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A Risk-based Assessment of Ghana Commercial Bank Limited

ADU-MENSAH, Simon[1] ABDALLAH, Mohammed Inusah[2] ANTWI, Stephen Kwadwo[3*]

1. Depot Manager, Armajaro Company Limited, Nyinahin District, Ashanti, Ghana
2. Lecturer, Department of Accountancy, Tamale Polytechnic, P.O. Box 3 ER, Tamale.
3. Lecturer, Department of Accountancy, Tamale Polytechnic, P.O. Box 3 ER, Tamale.

*stevekwadant@yahoo.ca

Abstract
Risk management is a very important concept for any business as most financial decisions revolve around the corporate cost of holding risk. This issue is particularly important to banks since risk constitutes their core business processes. This study assesses the risk profile of GCB to ascertain its soundness and conformity to international best practices. The study selects credit, liquidity, market and operational risks as dependent variables while size, NPLs ratio, capital adequacy and asset management are utilized as explanatory variables for the period of five years from 2007 to 2011. The regression results indicate that the size of bank does not influence any of the risks. Apart from credit risk which is influenced positively by the NPL ratio, all the other risks, show a negative relationship with NPL ratio. The capital adequacy has a negative relationship with credit and liquidity but a positive relationship with market and operational risks. Both debt-equity ratio and asset management establish a positive relationship with credit and operational risks, but a negative relationship with liquidity and market risks. Generally, the study revealed that GCB has a good risk profile in the face of challenging global economic and business environment. The Bank had adequate risk management structures to ensure sound management of financial and operational risks. These structures were also in line with internationally accepted principles for managing risks. The study recommends that the Bank adopts an integrated, enterprise-wide risk management approach, promoting a corporate culture that understands risk management and incorporate it into the broader corporate strategy.
Keywords: Risk, liquidity, capital adequacy, strategy, enterprise-wide risk management

1.0 Introduction

Reporting of risk is very important in every organisation. Financial reporting of risk is very critical for the valuation of financial assets and for the well functioning of the capital market. Berretta and Bozzolan (2004) argue that risk disclosure should be the focal issue of corporate communication. They explain that shareholders and other interested parties currently receive little or no information about company risks or how the directors of a company are managing those risks. Blume (1971) observes that the concept of risk has so permeated the financial community that no one needs to be convinced of the necessity of including risk in investment analysis. Recent developments in the global financial sector have given stakeholders in the banking industry cause not only to consider the returns made in the sector but also critically examine frameworks used to manage risks in the sector and safeguard their interests. The global banking industry has been seriously hit by the crisis. Some banks which were hitherto performing well suddenly announced large losses with some of them going burst. Some reasons put forward for the failures in risk management in this regard include the limited role of risk management in the granting of loans in most banks as they are unable to influence business decisions and the fact that their considerations are subordinate to profitability interests and lack of capacity to adequately make timely and accurate forecasts. This has resulted in the flouting of basic risk management rules such as avoiding strong concentrations of assets and minimising the volatility of returns.
Earlier in the US, Beaver *et al.* (1970), conducted a search into the relationship between market determined and accounting determined risk measures because of the relevance of the company's risk profile for stakeholders' decision making. Later, Ferrally *et al* (1985) building on the earlier study of Beaver *et al.* (1970) also looked at the perceived risk of firms. Linsley and Shrives (2005) also examined the relationship that exists between company size or level of risk and risk disclosure totals. It appears that most works on risk-based assessment of companies have been based mostly on the developed markets with little or no work on developing or emerging markets like Ghana. Unlike the case in developed countries, questions have not been raised about the weakness or otherwise of the risk management practices of the Ghanaian banks which have resulted in significant financial losses, although there have been reported cases of fraud, theft and other operational occurrences. However, in order to ascertain the resilience of the Ghanaian banking sector to withstand serious economic shocks, there would be the need for thorough assessment of the structure and components of the risk management frameworks

and practices of the banks from time to time. It is against this background that this study would want to investigate the risk management practices of Ghana Commercial Bank (GCB) Limited.

The main objective of the study is to assess the bank's risk profile in line with best practices. The study seeks to assess the Bank's financial report to identify inherent risks in their components and structure and examine how firm level factors affect the risks management practices of the bank. It also evaluates the Bank's risk management practices vis-à-vis current recommended standards and best practices by the Basel Committee on Banking Supervision. An assessment of GCB's risk management framework will provide the state of the bank's ability to handle the inherent risks in its operations. Also, deviations from international best practices may also be identified and alternatives recommended. The Bank's ability to deal with significant shocks and avoid losses during crisis periods will also be tested. Since there is not much structural and operational difference amongst the banks in Ghana, it is hoped that this study will provide an indication of how the risk management landscape looks like in Ghana's banking sector. It will also provide a guide for further studies on risk-based assessment of organizations in general, and risk management in the banking industry to be specific.

2.0 Literature Review

Banking risks are defined as adverse impacts on profitability of several distinct sources of uncertainty (Bessis, 2002). Rose (2002) suggests the definition of risk in banking as "the perceived uncertainty connected with some event". Risk measurement requires capturing the source of the uncertainty and the magnitude of its potential adverse effect on profitability. Organizations are exposed to different types of risk according to the nature of their various businesses. Banks are distinct from other organizations due to their unique characteristics. Bauer and Ryser (2004) summarize three main differentiated natures of banks: first, banks are essentially financed by the liability-assets that contain substantial uncertain factors; second, banks' liabilities are not only the source of finance, but also part of their businesses, such as banks can charge fees for customers' deposits explicitly or implicitly; third, the role as delegated monitor allows banks to obtain superior knowledge of their customers (Chen, 2004). Such unique characteristics lead to banks' unique risks as well as their particular risk measurement and management. Bankers are concerned with a number of risks – credit risk, liquidity risk, market risk, interest rate risk, earnings risk and solvency risk (Rose, 2002) that can be grouped as credit risk, market risk and operational risk (Teker, 2006). Furthermore, currency risk, country risk and cross-border risk should be considered when international lending is the subject matter (Lewis and Davis, 1987; Hughes and MacDonald, 2002).

There are a two important points that need to be mentioned. Firstly, Mulcahy (2003) points out that risk management is not only about minimising the effects of adverse events, but also maximising the effects of positive events. This maximisation of positive events is often referred to as speculation, which leads to the second point. In modern day business, risk management requires an integrated approach. Thus, an integral model encompassing all risks is required. Valsamakis et al. (1992) state that in order to ensure all the risks are adequately managed; the practice of risk management within an organisation needs to be proactive and holistic. It should become part of general management and not be an isolated function. Kloman (1987, in Valsamakis et al., 1992) confirms this by stating that risk management practices should allow for the whole and not only consider specialities.

