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Camels Model Analysis and Financial Performance in Rwanda

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Abstract:
Bank financial stability distress is due to the paucity liquidity ruling and thus weak related strategies to rank the bank profitability. The purpose of this study is to analyze the level of BRD's Performance, to determine the relationship between CAMELS model analysis and Financial Performance of BRD and finally to analyze the impact of CAMELS model analysis on Financial Performance of BRD. The study used Ordinal Least square analysis to estimate the value of dependent variables. The study was grounded by the agency theory and market timing theory to determine the relevance of bank financial performance in Rwanda. The study used descriptive survey design. The study used random sampling for 150 respondents. The result revealed that BRD is performing well. The return on asset is above 4% and NIM is above 100% which indicate strong performance while return on equity is below 25% which indicate fair performance. The CAMELS model analysis indicates that Capital adequacy (β=.916, p< 0.01), earning quality (β=. -1.026, p<0.01), Liquidity management (β=.705, p<0.01) are positive and significant to financial performance, while management efficient, Asset quality and sensitivity to market risk are not (β=.061, p>0.1), (β=-.104, p<0.05), (β=.204, p>0.1). The result reveal that the market timing theory had a significant impact on CAMELS model on different factors and thus resulting on reducing interest expenses, increasing level of liquidity on investment, fixed assets serving for backing credit lines, reducing level of risk by creating long-term assets provision, underutilization of asset by administration, purchasing fixed assets being used appropriately, less cost benefit of investing in fixed assets, increasing foreign loan portfolio, planning and assess of BRD long term assets, increasing skilled human resources, increasing ICT system. This study recommend that central/national Bank of Rwanda should change the way of ranking banks whereas it should refer to their level of financial performance among in ROE/or ROA as additional to the CAMELS model analysis while categorize them into development to commercial bank. The study prop up on the empirical theory.

Keywords: *developing countries, banks, CAMELS model, and financial performance*

1. Introduction

This paper focused on the Development Bank of Rwanda (BRD), the limited public company that was incorporated in August 1967 as financial institution. CAMELS stand for Capital adequacy, Asset quality, Management, Earning, Liquidity, and Sensitivity to market risk. Capital adequacy represents the relationship between equity and risk weighted assets, how to rise equity and measure the ability to which the organization observes the loan losses. Asset quality, the quality of a portfolio, assesses the portfolio risk and shows the productivity of long term assets. Management, to know the board of director's functions weather they are performing well or not and its decision-making ability. It also evaluates the performance of human resource management weather they give support and clear guidance to staff, all the facilities which staff needed i.e. incentive system for personnel, training, etc. Computerized information system is also taking into consideration whether the systems are operating well and provide accurate and timely reports to the management. Earning, quantifies the performance of the institution to increase and maintain the total worth through earnings from operations. It also assesses the interest rate policy, management examine and adjust the interest rate on micro finance loans and evaluate the adjusted return on assets that how well the assets are utilized. Liquidity Management scrutinizes institution liabilities like interest rate, payment terms, tenor etc. It also evaluates fund availability to meet its credit demand and cash flow requirements Economics and Financial Issues (2013).

The Financial crisis in India in 2007, prompted India Reserve Bank of India to suggested two supervisory rating models named CAMELS (Capital Adequacy, Assets Quality, Management, Earning, Liquidity, Systems and Controls) and CACS (Capital Adequacy, Assets Quality, Compliance, Systems and Controls) for rating of Indian commercial banks and foreign banks operating in India. This opined that this model is only parallel with the performance of the bank.

The banking sector in Kenya has improved tremendously over the last 10 years. However, despite the overall good picture a critical analysis indicates that, not all banks are profitable. The small and medium financial institutions constituted about 57 % of the banking sector posted a combined loss before tax, of Ksh 0.09 billion in 2009 compared to a profit before tax of Ksh 49.01 billion posted by

the big financial institutions. The Central Bank of Kenya has used CAMELS to examine factors affecting profitability and sustainability of banking institutions in Kenya. (CBK,2009).

The CAMELS model is still very much popular among regulators due to its effectiveness. The financial sector of Rwanda is continuing to face major challenges that are affecting the financial stability of the country's banks. Even the external factors, such as the recent global financial crisis is putting extra pressure on the banking industry (IMF, 2011). Due to radical changes in the banking sector in the recent years, the central banks of all around the world have improved their supervision quality and techniques. In evaluating the function of the banks, many of the developed countries are now following uniform financial rating system along with other existing procedures and techniques.

