Non-Performing Loans and Universal Bank's Profitability

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ABSTRACT

The maintenance of asset quality, efficiency and profitability is a vital requirement for the survival and development of Universal Banks. Loans constitute the main asset class from which banks generate their major portion of income and also signify the greatest risk to banks. Recently, the default rate of loan in the country has been on the increase and perturbing to all.

Due to the detrimental effect that Non-Performing Loans (NPLs) have on a bank's revenue and the economic welfare of a country, the study sort to determine the impact of NPLs on Universal Banks profitability based on a quarterly data from 2000 to 2014. 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 that NPLs had a significant negative impact on Universal Banks profitability in both the short run and long run

The study recommends that Universal Banks should revise their lending policy depending on the situation and economic condition of the country as well as minimising their periodic loans targets by not engaging in risky loaning practices.

KEY WORDS: Auto Regressive Distributed Lag (ARDL), Gross Domestic Product Growth, Non-Performing Loans, Unemployment rate, Universal Banks Profitability

BACKGROUND TO THE STUDY

The crucial problem faced by financial institutions in Ghana is credit risk as a result of defaulters not repaying credits. The failure to manage bad debts leads to insolvency and losses among financial institutions (Abiola & Olausi, 2014). The growing trend of NPLs is becoming a concerning issue not only for the banking sector but also for the national economy of Ghana. It hinders financing capacity of the banks and, therefore, has an adverse impact on the overall socio-economic development of the country. Among the various services provided by the bank, lending has been the primary activity for a decade. Universal Banks have a better share in the financial market. Due to this, Universal Banks risk exposure is very high when it compared with other private banks in Ghana. Among the risks Universal Banks face, is NPLs. As the number of borrowers associated with Universal Banks becomes larger overtime, the risk of NPL increases. The general objective of this study is to assess the effect of NPLs on Universal Banks profitability. Specifically, the study aims at establishing: (1) the trend of Universal Banks bad loans over a five-year period (2009 – 2014), (2) the short term impact of NPLs on Universal Banks profitability (Returns on Assets), (3) the long term impact of NPLs on Universal Banks profitability (Returns on Assets).

METHODOLOGY

Issues such as data sources, model specification, definitions of variables, estimation procedures, and description of variables used for the study are discussed below.

Data Description and Sources

This paper identifies four main macroeconomic variables –Bank's lending rate (LRATE), Return on Assets (ROA), Gross Domestic Product Growth and Unemployment rate– as the determinants of banks profitability. The data for this study is secondary data which are obtained from the World Development Indicators (WDI), Ghana Revenue Authority and Ministry of Finance, Database of Index Mundi, Database of FRED St. Louis, Database of IMF and the Bank of Ghana. The period selected for the study is from 2000 to 2014.

Theoretical Model Specification

The study adopted particularly the linear regression model. The model is presented in a functional form as below:

$$ROA = f(V) \quad (1)$$

where,

ROA = Return on Asset, a proxy for Bank Profitability

V = Vector of profitability handles.

The equation provides an average relationship between the profitability of Banks and the set of explanatory variables and hence, the predicted profitability gives the average profit to banks conditioned on the impact of set of control variables.

Empirical Model Specification

By modifying the model used by Bonilla et al. (2012), we estimated a model in which Banks Profitability is functionally related to economic development and structure of the economy or some macro-economic variables. The model is expressed as:

ROA=$f(NPL, INTR, UMP, GDPG)$ (2)

We can transform the functional model above into a structural model as seen in equation (3) below

$$ROA_t = f(.) = NPL_t^{\beta_1} GDPG_t^{\beta_2} UNP_t^{\beta_3} LRATE_t^{\beta_4} e^{\varepsilon} \quad (3)$$

Using the logarithmic transformation of the variables in equation (3), the empirical specification of the model above can be written as seen in equation (4) below:

$$lnROA_t = \beta_0 + \beta_1 lnNPL_t + \beta_2 lnGDPG_t + \beta_3 lnUNP_t + \beta_4 lnLRATE_t + +\varepsilon_t \quad (4)$$

where; ROA = Return on Asset, a proxy for Banks Profitability, β_0 = profitability intercept, GDPG= Gross Domestic Product Growth rate, UNP = Unemployment rate, LRATE = Lending Rate while ε is the error term.

Description of Variables

The study sought to determine the effect of NPL on Universal Banks' profitability. That is return on equity is the dependent variable of the study while non-performing loans is the policy variable. The study however controlled for the effect of GDP, unemployment, and lending rate on profitability. Table 1 gives a description of each of these variables.

Table 1. Generally, expected Sign of variables are presented as follows.

Variable	Description	Expected Sign	Supporting Empirical Work(s)
Return on Equity (ROE)	ROE measures the rate of return received from equity invested in banks. It is the amount of net income returned as a percentage of shareholder's equity. It is estimated as ROE = $Net\ profit / Total\ equity$	Negative	Ahmad & Bashir (2013), and (Makri and Papadatos (2014)
Non-Performing Loans (NPL)	NPLs are loans that are outstanding both in its principal and interest for a long period of time contrary to the terms and conditions under the loan contract.	Negative	Lata (2014) and Roy (2015)
GDP	This is the macroeconomic measure of the value of changes in economic output over time adjusted for price changes.	Positive	Tomak et al (2013) and Ghosh, (2015)
Unemployment Rate (UNP)	It measures the proportion of the labour force who are neither working or attached to any job and are not looking for work.	Negative	Nkusu (2011)

Lending Rate (LRATE)	It is the measure of cost of borrowed funds. Interest rate spread is a measure of profitability between the cost of short term borrowing and the return on long term lending.	Positive	Onyekachi and Okoye (2013) and (Haron & Azmi, 2004)

Data analysis

Graphs and tables were employed to aid in the descriptive analysis. Both the Phillips-Perron (PP) and the Augmented Dickey-Fuller (ADF) unit root tests were carried out on all variables to ascertain their order of integration. In each case, the lag-length is chosen using the Akaike Information Criteria (AIC) and Schwarz Information Criterion (SIC). Furthermore, the study adopted the bounds testing approach of cointegration developed by Pesaran et al. (2001) to obtain both the short and long-run estimates of the variables involved.