The main aim of management of banks is to maximise expected profits taking into account its variability/volatility (risk). This calls for an active management of the volatility (risk) in order to get the desired results. Various authors including Stulz (1984), Smith et al (1990) and Froot et al (1993) have offered reasons why managers should be concerned with the active management of risks in their organisations. According to Oldfield and Santomero (1995), recent review of the literature presents four main rationales for risk management. These include managers self interest of protecting their position and wealth in the firm. It is argued that due to their limited ability to diversify their investment in their own firms, the y are risk averse and prefer stability of the firm's earnings to volatility because, all things being equal, such stability improves their own utility. Beyond managerial motives, the desire to ensure the shouldering of lower tax burden is another rationale for managers to seek for reduced volatility of profits through risk management. Perhaps the most compelling rationale for managers to engage in risk management with the aim of reducing the variability of profits is the cost of possible financial distress (Oldfield and Santomero, 1995). Significant loss of earnings can lead to stakeholders losing confidence in the firm's operations, loss of strategic position in the industry, withdrawal of license and even bankruptcy. The costs associated with these will cause managers to avoid them by embarking on activities that will help avoid low realisations. Finally, risk management is pursued because firms want to avoid low profits which force them to seek external investment opportunities. When this happens, it results in sub optimal investments and lower expected shareholders' value since the cost of such external finance is higher than the internal funds due to capital market imperfections.

According to Clements (1999) risk management consists of three parts: identification, quantification and actual management. It is sufficient and logical to say that before any effort can be made to manage risks, risks need to be identified. If the risk is not identified, risk managers would have nothing to manage. The measurement of risk is described by Clements (1999: 35) as "undoubtedly the most difficult part of the whole problem of risk management", and he goes on to say that many still feel risk cannot be accurately measured. Despite these difficulties, he states that there must be some sort of attempt at measurement if the risk management process is to be completed. This is confirmed by Mulcahy (2003), who argues that despite the fact that risks may not be accurately measured; some form of quantification is required in order to determine which risks warrant a response. Olsson (2002) adds to this by mentioning that despite the difficulties of quantifying risks, it is vital to do so, as the more subjectivity can be removed, the easier it will be to make decision with regards to the best possible management of these risks. Mulcahy (2003) describes management of risk as a process, which is important in achieving results. The results to which she refers are described by Dunley-Owen (1997) as the maximisation of the value of the company. Thus, the management of risk is a process which increases the value of a company by decreasing the possibility of loss from an adverse event. Clements (1999) states that, in the past the management of risk was achieved quite simply with the use of diversification.

The measurement of risk is an integral part of the management of risk. It has become a popular trend to use Value at Risk (VaR) to measure market risk. VaR is explained by Best (1999: 09) as "a statistical measure of risk that estimates the maximum loss that may be experienced on a portfolio with a given level of confidence." It is defined by Dowed (2005: 11) as "the maximum amount we are likely to lose over some period, at a specific confidence level." Best (1999) explains these quotes by stating that the time period for which the VaR is calculated is usually one day and the confidence level is 95%. Greuning and Bratanovic (2009) refer to it as a modelling technique that typically measures a bank's aggregate market risk exposure and, given a probability level, estimates the amount a bank would lose if it were to hold specific assets for a certain period of time.

Despite its advantages, the VaR calculations are criticised. Dowd (2005) mentions that VaR models can lack accuracy for two reasons; firstly, mathematical and statistical models are often not suited to social systems; secondly, VaR models are exposed to implementation risks. As a consequence, similar VaR models may be implemented in different ways, providing varying estimates. This may result in a situation where users take on bigger risks and could lose more than they anticipated. Another limitation of VaR is mentioned by Best (1999) who states that although VaR can calculate that a loss larger than a given value will only occur (on average) 5% of the time, it cannot tell us the size of that loss. VaR also provides an accurate statistical measure for when the markets are behaving normally, but it does not cope with extreme price changes. VaR calculations, thus, need to be accompanied by stress testing. Best (1999) explains stress testing as applying predetermined prices to the assets of the portfolio, then changing these prices and determining the effects it has on the value of the portfolio. Therefore, it is essential that the VaR and stress testing be used together as the VaR can establish the likelihood of the loss.

DeLoach (2000) argues that risk management must be integrated with business planning and strategic management so that it becomes inextricably linked to those processes. Andersen (2009) also argues that recent financial management practices, where aggregate market exposures of different geographically dispersed assets are typically expressed in a single value-at-risk metric derived from analyses of co-variation in asset returns, inspires for a more integrated perspective to risk management. It is further noted that environmental hazards, market-related vulnerability and operational disruptions can interact even though these risks are handled by specialised functional departments (Andersen and Terp, 2006). (Funston, 2004) reveals that about 80% of the companies with the largest losses in recent times had been hit by two or more risks that were interrelated, thus revealing the need for a risk management function that transcends corporate silos and the resulting compartmentalisation of risks. Meulbroek (2002) argues that integrated risk management has only recently become a practical possibility, because of the enormous improvements in ICT, and sophisticated and globally-tested legal and accounting infrastructure to support the use of contractual agreements on large scale and at low cost. It provides managers with the opportunity of benefiting from new insights into the interplay among different types of risk and traditional financial decision areas, connections easily missed without a comprehensive framework (Meulbroek, 2002). According to Rosenberg and Schuermann (2005), the goal of integrated risk management in a bank is to measure and manage risk and capital across a diverse range of activities in the bank which requires an approach for aggregating different risk types in the bank. It is worth noting that an integrated risk management process does not necessarily imply a centralised risk management structure. Rather, the key characteristic of the integrated risk management process is simply that it seeks to ensure that the firm appropriately considers and evaluates all material risks.

In recent times there has been an increased attention to risk management at the enterprise level and this can be linked to a number of policy decisions (Beasley et al, 2005). De Loach (2000) describes ERM as a structured and disciplined approach: it aligns strategy, process, people, technology and knowledge with the purpose of evaluating and managing the uncertainties the enterprise faces as it creates value. The Committee of Sponsoring

Organisations of the Treadway Commission (COSO) report on ERM in 2004 defines it as a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. The report posits that the underlying premise of ERM is that every entity exists to provide value for its stakeholders. ERM helps ensure effective reporting and compliance with laws and regulations, and helps avoid damage to the entity's reputation and associated consequences.