Failed institutions are eventually resolved via a formal resolution process designed to protect retail depositors (Okoth,2013)**.** Many researchers have been focused analysis of CAMELS Model through availability of liquidity to meet their obligation as well as credit, borrowings and depositories but none had analyzed CAMELS mode, risks and financial stability or performance to protect the bank's interest and awareness of their depositors (IMF, 2011).

In the 2006 to 2009, Rwanda experienced a liquidity crisis resulting to closure of a number of Microfinance institutions among others Intambwe MFI, Ongera MFI, Gwiza, CMF Urugero MFI, URUMURI MFI, Coopec intera, Coopec Iwacu, and Coopec ubumwe. This was due to the inadequacy liquidity regulation and redesign was necessary. Siva and Natarajan (2011)asserted that CAMELS Models and its impacts on the performance of Banks and CAMELS models scanning helps the bank to diagnose its financial health and alert the bank to take preventive steps for its sustainability. A composite rating of one is thought to indicate a strong bank that could weather adverse economic conditions.

National Bank of Rwanda's liquidity risk for off-site supervision was conducted within a broad risk assessment framework (CAMELS rating system". Under this system, only one analysis indicator performed - the liquid assets to liquid liabilities ratio–which had a threshold of 80 percent over the 4year period (BNR, 2006).Thus, no evidence of its relevance since this system keep updated and still defy resist.

2. Theoretical and Hypothesis Development

The concept of bank Performance is measured by Return on equity that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment. A business that has a high return on equity is more likely to be one that is capable of generating cash internally. Thus, the higher the ROE the better the company is in terms of profit generation. It is further explained by Khrawish (2011) that ROE is the ratio of Net Income after Taxes divided by Total Equity Capital. It represents the rate of return earned on the funds invested in the bank by its stockholders. ROE reflects how effectively a bank management is using shareholders' funds. Thus, it can be deduced from the above statement that the better the ROE the more effective the management in utilizing the shareholders' capital.

The Return on assets is also another major ratio that indicates the profitability of a bank. It is a ratio of Income to its total asset (Khrawish, 2011). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). Wen(2010), state that a higher ROA shows that the company is more efficient in using its resources.

The Net Interest Margin (NIM) is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders (for example, deposits), relative to the amount of their (interestearning) assets. It is usually expressed as a percentage of what the financial institution earns on loans in a specific time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that time period (the average earning assets). The NIM variable is defined as the net interest income divided by total earnings assets (Gul *etal.,* 2011).

Net interest margin measures therefore the gap between the interest income the bank receives on loans and securities and interest cost of its borrowed funds. It reflects the cost of bank intermediation services and the efficiency of the bank. The higher the net interest margin, the higher the bank's profit and the more stable the bank is. Thus, it is one of the key measures of bank profitability. However, a higher net interest margin could reflect riskier lending practices associated with substantial loan loss provisions (Khrawish, 2011).

Besides that, CAMELS were created initially to enable North American bank regulators to measure the financial and managerial soundness of U.S. commercial lending institutions using key ratios, indicators, and institutional policies and procedures. (William*et al*., 2005). To measure the profitability of commercial banks there are variety of ratios used of which Return on Asset, Return on Equity and Net Interest Margin are the major ones (Murthy and Sree, 2003; Alexandru *et al.,* 2008).

CAMELS model of rating was first developed in the 1970s by the three federal banking supervisors of the U.S (the Federal Reserve, the FDIC and the OCC) as part of the regulators' Uniform Financial Institutions Rating System, to provide a convenient summary of bank condition at the time of its on-site examination. Many researchers contribution in the field with the different level as well as Chidambaram and Alemelu (1994),joo (1996), Sarkar and Das(1997), Ajit and Bangar (1998), Bhatia and Verma (1998), Kaur and Bhatia (1998),Padmanabhan (1998), Dasgupta (2000), Desai and Farmer (2001), Edirisuriya and Fang (2001), Mittal (2001), Passah (2001), Sikander and Mukherjee (2001), Khatik (2002), Sangmi (2002), Jain (2003),Purohit,et al (2003), Kapil and Nagar (2003), Duncan et al (2004), Reddy (2004), Tabasum and Sangmi (2005) and Mohanty (2006) their research attained to score from 1' to 5' for each component of CAMEL and a final CAMEL rating representing the composite total of the component CAMEL scores as a measure of the bank's overall condition. The other revised the system of CAMEL in 1996, when agencies added an additional parameter S' for assessing sensitivity to market risk, thus making it CAMELS' that is in vogue today. This system has applied by National Credit Union Administration (NCUA) in October 1987. Also, Federal Reserve Bank of America assesses its banks on a scale

