

The Performance of Rural Bank's in Ghana: The Ages Have Past Anything Recommended for the Future

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Abstract

Over the years, the RBs, which are often viewed as the small man's bank, have taken deep roots and have become a sort of inseparable part of the rural credit structure. Despite the role played by the rural banks in the rural financial climate and the effort by the government to energize their growth, their performance within the financial scene, over the last three and half decades has not been up to the expectation. The purpose of this paper is to examine the performance of the rural banks in Ghana by using financial ratios as a tool of measurement. The paper use average time series data obtained from Bank of Ghana and APEX Bank annual reports, covering the existing 127 RCBs in Ghana. The paper contributes to the body of knowledge by providing an indication to policymakers, regulators and shareholders in regards to the rural banks performance. A regression model was developed with return on asset as the dependent variable associated with six explanatory variables. The results of the study pleaded in favor of all the explanatory variables to be the main drivers that influence rural banks performance in Ghana. Notwithstanding the model registered liquidity variable to be insignificant.

Key Words: Rural Community Banks, Bank of Ghana, Apex Bank, Performance, Ghana.

Introduction

Rural banks have been in existence for around three decades in the Ghana's financial scene. The beginning of the rural banks (RB) can be seen as a unique experiment as well as experience in improving the efficacy of rural credit delivery mechanism in Ghana. The genesis of the rural banks can be traced to the need for a stronger institutional arrangement for providing rural credit. Rural banks were supposed to evolve as specialized rural financial institutions in developing the rural economy by providing credit to small and marginal farmers, agricultural laborer, artisans and small entrepreneurs.

The primary objective for setting up the rural banks was to bring financial intermediation in the rural areas to facilitate the payment system and to promote savings and investment. This was aimed to bring banking services to rural dwellers and to reduce the amount of money kept outside the banking system. In spite of the fact that 70% of the country's population resides in the rural areas and the fact that agricultural

production was principally carried out in the rural areas, there were no financial institutions to serve them. Between 2000 and 2008, the RCB network has witnessed growth in both the profitability and net worth. Network wide capital is well above the minimum 10 percent required by the Bank of Ghana. Not all RCBs in the network are solvent, however; in 2008 seven RCBs were insolvent, and the continued operation of poorly performing RCBs is one of the key issues facing the network. The relatively high ratio of nonperforming loans is a major factor affecting financial performance. Several challenges, however, remain. The Bank of Ghana (BoG) rated the performance of 17 of the 135 rural banks in operation as mediocre on capital adequacy, and it categorized 5 banks as distressed. Among the banks whose performance is categorized as mediocre, 6 rural banks have negative net worth. The Apex Bank of the network, which was created primarily to provide services to rural banks, is not yet fully financially self-sufficient and has inadequate resources to effectively perform its function. The BoG, which is primarily responsible for supervising RCBs, is constrained in effectively performing its supervisory role because of political and civil society pressures, resource constraints, and limited delegation of supervisory functions to the Apex bank. Over the years, the RBs, which are often viewed as the small man's bank, have taken deep roots and have become a sort of inseparable part of the rural credit structure. In term of geographical coverage, the RBs role in rural institutional financing cannot be over emphasized. The RBs business capacity and customer base contribute to the development of the rural economy. A remarkable feature of their performance over the past three decades has been the massive expansion of their retail network in rural areas. The mandate of promoting banking with a rural focus, however, would be an enduring phenomenon only when the financial health of the RBs is sound. With built-in restrictions on their operations, it is common to expect that the financial health of the RBs itself would be a matter of concern. As a network RCBs have achieved a remarkable level of service delivery and financial performance. At the end of 2008 they had a deposit of GHc343.9 million (US\$265.1 million) from more than 2.8 million clients, and loans and advances of GHc224.7 million (US\$173.2 million) with about 680,000 clients (Nair and Fissha, 2010). Bank of Ghana (2011) recorded total deposits for the rural banks of GHc667.3 million representing 7.8% of deposits mobilized by all banks. Despite the role played by the rural banks in the rural financial climate and the effort by the government to energize their growth, their performance within the financial scene, over the last three and a half decades has not been up to the expectation. The operations of the RCBs have been dogged by a lot of problems ranging from lack of quality management, low capitalization, and poor customer service to governance problems. According to Nair and Fissha (2010), the financial performance of many RCBs started to decline, however, for several reasons, including a drought that affected the country in 1983 (leading to high loan default rates), weak governing ability, conflicts within boards of directors, and ineffective management in many RCBs. In order to restrain the worsening state of RCB, the GoG closed down distressed banks, strengthened supervision, limited exposure to the agriculture sector, offered capacity building to RCB managers and boards of directors. The RCBs continued to be important rural financial service providers, and the GoG has consistently provided support to the RCBs by financing capacity building (in partnership with several donors), restructuring programs, and undertaking regulatory reforms.