Ciancanelli and Gonzales (2000) state that in the banking sector, the regulation and regulator represent external corporate governance mechanisms. As a governance force, regulation aims to serve the public interests, particularly the interests of the customers of the banking services. The regulator does not have a contractual relationship either with the firm's principal or with the banking organisations because of differing interests from those of the principals (Ciancanelli and Gonzales, 2000). The question of whether corporate governance has an impact on the management of bank risks has received different answers from researchers. Jansen (1993) and Greuning and Bratanovic (2004) posit that stakeholders in the corporate governance of banks impact how banks manage risks, while Simpson and Gleason (1999) and Prowse (1997) argue that stakeholders in the corporate governance do not have significant impact on risk management. Greuning and Bratanovic (2009), submit that besides mitigating the internal risk of distress by positively affecting investors' perception of risk and their readiness to extend funding, good governance increases the firms' robustness and resilience to external shocks. Due to the critical importance of corporate governance to the banking industry, the Basel Committee on Banking Supervision has in place a set of governance principles for banking institutions. The guidelines contain four important forms of oversight that should be included in the organisational structure of any bank to ensure appropriate checks and balances. These are oversight by the board of directors or supervisory board, oversight by individuals not involved in the day-to-day running of the various business areas, direct line supervision of different business areas and independent risk management, compliance, and audit functions.

3.0 Methodology

The study relies mainly on secondary data from GCB's annual reports and policy documentations and guidelines concerning risk management. Various documents by the Risk Management Group of the Basel Committee on Banking Supervision on principles of sound risk management in banks are also used as major benchmarks. Relevant ratios, tables and charts are used in the analysis and interpretation of data. The analysis of the bank's risk profile is based on four main types of banking risks; these include credit risk, liquidity risk, market risk and operational risk. These risks are identified using various accounting ratios as proxies. The study also uses a regression model to ascertain a relationship between these risks and firm-level factors. The years chosen were meant to enable the researcher assess and incorporate the effects of the increased capital requirement policy of the central bank on banking risks by considering the pre-recapitalization situation against the post-recapitalization situation. Some positions on the bank's asset portfolios are subject to market risk. Market data corresponding to the exposure categories over the study duration is considered.

The technique of analysis is multiple regression and the method of estimation is Ordinary Least Squares (OLS). The regression technique is used to ascertain the linear relationship between two or more quantitative variables. The relationship can either be positive or negative. A positive relationship shows that the variables move in one direction and a negative relationship shows that the variables move in different directions. If variables are not related then they cannot be regressed. The researcher uses regression and correlation analysis because the researcher would like to establish the relationship between the bank's risks and other factors.

3.1 Model Specification

The study makes use of an economic model (in line with what is mostly found in the literature) as given as:

$$\boldsymbol{Y = \alpha + X_1\beta_1 + \varepsilon} \qquad (1)$$

Where, **Y** is the dependent variable – **Bank Risk**;
$\boldsymbol{\alpha}$ is constant,
$\boldsymbol{X_1}$ is the coefficient of the explanatory variable; $\boldsymbol{\beta_1}$ is the explanatory variable; and
$\boldsymbol{\varepsilon}$ is the error term (assumed to have zero mean and independent across time period).

Model (A):

$$\text{Credit Risk} = \alpha + X_1\beta 1 + X_2\beta 2 + X_3\beta 3 + X_4\beta 4 + X_5\beta 5 + \varepsilon$$

Model (B):

Liquidity Risk = $\alpha + X_1\beta1 + X_2\beta2 + X_3\beta3 + X_4\beta4 + X_5\beta5 + \varepsilon$

Model (C):
Market Risk = $\alpha + X_1\beta1 + X_2\beta2 + X_3\beta3 + X_4\beta4 + X_5\beta5 + \varepsilon$

Model (D):
Operational Risk = $\alpha + X_1\beta1 + X_2\beta2 + X_3\beta3 + X_4\beta4 + X_5\beta5 + \varepsilon$

3.2 Variable Description

Tables 3.1a and 3.1b below show the variables and their descriptions as used in this study.

Table 1a: Dependent Variables and their Proxies

Variable	*Proxies*
Credit Risk	Customer Loans / Gross Loans and Advances Bank Loans / Gross Loans and Advances Ratio of Total Debt to Total Assets
Liquidity Risk	Customer Loans / Customer Deposits Liquid Assets / Total deposits (Bank Run)
Market Risk	GAP/Total Assets and GAP/Total Equity
Operational Risk	Return on Total Assets

Source: Own Construction

Table 1b: Explanatory Variables and their Proxies

Variable	*Description/Measurement*
Bank Size	Logarithm of Total Assets
NPL Ratio	Non-Performing Loans/Total Loans
Capital Adequacy	Tier 1 Capital + Tier 2 Capital/Risk Weighted Assets
Debt to Equity Ratio	Total Debt/Equity
Asset Management	Asset Utilization Ratio: = Operating Income/Total Assets

Source**:** Own Construction

4.0 Results and Discussion

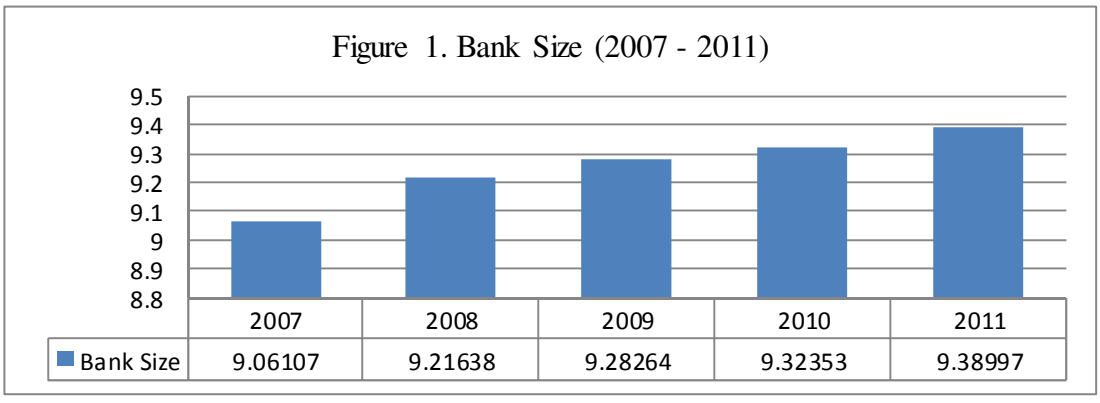
This section discusses the findings of the data collected from the Bank's financial statements. This would permit sound inferences and conclusions based on which to offer well thought out recommendations. The various risks inherent in the assets and liabilities of the bank are considered with firm-level factors.

