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I. Background of the Study

Commercial banks are the most important savings, mobilization and financial resource allocation institutions. Consequently, these roles make them an important phenomenon in economic growth and development. In performing this role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments. Both theoretical and empirical finance literature suggests that the availability of bank credit is important determinants of economic growth and development in developing economies. However evidence shows that banks in these economies are reluctant to extend long-term credit to private businesses. Some factors influencing this reluctance are the unstable local government economic policies and the riskiness and opacity of business borrowers in these countries Djiogap and Ngomsi (2012).

Many firms especially those in developing economies rely on banks for financing since capital markets in those countries may not be well-developed and efficient. These firms that are rather small and medium-scaled cannot finance their projects by issuing securities in financial markets. They usually borrow funds at loanable funds market from financial institutions and often through banks. Therefore, changes in credit supply directly affect the investment projects and budget constraints of firms and thus their spending decisions (Saarenheime, 1995).

A deterioration in a banks' asset quality serve as indicator of the risk levels being assumed by banks, hence tighten credit standards leading to a reduction in future banks' lending to reduce its risk levels. The impact of bank asset quality on lending behaviour is both direct and indirect. With the direct effect, a deterioration in bank loan assets indicates that banks are taking on high risks and hence banks cannot build up its risk levels ad infinatum, they tighten credit standards which will reduce the number of loan applicants as well as successful loan applicants. With the indirect effect, incurring losses from non-performing loans demands loan write-offs which depletes the equity capital of banks. This would in-turn affect the bank's ability to write more loan businesses, hence reduction in lending, called the capital crunch by Richard Syron former president of the Boston Federal Reserve (Bernanke et. al., 1991).

With the asset quality posing a threat to the financial stability of the banking sector (IMF, 2011), this study seeks to examine the persistence of bank asset quality of Ghanaian banks on the lending behaviour of Ghanaian banks. The rest of the paper is organized into section 2 focused on stylized facts about the Ghanaian banking industry, section 3 reviews the empirical literature, methodology is discussed in section 4 and discussion of findings dealt in section 5. Section 6 concludes the study.

II. Overview of Ghanaian Banks

The first bank to be established in West Africa was the branch of Africa Banking Corporation of South Africa (ABC) in September 1891 in Lagos, Nigeria. Due to disputes with local powerful merchants, the directors of ABC with their predominately South African interest withdrew from Lagos in March, 1893. However, one Sir Alfred Jones and his assistant bought the Lagos office of ABC and incorporated a new banking company to take over the ABC Lagos branch, Known as the Bank of British West Africa Ltd (BBWA), the new bank was registered in the UK on 30th March 1894 (Anin, 2000). A

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branch of BBWA was established in Accra in 1896 followed by the opening of new branches in Sekondi (1902) and Kumasi (1906). The BBWA's expansion programme closely followed the parallel expansion of both the rail and the road development programme of the colonial government with the result that by 1916, 12 branches of the Bank had been opened in Accra, Sekondi, Obuasi, Tarkwa, Prestea, Half-Assini, Cape Coast, Kumasi, Winneba, Axim, Nsawam and Koforidua.

The BBWA enjoyed banking monopoly at this time. However, this monopoly ended in 1917 with the establishment in Accra of a branch of the Colonial Bank which had since 1836, operated in the West Indies, Anin (2000). Soon after the end of the First World War, the colonial bank expanded its branch network by opening branches in Sekondi and Kumasi. In 1925, Barclays concluded all the financial agreement which led to the merger of the colonial bank, the Anglo Egyptian Bank and the National Bank of South Africa to form a new bank known as Barclays DCO (Dominion, Colonial and Overseas). Thus, in 1926 the six branches of the Colonial Bank became branches of the Barclays Bank (DCO).

