

Credit Risk and Profitability of Selected Banks in Ghana

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Abstract

This study attempts to reveal the relationship between credit risk and profitability of some selected banks in Ghana. A panel data from six selected commercial banks covering the five-year period (2005-2009) was analyzed within the fixed effects framework. In Ghana, the average lending/interest rate is about 30% - 35% per annum. From the results credit risk (non-performing loan rate, net charge-off rate, and the pre-provision profit as a percentage of net total loans and advances) has a positive and significant relationship with bank profitability. This indicates that banks in Ghana enjoy high profitability in spite of high credit risk, contrary to the normal view held in previous studies that credit risk indicators are negatively related to profitability. Our results can be attributed to the prohibitive lending/interest rates, fees and commission (non- interest income) charged. Also, we found support for previous empirical works which depicted that bank size, bank growth and bank debt capital influence bank profitability positively and significantly.

Keywords: Credit Risk, Profitability, Banks, Ghana.

1.0 Introduction

Even though one of the major causes of serious banking problems continues to be ineffective credit risk management, the provision of credit remains the primary business of every bank in the World. For this reason, credit quality is considered a primary indicator of financial soundness and health of banks. Interests that are charged on loans and advances form sizeable part of banks' assets. Default of loans and advances poses serious setbacks not only for borrowers and lenders but also to the entire economy of a country. Studies of banking crises all over the world have shown that poor loans (asset quality) are the key factor of bank failures. Stuart (2005) stressed that the spate of bad loans (non-performing loans) was as high as 35% in Nigerian Commercial Banks between 1999 and 2009. Umoh (1994) also pointed out that increasing level of non-performing loan rates in banks' books, poor loan processing, undue interference in the loan granting process, inadequate or absences of loan collaterals among other things, are linked with poor and ineffective credit risk management that negatively impact on banks profitability.

As a result of the likely huge and widespread of economic impact in connection with banks failure, the management of credit risk is a topic of great importance since the core activity of every bank is credit financing. According to the bank theory, there are six (6) main types of risk which are linked with credit policies of banks and these are; credit risk (risk of repayment), interest risk, portfolio risk, operating risk, credit deficiency risk and trade union risk. However, the most vital of these risks, is the credit risk and therefore, it demands special attention and treatment.

This paper attempts to make a modest contribution to literature on credit risk by assessing its impact on a developing economy, Ghana. The rest of the paper is organized into four sections: review of relevant literature; methodology; discussion of empirical results; and summary and conclusions.

2.0 Review of Research Literature

The significant role played by banks in a developing economy like Ghana (where access to capital market is limited) cannot be overemphasized. In fact, well functioning banks are known as catalyst for economic growth whereas poorly functioning ones do not only impede economic progress but also exacerbate poverty (Barth et al, 2004). However banks are exposed to various risks such as credit, market and operational risk. Although all these risk militate against the performance of banks in several ways, Chijoriga (1997) argues that the size and the level of loss caused by credit risk as compared to others were severe to collapse a bank.

2.1 Credit Risk Management System of Banks

Numerous researchers had studied reasons behind bank problems and identified several factors (Chijoriga, 1997, Santomera 1997, Brown, Bridge and Harvey, 1998). Problems in respect of credit especially, weakness in credit risk management have been identified to be the main part of the major reasons behind banking difficulties. Loans forms huge proportion of credit as they normally accounted for 10 – 15 times the equity of a bank (Kitwa,

1996). In this way, the business of banking is potentially faced with difficulties where there is small deterioration in the quality of loans. Poor loan quality starts from the information processing mechanism (Liuksila, 1996) and then increase further at the loan approval, monitoring and controlling stages. This problem is magnified especially, when credit risk management guidelines in terms of policy and strategies and procedure regarding credit processing do not exist or are weak or incomplete. BrownBridge (1998) observed that these problems are at their acute stage in developing countries.