of one to five by using the CAMELS model components which is monitoring various aspects of Bank's health. Reliability, profitability and liquidity are the most important criteria for assessing the competency performance of a Bank. However, most of developing countries use CAMEL instead of CAMELS to evaluate the performance of financial organizations. It means they don't consider the market risk. Given that the developing countries used the CAMELS model. Also, the Asian Development Bank, African Development Bank, Central bank of America (the Federal Reserve Bank) and the World Bank use these parameters to evaluate the performance of financial organizations. In addition, the International Monetary Fund use compressed index of financial institutions to evaluate the accuracy of the financial systems of the members.

Furthermore, this study is grounded with theories as well as *Market timing theory highlights* a renewed surge of popularity in the academic literature (Myers,1984). In surveys, such as those by Graham and Harvey (2001), managers continue to offer at least some support for the idea. Consistent with market timing behavior, firms tend to issue equity following a stock price run-up. In addition, studies that analyze long-run stock returns following corporate financing events find evidence consistent with market timing. The basic idea is that managers look at current conditions in both debt and equity markets they may defer issuances depending on the condition. Alternatively, if current conditions look unusually favorable, funds may be raised and loan disbursed even if the firm has no need for funds currently.

The Agency theory evolved from Berle and Means 1932 and focuses on the costs which are created due to conflicts of interest between shareholders, managers and debt holders (Jensen *et al.,* 1976). For small firms, agency conflicts between shareholders and lenders may be particularly severe (Ang, 1992). Small firms are likely to have more concentrated ownership and generally, the shareholders often run the firm which decreases the conflict of interest between shareholders and managers. Therefore, no or few agency problem will existthe lower the agency problem, the less Non-Performing Loan the firms have in their financing system.

2.1. Capital Adequacy and Financial Performance

Capital adequacy has emerged as one of the major indicators of the financial health of a banking entity. It is important for a bank to maintain depositors' confidence and preventing the bank from going bankrupt (Iyer &Puri, 2012). Capital is seen as a cushion to protect depositors and promote the stability and efficiency of financial system around the world. Capital Adequacy reflects the overall financial condition of the banks and also the ability of management to meet the need for additional capital. It also indicates whether the bank has enough capital to absorb unexpected losses. Capital Adequacy Ratio acts as an indicator of bank leverage (Kalfaoglou, 2012). The debt to equity ratio shows the leverage of a bank by dividing total borrowings and deposits by shareholders' net worth, including equity capital, and reserves and surpluses. Higher ratio indicates less protection for the creditors and depositors in the banking system and indicates the level of the bank business financed through debt and equity (Wattanasuttiwong, 1998).

The Total Advances to Total Assets ratio indicating a bank is hostility in lending resulting in better profitability. Total advances also include receivables. The value of Total Assets excludes the revaluation of all the assets (Dang,2011).Generally, the Government securities are considered as the safest debt instrument, which, as a result, carries the lowest return. Since government securities are risk-free, the higher the Government Securities to investment ratio, the lower the risk involved in a bank's investment. It is arrived at by dividing the amount invested in government securities by total investment (Rodrigues,1993). The study done by Nurazi and Evans (2005) narrated that adequacy ratio are statistically significant in explaining bank failure or not.

The Study suggest that banks with higher levels of capital perform better than their undercapitalized peers. Therefore, the performance of domestic and foreign commercial banks is affected by bank specific characteristics (Pasiouras & Kosmidou, 2007 and Nwankwo,1991). The results suggest that capital adequacy, credit risk, bank size, liquidity risk have significant relationship with bank profitability, although their impacts and relation is not always uniform. The high capital adequacy ratio should signify a bank that is operating over - cautiously and ignoring potentially profitable trading opportunities (Goddard, Molyneux, and Wilson 2004), which implies a negative relationship between equity to asset ratio and bank performance. Thus, the following hypothesis is drawn from this study:

- Ho.1. Capital adequacy has no significant relationship on BRD's financial performance?