In the light of this, the main objective to provide financial services to the rural folks has not been achieved to the expected level, as many of the rural dwellers still remain unbanked or under banked. This unimpressive performance of the RCBs has prompted the need to assess their performance and find ways of improving on it. Although RCBs have been able to increase their customer base from 2,493,004 in 2006 to 3,386,674 in 2010 (Apex Bank EMU Report, 2010), they have not recorded a deposit to commensurate the numbers. To this end it is of great significance to tackle the problems that have crunch the performance of the rural banks in Ghana.

This paper seeks to examine the performance of the rural banks in Ghana by using financial ratios as the main tool or technique to measure the performance of the rural banks. The paper use annual data obtained from Bank of Ghana and APEX Bank annual reports covering the existing 137 RCBs in Ghana to study the

performance of the rural banks. The paper tackles the performance from different perspectives; spanning financial, coverage and the social impact of rural banks on the people of their catchment areas. The paper used time series data from 1989 to 2012. The results of the study pleaded in favor of all the explanatory variables to be the main drivers that influence rural bank's performance in Ghana. Notwithstanding the model registered liquidity variable to be insignificant.

The contribution of this paper is threefold. First, it expands on the small literature on rural banking research in Ghana. To the knowledge of the researcher, this is the first paper using financial analysis to measure the performance of rural banks in Ghana. Second, it contributes to the literature that seeks to explain the factors that determine the rural bank performance in Ghana. Third, it contributes to the body of knowledge by providing an indication to policymakers, regulators and shareholders in regards to the rural bank's performance. Therefore, the findings of this paper could be seen as an initial step toward understanding the performance of the rural banking sector in Ghana.

The rest of the paper is organized as follows. Section II provides an overview of the rural banking structure in Ghana and empirical literature on rural bank's performance. Section III explores the data source and methodology of the study. Section V presents the result and conclusion. Section VI bestows the analysis and policy recommendations.

Literature Review

Overview of Rural Bank in Ghana

Rural and community banks (henceforth referred to as rural banks or RCBs) are a network of 140 independent unit banks in Ghana. They are policed by the Bank of Ghana and thereby form part of the regulated financial sector in Ghana. These banks are the largest providers of formal financial services in rural areas and also represent about half of the total banking outlets in Ghana (IFAD 2008). By the end of 2008, these banks collectively had 421 branches. Prior to the establishment of the first rural bank in 1976, rural communities, especially for small farmers and fishermen did not have access to formal credit. The moneylenders and the traders were the main sources of credit, charging excessive interest rates. To this effect the government took the initiative to improve the accessibility of finance in the rural areas. Under these measures, the commercial banks were required to lend at least 20 percent of their portfolio for agricultural uses. It was within this notion that the Agricultural Development Bank (ADB) was enacted in 1965 with the exclusive permission to lend to agriculture and allied industries in rural Ghana. Lending to the rural sector, however continued to be low, this was due to the fact that commercial banks were using their rural branches to make payments primarily to the cocoa farmers and collect their deposits for lending in urban areas. Credit facilities were not provided as initially envisioned. Commercial banks demanded strict collateral requirements and higher deposit accounts to provide loans to rural communities. Many fishermen and small farmers had no deposit accounts in commercial banks. Moreover, they could not satisfy the collateral requirements for commercial lending (Andah and Steel, 2003). A study by Mensah (1993) and Ranade (1994) found ADB's credit provision and coverage to be limited. Only 27 percent of its branches were in rural areas, and lending to smallholder farmers made up only about 15 percent of its total portfolio. In view of this situation, the Government of Ghana (GoG) considered supporting the enactment of community banks in rural areas that would be dedicated to providing financial services in those areas.

In 1976, the first rural bank was established in Nyakrom, a farming community in the Central region of Ghana with paid-up capital of 60,660 old Ghana cedis. Capital contributions were predominantly drawn from farmers in the community. By 1980 the number of rural banks had reached 20. Managers and directors of these rural banks instituted the Association of Rural Banks (ARB) to promote the exchange of information and to improve the performance of rural banks as a whole. Between 1980 and 1984, there were

106 rural banks due to rising interest among rural communities to set up their own banks and the introduction of Akuafu Check operations in cocoa-growing areas in 1982 (Nair and Fissha, 2010). At present there are 137 rural banks that have been licensed by the BoG.

A code for instituting new rural banks became necessary as the network of rural banks grew. In 1985, the BoG created a policy for setting up rural banks. The BoG minimum paid-up capital requirement was old GHc 1.5 million. Shareholders and the BoG contributed 67 percent and 43 percent respectively.

The rural banks provided mainly savings and credit services and products. With the increase in the number of rural banks, the number of individuals with bank accounts also increased. The volume of deposits increased from old GHc 148,000 in 1976 to old GHc 2.3 billion in 1988. With the addition of credit lines, the consolidated loan portfolio grew to around US\$4 million, with nearly half of the portfolio in agriculture and 30 percent in cottage industries. The repayment performance of loans worsened, however, with nonperforming loans (NPLs) rising from 5 percent in 1982 to 70 percent in 1986.