In order to minimize loan losses as well as credit risk, it is crucial for banks to have an effective credit risk management systems in place (Santomera 1997, Basel 1999). As a result of asymmetric information that exists between banks and borrowers, banks must have a system in place to ensure that they can do analysis and evaluate default risk that is hidden from them. Information asymmetry may make it impossible to differentiate good borrowers from bad ones (which may culminate in adverse selection and moral hazards) have led to huge accumulation of non-performing accounts in banks (Baster, 1994, Gobbi, 2003).

Credit risk management is very vital to measuring and optimizing the profitability of banks. The long term success of any banking institution depended on effective system that ensures repayments of loans by borrowers which was critical in dealing with asymmetric information problems, thus, reduced the level of loan losses, Basel (1999). Effective credit risk management system involved establishing a suitable credit risk environment; operating under a sound credit granting process, maintaining an appropriate credit administration that involves monitoring, processing as well as enough controls over credit risk (Greuning and Bratanovic 2003). Top management must ensure, in managing credit risk, that all guidelines are properly communicated throughout the organization and that everybody involved in credit risk management understands what is required of him/her.

Sound credit risk management system (which include risk identification, measurement, assessment, monitoring and control) are policies and strategies (guidelines) which clearly outline the purview and allocation of a bank credit facilities and the way in which credit portfolio is managed; that is, how loans were originated, appraised, supervised and collected (Basel, 1999; Greuning and Bratanovic 2003, Pricewaterhouse, 1994). The activity of screening borrowers had widely been recommended by, among other, Derban et al, (2005). The theory of asymmetric information from prospective borrowers becomes critical in achieving effective screening.

In screening loan applicants, both qualitative and quantitative techniques should be used with due consideration for their relative strength and weaknesses. It must be stressed that borrowers attributes, assessed through qualitative models can be assigned numbers with the sum of values compared to a threshold. This technique is termed as “credit scoring” (Heffernan, 1996). The rating systems, if meaningful, should signal changes in expected level of loan loss (Santomero, 1997). Chijoriga (1997) posited that quantitative models make it possible to among others, numerically establish which factors are important in explaining default risk, evaluate the relative degree of importance of the factors, improving the pricing of default risk, be more able to screen out bad loans application and be in a better position of calculate any reserve needed to meet anticipated future loan losses.

Establishing a clear process for approving new credit and extending existing credit (Heffernan, 1996) and monitoring credits granted to borrowers (Mwisho, 2001) are considered important when managing credit risk (Heffernan, 1996). Instruments such as covenants, collateral, credit rationing, loan securitization and syndication have been used by banks in developing countries in controlling credit losses. (Benveniste and Bergar 1987). It has also been identified that high-quality credit risk management staff are critical to ensuring that the depth of knowledge and judgment needed is always available, thus ensuring the successfully management of credit risk in banks (Koford and Tschoegl, 1997 and Wyman, 1999).

2.2 Credit Portfolio Management

Supervisors of banks more often than not, place considerable importance on formal policies which are laid down by their boards and aggressively implemented by management. This is most critical with regard to banks' lending function, which stated that banks adopted sound systems for managing credit risk (Greuning and Bratanovic, 1999). In order to appropriately analyse credit risk factors, banks' chief credit risk officers are required to have detail understanding of the principal economic factors that drive loan portfolio performance and the relationship between those factors. Most credit risk officers in the banking industry analyse factors such as; inflation, the level of interest rates, the GDP rate, market value of collaterals among others, for banks in mortgage financing. Also, traditional financial management texts posit that credit manager would take note of the five Cs of credit – character, capacity, capital, collateral and conditions to evaluate the probability of default (Casu et al, 2006 and; Zech, 2003). These factors are in line with the arbitrage pricing theory of Stephen Ross which is the most applicable to loan portfolio management.

According to Uyemura and Deventer, (1993), many techniques in equity portfolio management were applicable in individual loans or loan category which can be measured by the dependence of the loan's return on the factors mentioned.

