

AN EMPIRICAL STUDY ON THE EFFECT OF BAD LOANS ON BANKS' LENDING POTENTIAL AND FINANCIAL PERFORMANCE: THE CASE OF SMES LENDING IN GHANA

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ABSTRACT

This paper assesses the effect of bad loans on the lending potential and financial performance of banks. Secondary data that span a period of 5 years (2008-2013) is used. This data is sourced from the annual reports of four banks listed on Ghana Stock Exchange. Pearson's correlation test and ordinary least squares regression are used to analyse data. A high negative correlation between bad loans and lending potential (i.e. amount allocated each year by banks for lending to SMEs) is found at 5% level of significance, $r(20) = -0.824$, $p = .000$. Also, bad loans make a high negative correlation with return on investment or net profit at 5% significance level, $r(20) = -0.917$, $p < .05$. Bad loans significantly predict lending potential at 5% significance level ($t = -6.174$, $p < .000$), where bad loans account for 67.9% of the variation in in this respect. Moreover, bad loans significantly predict net profit at 5% significance level ($t = -9.77$, $p < .000$), with 84.1% of the variation in net profit accounted for by it. It is therefore evident that banks would have to hedge against the realisation of bad loans to maximise their financial performance, and to improve access to credit facilities to creditworthy SMEs and other borrowers.

KEYWORDS: Lending, Bad Loans, Loan Default, Commercial Banks, Smes, Smes Lending, Lending Potential

INTRODUCTION

Commercial banks and their sustainable growth are undoubtedly relevant to industrial development. This is because the banking sector is among the very few sectors that contribute to economic growth in various dimensions. First of all, we see commercial banks contributing to economic growth by paying taxes and creating employment. Moreover, commercial banks constitute the anchor of the growth of other sectors by providing them access to credit facilities in the form of loans. Moreover, much empirical evidence exists on the contribution of commercial banks to financing specific firms and sectors. According to a 2012 report of Standard Chartered Bank (SCB) Ghana, a sector that receives the highest level of financial support from commercial banks is the small and medium-size enterprises (SMEs) sector.

The highest level of contribution to GDP in Ghana comes from the SMEs sector. Historically, Ghana's economic growth has mainly been driven by the SMEs sector, with this sector accounting for up to 90% of employment in Ghana (Ahiabor, 2013). Additionally, a greater part of business infrastructure in Ghana is attributed to the SMEs sector (Quaye, 2011; Agyei, 2012). A 2012 report by Standard Chartered Bank (SCB) Ghana indicates that SMEs globally account for up to 95% of enterprises, 2/3 of the labour force, and contribute between 30% and 60% of GDP.

Mensah (2004) also acknowledges the superior contribution of the SMEs sector to economic growth by stating that Ghana's economy takes its life from the growth of SMEs. In essence, the economic growth condition of Ghana would be abysmally poor if the SMEs sector fails to exist or grow. Yet, the existence and growth of SMEs is believed to be dependent of the financial support of the banking sector.

Empirical studies have pointed to the contribution of commercial banks to the financial performance of SMEs both locally (Ahiabor, 2013; Mensah, 2004; Quaye, 2011; Agyei, 2012; Gyamfi, 2012) and internationally (Wang, 2013; Hassan, 2008). At the local level, lending activities among commercial banks support the growth of SMEs in virtually all regions of Ghana (Ahiabor, 2013; Mensah, 2004; Quaye, 2011; Agyei, 2012; Gyamfi, 2012). This situation is also a common feature of other countries such as Malaysia (Muhammad et al. 2010), Nigeria (Obamuyi, 2007), China (Wang, 2013), Kenya (Mwobobia, 2012) and Iran (Hassan, 2008). As a result, the contribution of commercial banks to the growth of SMEs is not limited to one country or jurisdiction.