Loan performance deteriorated due to the 1983 drought and price slump associated with the 1984 bumper yield. Additionally, the boards of directors of most banks had little experience in our understanding of the banking business. Moreover, the banks located in rural areas had limited resources to attract well-qualified and experienced personnel. Weak internal controls contributed to corruption by management and staff. The sector-specific credit quotas and concessional interest rates for priority sectors including agriculture constrained the RCBs' ability to flexibly respond to market signals and risks unique to RCBs. Specifically, RCBs gave many bad loans to meet the 50 percent lending requirement for agriculture imposed by the BoG. Fifth, inadequate resources limited the BoG's capacity to supervise the rapidly rising number of rural banks and to effectively respond to their complex difficulties (Nair and Fissha, 2010; Andah and steel, 2003).

The BoG initiated some financial reforms to curb the deteriorating financial performance of RCBs. A review of the sector-specific credit quotas, a stronger role for the BoG in the examination and control of the banks, a reduction in agricultural loans, an increase in primary and secondary reserve requirements, and closure of grievd banks were among the reforms (Andah and Steel, 2003). In 1989, the World Bank-supported Rural Finance Project was approved with the objective to strengthen the RCBs by providing technical assistance for restructuring about 80 RCBs and strengthening the ARB and credit unions. The duration of the Rural Finance Project (RFP) was 1989 to 1994. Initial diagnostics showed that 98 out of 122 banks were capital deficient. The RFP resulted in some positive outcomes. Out of 125 RCBs, 55 were rated as satisfactory. By 1994, deposits had increased from old GHc 4.6 billion in 1989 to old GHc 13.2 billion; and loans nearly doubled from old GHc 3.7 billion in 1991 to old GHc 6.8 billion in 1994. The recovery rate of the RCB loan portfolio improved to 60 percent (Nair and Fissha, 2010). Most RCBs, however, continued to be financially and operationally weak.

At the end of the 1990s, two major policy decisions were made to strengthen supervision of the RCBs: one was to support the establishment of an apex bank, which would provide support services to the RCBs, and the second was to merge the Rural Finance and Inspection Department in the BoG with the Banking Supervision Department (BSD).

The merger, accomplished in 1999, was intended to integrate supervision of the RCBs with that of other institutions over which the BoG had supervisory responsibility. The GoG decided to borrow again from the World Bank and other donors to help establish the Apex Bank and for other activities to strengthen the rural financial sector. The RFSP became effective in 2001, and the ARB Apex Bank created by the rural banks commenced business in 2002 with financial support provided under the RFSP. The establishment of an apex structure for the rural banking system was intended to leverage economies of scale to address

constraints faced by the rural banks in check clearing, specie supply, liquidity management, and training. Additionally, the ARB Apex Bank was to provide banking and non-banking support services RCBs. The objective was to improve RCBs operational efficiency and to transform them into efficient and credible financial institutions that which can effectively address the banking needs of the communities in which they operate.

Several key regulatory changes were also undertaken during this period. The secondary liquidity reserve requirement was reduced from 52 to 30 percent in 2006. The capital adequacy ratio was increased from 6 to 10 percent, and the paid-up capital requirement for establishing a rural bank was raised to GHc 150,000 (US\$116,135). The BoG delegated part of its supervisory functions to the ARB Apex Bank and launched an electronic reporting system to ensure efficient supervision. As of 2008, there were 127 RCBs in existence. Of these, one was in the process of being liquidated and six were categorized as distressed (Nair and Fissaha, 2010).

Empirical Literature Review

A large number of empirical studies have been conducted about factors influencing bank performance or determinants of bank performance. However, most of these studies covered developed economies, whereas much less study covered emerging economies such as Ghana's economy. Generally, the financial performance of banks and other financial institutions has been measured using a combination of financial ratios analysis, benchmarking, measuring performance against budget or a mix of these methodologies (Avkiran, 1995). Goddard et al. (2004) study the performance of European banks across six countries. They find a relatively weak relationship between profitability and size. The profitability was measured by return on equity (ROE). Williams (2003) considers the determinants of the performance of foreign banks based in Australia for the period 1989-93. With return on assets (ROA) as the dependent variable, he found foreign banks in Australia to have a significant low marketing share. He also found non-interest income and net interest margin to be significant. Chirwa (2003) studied eight banks in Malawi (1970-84) and observed loan to asset ratio to be positive and significant coefficient on ROA. Using data from 1999 to 2003, Tarawneh (2006) used financial ratios to assess the performance of the Omanis banks. His results showed that the financial performance of the banks was strongly and positively influenced by the operational efficiency, and asset management in addition to the bank size. Kim and Kim (1997) conducted a comparative study on the structure-profit relationship of commercial banks in Korea and the U.S. To assess the profitability of the sample banks, they used ROA and ROE as the dependent variables. Their results indicated capitalization rate, reserves for loan losses and the size of the bank were important factors affecting the profitability of the banks in both countries. Delis and Papanikolaou (2009) investigated the determinants of bank efficiency. They found that banking sectors of almost all sample countries show a gradual improvement in their efficiency levels. The model used shows that a number of determinants like bank size, industry concentration and the investment environment have a positive impact on bank's efficiency. Zimmerman (1996) examined factors influencing community bank's performance and concluded that the regional conditions and loan portfolio concentration were essential factors in community bank's performance. Mostafa (2008) has measured the relative efficiency of the top 100 African banks using a cross-sectional data for the year 2005. He found out that the performance of several banks is sub-optimal suggesting the potential for significant improvements. Using data from 1976 to 1987, Obben (1992) performed canonical correlation analysis to investigate rural bank performance in Ghana. Explanatory variables were divided into three groups: those under the control of the rural bank, location factors and government regulations. It was found that the then prevailing negative real interest rates and the ratio of staff costs to total assets strongly associated with poor debt collection and declining annual deposits and loan growth. The loan and deposit ratio had a significant negative correlation to the excess reserve to total deposits ratio and was also positively correlated to the loan, total asset and capital asset ratios; the age of a rural bank had a significant positive correlation with the capital / total asset ratio but was negatively associated with the deposit / total