2.2.1 Value at – Risk (VaR) As a Tool for Portfolio Optimization.

VaR measures portfolio risk by estimating the loss in line with a given small probability of occurrence. A higher risk means a higher loss at the given probability. It is intended to overcome the shortcomings of modern portfolio theory when standard deviation is used as a measure of risk in risk-return relationships. VaR is a forecast of a given percentile usually in the lower tail (such as 99th percentile) of the distribution of returns (or losses) on a portfolio over some period. Again it is an estimate to be equaled or exceeded with a given, small probability such as 1%. However, when returns are normally distributed, VaR conveys exactly the same as the information as standard deviations. The VaR approach is the most preferred to be used when the market risk is measured (Schacter, 1998; Zech, 2003; Markowitz, 1959; Hull, 2007).

2.3 The Basel Capital Accord and Banking in Ghana

The introduction of the Basel Capital Accord in 1988 has offered for the implementation of a credit risk measurement framework with a minimum permanent capital ratio of 8% by the end of 1992. In 1995 the capital requirements for credit risk were modified to incorporate netting. In 1996 the Accord was modified to factor in a capital charge for market risk. Sophisticated banks could base their capital charge on a value-at-risk (VaR) calculation, Hull, (2007). The Basel committee suggested some changes which were intended to be operationalised in 2007. The new capital accord (Basel II) framework under Pillar 1 offers three (3) main approaches for the calculation of capital requirements. These are standardized approach, the foundation and internal Rating Basel (IRB) Approach and the Advanced IRB Approach.

The Bank of Ghana (BoG) has done a number of consultations in the Ghanaian banking industry and has concluded to adopt the standardized Approach for computing the capital requirement for credit risk. This approach has two (2) main methods. These are internal credit ratings approach which is subject to the prior explicit approval of the supervisor and the other alternative is the use of the external credit assessment approach. The Capital Adequacy Framework for capital requirement directive issued by Bank of Ghana (BoG, 2008), stipulated that locally incorporated licensed banks were to adopt the standardized approach with the credit ratings specified in calculating their capital requirements. BoG recognized both the simple and comprehensive approaches for credit mitigation. It also specified eligible final collateral, allowed as credit risk mitigants for the purpose of calculating capital requirements for credit risk. Consequently, the Basel II has been in operation since the beginning of 2012, representing the most significant change to the supervision of banks. The focus is on establishing the capital banks require, given their risk profiles and improve risk management. The new capital requirements may lead to an improved buffer for risk absorption in the industry.

2.4 Credit Risk and Bank Performance

Banks that have higher loan portfolio with lower credit risk improve on their profitability. Angbazo (1997) stressed that banks with larger loan portfolio appear to require higher net interest margin to compensate for higher risk of default. Cooper et al (2003) add that variations in credit risks would lead to variations in the health of banks' loan portfolio which in turn affect bank performance. Meanwhile, Ducas and McLaughlin (1990) had earlier argued that volatility of bank profitability is largely due to credit risk. Specifically, they claim that the change in bank performance or profitability are mainly due to changes in credit risk because increased exposure to credit risk leads to fall in bank performance and profitability.

Heffernan (1996) stressed that credit risk is the risk that an asset or loan becomes irrecoverable, in the case of outright default or the risk of delay in servicing of loans and advances. Thus, when this occurs or becomes persistent, the performance, profitability, or net interest income of banks is affected. Consequently, this study seeks to find out the relationship between credit risk and bank performance of some selected banks in Ghana.

3.0 Methodology

The core objective of this study is to ascertain the relationship between credit risk and bank profitability. The primary data used for the study were from secondary sources especially from financial statements of the banks. Data was obtained from six banks in Ghana. They included Ghana Commercial Bank Limited (the largest bank in Ghana), International Commercial Bank Limited, Calbank Limited, UT Bank Ghana Limited, First Atlantic Merchant Bank Limited and Unibank Ghana Limited. Purposive sampling technique was used in selecting these six banks. The basic data was obtained from the Annual Report of the banks from 2005 – 2009.

