMF

Appendix 3



Source: Annual financial reports of respective banks.

Appendix 4



Source: Annual financial reports of respective banks *banks.*