2.2. Assets Quality and Financial Performance

The prime motto behind measuring the assets quality is to ascertain the component of Non-Performing Assets (NPAs) as a percentage of the total assets. This indicates the degree of financial strength i.e. the type of advances the bank has made to generate interest income. Thus, assets quality indicates the type of the debtors the bank is having (Mobeen et all 2011). The assets quality is measured through four ratios, Gross NPAs to net advance, net NPAs to net advance, net NPA to total assets and total investment to total assets. The following ratios are necessary to assess assets quality:

- Credit has been found to be not significant in affecting the NPAs contrary to the general perception and similar is the case with that of rural branches implying that aversion to rural credit is a falsely founded perception. Bad Debts are dependent more on the performance of the industry than other sectors of the economy though fluctuations in asset prices can affect the value of collateral required for international funding (Mendoza, 2010).

Debt denominated in foreign currency is harder to serve when the exchange rate weakens vis-à-vis the foreign currency (Cespedes et al. 2004).

The unconditional correlation between both variables is not always very strong, prompting many analysts and researchers to separately focus on terms of trade shocks (Mendoza 1995).Recent work has pointed out that gross capital flows are essential to fully understand the dynamics and vulnerabilities associated with a country's cross-border financing activity (Cardarelli et al. (2009).

Credit growth is quantitatively the second largest factor in explaining the probability of financial crises (Kunt and Detragiache,1997). Kaminsky *et al*. (1997) report that five out of seven studies looking at credit growth as a determinant of currency crises found statistically significant results. The study hypothesized that:

- Ho2 Asset Quality has no significant relationship on BRD Performance

2.3. Management Efficiency and Financial Performance

The management of the bank takes crucial decisions depending on the risk perception that ensures the survival and growth of a bank. Management sets vision, mission and objectives for the organization and sees that it achieves them (Ittner & Larcker, 2003)The main endeavor of CAMEL system was to detect problems before they manifest themselves. The RBI has instituted this mechanism for critical analysis of the balance-sheet of banks by themselves and presentation of such analysis to provide for internal assessment of the health of banks.Two supervisory rating models based on CAMELS and CACS factors for rating of Indian commercial Banks and Foreign Banks operating in India respectively, (Padmanabhan,1995). These ratings enabled RBI to identify the banks whose condition warrants special supervisory attention (Bodla and Verma, 2006).Against this background, it was important to measure the performance of the banking sector through a performance measurement system that provides an opportunity to assess the performance of Indian banks.

The ratios in this segment involve subjective analysis and efficiency of management. These parameters are used to evaluate management efficiency as to assign premium to better quality banks and discount poorly managed ones. Several academic studies have examined whether and to what extent private supervisory information is useful in the supervisory monitoring of banks. The ratios are total advance to total deposit, business per employee, profit per employee and return on net worth (Rahman *et al,* in Ilhomovich, 2009; Sangmi and Nazir, 2010). With respect to predicting bank failure, Barker and Holdsworth (1993) find evidence that CAMEL ratings are useful, even after controlling for a wide range of publicly available information about the condition and performance of banks. Hirtle and Lopez (1999) examine the usefulness of past CAMEL ratings in assessing banks' current conditions. They find that, conditional on current public information, the private supervisory information contained in past CAMEL ratings provides further insight into bank current conditions, as summarized by current CAMEL ratings. The authors find that, over the period from 1989 to 1995, the private supervisory information gathered during the last on-site exam remains useful with respect to the current condition of a bank for up to 6 to 12 quarters (or 1.5 to 3 years). The overall conclusion drawn from academic studies is that private supervisory information, as summarized by CAMELS ratings, is clearly useful in the supervisory monitoring of bank conditions.

In fact, Morgan (1998) finds that rating agencies disagree more about banks than about other types of firms. As a result, supervisors with direct access to private bank information could generate additional information useful to the financial markets, at least by certifying that a bank's financial condition is accurately reported. The Total advances to Total Deposits ratio is the deposits include demand deposits, savings deposits, term deposits and deposits of other banks. Total advances also include the receivables. It shows how is the efficiency of management in converting the available deposits with the bank into high earning advances (Kumar, 2014).