Financial distress afflicted all the public sector banks in the 1980s. The DFIs appear to have run into serious difficulties first, while the emergence of distress in the two main commercial Banks, GCB and SSB was delayed until the mid-1980s. All the banks were rendered insolvent by non-performing assets (NPAs) and had to be restructured in 1989-91. The NPAs included non-performing loans, letters of credit and equity investments which yielded no income. Non-performing loans amounted to ₵32 billion, representing 41% of all outstanding loans to the non-government sector (Kapur et al, 1991, pp 60-61).

After 1983, the banking sector saw a lot of reforms and entry of new banks into the country. Financial Sector Adjustment Programme (FINSAP II and I), Non-Performing Assets Recovery Trust (NPART) and the Foreign 41 Exchange Bureau legislation. A new Banking Law was also promulgated. Aside these reforms, prudential regulations were enacted to protect the stability of the financial system and deposits in ensuring the safety and soundness of the banking system. . The banking laws instituted in the Ghana since the financial distress of state banks include, the Banking Law, 1989 (P.N.D.C.L. 225), Bank of Ghana Act 2002, Act 612, the Banking Act, 2004 (Act 673) and the Banking Amendment Act 2007, (Act 783).

The new banks that entered the Ghanaian banking scene included; Ecobank, First Atlantic Bank, Continental Acceptances (now Cal Bank), Metropolitan and Allied Bank, Prudential Bank, Meridian/ The Trust Bank, International Commercial bank, Unibank, UT bank, Bank of Baroda, Sahel Sahara bank, Stanbic bank, HFC Bank, Amalgamated Bank and recently Standard Trust Bank (now United Bank of Africa, UBA), Zenith Bank, Intercontinental Bank, Access Bank and Guaranty Trust Bank all of Nigerian origin. Thus the banking system in Ghana consists of the Central Bank (BoG), 26 banks and about 151 Rural Banks. The rural banks are supervised by the ARB Apex Bank under the direction of Bank of Ghana.

Various products have been developed in the banking industry over the last decade. Automated teller machines (ATMs) have become common giving clients the freedom to transact business at their own convenience. Also home banking, for example telephone banking, SMS banking and internet banking have been introduced. the Payment Systems Act 2003 (Act 662) empowered the BoG to establish, operate, promote and supervise payment, fund transfers, clearing and settlement systems, subject to rules as it may publish and to designate any other payment, fund transfers, clearing and settlement systems operating in the country which the BoG considers to be in the public interest for it to supervise under the PSA. This lead to the roll out of rolled out the e-zwich, a national payment and settlements system that creates an electronic clearing house for all banking and financial institutions, as well as a biometric smartcard which is a very secure way of paying for goods and services.

Credit Reporting Act 2007 (Act 726) led to the creation of the credit reference bureau which is a repository of credit information and neutral entity that collates consumer credit information by soliciting creditors such as banks and other lending institutions to contribute and share their credit information on consumers. The main importance of the reference bureau is to bridge the information asymmetry in credit markets.

The Cheque Codeline Clearing (CCC) system was introduced in January 2010 to enable banks and other financial institutions to speed up the processing and settlement of cheque transactions. Under the system, depositors of cheques are expected to get value within three days.

III. Determinants of Bank Lending Behaviour : Related Studies

a) Asset Quality

The level of non-performing loans in bank's loan portfolio depicts the quality of bank loans which gives an an indication of the profitability bank lending activities. It requires the provision for write-offs of either portions or all of the loans. The write-offs are losses that the banks absorb with its equity capital, hence the banks reluctance to take new risks and commit new 'loans which is described as the credit crunch'. Lower bank asset quality signals banks as to their risk levels, therefore their reluctance to take on more risk through lending. This variable is entered in the model in both levels and lags forms. Amidu and Hinson (2006) found a

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contemporaneous between bank lending and credit risk. This study posits that it's rather the experience from giving bad loans that influences banks decision to extend more credit.

b) Deposits

Deposits forms majority of banks liabilities and plays an important role in the intermediation activities of banks. The decisions of banks management to lend are greatly influenced by the volume and cost of deposits to the banks. The interest paid on deposits ensures that banks should earn return over and above their cost of funds, hence the transformation of these liabilities to loan assets to generate interest income. The larger the volume of bank deposits, the more loan able funds available to the banks, hence the higher likelihood of given out more loans and advances.