4.1 Firm Level Factors

The study investigated the firm's level factors which significantly influence the risk management practices of the Bank. Factors such as the size of the bank, non-performing loans ratio, capital adequacy, debt to equity ratio and asset management were considered. This section considers these factors in the case of the Bank.

4.1.1 Bank Size

The study proxied bank size by the logarithm of total assets and the results are as shown in the figure 1 below.



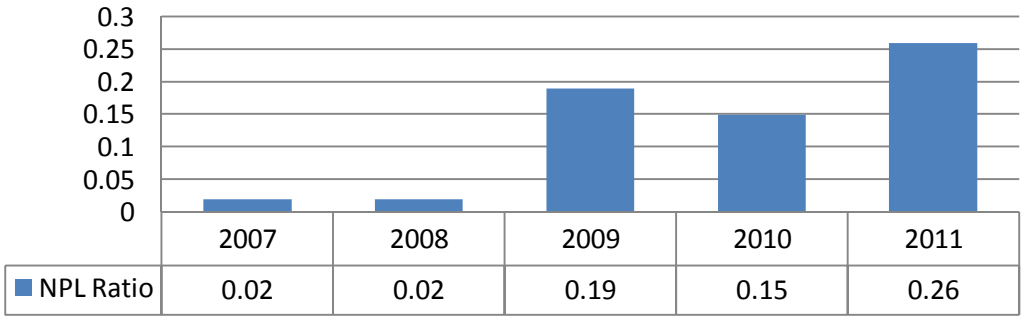
Source: Own Construction

From the figure 1 above, it can be seen that the Bank has been consistently growing in size from 9.06 in 2007 to approximately 9.39 representing an increased growth of 3.6% ((9.39 – 9.06)/9.06 * 100) over the five-year period observed. This finding is confirmed by the Ghana Banking Survey, 2012 that reports that at the end of 2011, GCB remains the largest holder of deposits in the banking industry of Ghana. GCB has been rated first in terms of the industry's share of deposits since 2008 when the Bank was rated second after Barclays Bank of Ghana Limited. In terms of total assets, the Bank has always maintained the largest in the industry since 2007 (Ghana Banking Survey, 2012 by PwC).

4.1.2 Non-Performing Loans (NPL) Ratio

NPLs are used to measure the positive and fitness of a bank's credit risk management. The NPL ratio is used to assess the asset quality of a bank. It is an independent variable and indicates how banks manage credit risk since it defines the proportion of loan losses amount in relation to total loan (Hosna et al, 2009).

Figure 2. NPL Ratio (2007 - 2011)



Source: Own Construction

From figure 2 above, it can be seen that the Bank's NPL ratio has been rising sharply. From 2% in 2007 and 2008, the ratio rose to 19% in 2009; this was as a result of the 19.5% increase in gross advances and loans to customers which posed the challenge of ensuring the high portfolio management standards of the Bank. The ratio dropped to 15% in 2010 and rose sharply again to 26% in 2011. This trend is an indication that the Bank is lacking sound loans recovery mechanisms as time passes by. The sharp rise in 2009 could be attributed to the increased capital requirement by the central bank which injected a lot of capital into the system. The Bank did not need to raise new capital on account of the fact that it is one of the most heavily capitalised banks in the country with a capital base far exceeding GH¢60 million. GCB already possessed capital of GH¢152.3 million as against the minimum capital requirement of GH¢25 million by the end of 2009. The Bank, however, decided to give out a lot in the form of loans and advances to maintain its market share, but could not manage the recovery of such efficiently in 2009. The NPL ratio rose sharply from 15% in 2010 to 26% in 2011; this was as a result of the sharp reduction in the loan portfolio.

4.1.3 Capital Adequacy

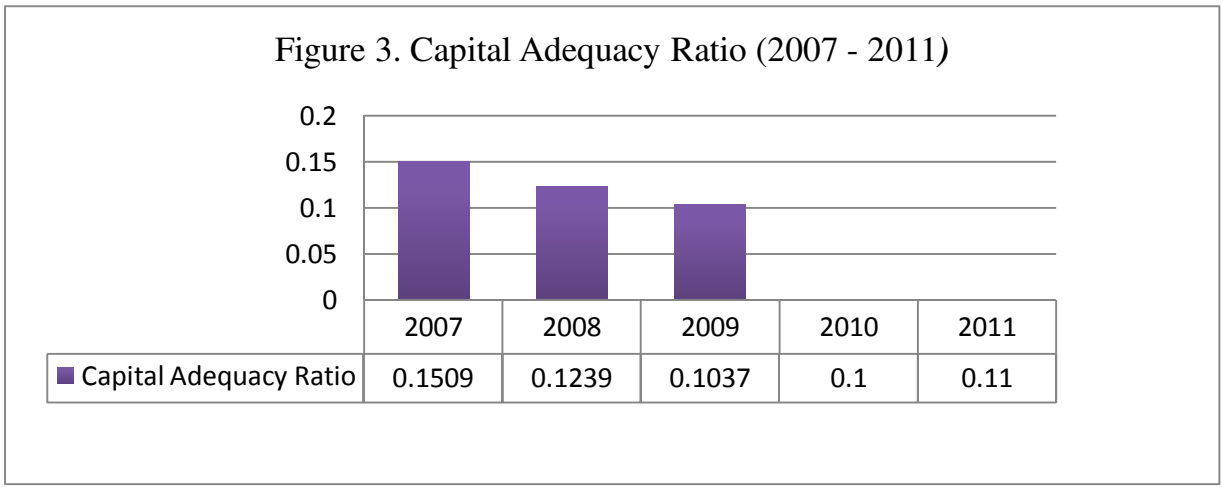
Capital requirements are designed to ensure that banks hold enough resources to absorb shocks to their balance sheets. A standard measure of the health of the individual banks is their capital adequacy ratio (CAR). Introduced in 1988 with the Basel I Accord, the CAR is calculated as the total regulatory capital of a bank divided by its risk-weighted assets. The Basel II revision refined the calculation of risk weights and incorporated three major components of risk: credit, operational and market risk. A minimum CAR of 8 percent was set by the Basel Accords. The Bank of Ghana Act of 2004 (Act 673) set the minimum capital adequacy ratio for all banks at 10 percent, which is more stringent than that required by the Basel Accords. A ratio below this minimum implies that a banking institution is not adequately capitalized to expand its operations. The Bank's policy is to maintain a strong capital base so as to maintain investor and market confidence and to sustain future development of the business. The impact of the level of capital on shareholders return is also taken into consideration, and the bank recognizes the security afforded by sound capital position. The Bank has complied with statutory capital requirements throughout this period. There have been no material changes in the Bank's management of capital during the period.

