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The Effect of Bank Specific Factors on Loan Performance of HFC Bank in Ghana

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Abstract

The default rate of loan in the country has been on the increase and worrying to all in recent times. This study assessed the effect of bank specific factors on the loan performance in HFC Bank in Ghana. The sample period used for the study was based on a quarterly data from 2008 to 2015. The study employed the ARDL bounds test of co-integration as an estimation technique to show the evidence of long run relationship among the variables. The study found bank's loan interest rate, loan to asset ratio and bank's loan loss provision over reserve as bank specific factors that influenced loan performance. These therefore showed that bank specific factors do have significant impact on loan performance. Hence, there is the need for bank management and regulators to undertake policies that can ensure efficiency in banks' operations.

Keywords: loan performance, loan to asset ratio, loan loss provisions, bank's loan interest rate

1. Introduction

The financial sector plays certain key roles in economic growth by means of financial intermediary service provisions which includes savings mobilization, risk management, projects evaluation and facilitating transactions (Schumpeter, 1934). Channeling of funds from depositors (surplus units) to investors (deficit spending units) is a key role played by commercial banks. This is possible so long as commercial banks can generate enough income to cover operational cost incurred. Thus for sustainable intermediation to function well, there is the need for financial performance (profitable) in the banking industry.

A standardized and widely employed statistic measure of financial performance of a banking institution is the ratio of non-performing loans (NPLs) to total loans. This ratio is often used to evaluate and compare bank loans portfolio quality (Festic, Repina, & Kavkler, 2009; Mendoza & Terrones, 2008), to analyze banking sector's efficiency (Podpiera, 2006; Lźal & Svejnar, 2002), to foretell forthcoming failures of banks (Jin, Kanagaretnam, & Lobo, 2011).

Keeton and Morris (1987) brought one of the first empirical studies on the subject of non-performing loans (NPLs) examining the causes of loan loss diversity of banks in USA. The study indicated that, part of the changes in loan losses was significantly due to differences in local economic situations and also owing to poor performance in industries such as agriculture and energy, with a minor part of the remaining variation in loan loss associated to bank specific factors, such as banks intentionally embarking on greater risks and granting loans that knowingly have a high default probability. Many studies and findings consider non-performing loans (NPLs) as toxic with injurious effects on both economic development and social welfare (Zeng, 2011; Gonzales-Hermosillo, 1999; Barseghyan, 2010). Banks, according to Khemraj and Pasha (2009), must be circumspect in providing loans and take into consideration several factors in controlling the level of impaired loans.

Amuakwa–Mensah and Boakye–Adjei (2014) in their study found that both bank specific factors (previous year's NPL, bank size, net interest margin and current year's loan growth) and macroeconomic factors (past inflation, real GDP, per capita growth and real effective exchange rate) significantly affect non-performing loans of large banks but not necessarily applicable in explaining NPLs for small banks in the banking industry. Individual bank level analysis for Ghana is lacking, in this regard, this study seeks to empirically investigate the

determinants of loan performance of HFC Bank considering bank specific factors (internal factors), so as to increase profitability.

2. Overview of Loan Performance in Ghana

In last decade, the banking sector suffered a rugged period in 2013. Regardless of the fact that, in 2013 the industry experienced a growth in total assets by 33 percent as compared to average growth rate of 26 percent over the past decade, the industry suffered a slowdown in deposit mobilization. The banking sector also got plague in that same period in its customer-deposits market, with the most prominent sources coming from government, savings and loans companies, and other finance houses considered as the non-traditional sources. This was evident in banks contending sternly with each other to grow their individual deposits. Another source of the competition in the last ten years can be attributed to the influx of foreign banks in the sub region especially Nigeria as they came in with ground-breaking and innovative ways of banking experienced into the economy (Awuah, 2008; Ghana Banking Survey Report, 2014; Huang et al., 2003).

Yet, there is this striking struggle by banks to attract large number of the unbanked population which is evidently seen by banks spreading out sales personnel to go out in search for prospective customers, opening of more branch networks and the mobile phone banking services. As bank clients grew, so did their respective deposits and hence a growth in the need to grant loans to firms and households who are customers to the bank. For banks to make more profit and out-compete the other, numerous banks granted loans and advances to clients but not all granted loans got re-paid. This has acquainted itself with the incidence of Non-Performing Loans into banks' record books and has gradually fetched a major concern to banks and financial regulators equally (Ghana Banking Survey Report, 2014). High non-performing loans portfolio reduces banks' profits and their capacity to advance lend to debtors and this eventually can adversely affects the economy.

