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Full Length Research Paper

The impact of credit risk on profitability performance of commercial banks in Ethiopia

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The objective of the study was to empirically examine the impact of credit risk on profitability of commercial banks in Ethiopia. For the purpose secondary data collected from 8 sample commercial banks for a 12 year period (2003-2004) were collected from annual reports of respective banks and National Bank of Ethiopia. The data were analyzed using a descriptive statics and panel data regression model and the result showed that credit risk measures: non-performing loan, loan loss provisions and capital adequacy have a significant impact on the profitability of commercial banks in Ethiopia. The study suggested a need for enhancing credit risk management to maintain the prevailing profitability of commercial banks in Ethiopia.

Key words: Commercial banks, credit risk, Ethiopia, panel data regression performance, profitability.

INTRODUCTION

Management of trade of between risks and return is important for sustainable profitability of banks and other financial institutions. Among risks in banking operation credit risk which is related to substantial amount of income generating assets is found to be important determinant of bank performance. Hence credit risk management capability of a bank remained a live academic discourse in finance and economics.

Credit risk has been defined from different perspectives by different researchers and organizations. Most researchers agreed with the definition given by Basel (1999) who defines it as the potential that debtor or counter party default in satisfying contractually pre-determined obligation according to the agreed up on terms. Because failure of trading partner to repay its debt in full can seriously damage the affair of the other partner, credit risk always has been the vicinity of concern throughout the world (Achou and Tenguh, 2008).

The importance of strong credit risk management for building quality loan portfolio is of paramount importance to robust performance of commercial banks as well as overall economy (Charles and Kenneth, 2013). The growing stock of literatures in finance and economics underscores that failure in credit risk management is the main source of banking sector crises which possibly leads to economic failure experienced in the past including 2008 global financial crises (Fofack, 2005; Onaolapo, 2012, Charles and

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Kenneth, 2013). According to Onaolapo (2012), "*the Basle Committee on Banking Supervision (BCBS) (2003), management of bank risk relates to the minimization of the potential that a bank borrower or counter-party will fail to meet its obligations in accordance with agreed terms*" (p.1).

Prakash and Poudel (2012) also state that credit risk management is an important predictor of bank financial performance. Thus success of bank performance depends on effectiveness of credit risk management, among other things, which leads to a surge of academic papers on credit risk management and the effect on bank performance albeit the context of Ethiopia and other developing countries is scant. However there are some studies in developing countries in Africa such as Kenya (Angela, 2010; Danson and Adano, 2012), Gana (Samuel et al., 2012), Nigeria (Kolapo et al., 2012; Onaolapo, 2012) and few directly related to Ethiopia (Mekasha, 2011; Tefera, 2011). Its seem difficult to infer the results of these studies to the context of Ethiopia for the fact that the findings are mixed. Moreover, the unique context of commercial banks in Ethiopia such as restriction of foreign ownership, high dominance of state owned banks, and smallness of individual banks size may limit the possibility of inferring existing studies to Ethiopian banks. Hence, this study intends to explore the apparent relationship between profitability performance and credit risk measures from the context of Ethiopia. The finding of this study will contribute to existing literatures on credit risk and profitability, in addition to its managerial and policy implications for commercial banking industry in Ethiopia.

REVIEW OF PREVIOUS STUDIES

The relationship between credit risk and commercial banks performance has been the concern of emerging studies both in developed and developing countries. From the studies on this subject matter we presented some of the recent studies in this subsection.

Poudel (2012) studied the factors affecting commercial bank performance in Nepal for the period of 2001 to 2012 and followed a linear regression analysis technique. The study revealed a significant inverse relationship between commercial bank performance measured by ROA and credit risk measured by default rate and capital adequacy ratio.