The Bank's capital is analysed into two tiers:

- Tier 1 capital includes ordinary paid up share capital and disclosed reserves excluding value of assets such as investment in other banks and financial institutions.

- Tier 2 capital is made up of reserves such as unrealized gains on equity instruments classified as available for sale.

The figure below shows the trend of the Bank's capital adequacy ratio.

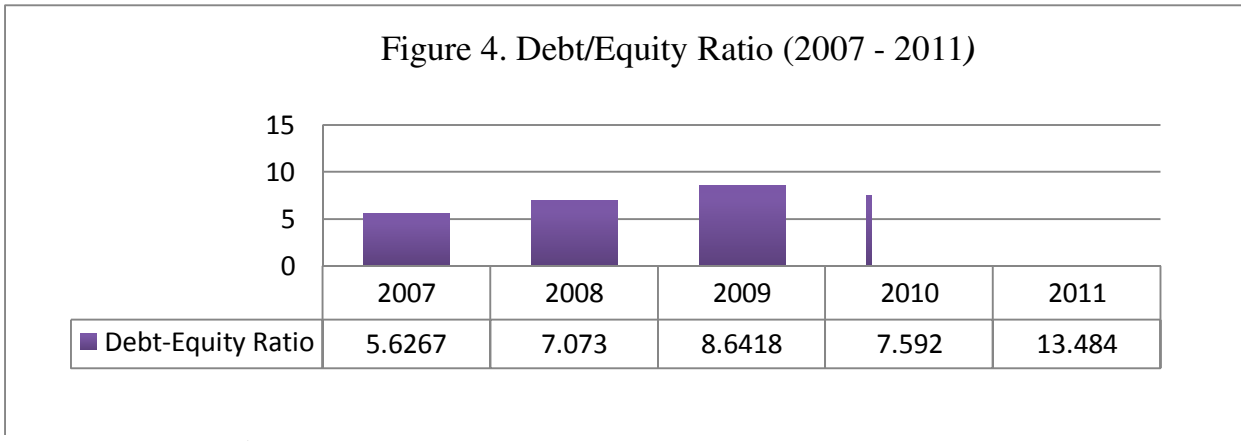


Source: Own Construction

Assessing the capital adequacy ratio of the Bank, the study found out (as shown in figure 3 above) that the ratio has been declining. From 15.09% in 2007, it dropped to 12.39% in 2008, and then to 10.37% in 2009 and to 10% in 2010. However, it went up in 2011 from 10% to 11%. The rise in 2011 (from 10% at the end of 2010) was attributable to a combination of 15% decrease in risk assets caused by restructuring of the loan book and a 6% decrease in regulatory capital, the result of provisions or charges made for pensions and other non-credit related impairments. The Bank's capital adequacy ratio has never declined below the central bank's requirement of 10% let alone the 8% required by the Basel Accord II. This indicates that the Bank has put emphasis on reserving adequate amount of capital to improve its risk position as required by central bank.

4.1.4 Debt to Equity Ratio

This ratio indicates the capital structure of the Bank showing the extent of reliance on debt against equity. The figure 4 below shows the trend of debt to equity ratio over the five-year study period.



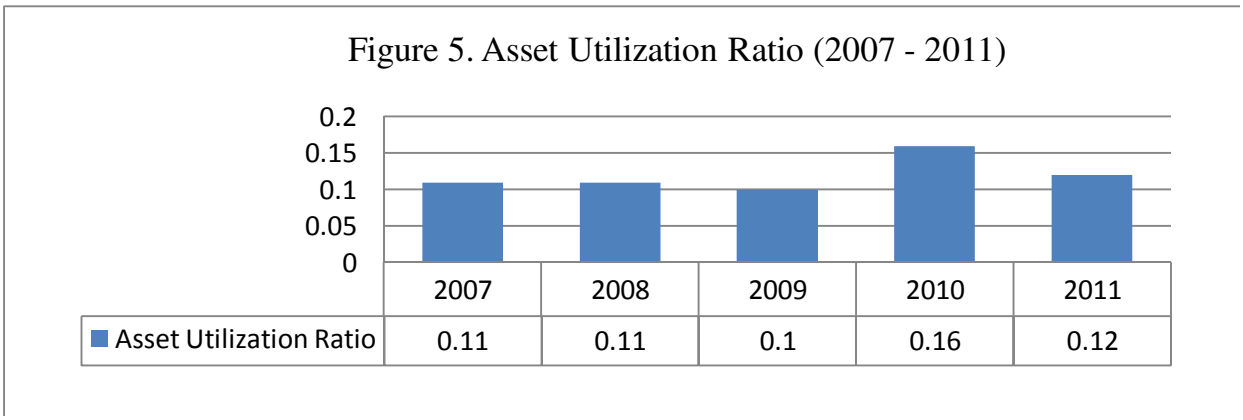
Source: Own Construction

From the figure 4 above, it can be seen that there had been a relatively rising trend of the Bank's reliance on debt to finance assets. In 2007, the extent of reliance on debt was 5.6 times of equity. This increased to 7.1 times in 2008 and 8.6 times in 2009. In 2010, as a result of the bank recapitalization required by the central bank, the Bank's equity rose leading to a decline in the debt to equity ratio, from 8.6 in 2009 to 7.6 in 2010. However, the debt to equity sharply rose again in 2011 from 7.6 to 13.5, representing 77.6% increase in the ratio. This indicates that after the recapitalization, the Bank increased its total liabilities.

4.1.5 Asset Management

Asset management, proxied by asset utilization was determined by the proportion of operating income in relation to total assets. This indicator assesses the performance of management in generating operating income given the total assets of the Bank. The figure below shows the trend over a five-year period.

Figure 5. Asset Utilization Ratio (2007 - 2011)



Source: Own Construction

The figure 5 above depicts the trend of asset utilization by the management of the Bank. It shows 11% of operating income was generated from total assets in both 2007 and 2008. However, in 2009, there was a drastic reduction in the proportion of operating income in relation to the total assets. Asset utilization improved again with a significant rise from 1% in 2009 to 16% in 2010 but reduced again to 12% in 2011. This means that management's efficiency in utilizing assets has not been the best.