asset ratio; the return on assets variable performed poorly. Moreover, there was significant negative association with the trading loans / total loans ratio; and growth in deposit in real term was falling under the study period.

Ghana's economic growth has been among the strongest in Africa in recent years. Real gross domestic product (GDP) growth rose gradually from 4.5 percent in 2002 to an estimated 7.2 percent in 2008, although it is still below the rate needed to achieve Ghana's ambition of becoming a middle-income country by 2015. Inflation fell from 42 percent in 2001 to 13 percent in 2008. Agriculture contributes 40 percent of GDP; industry, 27 percent and services, 32 percent. Agricultural growth, which averaged 3.6 percent for the 10-year period from 1997 to 2007, remains the mainstay of strong overall growth performance, accounting for more than half of the total growth in this period. Some 2.7 million farms, averaging 1.2 hectares in size, account for 80 percent of agricultural production. The poverty headcount decreased from 39.5 percent in 1989 to 28.5 percent in 2006 according to the 2006 Ghana Living standard Survey (GLSS). The 2008 Ghana Banking Survey, reported that between 2003 and 2007 the total deposit mobilized to increase by 120% from 1.65 billion cedis to 3.65 billion cedis (Cedis is the official Ghanaian currency) (Frimpong, 2010). RCBs, and their agencies represent about 5 percent of the total banking assets and account for about half of the total banking outlets in the country, and they are especially significant in rural areas (IFAD, 2008). Between 2008 and 2008, the number of depositors grew at an average annual rate of 14 percent and the number of borrowers grew at an average annual rate of 27 percent. Realizing the challenges in accessing credit within the rural communities and the capacity exhibited to create and manage their own financial institutions, it has become imperative that government provides direct support to the institutions. The expansion of financial institutions in the rural financial market that target rural bank's clients and their personal should be seen by the RCBs as a healthy competitive market conditions that should motivate the RCBs to become innovative and more efficient. It should help RCBs to build up their position in the financial market. The RCBs should not try to seek protection against this competition. Competitions have stimulated some banks to pursue measures to improve their competitiveness and performance.

Data and Methodology

This study is conducted using annual observation data and cover the period from 2000 – 2012. The data were obtained from Bank of Ghana and APEX annual reports. The 2000 – 2012 periods was chosen for two reasons. First, the early 2000s were a period in which the RCBs were rendered ineffective and suffered substantial losses from a number of bad loans in their portfolios. Second, many policy changes were made in this era to strengthen the rural banks (Owusu-Antwi and Antwi, 2013). Nashim (2007) used annual data to measure rural bank's performance in India. The rural banks data employed in this data is the information contained in the balance sheets and income statements reported by the rural banks to the Bank of Ghana. The study employed financial ratios as financial tool to measure the rural banks performance in Ghana.

This study considers one dependent variable; return on asset (ROA). ROA is a financial ratio used to measure the relationship of profits or earnings and total assets. ROA measures and assesses the profitability performance of total assets and could be treated as a measure of financial performance in this study. As it is known, this measure contains two elements, efficiency (total asset turnover), and effectiveness (profit margin). Unal et al. (2007) employs ROA as the dependent variable to conduct a comparative performance analysis between the Turkish state-owned and private commercial banks during the period 1997 - 2006. RCBs are scheduled commercial banks whose source of income arises primarily from lending and investment. Balance sheet management on the part of RCBs requires a judicious mix between lending and investment. As such, loans and advances of each RCBs as a percentage of total assets (LTA) and investment in securities of each RCB as a percentage of total assets (INTA) are included as explanatory variables. One of the variables that can be used to determine the size of a financial institution or a firm is its total assets. To this effect, the log of total assets (TA) is used as a proxy for economies or diseconomies of