A positive relationship is thus expected between deposits and bank lending behaviour. The deposits ratio is measured as the ratio of customer deposits to total bank liabilities.

c) Management Efficiency

The quality of banks' management is captured by the expenses they pay their employees with a highly skilled work force attracting higher salaries. A highly skilled banking staff are assumed to have better appreciation of loan markets, hence are able to differentiate bad loan from good ones, hence the less likelihood of granting loans which have low probability of default.

d) Equity Ratio

The equity ratio is an indication of the risk characteristics which is risk aversion. Bank capitalization can affect bank willingness and ability to extend long-term loans in several different ways. Banks with larger capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore increasing bank equity enhances the bank's capacity to increase lending. Bank capitalization is measured by the book equity to assets ratio. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for longer term loans. Alternatively, high levels of capital can reveal risk averse and conservatively managed banks that may be reluctant to issue risky long-term loans. Bouvatier and Lepetit (2007) and Djiogap and Ngomsi (2012) found that poorly capitalized banks are constrained to expand credit.

e) Income Diversification

The diversification of banking activities serves to stabilise bank income by focusing other sources of bank income which leads to decreased intermediation activities. This study proxies diversification as the ratio of non-interest income to total income. A negative relationship is expected between diversification and bank lending since diversification ensures that banks use its resources in non-interest generating activities.

f) Intermediation Spread

The spread between interest income and expense gives an indication of bank profitability. A higher spread means lending is profitable and thus profit driven bank management are more likely to lend more. Therefore, it is expected that higher interest margin will induce banks to give out more loans and advances. On the other hand, a higher spread gives an indication of a costly lending business leading to low risk borrowers being charged above average rates. This would reduce the loan customers, hence demand for loanable funds.

The point of departure of this study from literature (ie Amidu and Hinson, 2006) lies in its methodological approach. The often used non-performing loan ratio was used as a proxy for bank lending whereas it was hypothesised that the asset quality also has a persistence effect on bank lending behaviour. This study hypothesizes that, after building up its loan portfolio, there is a year's lag assessment of the performance of the portfolio by management after which decisions are made as to whether to continue expanding their loan portfolio to be more profitable or concentrate its efforts on improving its existing portfolio.

IV. Data and Methodology

This research considered 25 banks in Ghana covering the period from 2005 to 2010 using annual bank data. The data was obtained from the Bank of Ghana which serves as the regulatory body for Ghanaian banks. A pooled time series cross-section analysis was employed in the analysis of the data.

a) Measures of Asset Quality

In line with literature, this study posits the use of the non-performing loans ratio as a proxy for bank asset quality (ASQ) which is measured as the ratio of non-performing loans to gross loans and advance. Making use of a unique dataset which decomposes the non-performing loans into substandard loans ratio (SSLR), doubtful loans ratio (DLR) and loss loans (LLR). A more robust evidence is brought to the studies by also using the ratios of the three classes of non-performing loans as proxies for assets quality.

b) Empirical Model

To examine the impact of asset quality on bank lending behaviour, the study estimated the model below which was adopted and modified from Olokoyo (2011) and Djiogap and Ngomsi (2012) for the panel data analysis.

$$LEND_{i,t} = \alpha_i + \beta_1 ASQ_{i,t-1} + \beta_2 ASQ_{i,t} + \beta_3 DEPR_{i,t} + \beta_4 INTSPRD_{i,t} + \beta_5 INCDIV_{i,t} + \beta_6 MEFF_{i,t} + \beta_7 EQR_{i,t} + \varepsilon_{i,t}$$