3.1 The Model

The basic model used for the study is written as follows:

$$ROE_{i,t} = \alpha_0 + \beta NCOTL_{i,t} + \delta NPLR_{i,t} + \vartheta PPPNTLA_{i,t} + \phi SIZE_{i,t} + \phi GRO_{i,t} + \gamma TDA_{i,t} + \varepsilon_{i,t}$$

Where the variables have been explained in Table 1

Table 1: Definition of Variables (Proxies) and Expected Signs

VARIABLE	DEFINITION	EXPECTED SIGN
ROE	Profitability = Return on Equity (Net Income to Total Equity Fund) of Bank i in time t	
NCOTL	Credit Risk = Net Charge Off (impairments) / Total Loans and Advances of Bank i in time t	Negative/ Positive
NPLR	Credit Risk = Non Performing Loans / Total Loans and Advances of Bank i in time t	Negative/Positive
PPPNTLA	Credit Risk = Pre-Provision Profit / Net Total Loans and Advances of Bank i in time t	Negative/Positive
SIZE	Bank Size = the log of Total Assets of Bank i in time t	Positive
GRO	Growth = Growth in Bank Interest income, year on year.	Positive
TDA	Leverage = the ratio of Total Debt to Total Net Assets for Bank i in time t. A measure for bank capital structure.	Positive
E	The error term	

The dependent variable in the model is Return on Equity while the explanatory variable is Credit Risk which is measured by three main variables- Net Charge Off to Total Loans and Advances, Non-Performing Loans to Total Loans and Advances and Pre-provision Profit to Total Loans and Advances. The researcher also controlled for the effects of other factors on firm profitability. These include bank size, bank growth rate and the choice of capital structure.

5.0 Discussion of Empirical Results

5.1 Descriptive Statistics

Table 2 gives information about the descriptive statistics of the dependent variable, the independent variables and the control variables. The average (standard deviation) performance of banks in the sample was 0.3674 (0.65687). This depicts that equity shareholders were able to generate a return of 36.74% which can be considered to be good. It also shows that the payback period of equity holders is about 3 years. Even though the average performance can be considered as good, some banks recorded abysmal performance. The minimum recorded profitability was as low as -46.84% while the maximum was about 211.1%. Apparently some banks performed poorly as compared to that of the industry. Also, Net Charge Off (impairments) to Total Loans and Advances averaged (standard deviation) at 41.27% (1.026). This can be considered as high since on the average the proportion of loans impaired is about one-third of total loans and advances. This casts a slur on the quality of loans given out by banks in this sample. The ratio of non-performing loans to total loans and advances was astonishing. As high as 78.65% (1.738) of total loans and advances was considered to be non-performing. This confirms the numerous assertions that there is high level of default among borrowers in Ghana, a reason which is mostly given by banks as the cause of high interest rate even though the prime rate has fallen significantly. This could be due to macroeconomic factors. High credit risk indicators in particular, non-performing loans, were due to macroeconomic instability that is, triggered by prohibitively interest/lending rates, fees, commission and depreciation of the cedis since the late 1990s whiles at the same period bank were making higher profitability in Ghana, Aboagye-Debrah,(2007). This notwithstanding, it is also clear that the high level of credit risks as shown by the above two indicators cannot be said to be widespread among the firms in the sample because of the high levels of standard deviations. Furthermore, pre-provision profits to total loans and advances had a mean (standard deviation) of 14.03% (0.09). Firm size (log of total asset) was 18.79 while the average (standard deviation) growth rate among the banks was 48.13% (0.3033). This shows a significant growth in the industry. Debt capital represents a greater proportion of bank total capital. It represents about 86.63% confirming earlier empirical evidence that banks are highly leveraged (Agyei, 2010). The low standard deviation of 0.0677 also confirms that it is represented of all banks in the sample.