Autoregressive Distributed Lag (ARDL) Model

In order to establish and analyse the long-run relationships as well as the dynamic interactions among the various variables of interest empirically, the ARDLcointegration procedure developed by Pesaran, Shin, and Smith (2001) was used. An expression of the relationship between the variables under study using the ARDL approach to cointegration is expressed as follows:

$$\Delta lnROA_t = \delta_0 + \emptyset lnROA_{t-1} + \alpha_1 lnNPL_{t-1} + \alpha_2 lnGDPG_{t-1} + \alpha_3 lnUNP_{t-1} + \alpha_4 lnLRATE_{t-1} + \sum_{i=1}^{\rho} \beta_1 \Delta lnROA_{t-i} + \sum_{i=1}^{\rho} \beta_2 \Delta lnNPL_{t-i} + \sum_{i=1}^{\rho} \beta_3 \Delta lnGDPG + \sum_{i=1}^{\rho} \beta_4 \Delta lnUNP_{t-i} + \sum_{i=1}^{\rho} \beta_5 \Delta lnLRATE_{t-i} + \varepsilon_t \quad (8)$$

Where, $\emptyset \; and \; \alpha_i$ represent the short run elasticities while β_i are the short run elasticities.

RESULTS AND DISCUSSION

Estimation results are presented and discussed under this section.

Descriptive statistics

The summary statistics of the study variables are presented on Table 2.

Table 2: Summary Statistics of the Variables

	ROA	NPL	GDPG	UNP	LRATE
Mean	0.0426	13.983	6.4634	4.7542	22.859
Median	0.0375	13.825	5.7500	5.1250	22.230
Maximum	0.1915	22.700	14.046	6.2000	31.400
Minimum	0.0005	6.4000	3.7750	1.8000	18.500
Std. Dev.	0.0391	4.250	2.4356	1.5389	3.4841
Skewness	1.8591	0.0136	1.3227	-0.4636	0.5529
Kurtosis	6.8333	2.3480	4.2226	1.7079	2.4646
Jarque-Bera	70.112	1.0466	20.879	6.2179	3.7109
Probability	0.0000	0.5925	0.0000	0.0446	0.1563

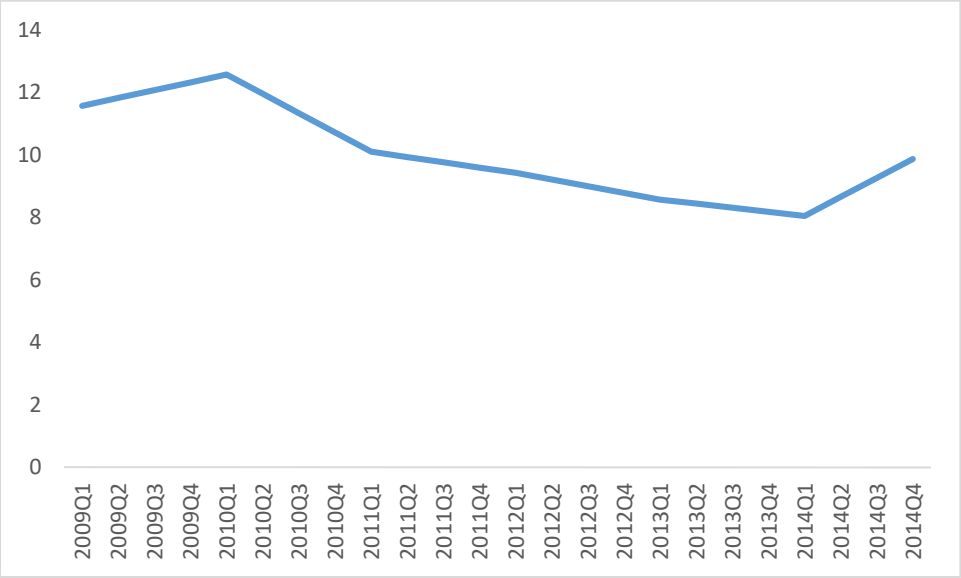
Sum	2.5163	825.01	381.34	280.50	1348.7
Sum Sq. Dev.	0.0889	1047.8	344.07	137.36	704.08
Observation	59	59	59	59	59

Note: Std. Dev. represents Standard Deviation while Sum Sq. Dev. represents Sum of Squared Deviation.

Source: computed using Eviews 9.0 Package

Figure 2. Trend of NPLs (2009 – 2014)

In order to respond to our first objective, we provide a trend analysis of NPLs in the Universal Banks from the first quarter of 2009 to the last quarter of 2014.



Source: Author's computation using Eviews 9.0 Package

Figure 2 shows the trend of NPLs in Ghana's Universal Banks over a five-year period (2009 – 2014). From the figure above, it is evident that from the first quarter of 2009, NPLs increased from 11.5 percent to 12.5 percent by the end of the first quarter of 2010. Interestingly, the trend took a downturn thereof to 10 percent by the first quarter of 2011. The increase in NPLs from 2009 to 2010 could be attributed to the global final crunch that affected the profitability of almost every business ventures. From 2011, the downward trend in NPLs could be attributed to the stabilisation and significant growth of the economy. The rippling effect of this stabilisation and growth of the economy is the further drop in the cases of NPLs in the Universal Banks to 8 percent of total loan advances as at the first quarter of 2014. Nevertheless. From the first quarter of 2014, the trend of NPLs in the Universal Banks took an upward turn from 8 percent to 11 percent by the fourth quarter. This could be attributed to the marginal decline in economy productivity, financial instability and growing unemployment.