4.2 Descriptive Statistics

Descriptive statistics containing values of means and standard deviation are reported in Table 1 (as shown in *Appendix A*). The variables credit risk, liquidity risk, market risk and operational risk are dependent variables, while the rest of them are independent variables. From the table 1 (as shown in *Appendix A*), it is revealed that, over the 5-year period, the mean credit risk exposure of the Bank was 0.88772. This suggests that the bank's credit risk exposure is around 89%. The maximum credit risk stood at around 93% whiles the minimum credit risk stood at approximately 85%. The average liquidity risk over the study period was around 76.45% with a maximum of over 100% (i.e.105.53%) and a minimum of 23.1%. Again, from the same table 1, average (mean) market risk over the five years was 9.7%; maximum market risk was 14.3% with minimum risk being around 4.92%. Operational risk had an average (mean) of 2.618%, maximum of 4.34% and minimum of 1.08%.

Size, determined as the natural logarithm of total assets, had an average (mean) of 9.25472, maximum of 9.38997 and minimum of 9.06107. From the table 2, it is revealed that, over the 5-year period, NPL has a minimum value of 0.02 and maximum of 0.26 with average (mean) of 0.128. NPL has a percentage change of 24% ((0.26 – 0.02) x 100). CAR has a minimum value of 0.069 and maximum of 0.1509 with an average (mean) of 0.11278. This indicates that over the five-year period, the Bank had been financed averagely by approximately 11.278% equity. Thus, the Bank rely more on the funds from long term liabilities to finance assets. The average (mean) debt to equity ratio was around 8.4835, maximum of 13.484 and minimum of 5.6267. This indicates that on average, the Bank financed it assets with liabilities (debt) more than 8 times compared to equity. This confirms the average capital adequacy ratio of around 11.3%. in terms of asset management, on average the Bank generated operating income of 12.104% through the utilization of assets with a maximum asset utilization of 15.73% and minimum of 10.47%.

4.3 Regression Results and Discussion

Table 3, 4, 5 and 6 (as shown in *Appendix B*) report the regression results of model (A), (B), (C) and (D). Model (A) uses credit risk as dependent variable while liquidity, market and operational risks are used as dependent variables in Model (B), Model (C) and Model (D) respectively.

4.3.1 Credit Risk

The credit risk is a big threat for banks as the value of any organization measures by its credit worthiness. Regression results for Model (A) are reported in table 3 (as shown in Appendix B). In the regression results, the credit risk is found to be highly affected by all explanatory variables except bank size. The NPL ratio, debt equity ratio and asset management have positive relationship with the credit risk. Capital adequacy ratio, however, was found to have a negative relationship with credit risk. The size of the bank was found not to have any relationship with credit risk.

4.3.2 Liquidity Risk

Regression results for Model (B) are reported in table 4 (as shown in Appendix B). In model (B), as reported in table 4, all the explanatory variables (except bank size) were found to have negative relationship with liquidity risk. In this model, size of the bank was found to have no relationship with liquidity risk.

4.3.3 Market Risk

Regression results for Model (C) are reported in table 5 (as shown in Appendix B). In the regression results, the market risk is found to be highly affected by all explanatory variables except bank size. Capital adequacy ratio alone was found to have a positive relationship with market risk. The NPL ratio, debt equity ratio and asset management were found to have negative relationship with the market risk. This is a direct reverse of the case of credit risk. The size of the bank was again found not to have any relationship with credit risk.

4.3.4 Operational Risk

Regression results for Model (D) are reported in table 6 (as shown in Appendix B). The value of adjusted R-square is 1 which shows that almost 100% change in operation risk can be attributed to the independent variables under this study with the exception of bank size. The results indicate that capital adequacy ratio, debt-equity ratio and asset management are positively associated with operational risk while the relationship between the operational risk and NPL ratio is found to be a negative. On the other hand, size of the bank was found to be insignificantly affecting the operational risk of the Bank.

4.4 Evaluation of the Bank's Risk Management Practices

This section of the study evaluates the risk management practices of the Bank in line with the recommended international best practices. The principles outlined by the Basel Accord are used as benchmark for this purpose. These principles cover corporate governance of banks, principles of credit, liquidity, market and operational risks management.

4.4.1 Credit Risk Management

The responsibility for credit risk management in GCB lies with the Board of Directors, which is responsible for ensuring that an appropriate and conducive environment has been created for managing credit risk. The board has done this by setting comprehensive credit risk management policies and procedures as contained in the bank's Credit Policy Manual. The manual contains an outline of the scope and allocation of the bank's credit facilities and the manner in which the credit portfolio is managed, that is, how loans are originated, appraised, supervised and collected at both the individual credit and portfolio levels. It also outlines the governance structure with clearly defined responsibilities and credit approval authority. The Board also periodically reviews and approves the bank's credit risk strategy in addition to reviewing and approving all credits in excess of the policy limit, through its Risk Committee. The Board has, however, delegated the authority to approve credit within the policy limit to individual credit officers based on their credit expertise, experience and independence of judgement. All extensions of credit are approved by at least three credit officers, one of whom must have an individual credit limit equal or greater than the amount of credit extension being considered, and also at least one credit officer must come from the risk management department. The organisation of the bank's credit risk management structure and process ensures that an appropriate environment is established to handle credit risk and that the bank is operating under a sound credit granting process.

4.4.2 Liquidity Risk Management

The management of liquidity risk is governed by the Bank's liquidity policy and responsibility for the management of liquidity risk lies with the Bank's Assets and Liability Management Committee (ALCO), which

is chaired by an Executive Director. ALCO is responsible for both statutory and prudential liquidity as well as compliance with regulatory requirements. The primary objective of liquidity risk management of the Bank is to provide a planning mechanism for unanticipated changes in the demand or needs for liquidity created by customer behaviour or abnormal market conditions. ALCO emphasizes the maximization and preservation of customer deposits and other funding sources. ALCO also monitors deposit rates, levels, trends and significant changes. Liquidity is managed on a short to medium-term basis. In the short term, the focus is on ensuring that cash flow demands can be met as and when required. The focus, in the medium term, is on ensuring that the balance sheet remains structurally sound and aligned to the bank's strategy.

A substantial portion of the Bank's assets are funded by customer deposits made up of current and savings accounts and other deposits. These customer deposits, which are widely diversified by type and maturity, represent a stable source of surplus funds. Lending is normally funded by liability in the same currency. The Bank also maintains significant levels of marketable securities to meet compliance with prudential investment of surplus funds. ALCO oversees structural foreign currency and interest rate exposures that arise within the Bank. These responsibilities are coordinated by ALCO during monthly meetings. The Bank places low reliance on interbank funding and foreign markets. The Bank's framework for liquidity risk management are in line with part of the principles for managing liquidity risks put forward by the Basel Committee on Banking Supervision in September, 2008.