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$$LEND_{i,t} = \alpha_i + \beta_1 LLR_{i,t-1} + \beta_2 LLR_{i,t} + \beta_3 DEPR_{i,t} + \beta_4 INTSPRD_{i,t} + \beta_5 INCDIV_{i,t} + \beta_6 MEFF_{i,t} + \beta_7 EQR_{i,t} + \varepsilon_{i,t}$$

$$LEND_{i,t} = \alpha_i + \beta_1 DLR_{i,t-1} + \beta_2 DLR_{i,t} + \beta_3 DEPR_{i,t} + \beta_4 INTSPRD_{i,t} + \beta_5 INCDIV_{i,t} + \beta_6 MEFF_{i,t} + \beta_7 EQR_{i,t} + \varepsilon_{i,t}$$

$$LEND_{i,t} = \alpha_i + \beta_1 SSLR_{i,t-1} + \beta_2 SSLR_{i,t} + \beta_3 DEPR_{i,t} + \beta_4 INTSPRD_{i,t} + \beta_5 INCDIV_{i,t} + \beta_6 MEFF_{i,t} + \beta_7 EQR_{i,t} + \varepsilon_{i,t}$$

$LEND_{i,t}$ is the ratio of loans and advances to total assets for bank *i* in period *t*, ASQ_{it-1} represents the lag of asset quality, $ASQ_{i,t}$ is the banks' assets quality, the non-performing loans ratio for bank *i* in period *t*, $LLR_{i,t}$ is the loss loan ratio for bank *i* in period *t*, $LLR_{i,t-1}$ is the lag of loss loan ratio, $DLR_{i,t}$ is the doubtful loan ratio for bank *i* in period *t*, $DLR_{i,t-1}$ is the lag of doubtful loan ratio, $SSLR_{i,t}$ is the substandard loan ratio for bank *i* in period *t*, $SSLR_{i,t-1}$ is the lag of substandard loan ratio, $DEPR_{i,t}$, the ratio of bank deposits to total liabilities of bank *i* in period *t*, $INTSPRD_{i,t}$, the interest spread for bank *i* in time *t*, $INCDIV_{i,t}$, proxied as the ratio of non-interest income to total income for bank *i* in time *t* $MEFF_{i,t}$ represents the ratio of staff and administration expenses to total operating expenditure for bank *i* at time *t*, $EQR_{i,t}$, the ratio of equity to total assets for bank *i* in time *t*, , and ε_{it} is the error term for bank *i* in time t while α_i is the firm-specific fixed effects.

Table 4.1 : Expected Results

VARIABLE	SYMBOL	EXPECTED SIGN
Asset Quality.L1	ASQ_{t-1}	Negative
Asset Quality	ASQ	Negative
Loss Loan Ratio.L1	$LLR_{i,t-1}$	Negative
Loss Loan Ratio	LLR	Negative
Doubtful Loan Ratio.L1	$DLR_{i,t-1}$	Negative
Doubtful Loan Ratio	DLR	Negative
Substandard Loan Ratio.L1	$SSLR_{i,t-1}$	Negative
Substandard Loan Ratio	SSLR	Negative
Deposit Ratio	DEP	Positive
Management Efficiency	MEFF	Negative
Equity	EQR	Positive
Income Diversification	INCDIV	Positive
Interest Spread	NITI	Negative

c) Estimation Technique

The tendency for a correlation between the unobservable heterogeneity μ_i of each firm and the explanatory variables of the model makes the ordinary least squares (OLS) biased. If there is a correlation, $E(\mu_i, x_{1i,t}) = E(\mu_i, x_{2i,t}) \neq 0$ *or* $cov(\mu_i, x_{1i,t}) \neq 0$, it would be possible to obtain the consistent estimation by means of the within-group estimator of fixed effects. Otherwise (random effects) a more efficient estimator can be achieved by estimating the equation by generalized least squares (GLS). The normal strategy to determine whether the effects are fixed or random is to use the Hausman (1978) test under the null hypothesis of random effects model. If the null hypothesis is rejected, the effects are considered to be fixed, and the model is then estimated by OLS. If the null hypothesis is accepted, there would be random effects, and the model is then estimated by GLS, which according to Baltagi (1995) allows the Random Effects Model to support inference for the population, assuming the sample is representative of the underlying population.