A media briefing report of SCB Ghana indicates that commercial banks give utmost priority to lending to SMEs in view of their immense contribution to economic development. The report also indicates that commercial banks tend to focus attention on the financial needs of the SMEs sector because SMEs have the best growth potential and opportunities. A personal observation of their annual reports shows that commercial banks in Ghana increase their lending to SMEs from one year to the other, at least from the year 2008 to 2012. In fact, some banks such as SCB Ghana and Stanbic Bank double their investment in SME lending for the period. This situation attests to the fact that commercial banks are committed to providing financial aid to the SMEs sector as acknowledged in the 2012 media briefing report of SCB Ghana. The personal observation of banks' annual reports also shows that the higher the financial commitment made by commercial banks to the financial needs of SMEs in a particular year, the higher the sum of bad loans experienced by them.

Bad loans result from the inability of debtors to repay their loans and their interests within the specified time (Aballey, 2009), resulting in adverse effects on the financial condition of the creditor (Aballey, 2009; Agu & Okoli, 2013). In the context of this study therefore, a bad loan is the consequence of an SME not being able to repay its loan, resulting in a negative financial effect on a commercial bank. Logically, bad loans take their name from the fact that they are practically in opposition to the financial situation of the bank. By the time they are referred to as "bad loans", there is the fear that the amounts involved and their interest cannot be fully paid by the debtor (Chelagat, 2012; Awunyo-Vitor, 2013). In this regard, a financial loss is encountered instead of a profit, leading to adverse effects on the commercial bank, the defaulting SMEs and other corporations and individuals who would like to borrow from the commercial bank in future.

Bad loans need to be avoided in view of the fact that their effects are multidimensional; thus they do not only hinder profitability among commercial banks, but they also limit lending to the defaulting SMEs, individuals and other corporations. This assertion is based on evidences in Ghana (Appiah, 2011; Awunyo-Vitor, 2012; etc.) and in foreign countries (Karim et al. 2010; Obamuyi, 2007; Nguta & Huka, 2013; etc.).

Research studies have shown that bad loans make two major effects on banks. These effects are the limitation of bank's financial performance and lending potential. In a foreign country context, this evidence is acknowledged by Karim et al. (2010), Obamuyi, (2007), Nguta & Huka, (2013), Nawaz et al., (2012), Fidrmuc & Hainz (2009), Chelagat (2012) and Aballey (2009), whereas Appiah (2011) and Awunyo-Vitor (2012) also provide this evidence in a Ghanaian context.

Though these evidences on the effect of bad loans on banks prevail, it is realised that the general contribution to academic debate on the subject is weak owing to the fact that studies on the subject are generally few, and most of them provided their evidences based on meta-analysis and literature reviews. This paper provides related evidence using secondary data and empirical analysis, which provides a more valid and verifiable estimation of the effect of bad loans on banks. This study is however limited to SMEs lending in Ghana because much of the lending activities of banks is geared towards SMEs' financial needs.

OBJECTIVE OF THE STUDY

The objective of this study is to examine the effect of bad loans on banks on the basis of their lending potential (i.e. amounts allocated yearly for SMEs lending) and their net profit (i.e. return on investment). The study is conducted to contribute to the limited academic debate on the negative effects of bad loans on commercial banks. The study also contributes to the public's knowledge about the effect of bad loans on commercial banks.

LITERATURE REVIEW

The 2013 Ghana Banking Survey indicates that many commercial banks in Ghana are encountering massive bad loans. The situation is considered serious because the country's major banks such as Ghana Commercial Bank, Ecobank (Ghana) Limited, Stanbic Bank (Ghana) Limited and Standard Chartered Bank (Ghana) Limited are facing the same problem. The report does not reveal the exact repercussions of the situation; but based on other evidences, it is certain that bad loans appal the financial condition of banks.

At large, the main effect of bad loans on banks is the fact that increasing bad loans limit the financial growth of banks (Karim, Chan & Hassan, 2010; Kuo et al., 2010). This consequence is as a result of the fact that bad loans deprive banks of the needed liquidity and limit their capability to fund other potentially viable businesses and make credit facilities available to individuals. Karim et al. (2010) argues that there are a lot of other viable businesses that the bank cannot explore as a result of the fact that its funds are caught up in bad loans. In the face of these consequences, the bank experiences a shortfall in generated revenues (Ghana Banking Survey, 2013), and this translates into reduced financial performance (Karim et al., 2010; Nawaz et al. 2012; Ghana Banking Survey, 2013).