scale, given the wide range of bank asset sizes in Ghana's banking systems. The size variable of TA accounts for cost differences is related to banks' size and also controls for greater portfolio and loan diversification associated with larger banks. An important implication of asset diversification is less risk and, hence, a lower required rate of return. Buchs and Mathisen (2005) used size (total assets) as an explanatory variable to determine the degree of competition and bank efficiency in the Ghana banking industry. They found size to be significant and positive in all of their models. This implies that size is one of the major determinants return on asset. In terms of liquidity management, banks would constantly be confronted with maturity mismatch risk, because they are in the business to move short-term deposits into long-term credit. Liquidity deficits could cause insolvency problems. In an attempt to hedge against liquidity deficits, banks often associate with lower rates of return. Consequently, high liquidity is expected to be related to lower profitability (Molyneux and Thornton, 1992). The impact of liquidity on profitability is captured through the variable LIQ, which is represented through cash in hand of the RCBs as a proportion of their assets. Another explanatory variable that can be expected to have a significant effect on the financial health of the RCBs is their efficiency in expense management. The total expenses shown in the profit and loss account of the RCBs are the sum of interest expenses and operating expenses. While rising operating costs to support increasing business activities is natural, increasing operating costs relative to non operating expenses is a matter of concern and reflects poor expense management. To judge the impact of expense management on balance sheet health, the variable total operating expenses to total asset (TOETA) has been taken as another independent variable. It is less likely that a banking system will be more competitive when it is subject to high inflation as prices of financial services, such as interest rates will be less informative. As an indicator for macroeconomic stability, the inflation rate is also incorporated in the model. Claessens and Laeven (2004) found inflation to be insignificant. Buchs and Mathisen (2005), however, found inflation to be positive and significantly correlated with revenues. High inflation can influence loan portfolios of banks (Brownsbridge, 1998). First, it can increase the volatility of business profits, thereby encouraging borrowers to take greater risks. This is the phenomenon of adverse selection which can raise the probability of loan default. Inflation can also render loan appraisal more difficult because the viability of potential borrowers depends upon unpredictable developments in a range of prices, including the exchange rate and interest rate. Athanasoglou, Brissimis, and Delis (2008) also incorporated inflation as one of the independent variables in their econometric model to determine profitability among the Greek banks. They found that inflation has a positive and significant effect on profitability of the Greek banks.

Analysis and Model Development

This section of the paper provides theoretical basis and model development of financial statement analysis. Financial statements provide information on the resources available to management, how these resources were financed, and what the firm accomplished with them. Corporate shareholder's annual and quarterly reports include the balance sheet, the income statement and the statement of cash flows. Information from the basic financial statements can be used to determine what factors influence a firm's earnings, cash flows and risk characteristics. Accounting ratios reveals surprises, irregularities and anomalies that require further examination to determine the current and future financial company standing. Financial ratios describe the relationships between different items in the financial statements. In order to get the useful information accounting ratios communicate, one should only compare the company's financial ratios with ratios for a preceding period and budgeted ratios for the current period. In each case, comparison is feasible if an identical basis of compilation is used. Financial ratio analysis is an integral part to the assessment and improvement of company performance. Financial ratios help to direct attention to the areas of the business that need additional analysis. Ratios are very useful when they are used properly and also in conjunction with many other sources of information. Complementary financial ratios can be developed to take into account the share price at closure date or quarterly. The analyst can also compare ratios across a panel of

companies in the same industry or against the industry sector averages. Further improvement can be brought to the presented system, undoubtedly. Still, it is believed that the conceptual framework developed for the financial ratios, taking advantage of the flexibility and strengths of the object-oriented paradigm can be considered a reliable starting point. The variables in this study involve ratios based on the rural banks' financial statements. Financial ratio analysis has been widely used to evaluate a firm's performance, to make credit risk assessment decisions, to predict bankruptcy and merger targets, etc. The net income provides a picture to the company's financial performance and is determined as the earnings after tax. Although net income gives us an idea of how well a bank is doing, it suffers from one major drawback: It does not adjust for the bank's size, thus making it hard to compare how well one bank is doing relative to another. A basic measure of bank profitability that corrects for the size of the bank is the return on assets (ROA), which divides the net income of the bank by the amount of its assets. ROA is a useful measure of how well a bank manager is doing on the job because it indicates how well a bank's assets are being used to generate profits. It is observed that ROA is not what bank's equity holder cares the most though ROA provides useful information about bank profitability. They are more concerned about how much the bank is earning on their equity investment, an amount that is measured by the return on equity (ROE), the net income per dollar of equity capital.

Another commonly watched measure of bank performance is called the *net interest margin (NIM)*, the difference between interest income and interest expenses as a percentage of total assets: One of a bank's primary intermediation functions is to issue liabilities and use the proceeds to purchase income-earning assets. Banks profit would be higher with proper asset and liability management that translate into higher bank earnings on its assets and low costs on its liabilities. How well a bank manages its assets and liabilities is affected by the spread between the interest earned on the bank's assets and the interest costs on its liabilities. This spread is exactly what the net interest margin measures. If the bank is able to raise funds with liabilities that have lower interest costs and is able to acquire assets with higher interest income, the net interest margin will be higher, and the bank is likely to be highly profitable. If the interest cost of its liabilities rises relative to the interest earned on its assets, the net interest margin will fall, and bank profitability will suffer.