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V. Discussion of Findings

a) Summary Statistics and Test for Multicollinearity

The study sought to establish the impact of bank asset quality on bank lending over the study period. An empirical model was estimated with bank lending, the dependent variable measured as the ratio gross loans and advances to total assets while the independent variables included the lag of asset quality, asset quality, deposit ratio, management efficiency, equity ratio, income diversification and net interest spread. The summary statistics of the variables are displayed in Table 5.8. From the table, the mean value of bank lending (LEND), 0.6706 indicates that an average Ghanaian banks uses 67.06 percent of its assets as to make loans (loans forms 67 percent of banks total assets), with the deposit ratio (DEPR) of 0.7394 also indicating that most banks liabilities are sourced from deposits. This implies that the banks are more focused on their intermediation activities of deposit taking and granting of loans. Management efficiency (MEFF), measured as the ratio of staff and administration expenses to operational expenses has a mean of 0.7738 indicating that the banks spend 77.38 percent of their income on staff and administration costs. The means for equity ratio (EQR), interest spread (INTSPRD), income diversification (INCDIV) and asset quality (ASQ) are 0.1428, 0.6366, 38.91 and 0.1157 respectively.

Table 5.1 : Summary Statistics and Correlation Matrix

SUMMARY STATISTICS										
	LEND	ASQ	LLR	DLR	SSLR	DEPR	NITI	INCDIV	MEFF	EQR
Mean	0.67	0.115	0.058	0.031	0.026	0.74	8.67	0.39	0.54	0.14
Std. Dev.	0.83	0.12	0.08	0.04	0.03	0.15	69.89	0.12	31.53	0.11
Minimum	0.01	0.00	0.00	0.00	0.00	0.24	0.29	0.12	0.35	0.03
Maximum	.550	0.70	0.54	0.29	0.14	0.99	.813	0.71	0.361	0.76
N	140	140	140	140	140	141	141	141	141	137

CORRELATION MATRIX										
LEND	1									
ASQ	-0.059	1								
LLR	-0.050	0.88***	1							
DLR	-0.092	0.76***	0.47***	1						
SSLR	0.023	0.51***	0.17*	0.38***	1					
DEPR	0.140*	0.016	0.0007	0.05	-0.01	1				
NITI	-0.075	-0.09	-0.06	-0.07	-0.08	0.044	1			
INCDIV	-0.128	-0.14*	-0.20**	0.03	-0.05	0.024	-0.01	1		
MEFF	-0.069	-0.09	-0.06	-0.07	-0.07	0.112	0.25***	-0.06	1	
EQR	0.36***	-0.1	-0.09	-0.09	-0.04	0.177	-0.015	-0.21**	-0.03	1

Lend=Gross Loans/Assets ASQ=Non-performing Loans Ratio, LLR=Loss Loan Ratio, DLR=Doubtful Loan Ratio, SLR= Substandard Loan Ratio, DEP=Deposits/Total Liabilities, MEFF=Staff and Administration Expenses/Total Expenditure EQR=Equity Ratio NITI=Net Interest Income/Total Income, INCDIV=Non-Interest Income/Total Income,

The strength of relationships among the independents can affect the regression coefficients. In order to arrive at robust and consistent estimates, a correlation coefficient was estimated to measure the strength of the relationship among the independent variables. The results as presented in Table 5.1 indicates a weaker relationships among the independent variables hence the issue of multi-collinearity with the independent variables which produces biased regression estimates was avoided.

b) Regression Results

Panel regression is also estimated depending on the relationship between the unobserved terms and the explanatory variables. To determine the whether to use the random effects or fixed effects estimation, a Hausman (1978) specification test was carried out with the null hypothesis that difference in coefficients is not systematic. The results for four models do not reject the null hypothesis that random effects estimation provides consistent and unbiased estimates of the regression

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model. On other model diagnostics, the error terms were found to be serially correlated and heteroskedastic, hence the random effects model was estimated taking into account the behaviour of the disturbance terms.