Table 2, Descriptive Statistics

VAR.	OBS.	MEAN	STD. DEV.	MIN	MAX
ROE	30	0.36735	0.65697	-0.4684	2.111
NCOTL	30	0.41267	1.02592	0	4.89
NPLR	30	0.78649	1.73819	0.02	6.7352
PPPNTLA	30	0.14033	0.09084	0	0.33
SIZE	20	18.7966	1.25739	16.695	21.374
GRO	24	0.48125	0.30330	0	1.14
TDA	30	0.86625	0.06776	0.641	0.9733

5.2 Variance Inflation Factor Analysis

In this study, the researchers used the variance inflation factor (VIF) analysis. A common rule of thumb is that if VIF is greater than 5, then multicollinearity is high (Wikipedia, 2011). Also Kutner (2004) has proposed 10 as a cut off value. The results of the VIF test as shown in Table three (3) shows that the presence of multicollinearity is minimal. The mean VIF is 1.83 which is far below the rule of thumb.

Table 3, Variance Inflation Factor Test

VAR.	VIF	1/VIF
PPPNTLA	3.24	0.309024
NPLR	1.93	0.518910
TDA	1.71	0.583547
NCOTL	1.61	0.622986
SIZE	1.35	0.742634
GRO	1.17	0.856027
Mean VIF	1.83	

5.3 Discussion of Regression Results

Table 4 presents the regression results of the analysis. The results of both the fixed and random effects model are consistent for all the variables, with the exception of the growth variable. The result of the Hausman Specification Test shows that the fixed effects model is much more preferred to the random effects model. Consequently the fixed effects model was used for the analysis. The study shows that credit risk, size of a bank, bank growth rate and capital structure are the key factors which influence the profitability of the sampled banks. Quite interestingly, all the variables in the study have a positive impact on firm performance.

Credit risk has a positive and significant relationship with bank profitability or performance. This result indicates that as a bank's risk of customer loan default increases, the bank is able to increase its profitability. According to Buchs and Mathisen (2005), despite high overhead costs and sizable provisioning, due to huge NPLs, Ghanaian banks' pretax returns on assets and equity are among the highest in the sub-saharan Africa. This result is quite surprising because normally one would expect that as more customers fail to pay for facilities they have taken from a bank, the profitability of the bank should be harmed. This notwithstanding, it is possible for a bank (knowing very well the inherent risk in a facility being given out) to increase the proportion of the default risk component in the interest rate charged out on loans far more than the actual default risk. Eventually, banks which put up this behaviour are more likely to increase their profitability, even though credit risk may be high. This seems to be the case among the banks in our study. In other words, the presence of credit risk allows banks to charge extremely high interest rates which invariably lead to their high profitability. Bank of Ghana (BOG) report (2004) on Cost of Banking in Ghana, makes it clear that, banks in Ghana still enjoy high profitability ratio in spite of the high overhead cost which includes huge NPLs as a result of high interest rates or lending rates.

Ghana Banking Survey Report (2010), authored by PricewaterhouseCoopers, add that as non performing loan increased from GHS60million in 2007 to GHS266million in 2009, total income of the banking industry became more than double from GHS798million in 2007 to GHS1.5 billion in 2009. It is therefore apparent that profitability of banks in Ghana, is highly dependent on high interest rates which dampens financial intermediation, widens interest spreads at the expenses of the private sector, possibly exacerbates the loan quality problem and ultimately restrict competition (Buchs and Mathisen, 2005). The NPLs deteriorated from 13.2% in September 2009 to 18.1% in September 2010, net charge-offs to gross loan ratio worsened from 8.5% to 10.1% in September 2010 and the industry's return on equity (ROE) increased to 20.2% by the end of September 2010 from 19.8% by the end of September 2009. (BOG, 2010)

This condition appears to partially explain the state of the Ghanaian banking industry. Even though the economy has witnessed a fall in policy rate for quite some time, banks are reluctant to reduce their interest rates accordingly. The most cited reason, which is difficult to refute, is that they have high bad loans in their books. In effect, the banks have succeeded in widening their interest margins thus cashing in on the high credit risk. This, in a larger sense, also goes to support age long principle in finance that the higher the risk in an investment, the higher the expected return. Because banks in the Ghanaian economy have accepted to operate in a region with high default risk, they should be compensated for the additional risk they are undertaking. Banks in Ghana justify charging extremely high interest/ lending rates because credit risk is high as a results of inadequate collateral, inadequate borrower identification and generally high level of default, which notwithstanding, enjoy high levels of profitability (Kwaakye, 2011)