Management efficiency and performance are relatively mutually interdependent as the ability to make profit from all the business activities of an organization, company, firm, or an enterprise which shows how efficiently the management can make profit by using all the resources available in the market. The direct public beneficiaries of private supervisory information, such as that contained in CAMELS ratings, would be depositors and holders of banks' securities. Small depositors are protected from possible bank default by FDIC insurance, which probably explains the finding by Gilbert and Vaughn (1998) that the public announcement of supervisory enforcement actions, such as prohibitions on paying dividends, did not cause deposit runoffs or dramatic increases in the rates paid on deposits at the affected banks. However, uninsured depositors could be expected to respond more strongly to such information. Jordan*et al.,* (1999) find that uninsured deposits at banks that are subjects of publicly-announced enforcement actions, such as cease-and-desist orders, decline during the quarter after the announcement.

De Young*et al.,* (1998) examine whether private supervisory information would be useful in pricing the subordinated debt of large BHCs. The authors use an econometric technique that estimates the private information component of the CAMEL ratings for the BHCs' lead banks and regresses it onto subordinated bond prices. They conclude that this aspect of CAMEL ratings adds significant explanatory power to the regression after controlling for publicly available financial information and that it appears to be incorporated into bond prices about six months after an exam. Furthermore, they find that supervisors are more likely to uncover unfavorable private information, which is consistent with managers' incentives to publicize positive information while de-emphasizing negative information. These results indicate that supervisors can generate useful information about banks, even if those banks already are monitored by private investors and rating agencies.

According to Harward and Upton (1991) profitability is the ability of a given investment to earn a return from its use. However, the term profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the extent of profitability cannot be taken as a final proof of efficiency. Therefore, the study hypothesized that:

- Ho3. Management efficiency has no relationship on BRD financial performance

2.4. Earning Quality and Financial Performance

Earning quality reflects quality of a bank's profitability and its ability to earn consistently. explains the sustainability and growth in earnings in the future and though determines the profitability of the bank. It is argued that much of bank's income is earned through investments, treasury operation, and corporate advisory service and so on (Lobo *et al,* 2009). Even the external factors, such as the

recent global financial crisis, is putting extra pressure on the banking industry (IMF, 2011).CAMEL was positive and significant in Kenya in the study examining factors affecting profitability and sustainability of Kenya banking institutions. (CBK report, 2009).

The following five ratios are used to measure earning quality as well as operating profit to average working funds, net interest margin to total assets, net profit to average assets, interest income to total income and Noninterest income to total income. The following statements describe each ratio.

The Operating Profit to Average Working Funds Ratio is the operating profit divided by total resources (total assets or liabilities). It indicates how much a bank can earn from its operations net of the operating expenses for every rupee spent on working funds the better utilization of funds will result in higher operating profit.

The Net Interest Margin (NIM) to Total Assets ratio is the difference between the interest income (include dividend income and interest expended, interest paid on deposits, loan from the central bank, and other short-term and long- term loans) and the interest expended as a percentage of total assets (Bennaceur & Goaied 2008). It is an important measure of a bank's income from lending operations. A higher spread indicates the better earnings given the total assets.

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Earning Ability Rating Earning ability; quantifies the performance of the institution to increase and maintain the total worth through earnings from operations. It also assesses the interest rate policy, management examine and adjust the interest rate on micro finance loans and evaluate the adjusted return on assets that how well the assets are utilized Liquidity Management; scrutinizes institution liabilities like interest rate, payment terms, tenor etc. It also evaluates fund availability to meet its credit demand and cash flow requirements (Couto & Brasil, 2002)

Earning and capital of financial institutions can be adversely affected by changes in exchange rate, interest rate, equity price or commodity price. Many financial institutions consider changes in interest rates as market risk. This S component of the CAMELS rating system mainly focuses on the ability of the bank to recognize, monitor, manage and control the market risk and give indication to management for the supervision in the problematic area. Sensitivity to the market risk is an extension of the Liquidity or we can say to focus on stock ratios whether bank has sufficient liquidity. To know that bank position is secure or not the management and credit analyst should thoroughly approach and make analysis of liquidity (Grier, 2007).