Based on the above discussion, to ascertain the impact of factors that influence rural bank's profitability, time series data have been used. The full model used to measure the performance of RCBs in Ghana is as follows:

$$\ln ROA = \alpha_0 + \beta_1 \ln LTA_{it} + \beta_2 \ln INTA_{it} + \beta_3 \ln TA_{it} + \beta_4 \ln LIQ_{it} + \beta_5 \ln TOETA_{it} + \beta_6 \ln INFL_{it} + \varepsilon \quad (1)$$

Where:

- ROA = return on asset
- LTA = loan to total asset
- INTA = investment to total asset
- TA = total asset as a proxy to size
- LIQ = liquidity
- TOETA = total operating expense to total asset
- INFL = annual inflation
- Ln = natural logarithm
- E = error term

Ordinary least square is used to estimate the model and is in log-linear form. This is to facilitate the ease of calculating the elasticity.

The dependent variable in this study is specified; and ROA in model (1) is represented by return on assets. These includes the assimilated interests, income on loans and revenues, the commissions over banking operations, profits on portfolios and financial operations, revenues on investment portfolios, operating provisions made available, and various products to total assets. The decision to consider ROA, rather than NIM only relies mainly on the fact that ROA has been limited use by many researchers on rural banks performance measurement. In addition ROA considers both interest and non-interest income. This is supported by Casu and Girardone (2006), who argue that in a more competitive environment, the distinction between interest and noninterest income becomes less relevant, as banks struggle for profits in both fronts. For this reason, it is appropriate to include ROA in the model. Mensi (2010) used return on assets and net interest income as the dependent variable to measure the performance of Tunisian deposit banks.

The independent variables include firm-specific variables similar to those used in other studies (Al-Muharrami, Matthews, & Khabari, 2006; Yildirim & Philippatos, 2007a). The model posits that banks use some input factors to generate revenue, namely, loans, investments, and fee income. The variables LIQ, INTA, and LTA are the input factors. LIQ represents liquidity; INTA represents investments to total asset; TOETA represents total operating expenses to total asset; LTA also represents loan to total asset; TA use as a proxy to size represents a total asset. Mkrtyan (2005) also adopted a similar strategy to evaluate the empirical evidence on the evolution of competitive structure and bank performance in the Armenian banking industry and found a monopolistic competition.

Loans generally represent the biggest portion of earning assets and also convey information about bank's risk preference (Yildirim and Philippatos, 2007a). The coefficient for the loan to total asset loan (LTA) is expected to be positive since more interest revenue is generated with increasing levels of loans. This is under the assumption that loans are the most remunerative bank investment (Giustiniani and Ross, 2008). Gutiérrez de Rozas (2007) employed the ratio of total loans to total assets as independent variables in his model to assess the level of competition and bank performance prevailing in the Spanish banking system. He found a positive relationship between the ratio of total loan to total assets and total revenue. Buchs and Mathisen (2005) also incorporated the ratio of total loans in their model and found it to be positive and significant. Since loans should earn a higher rate of interest than marketable securities, banks could maximize interest income by employing all of their funds in loans. But that is not possible for several reasons. First, loan demand is cyclical. During some periods the demand for new loans falls short of available loanable funds. Second, since banks are not able to predict deposit flows with perfect accuracy, they are not able to employ all funds in loans. Marketable securities provide backstop liquidity so that if customers draw down deposits, these securities can be sold in the secondary market to provide funds to meet the deposit outflow. Finally, the net return on investment securities could exceed the net return on some types of loans. To this effect the coefficient for total investments to total asset (INTA) is expected to be positive since an increase in bank investment portfolio will have a positive impact on banks total revenue. Giustiniani and Ross (2008) employed total investment as an explanatory variable in their model.

The general economic development, macroeconomic stability, and institutional framework are controlled, since they are expected to affect the banking system performance. As a proxy for the general level of development of Ghana, the logarithm of inflation (INFL) is incorporated into the model. Claessens and Laeven (2004) found inflation to be insignificant. This suggests no general patterns in the degree of bank performance across countries of different levels of development.

Results

Details of information on the mean of variables, the minimum and maximum of variables, the standard deviation of variables as reported by the data over period 2000 to 2012 is presented in table 1. It can be

observed that dispersion of variables over the sample period is quite low. The mean value and the standard deviation for the dependent variables return on asset (ROA) fluctuate throughout the sample period. The mean values of the independent variables ranges from 0.023 per cent, as recorded by investment to total asset (INTL), to 23.44 per cent, as also recorded by inflation. It is also worth noting that apart from the mean of Inflation which also lies around 23.44 percent, all the other explanatory variables have their means ranging from 0.023 per cent to 19.030 percent. Again, the standard deviation of the variables over this period was not all that high especially for investment to total asset (0.022 per cent) and operating expenses (0.024 per cent). Casual observation tends to show that for most of the cases, a higher mean is also associated with a higher standard deviation, so also is a low mean and standard deviation.