For the random effects models, the Wald χ^2 results (Prob > χ^2 = 0.0000) indicates a rejection of the null hypothesis implying that that the independent variables jointly explains the variations in bank lending. The R-squared of 0.6366, 0.6615, 0.5980, 0.6325 indicates that 63.66 percent, 66.15 percent, 59.80 percent and 63.35 percent variations in bank lending behaviour is explained by the models 1, 2, 3 and 4 respectively as shown in table 5.2. The results of the random effects (RE) estimation as shown in Table 5.2 find a significant negative relationship between the lags of asset quality (ASQ.L1), loss loan (LLR.L1), doubtful loan (DLR.L1) and bank lending. Also, deposits ratio (DEPR), management efficiency (MEFF) and equity ratio (EQR) were found to significantly influence the lending behaviour of Ghanaian banks as measured by the ratio of gross loans and advances to total assets.

Table 5.2 : Random Effects Model with First Order Autocorrelation and Heteroskedastic Disturbances

DEPENDENT VARIABLE : BANK LENDING				
	Model 1	Model 2	Model 3	Model 4
Constant	0.109 (0.29)	0.074 (0.2)	0.073 (0.18)	-0.042 (-0.1)
ASQ.L1	**-0.809 (-1.99)****			
ASQ	-0.198 (-0.39)			
LLR.L1		**-1.279 (-1.92)***		
LLR		-0.154 (-0.13)		
DLR.L1			**-1.916 (-1.96)****	
DLR			-1.542 (-1.4)	
SSLR.L1				**-0.832 (-0.33)**
SSLR				0.215 (0.12)
DEPR	**0.826 (2.14)****	**0.849 (2.25)****	**0.797 (1.97)****	**0.788 (2.13)****
NITI	-0.003 (-0.84)	-0.004 (-0.93)	-0.003 (-0.63)	-0.003 (-0.91)
INCDIV	-0.850 (-1.0)	-0.901 (-1.09)	-0.755 (-0.86)	-0.698 (-0.76)
MEFF	**-0.002 (-2.86)*****	**-0.002 (-2.47)****	**-0.002 (-2.71)*****	**-0.001 (-2.41)****
EQR	**3.503 (2.69)*****	**3.528 (2.67)*****	**3.613 (2.83)*****	**3.656 (2.83)*****
MODEL DIAGNOSTICS				
Wald χ^2 (7)	67.09***	61.22***	74.39***	61.5***
R-square	0.6366	0.6615	0.5980	0.6325
Adj. R-square	0.6124	0.6389	0.5712	0.6080
BP-CW Hettest χ^2 (1)	111.11***	114.77***	112.34***	108.43***
AR(1) F(1, 21)	16.857***	18.857***	15.984***	9.182***
Hausman χ^2 (7)	3.98	3.82	9.31	4.85
Prob>χ^2	0.7826	0.8008	0.2314	0.6781
Number of Banks	25	25	25	25
Observations	113	113	113	113

****, ** and * denotes significance levels of 1%, 5% and 10% respectively, z-statistics are in parentheses, BW/CW Hettest=Breusch-Pagan/Cook Weisberg Heteroskedasticity test, AR(1)=Autocorrelation test*

The lag of asset quality was found to be negatively related to bank lending. This can be explained that current levels of a bank's non-performing loans to mean an unprofitable lending business, hence the banks reluctance to extend more credit in future. Higher levels of non-performing loans (lower asset quality) inhibit the bank's ability to extend more credit since it will concentrate its efforts on improving on the performance of its current loan portfolio. This finding supports the credit crunch theory (Bernanke et al. 1991) that problem loans (non-performing) clog credit channels making it difficult for businesses and households to obtain credit. This relationship is significant at 5 percent. The coefficient of -0.809, which denote elasticity of lending with respect to bank asset quality indicates that a percent deterioration in asset quality reduces any future bank lending by 80.9 percent. Jordan et al. (2002) found that the cyclicality of loan loss provisions directly affects bank profits and bank capital which could influence the bank's incentive to grant new loans. Amidu and Hinson (2006) and Bouvatier and Lepetit (2007) also provided evidence of the influence of asset quality on bank lending behaviour. However, this study finds that such a relationship is not contemporaneous but persistent as evident by the insignificant negative coefficient between asset quality