According to the Ghana Banking Survey (2010), the total income of the banking industry got a twice fold amounting GH¢ 1.5 billion in 2009. Nonetheless, the speedy weakening of Ghana's banking industry's loan portfolio adversely struck profit margins. Non-performing loans increased from GH¢ 60 million in 2007 to GH¢ 266 million in 2009. The Central Bank also experienced a worsening non-performing loans ratio of 16 percent in 2009 to 17 percent by the end of 2010. Non-performing loans ratio has caused the top five banks in the country to reduce their market share from 50 percent in 2009 to 45% in 2010 (Bank of Ghana report, 2010).

3. Knowledge of Related Literature

The bank specific factors are variables which affect bank's profitability. These factors are bank specific and include capital size and composition of credit portfolio, interest rate policy, labour productivity, management quality, size of deposit liabilities, and bank size. The CAMEL model is what scholars often employ to proxy bank specific factors (Dang, 2011).

Revenue-Earnings Stream: Here, the main gears of revenues and expenses are examined using the level of operational efficiency and the bank loan interest rate as well as the overall results as measured by return on equity (ROE) and return on assets (ROA).

$$\text{Return on assets (ROA)} = \frac{\text{Net income from operations}}{\text{Average assets}}$$

$$\text{Return on equity (ROE)} = \frac{\text{Net income from operations}}{\text{Average equity}}$$

Management Efficiency: This is a major internal factor that influence banks' profitability and can be proxied by diverse financial ratios such as loan growth rate, earnings growth rate and total asset growth. This is a multifaceted subject to capture using financial ratios. Furthermore, operational efficiency in handling operating expenses is another dimension for management quality. Here management performance is regularly communicated qualitatively through subjective evaluation of management systems, quality of staff, control systems and organizational discipline. The ability of management to use its current resources effectively so as to maximize income as well as reducing operational costs can be used as a measure. The ratio employed to measure management quality is the degree of its inefficiency which is generally expressed as operating expense to income ratio (Ilhomovich, 2009). According to Athanasoglou et al. (2008) as operating expense rises to total income, then management is inefficient in terms of operational efficiency and in its ability to generate income. Management quality in this regard, is measured as;

$$\text{Banks inefficiency (InEff)} = \frac{\text{Operational expenses}}{\text{Operating Income}}$$

It is very necessary to note that not only macroeconomic factors but also bank specific factors do affect NPL. Size of the institution, efficiency and credit terms, market power and the risk profile are essential determinants of NPL since such factors can cause risky loans.

Salas and Saurina (2002) from the case of banks in the Spanish economy stated that Credit growth, capital ratio, bank size, market power and real GDP growth were the explanatory variables in the variations in bad debts. Hu et al. (2004) explained the relationship between the ownership structure and bad loans in banks in Taiwan and concluded that the size of banks was inversely related to non-performing loans. It was also made clear that in a bank where a greater portion of their capital was state owned, there existed a significant reduction in NPLs.

The primary aim of a financial institution is to make profit and its profitability may be used to explain the efforts put in by risk managers in the institution. Weak monitoring as a result of mismanagement for both costs of operation and the quality of loans may induce high level of capital losses. Ineffectiveness on the part of management may have a positive impact on NPL and this was made clearer by Podpiera and Weill (2008) after analysing banking in the Czech Republic. The study reported that there is positive relationship between inefficiencies and future increases in non-performing loans. When managerial performance is being regulated, it will lead to a stable financial system.

When loans are granted to new customers, it may be difficult for managers to assess and control risk associated with such loans. It is very necessary for due diligence to be done before loans are granted to either new and old customers of a bank. Using return on assets, Godlewski (2004) explained that there is an inverse relationship between banks' profitability and NPL. Evidence from Spain according to Garcia-Marco and Robles-Fernandez (2008) also showed that higher levels of return on equity are most likely to be followed with greater risk in the future.

One of the main problems that face financial institutions is the risk that loans may not be paid back. In a situation where banks anticipate capital losses to rise, they may make provisions to reduce the variations in earnings and in effect strengthen their medium term solvency (Pesola, 2007). The attitude of bank towards risk is very important. The financial strength of banks may be indicated by managers with loss provisions. In most cases moral hazard and information asymmetry make granting loans quite risky in the sense that it becomes difficult for managers to decide who is in a good position to pay back a loan. It is a good practice when managers make provision for loan losses. As Boudriga et al. (2009) states it, "a higher provision appears to reduce the level of impaired loans." It was also established that there is a relationship between bank specific factors such as the ratio of total equity assets weighted by risk and non-performing loans. A key bank specific factor that affects non-performing loans is credit growth since various studies have shown that rapid credit growth is often related to bad loans.