According to a Ghana Banking Survey Report released in 2010 and authored by PricewaterhouseCoopers, between the years 2007 to 2009, the total income of the banking industry more than doubled from GHC 793 million in 2007 to GHC 1.5 billion in 2009. Over the same period however, the rapid deterioration of the industry's loan portfolio negatively affected profit margins. Impairment charges for NPLs over the three-year period increased from GHC 60 million in 2007 to GHC 266 million in 2009. The Central Bank of Ghana also revealed that the NPL ratio, which measures the ratio of loan losses to gross loan advances, worsened from 16.2% in December 2009 to 17.6% as at December 2010. This high NPL ratio has contributed to reduction in the market share of the country's top five banks from 49.5% in 2009 to 45% in 2010 (Bank of Ghana report 2010).

Unit Root Test Results

Even though the bounds test approach to cointegration does not require the pretesting of the variables for unit roots, it is however important to perform this test to verify that the variables are not integrated of an order higher than one. The purpose is to ascertain the absence or otherwise of *I*(2) variables to extricate the results from spurious regression. Thus, in order to ensure that some of the variables are not integrated at higher order, there is the need to complement the estimated process with unit root tests. The optimal number of lags included in the test was based on automatic selection by Schawrtz-Bayesian Criteria (SBC), and Akaike Information Criteria (AIC) criteria. The study used the P-values in the parenthesis to make the unit root decision.

The results of ADF and PP test for unit root with intercept and trend in the model for all the variables are presented in Table 3 and Table 4 respectively. The null hypothesis is that the series is non-stationary, or contains a unit root. The rejection of the null hypothesis is based on the MacKinnon (1996) critical values as well as the probability values.

Table 3: Results of Unit Root Test with Intercept: ADF Test

Levels			First Difference			
Variables	ADF-Statistics	Lag	Variables	ADF-Statistics	Lag	
LROA	-2.7716[0.0686]**	0	ΔLROA	-8.1256[0.0000]***	0	I(0)
LNPL	-3.0622[0.0352]**	1	ΔLNPL	-2.5420[0.1112]	0	I(0)
LUNP	-2.2563[0.1895]	1	ΔLUNP	-3.2189[0.0239]***	0	I(1)
LGDPG	-2.0017[0.2853]	1	ΔLGDPG	-4.8552[0.0029]***	0	I(1)
LLRATE	-3.9604[0.0442]**	1	ΔLLRATE	-2.9080[0.0506]*	0	I(0)

Table 4: Results of Unit Root Test with Intercept: PP Test

Levels			First Difference			
Variables	PP-Statistics	BW	Variables	PP-Statistics	BW	
LROA	-2.6280[0.0933]*	5	ΔLROA	-8.8734[0.0000]**	9	I(0)
LNPL	-1.6882[0.4246]	5	ΔLNPL	-2.6327[0.0925]*	2	I(1)
LUNP	-1.656[0.4481]	4	ΔLUNP	-3.4385[0.0135]***	2	I(1)
LGDPG	-1.6708[0.4405]	4	ΔLGDPG	-3.3303[0.0180]**	2	I(1)
LLRATE	-1.1083 [0.2423]	5	ΔLLRATE	-3.0192[0.0390]**	2	I(1)

Note: ***, **, * indicates the rejection of the null hypothesis of non- stationary at 1%, 5%, 10% level of significance respectively, Δ denotes the first difference, BW is the Band Width and *I*(0) is the lag order of integration. The values in parenthesis are the P-values.
Source: Computed by author using Eviews 9.0 package

From the unit root test results in Table 3, the null hypothesis of the presence of unit root or non-stationarity for the variables in their levels cannot be rejected since the P-values of the ADF statistics are not statistically significant at any of the three conventional levels of significance with the exception of log of Return on Assets (LROA), log NPLs, and log of Lending rate (LLRATE). These three variables were stationary at 5 percent significant level. However, at first difference, the variables become stationary. This is because the null hypothesis of the presence of unit root (non-stationary) is rejected at 5 percent significant levels for all the estimates. Thus, they are stationary at levels with respect ot the ADF test.

The PP test results for the presence of unit root with intercept in the model for all the variables are presented in Table 4. From the unit root test results in Table 4, the null hypothesis of the presence of unit root for majority of the variables in their levels cannot be rejected since the P-values of the PP statistics are not statistically significant at any of the three conventional levels of significance with the exception of log of Return on Asset (LROA) which was stationary at 10 percent significant levels. However, at first difference, the variables became stationary. This is because the null hypothesis of the presence of unit root (non-stationary) is rejected at 1, 5 or 10 percent significant levels for all the estimates. GDP growth rate (LGDPG) and Lending rate (LLRATE) were significant at 5 percent level. Meanwhile, log of unemployment (LUNP) and log of NPLs were stationary at 1 percent and 10 percent levels of significance respectively. The PP unit root test results in Table 4 are in line with the ADF test in Table 3, suggesting that most of the variables are integrated of order one, I(1), when intercept is in the model.

It is therefore clear from the unit root results discussed above that all the variables are integrated of order zero, I(0), or order one, I(1). Since the test results have confirmed the absence of I(2) variables, the ARDL methodology is used for estimation.

Cointegration analysis

Since the focus of this study is to establish the relationship between NPLs and profitability of banks, it is important to test for the existence of long-run equilibrium relationship between these two variables within the framework of the bounds testing approach to cointegration. Given that the study employs annual data, a lag length of 2 for annual data is used in the bounds test. (Pesaran, Shin, & Smith, 1999) suggest a maximum lag of two for annual data in the bounds testing to cointegration. After the lag length was determined, an F-test for the joint significance of the coefficients of lagged levels of the variables was conducted. Thus, each of the variables in the model is taken as dependent variable and a regression is run on the others. For instance, LROA is taken as the dependent variable and it is regressed on the other variables. After that another variable for instance trade openness is taken as the dependent variable and it is also regressed on the other variables. This action is repeated for all the variables in the model. When this is done the number of estimated regressions would be equal to the variables in the model.