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(ASQ) and bank lending. With the lags of the three classes of bank asset quality, both loss loan and doubtful loan ratios exhibited significant negative relationship with bank lending behaviour at 1 percent and 5 percent significance levels respectively. This supports the persistence impact of bank asset quality on lending behaviour.

In terms of the deposit ratio, the z-statistics reveal that volume of deposits of banks liabilities is significant at 5 percent level with a positive coefficient in all four models, portraying that the amount of loanable funds banks are able attract positively impact on the banks' lending behaviour. This means that, as banks continuously accumulate deposits which attract interest expense, they must generate enough returns to cover that interest expense and make profit hence, the extension of loans and advances to earn interest income cover their deposit cost. Similar relationship was found by Olokoyo (2011) in Nigeria and Bouvatier and Lepetit (2007) on European banks. Management inefficiencies also showed a negative relationship with lending behaviour.

A positive and significant relationship was found between bank equity capital and lending behaviour confirming a priori expectation that riskier lending businesses culminating in loan write-offs depletes banks equity capital which affect banks capacity to take on more risk at a 5 percent significant level.. This finding supports the capital crunch argument of Richard Syron (cited by Bernanke et. al, 1991).

Interest spread (NITI), a proxy for bank lending rate and the proxy for bank income diversification (INCDIV) were found to have insignificant negative relationship with bank lending, Olokoyo (2011) found no significant relationship between bank lending and lending rate in Nigeria.

VI. Conclusion and Recommendations

The importance of the banking institutions as intermediaries in channeling funds from the surplus spending units to deficit spending units cannot be overemphasized with regards to its contributions to growth in developing countries. Therefore, factors that inhibits the banking institutions decisions to extend credit which is vital for growth has to be identified and remedied. In this direction, this study examined the relationship between bank lending behaviour and asset quality of Ghanaian banks. By employing a random effects (RE) estimation with both auto-correlated and heteroskedastic disturbance term to bank level data of 25 banks from 2005 to 2010, a robust evidence on the determinants of bank lending behaviour in an environment where deteriorating bank asset quality poses a great challenge to the stability of the financial system. Banking lending was found to be the dominant function of Ghanaian banks over the study period. The empirical evidence that the deteriorating loan portfolio of banks (low bank asset quality) has a persistence and not contemporaneous effect on bank lending. Banks with poor loan portfolio reduces the loan originations in favour of improving the performance of its loan portfolio. Shortage of loanable funds, inefficient bank management and less-capitalized banks are more lend (credit slowdown/crunch). Based on the findings of the study, it is recommended that efforts should be made to improve the performance of bank loan portfolios and innovative ways devised to bring in more deposits to enhance bank lending in Ghana.