4. Methodology

4.1 Model Specification

The study modified Messai and Jouini (2013) model to capture the effect of bank specific factors (internal factors) on loan performance as shown in equation (1).

$$NPL = f(INTR, INEFF, ROA, ROE, LOAS, LLP) \quad (1)$$

This model was further transformed into an econometric model as below;

$$NPL = \alpha_0 + \alpha_1 INTR + \alpha_2 INEFF + \alpha_3 ROA + \alpha_4 ROE + \alpha_5 LOAS + \alpha_6 LLP + v \quad (2)$$

4.2 Data Source

The study used quarterly time series data over the period of 2008 to 2015. Bank specific data such as non – performing loans, bank's loan interest rate, bank's inefficiency ratio, return on assets, and return on equity, loan to asset ratio and banks loan loss provision over reserve were sourced from Bank's records and books.

4.3 Theoretical and a Priori Assumptions

Non-performing loans (NPL) in this study is defined as the total amount of money borrowed and which the borrower is yet to fulfil his or her debt obligations within 90 days. Bank specific factors may affect non-performing loans (NPLs). To find the effects, non-performing loans (NPL) is regressed on some bank specific variables.

Bank's loan interest rate (INTR) is expected to be positive; this is because a rise in the interest rate on loan makes the loan expensive, thus imposing higher risk on borrower's ability to pay the interest due to the reduction in the borrower's ability in meeting his obligations. Similar studies conducted by Jimenez, and Saurina (2005).

Khemraj and Pasha (2009); and Dash and Kabra (2010) have shown a significant positive relationship between non-performing loans (NPL) and bank's interest rate.

Bank's Inefficiency Ratio (INEFF): an increase in INEFF would mean either the operating expense has increased more relatively to income, or income has fallen more relatively to operating expense. A fall in income could be a reflection of loan loss and would lead to more inefficiency on the part of the bank. Thus INEFF is expected to have a positive sign.

Return on Assets (ROA) is expected to be negative. A bank that has greater profitability tends to be lowly motivated in generating income and consequently becomes lowly enticed to engage in risky activities such as granting risky loans.

Return on Equity (ROE) and *Loan to Asset Ratio* (LOAS) are expected to have similar intuitions as ROA.

Bank's loan loss provision/reserve (LLP) has a positive expected sign. Banks that anticipate a higher level of loss may make stringent policies so as to minimise the anticipated loss. Hence providing a low provision amount reflects a low loss and a high loan loss provision reflects a high loss.

4.4 Unit Root Test

In order to avoid the issue of spurious regression results, the study used the Augmented Dickey Fuller test to ascertain stationarity properties of the variables concerned before transforming non-stationary time series to make them stationary for apt economic analysis.

4.5 The Long Run and Short Run Model Specification

A conditional ARDL model of order (p, q1, q2, q3, q4, q5, q6,) was used to test for the long run relationship of the variables identified. The long run ARDL model assumed the form;

$$NPL_t = \beta_0 + \sum_{i=1}^{p} \delta_{1i}\, NPL_{t-i} + \sum_{i=1}^{q1} \delta_{2i}\, INTR_{t-i} + \sum_{i=1}^{q2} \delta_{3i}\, INEFF_{t-i} + \sum_{i=1}^{q3} \delta_{4i}\, ROA_{t-i} + \sum_{i=1}^{q4} \delta_{5i}\, ROE_{t-i} +$$

$$\sum_{i=1}^{q5} \delta_{6i}\, LOAS_{t-i} + \sum_{i=1}^{q6} \delta_{7i}\, LLP_{t-i} + \varepsilon_t \quad (3)$$

The lag length of the variables is selected based on the Schwarz Bayesian criterion since it gives more parsimonious models specification.

The short run dynamics is captured by the error correction model as follows:

$$\Delta NPL_t = \beta_0 + \sum_{i=1}^{p} \theta_{1i}\, \Delta NPL_{t-i} + \sum_{i=1}^{q1} \theta_{2i}\, \Delta INTR_{t-i} + \sum_{i=1}^{q2} \theta_{3i}\, \Delta INEFF_{t-i} + \sum_{i=1}^{q3} \theta_{4i}\, \Delta ROA_{t-i} +$$

$$\sum_{i=1}^{q4} \theta_{5i}\, \Delta ROE_{t-i} + \sum_{i=1}^{q5} \theta_{6i}\, \Delta LOAS_{t-i} + \sum_{i=1}^{q6} \theta_{7i}\, \Delta LLP_{t-i} + \varphi ECM_{t-i} + \varepsilon_t \quad (4)$$

Where θ_i is the short-run coefficient of model's dynamic adjustment to equilibrium. ECM_{t-1} term is Error Correction Factor. Thus, it shows the estimate of short run disequilibrium adjustment of long-run equilibrium error term. φ measures speed of adjustment to attain equilibrium in the presence of shocks.