Pesaran et al. (1999) indicates that "this OLS regression in the first difference are of no direct interest" to the bounds cointegration test. It is however, the F-statistics values of all the regressions when each of the variables is normalized on the other which are of great importance. This F-statistics tests the joint null hypothesis that the coefficients of the lagged levels are zero. In order words, there is no long run relationship between them. The essence of the F-test is to determine the existence or otherwise of cointegration among the variables in the long run. The results of the computed F-statistics when LRGDP is normalized (that is, considered as dependent variable) in the ARDL-OLS regression are presented in Table 3.

From Table 5, the F-statistics that the joint null hypothesis of lagged level variables (i.e. variable addition test) of the coefficients is zero is rejected at 5 percent significance level. Further, since the calculated F-statistics for $F_{LROA}(.) = 7.7337$ exceeds the upper bound of the critical value of band (3.49), the null hypothesis of no cointegration (i.e. long run relationship) between profitability of banks and its determinant is rejected.

Table 5: Bounds test results for cointegration

Critical Value Bound of the F-statistic: intercept and no trend (case II)						
K	90% Level		95% Level		99% Level	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
6	2.20	3.09	2.58	3.49	3.29	4.37
F-Statistics:F_{ROA}(LROA|LNPL,LGDPG,LUNP,LLRATE,)=7.7337**						

Source: Author's computation using Eviews 9.0 Package.

This result indicates that there is a unique cointegration relationship among the variables in Ghana's Universal Banks' profitability model and that all the determinants of economic growth can be treated as the "long-run forcing" variables for the explanation of Banks' profitability in Ghana. Since this study is based on portability theory, LCAR is used as the dependent variable. Therefore, since there is existence of cointegration among the variables in the profitability model, we proceed with the cointegrating or long run estimation results.

Long-run results (LROA is dependent variable)

Table 6 shows results of the long run estimate based on the Schwartz Bayesian criteria (SBC). The selected ARDL (1, 1, 1, 4, 4) passes the standard diagnostic test (serial correlation, functional form, normality and heteroscedasticity) as can be seen at Table 4. The coefficients indicate the long run elasticities.

Table 6: Estimated Long Run Coefficients using the ARDL Approach

ARDL (1, 1, 1, 4, 4) selected based on SBC Dependent Variable: LROA

Regressor	**Coefficient**	**Standard Error**	**T-Ratio**	**P-values**
LNPL	-1.3387	0.9754	-1.3724	0.1778
LGDPG	1.4527***	0.5320	2.7303	0.0094

LUNP	-2.1559***	-0.6859	3.1428	0.0032
DLLATE	0.1649*	0.0958	1.7211	0.0931
CONS	-8.2313***	1.5589	-5.2802	0.0000

The long run elasticities responding to the first hypothesis are discussed below.

The results show that NPLs is insignificant at any of the traditional level of significance. However, there exist a theorised negative relationship between Universal Banks profitability and the level of NPLs. The NPL rate is the major indicator of commercial banks credit performance. It is the ratio of NPL to total loan and advance which measures the extent of credit risk of banks.

Also, the coefficient of GDP Growth carried an expected positive sign and is statistically significant at 1 percent significance level. With a coefficient of 1.4527, it means that as GDP Growth increases by 1 percent, the Universal Banks Profitability rises by approximately 1.5 percent, ceteris paribus. GDP is one of the indicators of the health of any country's economy and the economic status of its citizens by extension. The GDP growth referred to in this study is the macroeconomic measure of the changes in the value of economic output adjusted over time. Increasing GDP growth is usually associated with increasing levels of Banks Profitability (Beck et al., 2013). This is because a strong positive growth in GDP usually translates into more incomes of the citizens which improves the debt servicing capacity of the borrower, which in turn contributes to higher profitability of banks and vice versa (Khemraj & Pasha, 2009). The result is in line with the works done by Louzis, Vouldis, and Metaxas, 2012; Tomak, 2013; Akinlo, Emmanuel, & others, 2014, and Ghosh, 2015),who concluded that GDP growth has significant negative relationship with the NPLs and therefore results in better profitability of banks.

Moreover, the results show that the coefficient of unemployment rate is negative and statistically significant signalling an unfavourable impact on Universal Banks Profitability. The coefficient of unemployment follows the theorised sign and is statistically significant at 1 percent. With a coefficient of -2.1559, it is an indication that a 1 percent increase in rate of unemployment will lead to approximately -2.2 percent reduction in Universal Banks Profitability, all other things being equal. Louzis et al. (2012) have stated that theoretically, explanation for relationship between unemployment, NPLs and banks profitability exists. A growth in unemployment in a country negatively affects the disposable incomes of the individuals which leads to growth in debt level. It is evident that when a individuals losses his source of income how can he/she make repayment of loan. Therefore, any growth in unemployment in the nation negatively affects the demand of the goods/service of businesses which eventually affects the production and sales of the businesses, this will trigger decline in revenues of businesses and crumbly debt situations. The result indicates that Universal Banks in Ghana find the unemployment rate detrimental with the level of profitability. The findings also support the earlier studies (Nkusu, 2011; Bofondi & Ropele, 2011). The Ghanaian

Universal Banking sector has been affected, due to unemployment which continue to increase at an increasing rate in the country.