Goddard et al. (2004) supports the prior finding of positive relationship between capital/asset ratio and bank's earnings while Heytens and Karacadag (2001) argue that the debt of companies (as a proportion of total debt) for which interest expenses exceed earnings before interest, tax, depreciation and amortization, is an excellent alternative for tracking credit quality.

Increases financial expense accounts on income statement, to some degree offset by inflation income account for revaluation of fixed assets. Generates a reserve in the balance sheet's equity account, reflecting that portion of the MFI's retained earnings that has been consumed by the effects of inflation. Decreases profitability and "real" retained earnings. Though, it is note the following hypothesis:

- Ho4. Earning quality has no relationship on BRD financial performance

2.5. Liquidity and Financial Performance

Liquidity is a crucial aspect for a bank which represents its ability to meet its financial obligations. It is vital for a bank to maintain correct level of liquidity, which will otherwise lead to declined earnings. Banks have to take proper care in hedging liquidity risk (Sinkey & Joseph. 1998)., while at the same time ensuring that a good percentage of funds are invested in higher return generating investments, so that banks can generate profit while at the same time provide liquidity to the depositors (Cole and Gunther, 1996).

Among a bank's assets, cash investments are the most liquid. A high liquidity ratio indicates that the bank is more affluent. The liquidity ratios are assets to total assets, government securities to total assets, assets to demand deposits and assets to demand deposits. Cole and Gunther (1998) examine useful information of bank's liquidity for the period between 1988 and 1992, they find that a statistical model using publicly available financial data is a better indicator of bank failure than CAMEL ratings that are more than two quarters old. The following are detail of ratios: Liquid Assets to Total Assets is the liquid assets divided by total assets. Liquid Assets include cash in hand, balance with the central bank, balance with other banks (both in India and abroad), and money at call and short notice indicates the overall liquidity position of the bank (Panigrahi,M. 1996).

The Government Securities to Total Assets is investment in government securities divided by total assets. This ratio measures the proportion of risk-free liquid assets invested in government securities as a percentage of the assets held by the bank. Government securities are the most liquid and safe investment. The Liquid Assets to Demand Deposits ratio is theliquid assets includes cash in hand, balance with the central bank, balance with other banks divided by total demand deposits. This ratio measures the ability of a bank to meet the demand from demand deposits in a particular year.

The Liquid Assets to Total Deposits ratio liquid assets includes cash in hand, balance with the central bank, balance with other banks divided by Total deposits include demand deposits, savings deposits, term deposits and deposits of other financial institutions. This ratio measures the liquidity available to the depositors of a bank.

The approved securities to total assets ratio is the total amount invested in approved securities dividing by total assets. Approved securities are investments made in the state-associated bodies like electricity boards, housing boards, corporation bonds, share of regional rural banks (Bodla and Verma, 2006; Sisdiya et al.,2008).Thus, it is hypothesized that

- Ho5. Liquidity management has no relationship on BRD financial performance

2.6. Sensitivity to Market Risk and Financial Performance

It refers to the risk that changes in market conditions could adversely impact earnings and/or capital. Market Risk encompasses exposures associated with changes in interest rates, foreign exchange rates, commodity prices, equity prices, etc. While all of these items are important, the primary risk in most banks is interest rate risk (IRR), which will be the focus of this module. The diversified nature of bank operations makes them vulnerable to various kinds of financial risks.

Sensitivity analysis reflects institutions exposure to interest rate risk, foreign exchange volatility and equity price risks (these risks are summed in market risk). Risk sensitivity is mostly evaluated in terms of management's ability to monitor and control market risk. Banks are increasingly involved in diversified operations, all of which are subject to market risk, particularly in the setting of interest rates and the carrying out of foreign exchange transactions. In countries that allow banks to make trades in stock markets or commodity exchanges, there is also a need to monitor indicators of equity and commodity price risk. Sensitivity to Market Risk is a recent addition to the ratings parameters and reflects the degree to which changes in interest rates, exchange rates, commodity prices and equity prices can affect earnings and hence the bank's capital. It is measured by beta

β <1, depicts that changes in the firm are less than the changes in the market. Less sensitive 2.

β =1, depicts that there is equivalent change in the firm with the changes in the market Equally Sensitive.3.

β >1, depicts that changes in the firm are more than the changes in the market highly sensitive.