References Références Referencias

1. Amidu, M. and Hinson, R. (2006) "Credit Risk, Capital Structure And Lending Decisions Of Banks In Ghana" *Banks and Bank Systems / Volume 1, Issue 1, 2006.*
2. Anin, T. E. (2000), *Banking in Ghana,* Woeli Publishing Services.
3. Ayuso, J., Perez, D. and Saurina, J. (2004), "Are capital buffers pro-cyclical? Evidence from Spanish panel data", *Journal of Financial Intermediation,* Vol. 13, pages 249–264.
4. Banking Law, 1989 (P.N.D.C.L. 225).
5. Bank of Ghana (1992), Annual Report and Accounts Accra.
6. Bank of Ghana Act (2002) Act 612.
7. Banking Act, 2004 (Act 673).
8. Baltagi, H.B., (1995), *"Econometric Analysis of Panel Data",* John Wiley and Sons, New York.
9. Bernanke, B. S., Cara S. L. and Benjamin M. F. (1991), "The Credit Crunch", *Brookings Papers on Economic Activity,* Vol. 1991, No. 2, pages 205-247.
10. Bernanke, B.S. and Gertler, M. (1995), "Inside the black box: the credit channel of monetary policy transmission", *Journal of Economic Perspectives,* Vol. 9, pages 27–48.
11. Bouvatier, V. and Lepetit, L. (2007), " Banks' procyclical behavior: Does provisioning matter?" *Journal of International Financial Markets, Institutions and Money,* 321, pages 1-14. online from: 10.1016/j.intfin.2007.07.004.
12. De Haas, R., Ferreira, D. and Taci, A. (2010), "What determines the composition of banks' loan portfolios? Evidence from transition countries", *Journal of Banking & Finance,* Vol. 34, pages 388–398.
13. Djiogap, C.P. and Ngomsi, A. (2012), "Determinants of Bank Long-term Lending Behavior in the Central African Economic and Monetary Community (CEMAC)", *Review of Economics & Finance,* Academic Research Centre of Canada, ISSNs: 1923- 7529; 1923-8401, pages 107-114.
14. Gambera, M. (2000), "Simple Forecasts of Bank Loan in the Business Cycle", *Emerging Issues Series,* Vol. 3, pages 1–27.

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15. Ehrmann, M., Gambarcota, L., Martinez-Pag`es, J., Sevestre, P. and Worms, A. (2003), Financial system and the role of banks in monetary policy transmission in the Euro Area. In: Angeloni, I., Kashyap, A., Mojon, B. (Eds.), Monetary Policy Transmission in the Euro Area. Cambridge University Press.
16. Gambacorta, L. and Mistrulli, P.E. (2004), "Does bank capital affect lending behavior?" *Journal of Financial Intermediation,* Vol. 13, pages 436-57.
17. Furfine, C. (2001) "Bank portfolio allocation: the impact of capital requirements, regulatory. Monitoring and economic conditions", *Journal of Financial Services Research,* Vol. 20, pages 33–56.
18. Hausman, J. A. (1978), "Specification tests in econometrics", *Econometrica* 46:6, pages 1251-1271.
19. International Monetary Fund, (2011), "Ghana: Financial System Stability Assessment Update", *IMF Country Report No*. 11/131.
20. Kapur, I., Hadjimichael, M. T., Hilber P., and Szymczak, P. (1991) "Ghana: Adjustment and Growth, 1983-1991, Washington, DC: *IMF Occasional Paper,* No. 86, September".
21. Kashyap, A.K. and Stein, J.C. (1995), "The impact of monetary policy on bank balance sheets", *Carnerige Rochester Conference Series on Public Policy,* Vol. 42, pages 151–195.
22. Kashyap, A.K. and Stein, J.C. (2000), "What do a million observations on bank say about the transmission of monetary policy", *The American Economic Review,* Vol. 90, pages 407–428.
23. Jokipii, T. and Milne, A. (2008),"The cyclical behaviour of European bank capital buffers, *Journal of Banking and Finance,* 32, 1440–1451.
24. Olokoyo, F.O. (2011), "Determinants of Commercial Banks' Lending Behavior in Nigeria", *International Journal of Financial Research,* Vol. 2, No. 2; pages 61-72.
25. Saarenheimo, Thomas (1995), "Credit Crunch Caused Investment Slump?" *Bank of Finland Discussion Papers,* 6/95, pages 1-27.
26. Payment Systems Act 2003 (Act 662).
27. Van den Heuvel, S.J. (2002), "The Bank Capital Channel of Monetary Policy", University of Pennsylvania, Mimeo.
28. Zicchino, L. (2005), "A model of bank capital, lending and the macro economy: Basel I versus Basel II", *Bank of England, Working Paper,* No. 270.

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