The relationship between the size of a bank and its profitability is not only positive but also significant. Apparently, bigger banks perform better than smaller banks. Benefits associated with firm size, if managed properly, include economies of scale, high bargaining power, ability to invest in research and development and improved efficiency of operation because of ability to afford better technologies. These benefits eventually lead to lower cost of operation and increased profitability. For instance, larger banks are more likely to attract bigger and cheaper loan facilities, because of their high collateral capacity. In the same way, they are more likely to win bigger deals with high profitability prospects than smaller banks. This is what the results seem to reflect in the Ghanaian banking industry.

High growth banks are better able to increase their profitability than low growth banks. Larger market growth or shares are as a result of efficiency that in turn lead to higher profitability (Aboagye-Debrah, 2007). As a bank embarks on growth strategies, the results show that the profitability of that bank is enhanced. This result is also significant in explaining the profitability of banks in the sample. In other words, when banks managed their growth well (in terms embarking on strategies to increase their interest margins), investors benefit tremendously from the improved sales.

Debt Capital has a positive and significant relationship with bank profitability. Banks that use more debt are better able to increase their profitability than banks that do not. This is because of the added discipline and interest tax shield that high debt brings to the banking business. This result supports previous empirical work in Ghana (Agyei, 2010) and also sits well with the agency cost hypothesis. Consequently, it lends support to Modigliani and Miller's proposition 2, which summarizes that a firm's value is not independent of its capital structure.

Table 4, Regression Results (Dependent Variable: Roe)

	Fixed	Effects	Model	Random	Effects	Model
Var.	Coef.	t-test	Prob.	Coef.	z-test	Prob.
NCOTL	0.2826	7.57	0.000	0.2366	5.76	0.000
NPLR	0.2593	11.86	0.000	0.2657	10.33	0.000
PPPNTLA	1.4190	2.09	0.056	0.6338	0.84	0.400
SIZE	0.1165	3.45	0.004	0.0636	1.84	0.066
GRO	0.2861	1.87	0.083	-0.0429	-0.34	0.736
TDA	1.0862	1.97	0.069	0.7100	1.11	0.268
CONS	-3.4687	-3.79	0.002	-1.8621	-2.10	0.036
R-sq	0.9221			R-sq.	0.9527	
Wald chi2	81.64			Wald chi2	342.17	
Prob.	0.0000			Prob.	0.0000	
Haus. Test:	12.64					
	Chi2:	12.64				
	Prob.	0.0491				

6.0 Conclusions

Banks, just like all other forms of businesses are faced with numerous risks such as interest rate risk, exchange rate risk, liquidity risk, operating risk, political risk, technological risk and default risk (credit risk). Among these risks, the major cause of serious banking problems continues to be poor credit risk management. This study therefore looked at the relationship between credit risk and profitability of some selected banks in Ghana. Interesting but quite surprising results from the study showed that credit risk indicators have a positive and significant relationship with bank profitability signifying that, in Ghana, banks benefit from high default risk due (probably) to prohibitively lending/interest rates, fees and commission. The results also depict that bank size, bank growth and bank debt capital influence bank profitability positively and significantly. In fact, support was found for the agency cost hypothesis theory of capital structure. It also confirmed that banks in the sample, performed well, used more debt capital than equity and faced a high risk of default, over the study period.

Consequently, the above results do not offer support for the numerous empirical works which conclude that credit risk has a negative relationship with bank performance but rather sits well with the few ones which hold the view that credit risk improves bank profit. Thus while banks should be encouraged to reduce their lending rates judiciously and reduce fees and commission charge or even try to waive some, like ATM withdrawal charges, it is also imperative that borrowers repay their loans on time and fully.

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