Hosna et al. (2009) also found similar result with Poudel in his study of four Swedish banks covering a period of 2000 to 2008. The result showed that rate of non-performing loan and capital adequacy ratios was inversely related to ROE though the degrees vary from one bank to the other. Such inverse relationships between profitability performance and credit risk measures were also found in other studies (Achou and Tenguh, 2008; Funso et al., 2012; Musyoki and Kadubo, 2012). Though there are a number of empirical studies evidencing the negative and significance relationship of credit risk and commercial banks performance, concluding about this issue is somewhat difficult, because there are papers that come across with different results. For instance, Boahene (2012) found a positive and significance relationship of commercial banks performance and credit risk in his study of six Ghanaian commercial banks covering a period of 2005-2009. The panel data analysis model employed in the study revealed that indicators of credit risk, namely: non-performing loan rate, net charge-off rate, and the pre-provision profit as a percentage of net total loans and advances were positively related with profitability measured by ROE. The author suggested that Ghanaian commercial banks enjoy high profitability at time when the levels of credit risk variables are high. It is reasoned out on this study that this might be, because of prohibitively lending/interest rate, fees and commissions.

The prevailing relationship between profitability and credit risk is further complicated by the finding of Kithinji (2010). Employing a regression analysis on data collected from financial reports of commercial banks in Kenya for the period of 2004 to 2008 concluded that profitability of commercial banks measured by ROA did not show significant relationship with credit risk measures.

To the best of the researcher knowledge studies on the relationship between credit risk and profitability performance of Ethiopian commercial banks are few though many studies documented that credit risk is among the major challenges of banks in Ethiopia. Of these studies, Tefera (2011) and Mekasha (2011) each studied the effect of credit risk management on the performance of commercial banks in Ethiopia. Both used secondary data from annual reports of commercial banks and survey of primary data from bank managers and officers which similarly showed that there is a negative relationship between credit risk and performance of commercial banks in Ethiopia. The current study therefore aimed at contributing to the literature gap on the subject matter by expanding the sample observation both in time series and cross section so that a better picture of relationship between credit risk and profitability performance can be portrayed for commercial bank managers and policy makers. Further, the study will contribute to the literature by dropping the context of Ethiopian banks.

Research problem and objective

The relationship between credit risk and commercial banks performance has been the concern of various studies that prove that credit risk is among the major factors affecting profitability performance of commercial banks (Achou and Tenguh 2008; Hosna et al., 2009;

Mekasha 2011; Tefera 2011; Boahene, 2012; Funso et al. 2012; Poudel, 2012; Musyoki and Kadubo, 2012). Loan portfolio constitutes significant portion of income earning asset. Literatures on Ethiopian banking sector documented that credit risk and non-performing loan have been major challenges of bank performance in Ethiopian (Alemauhy, 1991; NBE, 2009; Tekilebirhan, 2010; Melkamu, 2012; Gethun, 2012; Mekonen, 2012). Nonetheless, very few (Mekasha 2011; Tefera 2011) examined the extent at which credit risk affected profitability performance of banks in Ethiopia. The overall objective of this study is to explore into how credit risk affects the performance of commercial banks in Ethiopia which is hoped to provide managerial and policy implication to Ethiopian banking industry. Its contribution to the literature could also be high for the fact that the results of existing literature are not conclusive. More over the unique nature of commercial banking in Ethiopia, such as high state owned bank domination, nonexistence of foreign bank could also add to literature.

In line with its general objective the paper tried to answer the following basic research questions:

1. How far credit risk affects profitability performance of commercial banks in Ethiopia?
2. Is there a statistically significant relationship between NPLR and profitability of Ethiopian commercial banks measured by ROA and ROE
3. Is there a statistically significant relationship between LLPR and profitability of Ethiopian commercial banks measured by ROA and ROE
4. Is there a statistically significant relationship between CAR and profitability of Ethiopian commercial banks measured by ROA and ROE
5. Is there a statistically significant relationship between LTDR and profitability of Ethiopian commercial banks measured by ROA and ROE

RESEARCH DESIGN AND METHODOLOGY

The overall objective of this paper was to explore into the relationship between credit risk measures and profitability performance of commercial banks in Ethiopia. To achieve this objective the study used a quantitative research design.

Secondary data collected from audited financial reports of commercial banks and from national bank of Ethiopia. As of June 2012 there were 18 commercial banks operating in the country (NBE, 2012) of which 8 banks that had been in operation from 2001 to 2012 were purposively selected which resulted in a panel data of 96 observations. A STATA software version 11 was used to compute a descriptive statistics (mean, standard deviation, minimum and maximum) of study variable and a panel data regression analysis to explore the relationship between credit risk and profitability performance.