Earning and capital of financial institutions can be adversely affected by changes in exchange rate, interest rate, equity price or commodity price. Many financial institutions consider changes in interest rates as market risk. This S component of the CAMELS rating system mainly focuses on the ability of the bank to recognize, monitor, manage and control the market risk and give indication to management for the supervision in the problematic area. Sensitivity to the market risk is an extension of the Liquidity or we can say to focus on stock ratios whether bank has sufficient liquidity. To know that bank position is secure or not the management and credit analyst should thoroughly approach and make analysis of liquidity (Grier, 2007).

Sensitivity of the market risk are examined by the banks to assess the changes in foreign currency, interest rate, product purchase and selling prices which totally effects the bank´s assets values and profits. The ratio used to measure the sensitivity of the market risk is Total securities to total assets = Total securities/Total assets. Banks now a day's have to changes their self because of market demands. Portfolio may boost the

bank's profit if the price movement is in favor of banks, and if it is not then it may create big problems for the bank. The ratio tells the correlation of banks securities with total assets and provides us the percentage change of its portfolio with respect to alteration in interest rates or other issues associated with the issuer of the securities. The higher the value of this ratio is riskier, that the bank´s portfolio is subjected to market risk. The lower the ratio is good for the bank since it shows the response towards market risk is appropriate (Christopoulos, et al, 2009,).

The market for bank equity, which is about eight times larger than that for bank subordinated debt, was valued at more than $910 billion at year-end 1998. Thus, the academic literature on the extent to which private supervisory information affects stock prices is more extensive. For example, Jordan *et al.,* (1999) find that the stock market views the announcement of formal enforcement actions as informative. That is, such announcements are associated with large negative stock returns for the affected banks. This result holds especially for banks that had not previously manifested serious problems.

Focusing specifically on CAMELS ratings, Berger and Davies (1998) use event study methodology to examine the behavior of BHC stock prices in the eight-week period following an exam of its lead bank. They conclude that CAMELS downgrades reveal unfavorable private information about bank conditions to the stock market. This information may reach the public in several ways, such as through bank financial statements made after a downgrade. These results suggest that bank management may reveal favorable private information in advance, while supervisors in effect force the release of unfavorable information. Berger et al (1998) extend this analysis by examining whether the information about BHC conditions gathered by supervisors is different from that used by the financial markets. They find that assessments by supervisors and rating agencies are complementary but different from those by the stock market. The authors attribute this difference to the fact that supervisors and rating agencies, as representatives of debt holders, are more interested in default probabilities than the stock market, which focuses on future revenues and profitability. This rationale also could explain the authors' finding that supervisory assessments are much less accurate than market assessments of banks' future performances.

Assessing internally and external sources interest rate risk render even the most complex interest rate risk measurement system ineffective. It reflects management's ability to change rates, customer behaviors, and current local and macro-economic factors. Examiners should evaluate the potential for market risk to adversely affect earnings and capital (FDIC, 2013). The bank is managed to balance the equity risk, interest rate risk and currency risk toward financial performance (Dorfman, 1997). However, according to Flannery (1998), the limited available evidence does not support the view that supervisory assessments of bank conditions are uniformly better and more timely than market assessments. Testing CAMELS system needs information from various sources such as balance sheet financing, financing sources, data macroeconomic, budget and cash flow forecasting, staffing and operation. Although none of the latest technique of CAMEL Parameters studied the financial performance of the development bank as well as Development Bank of Rwanda this seem to be a gap to be filled This bring the study to hypothesize that

- Ho6. Sensitivity to market risk has no relationship on BRD financial performance.