Another basic effect of bad loans on the bank is a reduction in the bank's lending potential (Karim et al., 2010). Though this has been acknowledged earlier, it is important to discuss it as a primary independent effect. Banks make a greater part of their revenues and profit from lending activities (Karim et al., 2010; Nguta & Huka, 2013). As a result, when banks lose much of their lending capital to bad loans, it is likely that a greater part of their revenue is lost. Once revenue is lost in one financial year, the capability of the bank to provide access to credit facilities to other businesses and individuals would practically fall in the following financial years. This means that the bank would fail to lend, or it would reduce its amount allocated to lending in the next financial year. In this study, the amount located to lending is referred to as annual "loan size".

Research studies have shown that the effect of bad loans on the bank in terms of net financial performance (i.e. return on investment/net profit) and lending potential (i.e. annual loan size) is practical and realistic. These studies would be identified from the perspectives of foreign countries and Ghana. The studies of Karim et al. (2010), Obamuyi, (2007), Nguta & Huka, (2013), Nawaz et al., (2012), Fidrmuc & Hainz (2009), Chelagat (2012) and Aballey (2009)

provide such evidence in a foreign country context. Apart from the report in Ghana Banking Survey (2013), a few other studies (Appiah, 2011; Awunyo-Vitor, 2012) have shown that bad loans negatively influence banks in terms of financial performance and lending potential in Ghana.

Despite the above research-related evidences on the effect of bad loans on banks, it is realised that the general contribution to academic debate on the subject is weak. This is because studies on the subject are generally few, and most of them provided their evidences based on meta-analysis and literature reviews. The same gap is identified with studies conducted in a Ghanaian context. However, a lack of related studies in a Ghanaian context is direr. The special interest of the researcher in this study is to provide related evidence using secondary data and empirical analysis, which provides a more valid and verifiable estimation of the effect of bad loans on banks. This study is however limited to SMEs lending in Ghana because much of the lending activities of banks is geared towards SMEs' financial needs. The study is based on the alternative hypotheses stated in the next section. The alternative hypotheses are formulated based on the following conceptual framework.

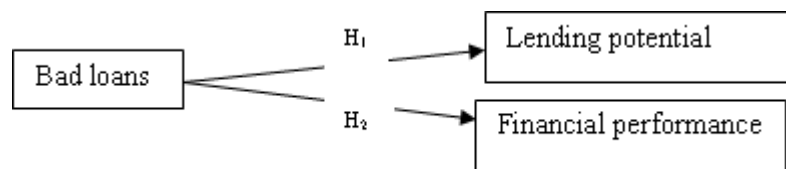


Figure 1: Conceptualisation of the Effect of Bad Loans on Banks

ALTERNATIVE HYPOTHESES

H₁: Bad loans significantly make a negative effect on the lending potential of banks in terms of yearly financial allocation for SMEs lending.

H₂: Bad loans significantly make a negative effect on the net profit of banks in terms of return on investment (ROI).

METHODOLOGY

A quantitative research technique is employed in this study, where the study's hypothesis is tested using inferential statistical procedures and tools. Secondary data on banks' return on investment, capital allocation for SMEs lending and bad debts is used in this study. The source of this data is four commercial banks listed on Ghana Stock Exchange (GSE), namely Ecobank Ghana Limited, Ghana Commercial Bank Limited, CAL Bank and Standard Chartered Bank Ghana Limited. Banks on GSE are used in this study because, unlike other banks not listed on GSE, data on the variables of interest is accessible owing to their public nature.

Data used span a period of 5 years; 2008-2013. Therefore, 20 yearly observations of the variables are incorporated in data analysis.

Data is analysed using XLSTATS, a multivariate statistical software. This software is used owing to its robustness in terms of detailed inferential data analysis. Pearson's correlation test and ordinary least squares regression analysis are used to analyse data. These statistical tools are used with respect to their specialised function in terms of correlational analysis. Data analysis is based on the assumption that data employed are normally or approximately normally distributed.