Model specification

This study adapted a panel data model previously used by Kolade et al. (2012) in their study of "Credit risk and commercial bank performance of Nigeria". Kolade et al. (2012) used ROA as a dependent variable in their model, but we used ROA and ROE, the two most common indicators of profitability in two different models. Moreover, we modified the model on the right hand side by adding CAR as explanatory variable. Thus the dependent variables in this study, profitability were measured by rate of return on asset (ROA) and rate of return on equity (ROE). The independent variable, credit risk, was also measured by the ratio of nonperforming loan to total loan and advance ratio (NPLR), loan loss provision ratio (LLPR), capital adequacy ratio (CAR) and loan to deposit ratio (LTDR). To account for unexplained change on profitability performance by credit risk measures used in the model error terms was included in the model.

The models are expressed as follows,

Model 1: $ROA = \beta_0 + \beta_1 NPLR + \beta_2 CAR + \beta_3 LAR + \beta_4 LLPR + e$

Model 2: $ROE = \beta_0 + \beta_1 NPLR + \beta_2 CAR + \beta_3 LAR + \beta_4 LLPR + e$

Where,

β_0= constant parameter/ constant term

$B_1 - \beta_3$= coefficients of independent variables

$ROA = \frac{\text{Net Income}}{\text{Total Asset}}$

$ROE = \frac{\text{Net Income}}{\text{Total owners' equity}}$

NPLR= Nonperforming Loan Ratio

CAR= Capital Adequacy Ratio

LAR= Loan and Advance Ratio

LLPR=Loan Loss Provision Ratio

e= error term

Definitions of variables

Return on assets (ROA)

Return on asset is the ratio of net income and total resource (asset) of the company. It measures the efficiency of banks management in generating profit out of its scarce resource. The more the amount of return on assets the better the efficiency of the bank management, which is good for the bank.

Return on equity (ROE)

Return on Equity (ROE) is the other variable used to measure profitability performance. It is a ratio of net income and total equity. It represents the rate of return generated by the owners' Equity.

Nonperforming loan ratio (NPLR)

This is the major indicator of commercial banks credit risk. It is the ratio of Nonperforming Loan to Total Loan. It represents how much of the banks loans and advances are becoming nonperforming which measures the extent of credit default risk that the bank sustained. As the amount of this ratio increase it will send bad message for the management of the banks because it shows high probability of none recovering the banks major asset.

Capital adequacy ratio (CAR)

Capital adequacy refers to the amount of equity and other reserves which the bank holds against its risky assets. The purpose of this

Table 1. Descriptive statistics of study variables.

Variable	Observations	MEAN	Std. dev	MIN	MAX
ROA	96	0.0236	0.00987	-0.00175	0.040254
ROE	96	0.2258	0.11722	-0.01418	0.703521
NPLR	96	0.1235	0.11838	0.0086	0.535
CAR	96	0.1153	.04414	0.037	0.294
LTDR	96	0.7324	0.21787	0.29687	1.60594
LLPR	96	0.0615	0.0536	0 0.2895	

Source: Authors' Computation.

reserve is to protect the depositor from any unexpected loss. The BASEL accord II requires banks to hold capital adequacy at least 8 percent of their risky assets.

Loan and advance to deposit ratio (LTRR)

To measure banks liquidity this research paper employed Loan to Deposit Ratio. This ratio indicates the ability of banks to withstand deposit withdrawals and willingness of banks to meet loan demand by reducing their cash assets. When the banks are more liquid, they can reduce risk of insolvency. This ratio provides more general information on the issue deposit because it takes no account the mix between time and demand deposit, and other issues. Even so, LTDR can be used as useful tools for assessing Banks liquidity.