Finally, lending rate has a significant positive effect on Universal Banks Profit performance in our study. The long run result show that an increase in the lending rate by 1 percent can improve profit performance by approximately 0.2 percent and is significant at 1 percent level of significance. The result shows that perception of bankers' in Ghana is that interest rate has a significant positive relationship profitability. This finding is consistent with Borio, Gambacorta, and Hofmann (2017)who found a positive relationship between the level of interest rates and the slope of the yield curve on the one hand, and bank profitability on the other. The results also concur with those of Shakoor, Nawaz, Asab, and Khan (2014) who found that in Pakistan there was strong and positive correlation between interest rate and commercial banks' profitability meaning that if the value of interest rate is increased/decreased then as result, value of bank profitability also increased/decreased. Additional studies which had a similar outcome include those of Flannery and others (1980) in the USA, Onyekachi and Okoye (2013) in Nigeria and Haron (2004) who studied determinants of profitability of Islamic banks. The findings from this study is however inconsistent with assertion that Banks that charge high interest rate would comparatively face a higher default rate or NPLs and by extension profitability performance. Study by Sinkey (1991) on large commercial Banks in US depict that a high interest rate charged by banks is associated with loan defaults. Rajan and Dhal (2003) who used a panel regression analysis indicates that financial factors like cost of credit has got significant impact on NPLs and banks profitability. Study by Waweru and Kalani (2009) on the commercial banks in Kenya also indicates that high interest rate charged by the banks is one of the internal factors that leads to incidence NPLs and poor profit performance.

The long-run results indicate that any disequilibrium in the system as a result of a shock can be corrected in the long run by the error correction term. Hence, the error correction term that estimated the short-run adjustments to equilibrium is generated as follows.

ECM = LROA - (-1.3387*LNPL + 1.4527*LGDPG + 2.1560*LUNP + 0.1649*DRATE - 8.2314)

Short Run Estimates (DROA is the dependent variable)

The existence of a long run relationship among Universal Banks Profitability and its exogenous variables allows for the estimation of long run estimates. The long run estimates are as reported in Table 6 above. The short run estimates also based on the Schwartz Bayesian Criteria (SBC) employed for the estimation of the ARDL model are reported in Table 7.

The standard regression statistics can be obtained from Table 7. From the Table, it can be observed that the adjusted R^2 is approximately 0.71. It can therefore be explained that approximately 71 percent of the variations in Banks Profitability is explained by the independent variables. Also, a DW-statistics of approximately 2 reveals that there is no autocorrelation in the residuals.

The results also showed that the coefficient of the lagged error correction term ECT (-1) exhibits the expected negative sign (-0.8072) and is statistically significant at 1 percent. This indicates that approximately 81 percent of the disequilibrium caused by previous years'

shocks converges back to the long run equilibrium in the current year. According to Kremers, Ericsson, and Dolado (1992) and Bahmani-Oskooee (2001), a relatively more efficient way of establishing cointegration is through the error correction term. Thus, the study discerns that the variables in the model show evidence of moderate response to equilibrium when shocked or disturbed in the short-run. Theoretically, it is debated that an error correction mechanism exists whenever there is a cointegrating relationship among two or more variables. The error correction term is thus obtained from the negative and significant lagged residual of the cointegration regression. The ECM stands for the rate of adjustment to restore equilibrium in the dynamic model following a disturbance. The negative coefficient is an indication that any shock that takes place in the short-run will be corrected in the long-run. The rule of thumb is that, the larger the error correction coefficient (in absolute terms), the faster the variables equilibrate in the long-run when shocked (Acheampong, 2007).

Table 7: Estimated Short-Run Error Correction Model using the ARDL Approach.
ARDL (1, 1, 1, 4, 4) selected based on SBC Dependent Variable: DLROA

Regressor	Coefficient	Standard Error	T-Ratio	P-values
D(LNPL)	-2.9984*	1.6816	-1.7829	0.0824
D(LGDPG)	2.4855**	1.0339	2.4039	0.0211
D(LUNP)	6.5393***	1.3423	4.8715	0.0000
D(LUNP(-1))	-1.2476	1.3258	-0.9409	0.3525
D(LUNP(-2))	-1.1984	1.2594	-0.9515	0.3472
D(LUNP(-3))	-3.5313***	1.1159	-3.1643	0.0030
D(LLRATE)	0.4331***	0.1150	3.7663	0.0005
D(LLRATE(-1))	-0.8456***	0.1744	-4.8475	0.0000
D(LLRATE(-2))	-0.0876	0.1772	-0.4945	0.6237
D(LLRATE(-3))	0.3215**	0.1356	2.3704	0.0228
ECT(-1)	-0.8072***	0.1115	-7.2354	0.0000

R-Squared	0.7925	R-Bar-Squared	0.7127
S.E. of Regression	0.6395	F-stat. F (9, 20) 9.9329***	[0.000]
Mean of Dependent Variable	0.0277	S.D. of Dependent Variable	0.1854
Residual Sum of Squares	0.8905	Equation Log-likelihood	-44.031
Akaike Information. Criterion	2.1829	Schwarz Bayesian Criterion	2.7669
DW-statistic	2.1161		

Discussion on the impact of NPLs as well as several control variables on banks profitability is presented below.

First of all, NPLs turned out with a coefficient of -2.9984 meaning that it is negatively related to financial performance of Universal Banks in Ghana. The results also indicate that NPLs is significant at 10 percent level of significance. The coefficient carries the expected sign and shows that in the short run, a 1 percent increase in the rate of NPLs leads to approximately 3 percent decline in the profitability of Universal Banks in Ghana. This outcome is in line with several studies including one carried out by Lata (2014) who found out that NPLs had an adverse effect on the banks in Bangladesh. The outcome also concurs with Roy (2015)

who found that NPL is one of the major factors of influencing banks profitability and it is statistically significant with a negative effect on net profit margin of listed banks in Dhaka. The result further agrees with Muasya (2009) who found that NPLs adversely affected the performance of banks in Kenya. Additionally, the results confirm the study by Chen, Li, Xiao, and Zou, (2014) who found that NPLR had a significant effect on ROA in European banks. In all, NPL rate is the major indicator of commercial banks credit performance. It is the ratio of NPL to total loan and advance which measures the extent of credit risk of banks. In this case, the bank was exposed to risk when NPL rate is increase.