As a result, the Shapiro-Wilk's test is used in testing for data normality.

RESULTS

In this section, findings of the study are presented. It is worth mentioning that the validity of results is based on the assumption that data employed are normally or approximately distributed. In other words, it is assumed that the distribution of data used follows a normal distribution. This assumption must be satisfied as a basis of reaching a valid conclusion in this study. Table 1 is associated with a test for data normality.

Table 1: Normality Test

Variable	Statistic	P Value
Bad loans ('0000)	0.231	0.295
Annual loan size ('00000)	0.198	0.322
Net Profit	0.034	0.987

Table 1 shows results of the Shapiro-Wilk's test of normality of data. Generally, this test employs the null hypothesis that data associated with the study's variables, as seen in Table 1, are normally distributed. This hypothesis is tested at 5% significance level. For data associated with each variable to be normally distributed, its p-value must be greater than the chosen level of significance. From the table, this criterion is satisfied for each variable ($p > .05$). The higher the p-value of a variable, the more uniform the distribution of its data. Hence, Net Profit comes with the most normally distributed data. Impressively, all data used are normally distributed. This forms a basis for making valid conclusions in this study.

Table 2: Descriptive Statistics

Variable	Observations	Minimum	Maximum	Mean	Std. Deviation
Bad loans ('0000)	20	5.000	25.000	14.435	7.621
Annual loan size ('00000)	20	9.010	89.000	33.331	28.085
Net profit	20	0.020	0.090	0.046	0.023

Table 2 shows descriptive statistics associated with the three variables of the study. From the table, the banks have quite a considerable amount of bad loans ($M = 14.453$, $SD = 7.62$), though the amount of loan given out annually to SMEs as loan is relatively larger ($M = 33.331$, $SD = 28.085$). Also, banks make a positive net profit ($M = 0.05$, $SD = 0.02$), though quite low. It is worth noting that figures for bad loans are in 1,000s of cedis, whereas those for loan size are in 100,000s of cedis. Net profit is measured in percentages (%) or in return on investment.

Table 3: Correlation between Bad Loans and Annual Loan Size

Variables	Bad Loans ('0000)	Annual Loan Size ('00000)
Bad loans ('0000)	1.000	-0.824
Annual loan size ('00000)	-0.824	1.000
Bad loans ('0000)		.000
Annual loan size ('00000)	.000	

Table 3 shows the correlation between bad loans and annual loan size. The null hypothesis being tested is that bad loans do not significantly influence annual loan size (i.e. the amount of money the bank is able to set aside for lending to SMEs in a year). This hypothesis is tested at 5% significance level. From the table, the test is significant or the null

hypothesis is rejected at the chosen level of significance, $r(20) = -.824$, $p = .000$. Thus there is a significantly high negative relationship between bad loans and annual loan size. This means that as the banks encounter a higher amount of bad loans, their annual financial allocation for SME lending reduces at a large extent. This means that bad loans limit the lending potential of banks. The next table indicates the coefficient of determination of this relationship.

Table 4: Model Summary (Prediction of Annual Loan Size)

Observations	20.000
DF	18.000
R ²	0.679
Adjusted R ²	0.661

Table 4 shows the coefficient of determination for the relationship between bad loans and annual loan size. From the table, the coefficient of determination (R^2) is quite high at 67.9%. This means that bad loans account for 67.9% of the variation in annual loan size. Since the relationship between the two variables is negative, this implies that bad loans account for 67.9% of a negative effect on annual loan size. Results in Table 5 indicate if simple linear regression has enabled the researcher to better estimate the relationship between bad loans and annual loan size.

Table 5: ANOVA (Prediction of Annual Loan Size)

Source	DF	Sum of Squares	Mean Squares	F	P Value
Model	1	10179.320	10179.320	38.113	.000
Error	18	4807.475	267.082		
Corrected Total	19	14986.795			

Table 5 is an ANOVA test associated with the regression of annual loan size from bad loans. This test helps to find out whether regression is a better way of expressing the relationship between the two variables. This test is done at 5% significance level. From the table, the test is significant, $F(1, 18) = 10179.32$, $p < .05$. This means that regression is a better way of expressing the relationship between the two variables. As a result, the coefficients of this relationship can be validly found and modelled. Table 6 shows these coefficients.