Loan loss provision ratio (LLPR)

A loan loss reserve is a contra income account that enables banks to recognize in their profit and loss statements the expected loss from a particular loan portfolio(s). Depositors are protected against unexpected loss through capital adequacy reserve and protected against anticipated loss through loan loss provision reserve. Under Basel II, banks can include LLP under their capital. The basic assumption behind LLP is that banks managers reflect their belief toward the bank's asset quality. But most studies found that managers are using this reserve for different purposes like income soothing and earning management. On this paper the loan loss provision ratio is used to identify the level of banks' managers' expectation about their asset quality in Ethiopian banking industry. When the amount of Loan Loss Provision increases, the quality of the assets will decrease and vice versa.

Model diagnostic test procedure

Every estimator of the model should have to meet the OLS assumptions before the estimation is carried out. If the estimators of the model satisfy the OLS assumptions it is possible to say the estimators are BLUE (Best Linear Unbiased Estimators). According to Brooks (2008), the estimators of the models should satisfy four OLS assumptions. Accordingly we have conducted appropriate diagnostic tests for each OLS assumptions.

First, Breusch-Pagan test was used to test the problem of hetroskedasticity. Breusch-Pagan test assumes the error variance is a linear function of one or more variables. To test for multi-colinearity, we also checked the Variance Inflation Factor (VIF) and tolerance level. The third assumption of the OLS estimator is no serial correlation. To detect this problem the popular Derbin – Watson (DW) test was used. The other important assumptions of the OLS estimators are normality assumption that we tested using Shapiro wilk test.

RESULT AND DISCUSSION

This section of the paper is classified into description of the study variables and results of regression analysis.

Description of the variables

To provide a clear picture of profitability performance and credit risk indicators considered under study the descriptive statics, namely: mean, standard deviation, mean and maximum values computed for the sample observation of 8 selected commercial banks for a 12 years period are summarized in Table 1.

Profitability performance of Ethiopian commercial banks

To measure profitability performance, return on asset (ROA) and return on Equity(ROE) were employed in the study and the result on Table 1 showed that on average the banks under study earned a 2.36 percent return on asset with a 1 percent standard deviation. According to Flamini et al. (2009) a 2 percent rate of return on asset obtained in their study of banks in sub-Saharan African countries was viewed as higher than that of the ROA of banks in other parts of the world. Hence it can be argued that Ethiopian commercial banks had been efficient enough to generate a higher rate of return out of their asset. Flamini et al. (2009) also argued that high profitability of banks in sub Saharan Africa, where Ethiopia is located, may attribute to larger bank size, activity diversification, and private ownership. In case of Ethiopia also Kapur and Gualu (2010) argued that privatization contributes a lot for the profitability of Ethiopian banking industry. On the other side, it could also be argued that their profitability may not fully be attributed to good performance, but Ethiopian banks might get

advantage of less competitive nature of the banking market which remains restricted from participation of foreign owned banks. In line with this, Alen et al. (2011) on their review of African financial system pointed out that the interest rate spread among banks in east Africa, including Ethiopia is high. Among other things, Alen et al. (2009) contend that "*The wider spreads reflect the risk a bank is taking or the monopolistic nature of the banking sector in the region*."(p.25). This suggests that to maintain the prevailing high profitability commercial banks in Ethiopia, they should identify whether the source of their profitability attributes to real productivity and effectiveness or just aggressive risk taking behavior so as to maintain it in the future. Because if their profitability largely attributes to lack of competition those Ethiopian banks have been sheltered from foreign owned banks, they will face challenging future when Ethiopia's accession to world trade organization finalized or the banking sector becomes liberalized at some event.

Profitability performance measured by ROE in Table 1 also showed that Ethiopian commercial bank earned a 22.58 percent average ROE, with 7 percent of standard deviation. At the outset this might also suggest that Ethiopian banks had been producing good return for their owners during the periods under study. Nevertheless, literature of Navapan and Tripe (2003) doubts that getting this much return on equity may not always send a good message, but it may also result from having a small, inefficient and less competitive market.

Credit risk measure in Ethiopian commercial banks

With regard to credit risk measures, Table 1 indicated that the average NPLR in Ethiopia commercial banking industry for the last 12 years was 12.35% with standard deviations of 11.8%. The difference between minimum value (1%) and maximum (53%) and the standard deviations demonstrated that there existed high variability with the NPL ratio. The result in general implied that the accumulation of NPL which was claimed as critical problem of the banking sector on previous studies (Alemayhu, 1991; Zerayhu, 2005; Abraham, 2006; Teklebrhan, 2010) showed an improvement overtime. According to Gethun (2012) and Melkamu (2012) who studied nonperforming loan in Ethiopian commercial banks in recent years said it exhibited a sharp decline.