Table 1 Descriptive Statistics for the period 1999-2013

	MEAN	STD.DEV	MIN	MAX
ROA	0.033	0.086	-0.091	0.524
LTA	0.105	0.040	0.000	0.220
INTA	0.023	0.022	-0.013	0.086
LIQ	1.109	0.135	0.001	0.435
OE	0.063	0.024	0.025	0.123
TA	19.030	1.100	17.058	21.374
INFL	23.44	13.127	10.032	58.550

Note: ROA denotes return on assets; LTA is loaned to total assets; INTA represents investment to total asset; LIQ denotes liquidity; OE is operating expenses; TA represents total assets a proxy for size and INFL denotes inflation.

As a preliminary step of the empirical investigation that aims to assess the link between the rural banks specific variables and economic indicator and the role played by the rural banks in the Ghana's banking system, the study tested for correlation between selected dependent variable and the explanatory variables. Table 2 presents the results of correlation analysis for the study.

Table 2 Correlation Matrix for the Variables.

	LIQ	INTA	OE	LTA	TA	INFL
LIQ	1					
INTA	0.233	1				
OE	-0.272	0.058	1			
LTA	0.253	0.227	0.215	1		
TA	-0.440	-0.366	0.098	-0.618	1	
INFL	-0.113	0.096	-0.161	-0.129	-0.279	1

Note: ROA denotes return on asset; LTA is loan to total asst; INTA represents investment to total asset; LIQ denotes liquidity; OE is operating expenses; TA represents total assets a proxy for size and INFL denotes inflation.

The correlation matrix in table 2 exhibits the extent to which the independent variables relate to each other. The explanatory variables are not supposed to be dependent on each other or statistically relate to each other. To this effect, a regression analysis was performed on the dependent and independent variables to check on the existence of the multicollinearity and serial or autocorrelation problems. In a multiple regression model, multicollinearity exists when two independent variables are perfectly correlated with each other. It is very difficult to separate the effects of a dependent variable by two independent variables that are highly correlated with each other (Drury, 2007). This occurs when there is a simultaneous movement of two or more independent variables in the same direction and at approximately the same rate. Methods for correcting multicollinearity include computing variable inflation factor (VIF) dropping one or

more of the independent variables from the model or enlarging the sample size. As a rule of thumb a variable inflation factor (VIF) in excess of 10 is considered as an indicator of harmful multicollinearity (Zikmund et al., 2010). All the VIF are less than 10 with an average of 1.201. The results of the VIF is presented in table 3

Table 3 Results of VIF

LIQ	INTA	OE	LTA	TA	INFL
1.897	1.333	1.288	2.348	5.852	1.487

The results of VIF in table 3 suggested that multicollinearity is not an issue since none of the explanatory variables were above 10.

The results of this study show a significantly positive effect of most of the variables on rural bank performance as measured by return on assets. The result is statistically significant and in line with most studies on the determinants of rural bank profitability. Table 4 presents the results of the ROA model.

Table 4. Results ROA regression Model

Variables	Coefficients	T-statistics	Significance Level
Constant	-0.608	-1.207	0.237
LIQ	0.027	0.216	0.832
INTA	1.554	2.351	0.027
TOETA	-0.702	-1.178	.249
LTA	0.402	.821	.419
TA	0.025	0.938	0.354
INFL	0.001	0.785	0.439
R ²	.797		
Adjusted R ²	.770		
F-test	2.081		
DW statistics (Durbin Watson)	1.438		

The R² known as the coefficient of determination, measures the percentage of variation in the dependent variable that is explained by changes in the independent variables. The R² value (0.797) shows the amount of variance in the dependent variable, financial performance measure that can be explained by the independent variables. The coefficient of determination being 0.797 means that 79.7% of the variability in the use of financial performance measures can be explained by the variability in the explanatory variables of the rural banks. The adjusted R² (.770) adjusts for a bias in R² as the number of variables increases. The F test was used to determine whether the regression equation explained a significantly greater amount of the total bank revenues than would be accounted for by random chance. The F ratio was 2.081 and significant at the .01 level. The t-tests were used to determine the significance of the explanatory variables. The study tested for autocorrelation using Durbin-Watson statistics. The Durbin-Watson statistics of 1.438 is less than 5 and therefore implies that there is no autocorrelation.

The reported coefficient for rural bank liquidity (LIQ) is given as 0.027. This variable represented through cash in hand of the RCBs as a proportion of their assets. Bank with high liquidity means that the bank would be able to sustain or meet its financial obligation when payments are due. In an essence banks with high liquidity are more solvent than banks with less liquidity. The liquidity variable has a positive on profitability contrary to its priori assumptions and theory for that matter. This variable is not significant in explaining the variability in the return on assets of rural banks in Ghana. This indicates that liquidity is not a driver of profitability among rural banks in Ghana. The coefficient for investment to total asset (INTA)

was 1.554. The reported coefficient for INTA during the period under study was positive and significant at the .01 level. The sign agreed with the direction hypothesized. The positive coefficient implies that an increase in total investment leads to higher revenue. It also indicates that the rural banking sector sustained the deployment of more of its resources to the investment portfolio.