Table 6: Coefficients (Prediction of Annual Loan Size)

Source	Value	Standard Error	T	P Value	Lower Bound (95%)	Upper Bound (95%)
Intercept	77.174	7.987	9.663	.000	60.395	93.954
Bad loans ('0000)	-3.037	0.492	-6.174	.000	-4.071	-2.004

Table 6 shows the coefficients of predicting annual loan size from bad loans. From the table, bad loans significantly predict annual loan size at 5% significance level ($t = -6.174$, $p < .000$). Moreover, a unit change in bad loans decreases the conditional mean of annual loan size (i.e. SME lending potential) by 3.04 within a confidence interval of -4.07 and -2. This means that bad loans have a negative effect on annual loan size. The relationship between the two variables can be expressed as follows:

$$\text{Annual Loan Size} = 77.17 - \text{Bad Loans} * 3.03$$

The relationship indicates that bad loans have a limiting effect on banks' SME lending potential in each financial year, where annual loan size represents banks' lending potential. In the next session of the analysis, the relationship

between bad loans and net profit (return on investment) is examined.

Table 7: Correlation between Bad Loans and Net Profit

Variables	Bad Loans ('0000)	Net Profit
Bad loans ('0000)	1.000	-0.917
Net profit	-0.917	1.000
Bad loans ('0000)		.000
Net profit	.000	

Table 7 shows the correlation between bad loans and net profit or ROI. The null hypothesis is that bad loans do not influence net profit among banks. This hypothesis is tested at 5% significance level. From the table, there is a strong negative relationship between bad loans and net profit, $(20) = -0.917, p < .05$. This means that banks' net profit decreases as their bad loans increases. Thus bad loans hinder financial performance of banks. In Table 8, the coefficient of determination of this relationship is shown.

Table 8: Model Summary (Prediction of Net Profit)

Observations	20.000
DF	18.000
R ²	0.841
Adjusted R ²	0.833

Table 8 shows the model summary of the relationship between bad loans and net profit. From the table, bad loans account for 84.1% of the variation in net profit. This means that the degree to which bad loans limit financial performance among banks is very high. Table 9 is an ANOVA test that indicates whether regression is a better way of expressing this relationship.

Table 9: ANOVA (Prediction of Net Profit)

Source	DF	Sum of Squares	Mean Squares	F	P Value
Model	1	0.009	0.009	95.454	.000
Error	18	0.002	0.000		
Corrected Total	19	0.010			

Table 9 is an ANOVA test associated with the prediction of net profit from bad loans. This test indicates whether regression is a better way of expressing the relationship between bad loans and net profit. From the table, this test is significant at 5% significance level, $F(1, 18) = 95.45, p < .05$. This means that using regression is an improved way of expressing the relationship between bad loans and net profit. Having known this, Table 10 comes with the coefficients of this relationship.

Table 10: Coefficients (Prediction of Net Profit)

Source	Value	Standard error	t	P value	Lower bound (95%)	Upper bound (95%)
Intercept	0.087	0.005	18.687	.000	0.077	0.096
Bad loans ('0000)	-0.003	0.000	-9.770	.000	-0.003	-0.002

Table 10 shows the coefficients of predicting net profit from bad loans. From the table, bad loans significantly predict net profit at 5% significance level ($t = -9.77$, $p < .000$). Moreover, a unit change in bad loans decreases the conditional proportion of net profit by 0.3% within a confidence interval of -0.3% and -0.2%. This means that bad loans have a negative effect on net profit. The relationship between the two variables can be expressed as follows:

$$\text{Net Profit} = 8.7\% - \text{Bad Loans} * 0.3\%$$

The relationship indicates that bad loans have a limiting effect on banks' financial performance, and possibly financial growth in each financial year. The two null hypotheses of this study are therefore not confirmed. Therefore, the alternative hypotheses are retained. The conclusion is that net profit and banks' SME lending potential are highly hindered by bad loans.