Capital adequacy ratio shows the proportion of owners' equity to total asset. Central banks use CAR as a protection of the depositors' money from credit risk and other failures. For this reason the minimum CAR is determined by the regulatory agencies. Internationally BASEL set 8% CAR for commercial banks. According to National bank of Ethiopia directive No SBB/24/99 the minimum requirement of CAR for Ethiopian banks is also 8, but the result on Table 1 indicated that the mean value for the last 12 years was 11.5 % with a standard deviation of 5 %. The minimum and maximum values were also 3.7 and 29.4, respectively. The average amount of CAR is higher than the minimum capital requirement of the BASEL and NBE showing that the bank has ability to bear loss results from loan default and other operational shocks. However, higher CAR may also diminish the profitability, competitive ability and growth capability of the banks for the fact that shareholders' fund is kept idle (Ezike and Oke, 2013). Thus requires consideration of commercial bank managers and the national bank.

The ratio of loan and advance to deposit is the most commonly used measure of bank liquidity. The ratio can also indicate how far the bank used depositors fund on credit activity which is prone to default risk. As per the descriptive statistics in Table 1 the average LTDR of Ethiopian banks was 73 percent (with s.dev = of 21.78 percent). The maximum and minimum values were 29.6 and 160 respectively, suggesting that the banks concentrate on lending business which is relatively riskier than other options to use depositor money. The maximum value also raises a surprise on how banks lend in excess of their total deposit and engaged in high risk taking activity.

In this respect, Willem (2013) mentioned that there is no international limit for the amount of LTDR ratio though some countries required a limit to this ratio. Though literature on finance stated that high risk and high return are correlated, in a condition where the banking sector was claimed to be encircled with high NPL for good number of years (Alemayhu, 1991; Zerayhu, 2005; Abraham, 2006), it showed a decline recently. This much concentration on lending could lead to accepting higher credit risk unless accompanied by a rigor credit risk management and strong effective loan service process.

The last variable used to represent credit risk is loan loss provision ration (LLPR). This ration shows the default risk that the bank expects to sustain from lending business. As per the result shown in Table 1, Ethiopian Commercial Banks maintained an average of 6 percent loan loss reserve amount with a standard deviation of 5.4 percent. The maximum and minimum values were also 0 and 29 % respectively. The required amount of LLPR is determined by central banks and regulatory agencies and the ratio differs from country to country (Angklomkliew et al., 2009). In Ethiopia, NBE requires a reserve for loan loss to be charged on bank revenue on the bases of the amount of classified loan categories. Accordingly a 1, 3, 20, 65 and 100% provisions are required for loan classified as pass, special mention, substandard, doubtful and loss respectively. Thus, the mean value of LLPR (refer Table 1) fall under special mention category implying that the proportion of loan classified as high probability to default seems low. The finding here is consistent with the NPLR ratio in Table 1 and previous

Table 2. Random effect estimate for Model 1.

Variables	Coefficients	Standard error (Robust)	Probability /Z/	Conf. interval	
NPLR	-0.0761173	0.0090986	0.0000**	-.0939503	-.0582844
CAR	0.044624	0.0424872	0.294	-.0386494	.1278974
LTD	-0.0005475	0.006254	0.930	-.0128051	.01171
LLPR	0.0816622	0.0146518	0.0000**	.0529453	.1103791
C	0.0232674	0.0064861	0.0000	.0105548	.0359799

R2 = 0.51; D.W= 1.19;N=96; Prob> chi2= 0.0000. Source: Authors' computation. * 5 percent level of significance; ** 1 percent level of significance; Model 1; ROA= β0+ β1NPLR+ β2CAR + β3LTD + β4LLPR. Model 1; ROA= 0.02-0.076NPLR+ 0.044CAR + 0.081LLPR.

studies(Gethun, 2012; Melkamu, 2012) that indicated that NPL in Ethiopian commercial banks has started declining which shows a decline in credit default risk or improved credit risk management performance of the banks.