Furthermore, the short run dynamics reveal that the coefficient of GDP Growth carried an expected positive sign and is statistically significant at 5 percent level of significance. With a coefficient of 2.4855, it means that as GDP Growth increases by 1 percent, Universal Banks Profitability increases by approximately 2.5 percent, ceteris paribus. GDP growth is one of the indicators of the health of any country's economy and the economic status of its citizens by extension Several studies consider GDP growth used in this study as the macroeconomic measure of the changes in the value of economic output adjusted over time. Increasing GDP growth is usually associated with increasing levels of Banks Profitability (Beck et al., 2013). This is true in that a strong positive growth in GDP usually translates into more incomes of the citizens which improves the debt servicing capacity of the borrower, which in turn contributes to higher profitability of banks and vice versa (Khemraj & Pasha, 2009). The findings from this study concurs the works of (Louzis et al., 2012; Tomak, 2013; Akinlo et al., 2014; Abid, Ouertani, and Zouari-Ghorbel, 2014; and Ghosh (2015) who concluded that GDP growth has significant negative relationship with the NPLs and therefore better profitability of banks.

Also, the short run dynamics reveal an interesting result in the case of the effect of unemployment rate on the profitability performance of Universal Banks in Ghana. The coefficient of unemployment rate carried an unexpected positive sign and is statistically significant at 1 percent significance level. With a coefficient of 6.5393, it means that as unemployment rate increases by 1 percent, Universal Banks Profitability increases by approximately 6.5 percent, ceteris paribus. The possible explanation for this counterintuitive findings is the first quarter; a bank is likely to increase its profitability if its borrowers lose their jobs due to two main reasons. First, strict collateral agreement in case defaults persuade borrowers to settle their loans requirements. Second, it takes the borrower some reasonable period to ideally feel the impact of the job loss in financial terms and as such settle debt or loans requirements in very short run and thereby increasing banks profitability. Nevertheless, the result of unemployment rate carried an expected negative sign in the last quarter. With a coefficient of -3.5313 in the last quarter, it means that a 1 percent increase in the rate of unemployment results in approximately 3.5 percent reduction in Universal Banks profitability. Unemployment rate is one of the key factors which has caused a huge volume of NPLs in the consumer financing. If one cannot have any source of income, then one cannot be expected to pay loan instalments hence loans turning into NPLs and thereby reducing banks profitability. Therefore, if people can get jobs to have source of income then demand for goods and service would increase triggering increase in sales of businesses and ultimately position businesses and individuals to honour loan obligations. However, the reverse of this situation is what has been

observed in Ghana over the study period. The result from this study also concurs the earlier studies on the same matter by (Nkusu, 2011; Bofondi & Ropele, 2011; and Farham et al, 2012).

Also, the lending rate revealed a significant positive effect on Universal Banks Profit performance over the study period in the first and fourth quarters. However, in the second and third quarters, the effect of lending rate on banks profitability is negative though only significant in the second quarter. The short run dynamics show that an increase in the lending rate by 1 percent improves profit performance by approximately 0.4 percent and is significant at 1 percent level of significance. Furthermore, the short run dynamics reveal that the coefficient of lending rate to be 0.3215 and is statistically significant at 5 percent level of significance. With a coefficient of 0.3215, it means that as lending rate increases by 1 percent, Universal Banks Profitability increases by approximately 0.3 percent, ceteris paribus.

The result from these two quarters (1 and 2) demonstrates that discernment of bankers' in Ghana is that interest rate has a significant positive relationship profitability. The result is also in line with that of (Irfan Shakoor et al., 2014) who found that in Pakistan there was strong and positive correlation between interest rate and commercial banks' profitability meaning that if the value of interest rate is increased/decreased then as result, value of bank profitability also increased/decreased. This result from our study is consistent with the work of (Flannery & others, 1980)Borio et al. (2017) who found a positive relationship between the level of interest rates and the slope of the yield curve on the one hand, and bank profitability on the other. Additional studies which had a similar outcome include those of Flannery (1980) in the USA, Okoye and Onyekachi, (2013) in Nigeria and Haron (2004) who studied determinants of profitability of Islamic banks.

Finally, and conversely, lending rate turned out with a coefficient of -0.8456 meaning that it is negatively related to financial performance of Universal Banks in Ghana. The results also indicate that lending rate is significant at 1 percent level of significance. The coefficient carries the unexpected sign and shows that in the short run, a 1 percent increase in the rate of NPLs leads to approximately 0.84 percent decline in the profitability of Universal Banks in Ghana. The findings from this study is however consistent with assertion that Banks that charge high interest rate would comparatively face a higher default rate or NPLs and by extension profitability performance. Study by Sinkey (1991) on large commercial Banks in US depict that a high interest rate charged by banks is linked with loan defaults. Rajan and Dhal (2003) who used a panel regression analysis indicates that financial factors like cost of credit has got significant impact on NPLs and banks profitability. Another recent work by Waweru and Kalani (2009) on the commercial banks in Kenya also indicates that high interest rate charged by the banks is one of the internal factors that leads to incidence NPLs and poor profit performance.

Post Estimation Tests (Diagnostic and Stability Tests)

Table 8: Diagnostic Tests

	Diagnostic Test
Test Statistics	**Chi/F Version**
Serial Correlation	F (2, 37) = 0.2341 [0.7924]
Functional Form	F (1, 38) = 1.4620 [0.2341]

Normality	CHSQ(2) = 10216 [0.5443]
Heteroscedasticity	F (15, 39) = 0.6768[0.7427]

Diagnostics test were conducted for the ARDL model. The tests as reported in Table 8 indicate that the estimated model passes the Langrangean multiplier test of residual serial correlation among variables. Also, the estimated model passes the tests for Functional Form Misspecification using square of the fitted values. The model also passed the Normality test based on the Skewness and Kurtosis of the residuals. Thus, the residuals are normally distributed across observations. Finally, the estimated model passes the test for heteroscedasticity test based on the regression of squared residuals on squared fitted values.