DISCUSSIONS

Findings of this study indicate that bad loans make a major negative effect on banks' lending potential and financial performance in terms of return on investment. The evidence drawn in this paper is that there is a high negative correlation between bad loans and amount allocated each year by banks for lending to SMEs at 5% level of significance, $r(20) = -.824$, $p = .000$. This means that as the banks encounter a higher amount of bad loans; their annual financial allocation for SME lending reduces at a large extent.

This result corroborates acknowledgements (Appiah, 2011; Awunyo-Vitor, 2012) in the literature from a Ghanaian point of view. Moreover, Karim et al. (2010) and other researchers have revealed that this relationship is realistic from a foreign country perspective. The essence of this support is that the negative effect of bad loans on lending potential is a practical and general phenomenon. Yet, the evidence is twin the finding that bad loans make a high negative correlation with return on investment or net profit at 5% significance level, $(20) = -.917$, $p < .05$.

Relative to financial performance, bad loans make a smaller effect on lending potential. Thus bad loans affect financial performance (84.1%) more than it affects lending potential (67.9%). This is logically because money lost to bad loans could be used in other non-lending banking activities that would make positive effect on financial performance. Banks inability to have access to sufficient funds to implement their financial activities, owing to a realisation of bad debts, makes a major effect on their financial expectations relative to reinvesting in loans.

Support for this study's result is weak on the basis of the fact that previous evidences are not based on empirical findings but on meta-analysis, literature reviews and cursory observations of trends in bank growth relative to loan default (Agu & Okoli, 2013; Appiah, 2011). This situation constrains comparative analysis on the strength of the relationship between bad loans and lending potential, and bad loans and financial performance. In line with the recommendation of Karim et al. (2010), there is therefore the need for more empirical studies to be conducted to estimate the actual effect of bad loans on financial performance and ending potential.

CONCLUSIONS

Based on findings of this study, it is concluded that bad loans make a major negative effect on banks' lending potential and financial performance in terms of return on investment. This conclusion is made by retaining the two alternative hypotheses of this paper. The evidence is that there is a high negative correlation between bad loans and amount allocated each year by banks for lending to SMEs at 5% level of significance, $r(20) = -.824$, $p = .000$. This means that as

the banks encounter a higher amount of bad loans; their annual financial allocation for SME lending reduces at a large extent. Also, bad loans make a high negative correlation with return on investment or net profit at 5% significance level, $(20) = -.917, p < .05$. This relationship is further expressed in a regression analysis.

In this respect, bad loans significantly predict annual loan size at 5% significance level ($t = -6.174, p < .000$), where bad loans account for 67.9% of the variation in annual loan size. Since the relationship between the two variables is negative, this implies that bad loans account for 67.9% of a negative effect on annual loan size. Moreover, bad loans significantly predict net profit at 5% significance level ($t = -9.77, p < .000$), with 84.1% of the variation in net profit accounted for by it. Comparatively, bad loans make a larger negative effect on net profit relative to lending potential (i.e. annual loan size given to SMEs).

RECOMMENDATIONS

It is evident that banks would have to hedge against the realisation of bad loans to maximise their financial performance, and to improve access to credit facilities to creditworthy SMEs and other borrowers. Since banks' contribution to employment, tax return and GDP growth is naturally dependent on their net profit and financial growth, bad loans make an indirect effect on the economy. As a result, SMEs, banks and the public at large must take measures to avoid loan default to accelerate economic growth and growth among banks. For instance; SMEs have the role of making productive use of loans given to them by banks. This way, they will be able to pay their debts. The government has the role of improving the economy so loans can yield their expected returns to SMEs. Banks are also expected to offer loans with substantially low interest rates under flexible conditions of payment.

Related future studies are needed on the subject. It is important to increase the number of participating banks from 4 to at least 15 so that results and conclusions will reflect the entire banking industry in Ghana. Future studies could also incorporate employment, remuneration and asset base as dependent variables in this study.

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