The reported coefficient of the ratio of total overhead expense to total assets (TOETA), is -0.702. This variable provides information on the efficiency of the management regarding expenses relative to the assets in year t, did not only have a negative impact on profitability and thus conformed to the a priori restriction, but was also a significant driver of rural banks in Ghana's profitability. The level of significance was at 10%. This shows that minimizing rural banks cost in Ghana, operating costs would indeed improve on their performance, which conforms to the study by Suffien et al. (2008), who asserts a negative relationship between the operating expense ratio and profitability.

The reported coefficient for loan to total asset (LTA) during the period under study was 0.402 and significant at .10 level. The sign agreed with the direction hypothesized. The implication to the positive relationship is that rural banks are generating higher proportions of revenue from loans in relations to total assets. In addition, it may also capture the fact that most of the rural banks, have not embarked on extensive lending to public enterprises which are prone to defer loan payments. The positive relationship may also reflect those loan recipients are paying a sizable share of commissions and fees. The positive coefficients also reflect the rural banks eased on credit stance on loans or credit lines to enterprises.

The reported coefficients, total asset (TA) is given by 0.025. This variable has a positive impact on profitability and conforms to the priori restriction. It is statistically significant in the model and it is a vital parameter and a significant driver in banks performance. This is consistent with the results obtained by Suffien et al., (2008). Suffien et al., indicated that total asset is usually used as a proxy to measure size, it is however used to capture potential economies or diseconomies of scale in the banking sector. The results reveal that the annual rate of inflation has a positive impact on profitability, and very significant driver in the performance of rural banks in Ghana. The reported coefficient is given by 0.001. The Annual Inflation Rate (INFL) in Ghana is the prime data used in the determination of the central bank lending rates to the commercial banks in Ghana. Thus the higher the rate of inflation, the higher the prime rate at which the central bank lends to the commercial banks. When this happens the rural banks will also have to lend at a higher rate. Considering these the customer bases of the rural banks, they will not be able to lend to these people at a higher rate which may then affect profitability.

Conclusion

The results of this study have therefore helped to explain the explanatory variables that help to measure rural bank's performance using ROA as the dependent variable in Ghana. Generally, this study has pleaded in favor of investment to total asset, the total overhead cost to total asset; loan to total asset; total asset and inflation to be the main drivers to rural banks profitability measurement in Ghana since they were significant. The result, however registered liquidity to be insignificant.

Analysis and Policy Recommendation

As a network, RCBs have shown commendable performance in both service delivery and financial performance over the past decade. Both depositors and deposits have been growing, though at a slower pace in recent years. The growth in the number of borrowers and in lending has been remarkable and demonstrates that rural banks are steadily transforming themselves into loans. This development marks a significant turnaround from being institutions that primarily collected rural deposits and invested them in

Treasury bills. In addition, as a network, RCBs are operationally and financially self-sufficient. They have operational and financial self-sufficiency ratios that are comparable with those of other similar institutions in Ghana (savings and loans) and exceed median values for MFIs in the mature MFI peer group of institutions reporting to the Microfinance Information Exchange (Mix) database. Within the network, however, the performance of a significant number of RCBs, continues to be weak. The key issue though is not the weak performance of this group per se, it is the inability of the regulatory system to identify these failing institutions at an early stage and facilitate a process that leads either to a cost-effective liquidation, a turnaround, or a merger with a stronger institution. With increased competition from commercial banks, S&Ls credit unions, and FNGO, it is imperative for RCBs to become more competitive. Some commercial banks have entered the rural financial markets in major way often targeting clients of the rural banks and their personnel. It is clear that to become more competitive, RCBs need to change at levels. First, at the individual RCB level, RCBs need to improve their service delivery and financial performance. To succeed in this endeavor, however, many RCBs would need significant high-quality support from the Apex Bank, even though they may have the financial capacity to pay for these services. Second, at the network level, a sustainable solution needs to be found for the RCBs categorized as distressed or weak by the Bank of Ghana (BoG). Weak supervision of the rural banks continues to be an issue. The BoG has been unable to take effective action on rural banks that do not meet prudential requirements. Global experience suggests that directly supervising relatively small financial institutions such as rural community banks in Ghana is not an efficient option for central banks because of the high transaction cost of the function. One sustainable option is for delegates most of the supervisory tasks to an external entity while retaining key tasks such as licensing and liquidation. The government should create additional mechanisms for consumer protection. An explicit deposit insurance mechanism can be useful if accompanied by stronger regulatory sanctions on poorly performing banks. The government should also devote additional resources to improving financial literacy in rural areas. This measure would both increase demand for financial services and reduce the implicit cost RCBs, incur when delivering services to a less financially literate clientele.

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