4.4.3 Market Risk Management

The board of GCB Limited articulates statements of market risk direction and appetite through the bank's market risk management policy which is developed and approved by the board. The market risk management policy contains the framework for managing market risk in a consistent manner across the bank in order to stabilise earnings and capital under a broad range of market conditions. The Risk Committee of the board, the Chief Executive of the bank and the Chief Operational Risk Manager coordinate, facilitate and oversee the effectiveness and integrity of the bank's market risk management framework. The supervision and management of market risk in the bank is however vested on the Asset and Liability Committee (ALCO) who meet monthly and anytime market conditions warrant it. The committee is responsible for recommending specific strategies to address market risks in the light of macroeconomic and industry changes as well as the bank‘s risk tolerance level. The committee reviews the bank‘s liquidity and funding needs and the structure and pricing of the bank‘s assets and liabilities. It also articulates the bank‘s interest rate view and decides on the required maturity profile and mix of incremental assets and liabilities.

To ensure effective coordination and aggregation of efforts in the management of market risks in the bank, the Market Risk Manager plays a facilitating and enabling function. He is also responsible for analysing and reporting to management and the board the market risk profile of the bank. The structure put in place by the bank to manage market risk as enumerated above ensures a good governance mechanism for its management as has been strongly recommended by regulators including Basel II.

4.4.4 Operational Risk Management

Due to the complex and diverse nature of operational risk, GCB's main strategy for managing risk, is to develop a strong operational risk culture amongst its entire staff. Most of the efforts towards this have been in the form of sensitising and training staff on how their daily work activities can contribute to operational risk and what they can do to avoid potential losses. The bank has also invested in an operational risk management application (Oprisk Management System) developed to assist in identifying lapses in every aspect of the bank‘s activities which can result in operational losses. The bank's reward system has also been adjusted to include recognition for being operational risk conscious. The Board and the MD have keen interest and are directly responsible for the management of operational risk. The responsibility for executing the framework and implementing the strategy is however vested in all heads of units and departments since the sources of operational risks cuts across the entire operations of the bank. To assist in coordinating the effort of all the staff and management working within or managing operational business units of the bank, there is an operational risk manager within the risk function who ensures that adequate knowledge, systems and resources are available to handle operational risks.

In line with Basel II operational risk framework, GCB categorises its operational risk into seven loss event categories based on their primary cause: internal fraud, external fraud, employment practices and workplace safety, dispute with clients, damage to physical assets, business disruptions and systems failure, and execution, delivery and process management. These categories formed the foundation of the design and construction of the bank‘s operational risk management software and therefore capture information along those lines. The process of operational risk identification is mostly based on self assessment exercises by all staff in the various units and departments in a form responding to a set of questions or checklist relating to their individual work schedules. In addition to the regular assessments of business activities to identify potential inherent risks, risk indicators such

as thefts, failed trades, errors in funds transfer or loan disbursements are immediately highlighted and brought to the attention of management in order to initiate steps to reduce the impact of potential losses.

5.0 Conclusion

The study provides an empirical indication of the types and levels of risks the bank is exposed to and its capacity to effectively manage them. The evidence from the study suggests that the risk profile of GCB was good over the study period. The GCB is clearly evolving to a higher level of risk management techniques and approaches than had been in place in the past. Yet there is significant room for improvement. The risk management techniques of the Bank are not the average, but the techniques used by firms at the higher end of the market. The Bank had adequate risk management structures to ensure sound management of credit, liquidity, market and operational risks. The results of the study support earlier studies. The interventions made by the Bank to ensure sound risk management are also in line with internationally accepted principles for managing risks as put forward by the Basel Committee for Banking Supervision and expected to be implemented by all banks operating in Ghana as they have incorporated in the Ghana Banking Act 2004, Act 673.

Despite a fairly good risk management framework in place to adequately manage the various types of risk of GCB, recommendations are made to help strengthen the Bank's risk management system as well as the industry. Currently, the structure of GCB's risk management framework allows for specific risk-related decisions to be made at multiple levels of the bank with different approaches used in managing the different risk types at various units in the bank. This results in fragmented risk management practices and a disjointed approach for dealing with the risks the bank is exposed to. There is, therefore, the need for the Bank to develop an integrated system which ensures a systematic and comprehensive approach to managing risk across the bank. An integrated risk management system is necessary because as its business activities becomes more varied, the likelihood of having more than one type of risk inherent in an activity or one type of risk triggering other risks is quite high. Management will therefore need a portfolio view of all the various risks and developing a strategy to manage them with the view of benefiting from diversification effects. The Bank's risk management structure should include an ongoing effort to assess and analyze the most likely areas of future risk. Senior management should provide the board with an appropriate review of the Bank's legal compliance programs and how they are designed to address its risk profile. There should be a strong "tone at the top" from the board and senior management emphasizing that non-compliance will not be tolerated. The compliance program should be designed by persons with relevant expertise and will typically include interactive training as well as written materials. Compliance policies should be reviewed periodically in order to assess their effectiveness and to make any necessary changes. There should be consistency in enforcing stated policies through appropriate disciplinary measures. The Bank may choose to appoint a Chief Compliance Officer and/or constitute a compliance committee to administer the compliance program, including facilitating employee education and issuing periodic reminders. In addition to the formal compliance program, the board should also encourage management to promote a corporate culture that understands risk management and incorporates it into its overall corporate strategy and its day-to-day business operations. Risk management should not be viewed as an impediment to corporate progress, or isolated as a specialized corporate function, but instead treated as an integral component that affects how the company measures and rewards its success. Firms will, of course, need to incur risk in order to run their businesses, and there can be danger in excessive risk aversion, just as there is danger in excessive risk-taking. But the assessment of risk, the accurate calculation of risk versus reward, and the prudent mitigation of risk should be incorporated into all business decision-making.

Following from this study, future studies can consider an assessment of the risk profile of all listed banks combined considering how firm-level as well as industry-wide factors influence risks, as well as risk profile assessment of local banks against foreign banks.