Results of regression analysis

As stated in research design and methodology section, the study used two models to estimate the quantitative effect of credit risk measuring variables (NPLR, LLPR, CAR and LTDR) on profitability of commercial banks in Ethiopia measured by ROA and ROE. The models were tested for OLS assumptions before estimation and the results of both models are presented in Tables 2 and 3. To control the presence of heteroskedasticity and autocorrelations the standard errors of the estimators are made to be robust. As observed in Table 2, the R^2 of model 1 is 52 percent indicating that credit risk indicators, independent variables in the model (NPLR CAR LTD and LLPR) explained 52 percent of the variance in profitability performance of Ethiopian commercial banks measured by ROA.

With regard to the effect of each independent variable, the results in Table 2 showed that, the rate of nonperforming loan to total loan and advances (NPLR) negatively affected profitability measured by ROA at a 0,01 level of significance. This suggests that a unit increase in nonperforming loan amount will result in 0.07 units decrease in ROA, citrus paribus. Contrary to this, the rate of loan loss provisions (LLPR) showed a positive effect at a 0.05 level of significance. This means that holding all other variables constant, a unit increase LLPR brings a 0.08 units change on ROA. The result in Table 2 however does not reveal statistically significant effect of CAR and LTDR on ROA.

The result from the second model (Table 3) also showed that R^2 is 46 percent suggesting that the independent variables in the model explained 46 percent of the variation on profitability performance measured by ROE.

With respect to the effect of each independent variable, the result in Table 3 indicated that NPLR and CAR negatively affect ROE at 0.01 and 0.05 level of significance respectively. Yet, LLPR showed positive effect and significant at 0.01 level. Holding all other variables constant a unit increase in the level of NPL, ROE is expected to decrease by 0.62 units. A unit increase in the amount of capital adequacy will also lead to a decrease of ROE by 1.02 units.

Intriguing finding of the study is the positive effect of LLPR on ROE as it had with ROA. Holding all other variables constant a unit increase in the level of Loan Loss Provision Reserve, ROE expected to increase by 0.83 units. The result in Table 3 in general showed ROE of commercial banks in Ethiopia is highly sensitive to ratio of nonperforming loan to total loan and advance (NPLR), capital adequacy ratio (CAR) and loan loss provision rate (LLPR). Yet, the effect LTDR having on ROE was not statistically significant at all.

Discussion on regression results

The impact of nonperforming loan on profitability

Observation from Table 2 suggested that NPLR which measures the extent of credit default risk sustained by the banks showed a statically significant large negative effect on profitability measured by ROA. The result in this respect is consistent with findings of Poudel (2012); Funso et al. (2012) and Chen (2008). Consistent with the findings of previous studies on Ethiopian banks and elsewhere, the criticality of credit default risk on efficient utilization of asset by Ethiopian commercial banks emerged from this study. The good thing is that the descriptive statics and the observation of the trend on NPL in Ethiopian banks as per the study of Getahun (2012) and Melkamu (2012) showed a sharp decline indicating that managers and policy makers in Ethiopia have enhanced credit risk management mechanism in the banking industry. With respect to profitability measured by ROE which indicates how far the owners earned from their investments in Ethiopian commercial banks, NPL

Table 3. Random effect estimate for Model 2.

Variables	Coefficients	Standard error (Robust)	Probability /Z/	Conf. Interval	
NPLR	-.619229	.121868	0.000**	-.8580859	-.380372
CAR	-1.021093	.4004441	0.011*	-1.805949	-.236237
LTDR	-.0677818	.0667983	0.257	-.1893091	.0537454
LLPR	.8317095	.2387132	0.001*	.3638402	1.299579
C	.4185701	.0926247	0.000	.2370291	.6001111

R2 = 0.46; D.W= 1.51; N=96; Prob> chi2 = 0.0000; Source: Authors' computation.* 5 percent level of significance; ** 1 percent level of significance. Model 2; ROE= β0+ β1NPLR+ β2CAR + β3LTD + β4LLPR; Model 2; ROE= .042 - .62NPLR -1.2CAR + .83LLPR.

showed a significant negative effect. The Negative impact of NPLR on ROE is supported by the finding of Achou and Enguh, (2008). However compared with the impact of NPL on ROA, the impact is high on ROE.