Specifically, Table 8 shows the Breusch-Goddfrey Serial Correlation LM test for the presence of autocorrelation. The result of the test shows that the p-value of 0.7924 which is about 79 percent is greater than the critical value of 0.05 (5%). This shows the non-existence of autocorrelation. The White Heteroscedasticity test above shows that the p-value of about 0.7472 which is approximately 75 percent is more than the critical value of 0.05 or 5 percent. That is, we accept that there is no heteroscedasticity. This shows that there is no evidence of heteroscedasticity since the p-value are considerably in excess of 0.05 and conclude the errors are not changing over time. Table 5 also shows that the Ramey RESET test shows that the p-value of approximately 23 percent (0.2341) and this is greater than the critical value of 0.05 or 5 percent. This shows that there is no apparent non-linearity in the regression equation and it would be concluded that the linear model is appropriate.

Stability Tests

Pesaran and Pesaran (1997) suggests that the test for the stability for parameters using cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMSQ) plots be conducted after the model is estimated. This is done to eliminate any bias in the results of the estimated model due to unsTable parameters. Also, the stability test is appropriate in time series data, especially when one is uncertain about when structural changes might have taken place.

The results for CUSUM and CUSUMSQ are depicted in figures 3 and 4 respectively. The null hypothesis is that coefficient vector is the same in every period and the alternative is that it is not (Bahmani-Oskooee and Nasir, 2004). The CUSUM and CUSUMSQ statistics are plotted against the critical bound of 5 percent significance level. According to Bahmani-Oskooee and Nasir (2004), if the plot of these statistics remains within the critical bound of the 5 percent significance level, the null hypothesis that all coefficients are sTable cannot be rejected.

Figure 4 depicts the plot of CUSUM for the estimated ARDL model. The plot suggests the absences of instability of the coefficients since the plots of all coefficients fall within the critical bounds at 5 percent significance level clearly showing convergence. Thus, all the coefficients of the estimated model are sTable and therefore we can say that the coefficients are not changing systematically over the period of the study.

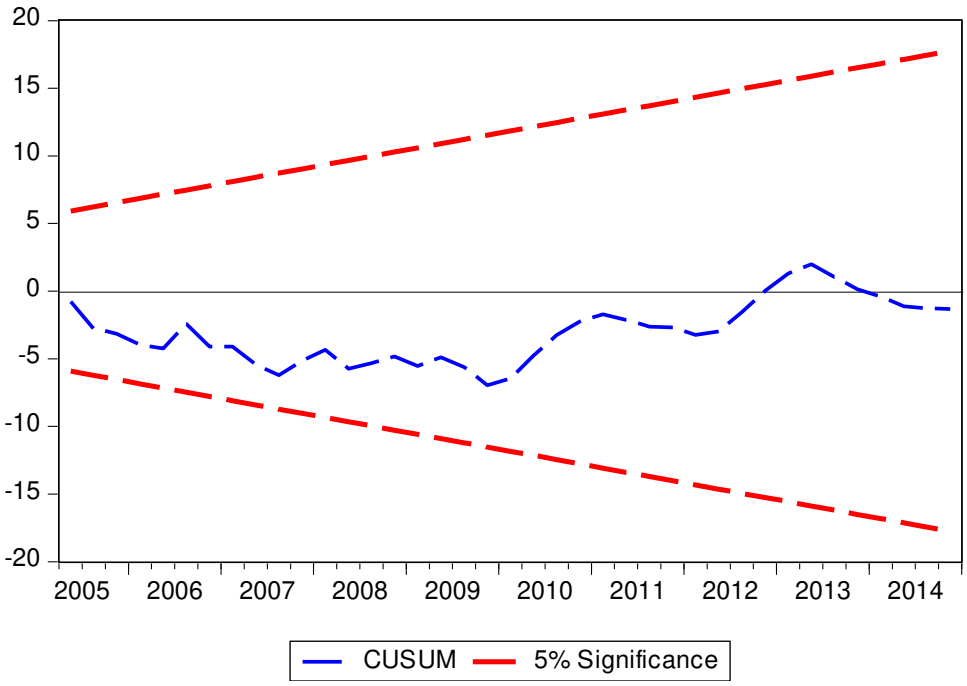


Figure 3: Graph of Cumulative Sum of Recursive Residuals

Also, Figures 4 depicts the plot of CUSUMSQ for the estimated ARDL model. The plot also suggests the absences of instability of the coefficients since the plots of all coefficients fall within the critical bounds at 5 percent significance level. Thus, all the coefficients of the estimated model are sTable over the period of the study in the sense that they are not changing erratically.