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APPENDIX A

A1: Descriptive Statistics

Table 1. Descriptive Statistics

Variables	Mean	Maximum	Minimum	Standard Deviation
Credit Risk	0.88722	0.931	0.8491	0.02995
Liquidity Risk	0.7645	1.0553	0.231	0.33912
Market Risk	0.09703	0.14319	0.04923	0.03936
Operational Risk	0.02618	0.0434	0.0108	0.01427
Bank Size	9.25472	9.38997	9.06107	0.12528
NPL Ratio	0.128	0.26	0.02	0.10616
Capital Adequacy Ratio	0.11278	0.1509	0.069	0.02995
Debt Equity Ratio	8.4835	13.484	5.6267	2.99899
Asset Management	0.12104	0.1573	0.1047	0.02081

A2: Pearson Correlation Coefficients

Table 2. Pearson Correlations[a]

		Bank Size	NPL Ratio	CAR	Debt-Equity Ratio	Asset Management
Bank Size		1	.868	-.915	.816	.341
	Sig. (2-tailed)		.057	.029	.092	.575
NPL Ratio		.868	1	-.910	.873	.134
	Sig. (2-tailed)	.057		.032	.054	.830
Capital Adequacy Ratio		-.915	-.910	1	-.969	.002
	Sig. (2-tailed)	.029	.032		.007	.997
Debt-Equity Ratio		.816	.873	-.969	1	-.060
	Sig. (2-tailed)	.092	.054	.007		.924
Asset Management		.341	.134	.002	-.060	1
	Sig. (2-tailed)	.575	.830	.997	.924	

a. Listwise N=5

APPENDIX B
REGRESSION RESULTS

Table 3. Coefficients[a] for Model A

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.000	.000		.	.
	NPL Ratio	1.995E-16	.000	.000	.	.
	Capital Adequacy Ratio	-1.000	.000	-1.000	.	.
	Debt-Equity Ratio	3.798E-17	.000	.000	.	.
	Asset Management	1.572E-15	.000	.000	.	.

a. Dependent Variable: Credit Risk

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Bank Size	.a	.	.	.	.000

a. Predictors in the Model: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Credit Risk

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	.	.	.025

a. Predictors: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Credit Risk

Table 4. Coefficients[a] for Model B

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.534	.000		.	.
	NPL Ratio	-.571	.000	-.179	.	.
	Capital Adequacy Ratio	-20.920	.000	-1.848	.	.
	Debt-Equity Ratio	-.280	.000	-2.474	.	.
	Asset Management	-7.957	.000	-.488	.	.

a. Dependent Variable: Liquidity Risk

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Bank Size	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Liquidity Risk

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	.	.	1.076

a. Predictors: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Liquidity Risk

Table 5. Coefficients[a] for Model C

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.201	.000		.	.
	NPL Ratio	-.068	.000	-.182	.	.
	Capital Adequacy Ratio	.508	.000	.386	.	.
	Debt-Equity Ratio	-.004	.000	-.301	.	.
	Asset Management	-.986	.000	-.521	.	.

a. Dependent Variable: Market Risk

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Bank Size	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Market Risk

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	.	.	1.540

a. Predictors: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Market Risk

Table 6. Coefficients[a] for Model D

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	-.070	.000		.	.
	NPL Ratio	-.076	.000	-.562	.	.
	Capital Adequacy Ratio	.240	.000	.504	.	.
	Debt-Equity Ratio	.002	.000	.341	.	.
	Asset Management	.537	.000	.782	.	.

a. Dependent Variable: Operational Risk

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	Bank Size	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Operational Risk

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	1.000[a]	1.000	.	.	.951

a. Predictors: (Constant), Asset Management, Capital Adequacy Ratio, NPL Ratio, Debt-Equity Ratio

b. Dependent Variable: Operational Risk

APPENDIX D

Comparative Balance Sheets for Ghana Commercial Bank (2007 – 2011)

	2007	**2008**	**2009**	**2010**	**2011**
	GH¢	**GH¢**	**GH¢**	**GH¢**	**GH¢**
ASSETS					
Cash and Balances with Bank of Ghana	115,338,071	202,811,774	147,103,052	325,566,469	433,430,000
Due from Other Banks and Fin. Institutions	21,681,861	57,166,284	186,307,292	231,514,760	217,179,000
Short-Term Investments	92,996,512	116,371,223	105,857,373	451,596,191	1,195,981,000
Medium Term Investments	110,000,000	110,000,000	110,000,000	0	0
Loans and Advances to Customers	750,663,543	1,087,118,928	1,265,516,727	1,003,682,422	476,211,000

Investment in Associates	0	0	0	0	16,126,000
Investment in Subsidiary	20	20	20	20	64,000
Available for Sale Financial Assets	4,973,757	15,453,659	8,287,004	7,823,928	2,969,000
Income Tax Asset	0	0	0	0	6,357,000
Deferred Tax Asset	990,534	2,312,309	8,527,324	3,283,591	11,379,000
Other Assets	24,481,971	13,477,660	35,829,587	28,855,950	39,072,000
Property, Plant & Equipment	29,871,980	41,085,138	49,654,822	54,001,812	53,955,000
Intangible Assets	0	0	0	0	1,841,000
TOTAL ASSETS	1,150,998,249	1,645,796,995	1,917,083,201	2,106,325,143	2,454,564,000

LIABILITIES					
Customers Deposits	839,382,573	1,030,106,198	1,259,470,137	1,575,281,050	2,061,390,000
Due to Other Banks and Fin. Institutions	58,044,439	91,337,682	0	0	0
Interest Payable and Other Liabilities	56,896,239	192,381,784	120,948,413	181,573,861	108,379,000
Current Tax Liabilities	8,983,718	10,807,666	6,033,925	31,196,276	0
Borrowings	14,000,000	117,300,000	331,800,000	73,125,000	79,000,000
Employee Benefit Obligation	0	0	0	0	36,322,000
TOTAL LIABILITIES	977,306,969	1,441,933,330	1,718,252,475	1,861,176,187	2,285,091,000

SHAREHOLDERS' FUND					
Stated Capital	72,000,000	72,000,000	72,000,000	72,000,000	72,000,000
Capital Surplus	0	7,742,534	492,444	812,444	-1,174,000
Retained Earnings	71,077,544	87,288,658	46,489,073	80,235,293	18,806,000
Regulated Reserve Fund	8,201,646	9,794,777	43,752,937	42,146,889	24,631,000
Statutory Reserve Fund	22,412,090	27,037,696	36,096,272	49,954,330	55,210,000
SHAREHOLDERS' FUND	173,691,280	203,863,665	198,830,726	245,148,956	169,473,000
TOTAL LIABILITIES AND S/HS' FUND	1,150,998,249	1,645,796,995	1,917,083,201	2,106,325,143	2,454,564,000

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