The result in this study therefore, suggested the need for strong credit risk and loan service process management must be adopted to keep the level of NPL as low as possible which will enable to maintain the high profitability of commercial banks in Ethiopia.

The impact of loan loss provisions ratio (LLPR) on profitability

Surprisingly, loan loss provisions ratio which is a forward looking measure of credit risk is found to have a significant positive effect on profitability measured by both ROA and ROE. This might suggest that the lending business in Ethiopian banks as presumed by mangers is risky though it could turn to high profit. Despite such expectation, the sharp decline in NPL (Getahun, 2012; Melkamu, 2012) could also suggest that the managers clearly recognized the risk arising from lending business and strengthen their credit risk management capability in addition to allowing high loan loss provisions to loan and advances.

The alternative explanation as per Liu and Hu (2012) might be that a positive relationship between performance and LLPR of commercial banks signals the use of LLPR for the purpose of earning management. Earnings management is defined by Healy and Wahlen (1999) cited in Muhammad et al. (2012) as a distortion to real reflections of economic events that take place in an organization through the use of managerial judgment. Though taking the alternative to the context of Ethiopian banks demands a further investigation, it is possible to suggest strict consideration of regulatory for the fact studies in different countries (Anandarajan et al., 2003; Muhammad et al., 2012) conclude that positive relationship between LLPR and profitability showed the presence of earning management by the management.

The effect of capital adequacy ratio (CAR) on profitability

Consistent with the findings of Büyükşalvarcı and Abdioğlu (2011) and Qin and Dickson (2012), this study showed that CAR has a significant negative effect on ROE, but not on ROA. Holding all other explanatory variables constant, a one unit increase in CAR, ROE is expected to decrease by 1.02 units, which is an inverses relationship. In this respect, Ezike and Oke (2013) mentioned that holding capital beyond the optimal level would inversely affect the efficiency and profitability of commercial banks. Though the minimum CAR requirement of commercial banks in Ethiopia is 8%, the descriptive statics in Table 1 indicated the average CAR of the banks under study was about 11.5%, higher than the minimum requirement. Taking the argument by Ezike and Oke (2013) the prevailing negative relationship between CAR and Profitability (ROE) appears to result from having reserve beyond the necessary amount enough to handle unexpected risk the banks may encounter.

The other independent variable which is used to measure the liquidity level and its impact on the banks is not significant at 1, 5 and 10 percent level of significance and it is not possible to infer it.

CONCLUSION AND SUGGESTIONS

The paper tries to identify the prevailing relationship between credit risk and profitability performance of commercial banks in Ethiopia. Previous studies in Ethiopia were very few and studies in general were inconclusive. Motivated to fill this gap a descriptive statics and panel data regression analysis were employed on secondary data collected from 8 commercial banks for a 12 years period (2003-2012).

The result revealed that credit risk profile of Ethiopian banks had been improving during the study period. The ratio of nonperforming loan and loan loss provision ratio

are sharply declining in recent past. Even as the NPL reached minimum, the LLPR is about 6 %. The capital adequacy ratio of commercial banks was also found a little bit higher than regulatory requirement at local and international level, but the descriptive analysis indicated commercial banks in Ethiopia have adequate capital to withstand shocks resulting from credit and other operational risks.

This study found that credit risk measures: non-performing loan, loan loss provisions and capital adequacy have a significant impact on the profitability of commercial banks in Ethiopia.

Having the significant overall effect credit risk on profitability of commercial banks in Ethiopia, it is suggested that a rigor credit risk management process is of paramount importance. Hence managers are advised to employee a modern credit risk management technique and diversify the earning activity of their respective banks. The significant positive relationship between Loan loss provision and commercial banks performance on this study might indicates the presence of potential earning management activities by bank managers.

Conflict of Interests

The authors have not declared any conflict of interests.

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