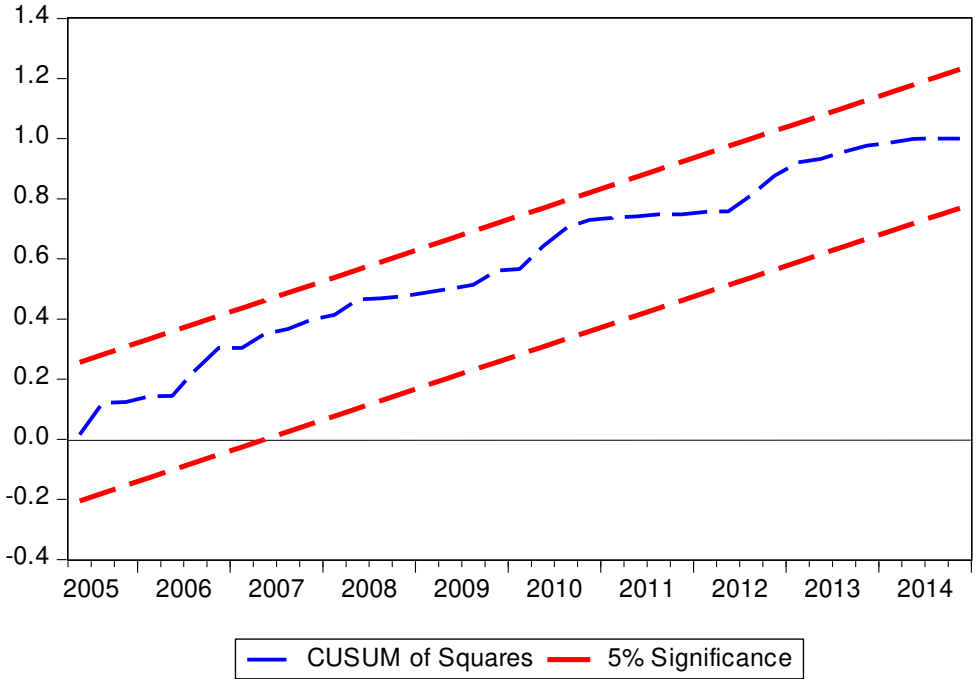


Figure 4: Graph of Cumulative Sum of Square Recursive Residuals

CONCLUSIONS AND RECOMMENDATIONS

This section summarizes, concludes and gives policy recommendations emanated from the study for the consideration of planners and managers of the economy. The aim is to show the major findings in the study and also suggest policy recommendations as to the way forward to increase ensure a steady and sustainable Universal Bank performance. The section first summarizes the findings of the study and then concludes the major findings of the study before prescribing policy recommendations. The target of the research was to investigate empirically the relationship between NPLs and Universal Banks profitability.

Summary of Findings

The focus of this study was to investigate the relationship NPLs and Universal Banks profitability growth to determine if a long run or short run relationships exists among variables. In sum, the study examined NPLs and Universal Banks profitability together with control variables using an Auto Regressive Distributed Lag Model that was developed by (Pesaran et al., 2001)

In the empirical literature analysis reviewed, the study largely explored the relationship between NPLs and Universal Banks profitability for this study on Ghana on quarterly basis over the period 2000 to 2014 and it was clear that the bulk of the literature produced mixed relationship between NPLs and banks profitability.

In order to estimate the long-run relationship and short-run dynamic parameters of the model, the Autoregressive Distributed Lagged Model (bounds testing) approach to cointegration was employed. We then started the estimation process by testing for the stationarity properties of the variable using the Augmented-Dickey Fuller (ADF) and Phillips-Peron test statistics. The unit roots results suggest that all the variables were stationary after taking first difference with a constant under the ADF test and Philips-Peron test statistics. The study then proceeded to examining the long-run and short-run relationships between government expenditure and economic growth

The bounds tests results revealed that in the long-run, only GDP growth and lending rate exerted a statistically significant positive effect on Universal Banks profitability. This shows that per the findings, non-performance and unemployment are detrimental to Universal Banks profitability in Ghana.

The short-run results, in conformity to was found in the long run, revealed that GDP growth and lending rate have a positive and significant influence on Universal Banks profitability in the first quarter. However, unemployment had a positive and statistically impact on Universal Banks profitability in the first quarter. Lending rate also had a petrifying impact on Universal Banks profitability in both second and third quarters. This implies that in all other quarters, NPLs, unemployment and lending rate had negative impact on Universal Banks profitability in Ghana.

The existence of a long-run relationship among NPLs and Universal Banks profitability is further confirmed by a negative and statistically significant coefficient on the lagged error correction term and the size of this coefficient suggest that, the disequilibrium caused by previous years' shocks converges back to the long-run equilibrium in the current year.

The diagnostic test results also show that the model passes the test of serial correlation, non-normal errors and heteroscedasticity as well as the functional form. The graphs of the cumulative sum of recursive residual (CUSUM) and the cumulative sum of squares of recursive residual (CUSUMSQ) exhibit that there exists a sTable relationship between Universal Banks profitability, NPLs, and the selected macroeconomic variables used for the study.

Conclusions

The study has empirically examined the impact of NPLs on Universal Banks profitability using Ghanaian data set for the period 2000 to 2014. The empirical evidence revealed the following findings: First, both the long-run and short-run results found statistically significant positive effects of GDP growth and lending rate on Universal Banks profitability in some quarters. This means that, the growth of GDP enhances the profitability of Universal Banks in Ghana. Lending rate and unemployment rate profit inducing in the fourth and first quarts respectively. However, increasing levels of lending rate and unemployment proved deleterious on Universal Banks performance in the rest of the quarters.

Moreover, the long run results also showed favourable impacts of GDP growth and lending rate on Universal Banks profitability. The variable of interest, NPLs as well as unemployment had an inverse relationship with Universal Banks profitability though the former is insignificant.

Recommendations

Based on the findings from the study, the following recommendations are proposed.

In a bid to ensure and improve Universal Bank profitability, specifically returns on asset, it is strongly recommended that the management of Universal Banks and loan officers should always give a serious attention to the health of asset quality of banks specifically loan performance for prevention of loans loss. Besides, loan officers should provide financial counselling to the borrowers on the wise use of loan and should make decision on timely fashion to meet their needs. If so, the banks management on asset utilization is improved and then reduces the level of non-performing is more likely to reduce.

Lending rate has a significant impact on the level of NPLs which decreases ability of borrower or results reluctance to pay. Consequently, to minimize such problems, every loan officer and area Universal Bank managers should properly inform to the borrower about the situation of changing lending interest rate (by answering when and how) questions. The degree at which lending rate increases or reduces should be in conformity with the regulatory thresholds set by the BoG. Banks should not sacrifice the safety of the fund to get extreme profit from risky loaning practices. This is to say that Universal Banks should minimise their quarterly profit targets as it is a likely source of NPLs. Besides, it is strongly recommendable for the loan officers to communicate with the borrowers on timely basis regarding their duties and obligations to ensure their loan repayment ability.

Universal Banks should revise their lending policy depending on the situation and economic condition of the country. Since unemployment rate has significant impact on

profitability, Universal Banks should employ competent economists who will advise them on this issue.

Lastly, the researcher recommends that, the banks should stand to design and implement loan recovery strategies and policies. Spreading effect in NPL has a negative impact on managing it. Therefore, the bank should take serious measures when a customer is reluctant in paying the loan while additional collateral is required when the value of the previous has decreased;

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