To determine the goodness of fit or robustness of the ARDL model, stability and diagnostic tests were conducted. The cumulative sum of recursive residuals and cumulative sum of squares of recursive residuals were employed for the stability tests whiles serial correlation, normality, functional form and heteroscedasticity were used for the diagnostic test.

5. Empirical Results

5.1 Test for Stationarity

The unit root test was used to test for stationarity of the variables used in the study. The results are shown in Table 1.

Table 1. Unit root test using ADF

Variable	Constant	Constant and trend	Decision
	Levels		
NPL	-3.368840**	-3.422572*	Series is stationary
INTR	-8.350397***	-6.255359***	Series is stationary
INEFF	-5.375751***	-5.748434***	Series is stationary
ROA	-0.002423	-1.505755	Series is not stationary
ROE	-1.509463	-1.828757	Series is not stationary
LOAS	1.939383	-0.217444	Series is not stationary
LLP	-1.835519	-0.612073	Series is not stationary
	First difference		
ROA	-14.89713***	-14.95431***	Series is stationary
ROE	-9.376127***	-3.377720*	Series is stationary
LOAS	-7.618116***	-9.531510***	Series is stationary
LLP	-4.302635***	-4.870515***	Series is stationary

Note. *, ** and *** denotes rejecting the null hypothesis at 10%, 5% and 1% level respectively.

From the ADF test, series such as NPL, INTR and INEFF are all stationary at the levels hence integrated of order zero: I (0), whiles the rest of the series are all stationary after the first difference hence integrated of order one: I (1). Since the series are integrated of orders zero and one. It is therefore appropriate to estimate the model using the ARDL bounds tests specification.

5.2 Test for Co-Integration

The ARDL bounds test procedure was used to determine the presence of long run relationship hence co-integration among the variables in the study. The results are presented in Table 2.

Table 2. Bounds test results for co-integration relationship

F-Statistic	Significance	Lower Bound	Upper Bound	Decision
4.151118	10%	2.12	3.23	Evidence of cointegration
	5%	2.45	3.61	

From Table 2, the F–statistic is greater than the upper bound test. As a result the joint null hypothesis of no co-integration is rejected at 5% level. That is since the F – statistic (4.151118) is greater than the upper bound critical value (3.61) at 5% significant level, there is evidence of co-integration and hence long run relationship among the variables in the study.

5.3 Long-Run Results

Table 3 shows the bank specific factors in the long run on loan performance.

Table 3. Estimated ARDL long run coefficients

Dependent variable: NPL				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR	1.379911	0.501199	2.753219	0.0123
INEFF	-0.397688	0.258140	-1.540589	0.1391
ROA	-2.036232	5.342503	-0.381138	0.7071
ROE	-0.346651	0.881242	-0.393366	0.6982
LLP	0.024231	0.006751	3.589196	0.0018
LOAS	-13.356108	7.118395	-1.876281	0.0753
C	1.219597	0.221806	5.498496	0.0000

From Table 3, the effect of bank's loan interest rate on non-performing loans is positive and significant at 5 percent level. This implies that increasing bank's loan interest rate would significantly worsen loan performance by 1.379911. The result obtained was as expected since a rise in interest rate on loan makes the loan expensive,

thus imposing higher risk on borrower's ability to pay the interest. Similar studies by Dash and Kabra (2010) have shown a significant positive association between non-performing loans and bank's interest rate.

On the contrary, bank specific factor such as bank's inefficient ratio negatively affect loan performance. That is, an increase in bank's inefficient ratio would reduce loan performance by 0.397688. This is contrary to expectations since inefficient management rather increases NPL as a result of managers' inability to skillfully assess loans that are granted to new clients. This is however not significant. Hence the finding obtained in this study was consistent with that of Salas and Saurina (2002), but contrary to empirical findings by Berger and DeYoung (1997).

In addition, ROA and ROE inversely affect loan performance. This implies that, increasing ROA and ROE would ameliorate loan performance by 2.036232 and 0.346651 respectively. This is possible because when returns on assets or equity are high banks are slow in granting more risky loans and hence reduce non-performing loan. The results are however not significant. These findings are confirmed in previous studies by Godlewski (2004) who used ROA as a performance indicator and found a negative impact of ROA on NPL. Also, Garcia-Marco, and Robles-Fernandez (2008) posit that higher levels of ROE are followed by a greater risk in the future.

Another significant bank factor that influence loan performance is bank's loan loss provision over reserve. An increase in bank's loan loss provision over reserve would lead to a significant increase in loan performance by 0.024231. Therefore there is a positive relationship between loan performance and bank's loan loss provision over reserve. This is because when banks expect their capital losses to be so high, they strengthen their medium-term solvency and reduce earnings volatility by creating higher provisions. As a result, management indicating the financial strength of their banks can also use loss provisions. Hence loan performance in bank's loan loss provision over reserve can reflect a general attitude by banks' management to control risks. The findings are confirmed by Ahmad et al. (1999), Hasan and Wall (2004), Boudriga et al. (2009); and Pesola (2007).

Finally, the study found the effect of loan to asset ratio on non-performing loans to be negatively significant at 10 percent level such that an increase in loan to asset ratio would worsen loan performance by 13.356108. The result obtained was as expected since loan to asset ratio works as return on assets in generating profits. As a result, greater profitability tend to have less enticements in generating revenue and are not likely to engage in activities that are risky, hence affecting loan performance negatively. Previous studies by Godlewski (2004); Garcia-Marco and Robles-Fernandez (2008); and Boudriga et al. (2009) also confirm the results obtained.

5.4 Short-Run Results

Table 4 depicts the short run effects of bank specific factors on loan performance.

Table 4. Estimated ARDL short run coefficients and the error correction estimate

Dependent Variable: NPL.	Selected Model: ARDL(1, 0, 0, 0, 0, 0, 1)	Obs = 29		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INTR)	1.053988	0.352829	2.987246	0.0073
D(INEFF)	-0.303758	0.182554	-1.663930	0.1117
D(ROA)	-1.555293	4.074205	-0.381741	0.7067
D(ROE)	-0.264775	0.665036	-0.398136	0.6947
D(LLP)	0.018508	0.006977	2.652772	0.0153
D(LOAS)	-0.030925	3.298708	-0.009375	0.9926
CointEq(-1)	-0.763809	0.150760	-5.066389	0.0001

All things being equal, the short run results showed that only bank's loan interest rate and loan to asset ratio significantly influence loan performance. The short run effect of bank's loan interest rate on loan performance is positive and significant at 1%. This implies that when bank's loan interest rate increases by a unit, it would worsen loan performance by 1.053988.

Other bank specific factors such as bank's inefficiency ratio, ROA, ROE and loan on asset ratio do not have significant impact on loan performance in the short run. However, the relationships between loan performance and bank's inefficiency ratio, ROA, ROE and loan to asset ratio are all negative in the short run.

Also, there exists a positive and significant impact of bank's loan loss provision over reserve ratio on loan

performance at 5 percent level, such that an increase in bank's loan loss provision over reserve would lead to an increase in loan performance by 0.018508.

The error correction term was also negative and statically significant at 1%. A coefficient of -0.763809 implies that the adjustment process of the system would restore equilibrium quickly and effectively, hence it will take about 76% of any shock on the dependent variable caused by the independent variables to be corrected within a year.

6. Conclusion and Policy Recommendations

The default rate of loan in the country has been on the increase and worrying to all in recent times. This study sought to assess the effect of bank specific factors on loan performance of HFC Bank in Ghana using a quarterly data from 2008 to 2015. The Augmented Dickey Fuller (ADF) test was used in testing for the order of stationarity among the variables of which were integrated of orders zero and one. That is, a mixture of I (0) and I (1). As a result, the study employed the ARDL bounds test of co-integration as an estimation technique.

The results suggested that the bank specific factors that influenced loan performance were bank's loan interest rate, loan to asset ratio and bank's loan loss provision over reserve. These therefore show that bank specific factors do have significant impact on loan performance.

Based on the findings, the study recommends that banks should do well to reduce interest rate on loans. Reducing interest rate on loans make loans less expensive; thus reducing the risk on borrower's ability to pay the interest due to an increased ability of borrowers to meet their obligations. This reduces the number of loan default and hence boasts loan performance.

Also, bank managers should also try to anticipate higher level of losses (bank's loan loss provision) by making stringent policies so as to minimise anticipated loss. Thus, the provision of high loan loss provision reflects high losses. As a result bank managers would always try to minimize the expected loss so as to boast loan performance.

Finally, loan to asset ratio should be reduced. Here, banks are advised not to be enticed by the high lending interest rate in the country and the quest for profitability and grant more loans. In granting loans, they should always be cautious of the value of their assets. Reducing ratio of loan to asset would help banks generate greater profitability and enhance loan performance.

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