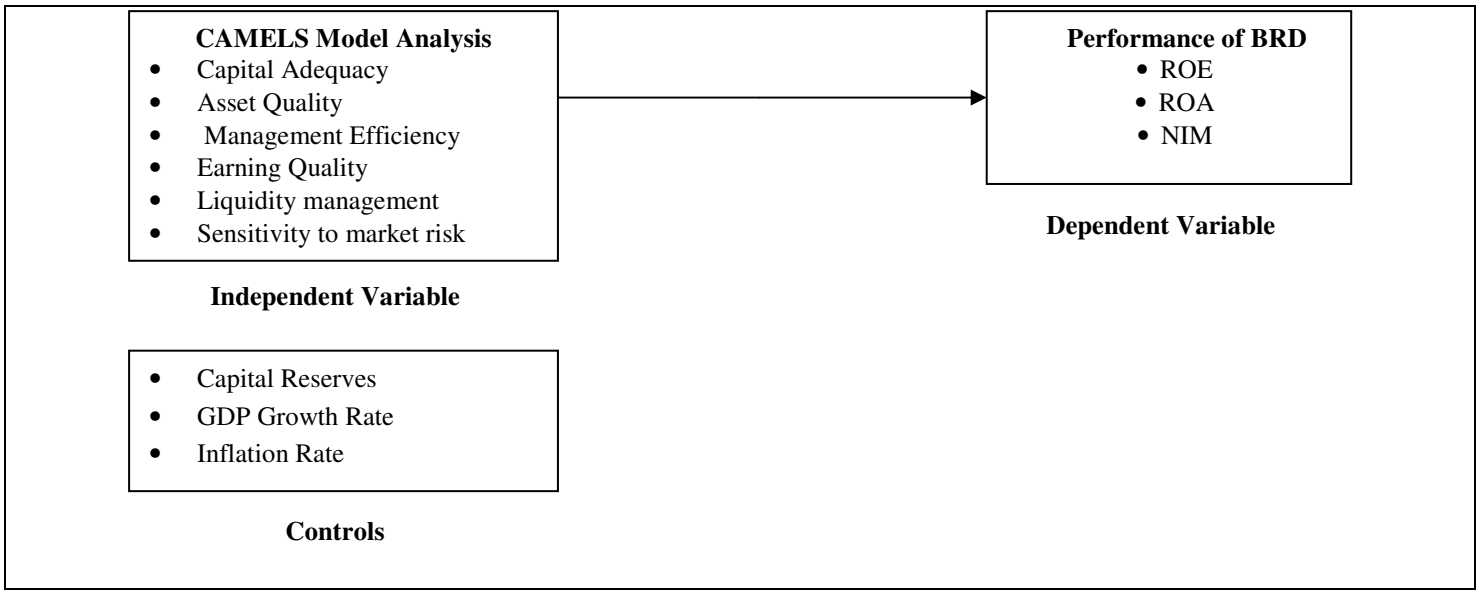

Figure 1: Conceptual Framework

3. Method and Data

3.1. Research Design

This study used a descriptive survey design in particular a descriptive correlation design to came up with a relationship between the independent variable and the dependent variable. Theoretically, any two quantitative variables can be correlated as long as you have scores on these variables from the same participants. In the case of this study, I will determine the relationships between CAMELS MODEL Analysis and Performance of BRD.

3.2. Sample Size and Sampling Techniques

The population for the study was composed by 150 employees in the Rwanda Development Bank from 9 departments as research strata. Each stratum is composing by a number of employees from 7 to 28. The respondents are Branch coordinator, Branch supervisors' Departmental managers, Unit Directors, specialist and other expert professionals.

Williamson (1987) asserted that if the sample of 100 respondents is properly selected from the population of 1000; the information presented by the selected sample is same as the information presented by the entire population. Therefore, sample size was selected from target population using purposive sampling techniques in order to get the most appropriate respondents. Using the Solven formula where $n= N/1+N(e)^2$ N= 150 employees and then the level of precision or margin error is (e) 10% and 90% confidence level the sample size is 60.

The random sampling and purposive sampling were used to select respondents and also collecting detailed information that can lead to paramount decision making. Purposive sampling technique was used to select the Director of department, Units and Branch supervisors while Universal sampling technique was used to select.

3.3. Measurement of Variables

3.3.1. Independent Variables

Many banks are not aware of evaluating their call reports and how to assess their ratings but there is a great need to understand, the work of the firms and what to do when something goes erroneous. It is very important to assess the soundness of financial institutions through rating system which is used by federal and state regulators, usually knows as CAMELS rating system. To examine the Camels System information is required from different sources such as financial statements, Funding sources, macroeconomic information, budget and cash flow projection, staffing/operation. This model assesses the overall condition of the Bank, its strengths and weakness (Sarker, 2006). CAMELS rating system is to be evaluated on the scale of one to five rating in ascending order (National Credit Union Administration, 2003).

The deference between total assets and total liabilities is called capital. It shows ability of the firm that liability could be privileged. It assumes that if all the assets of the bank take as a loans and deposits as liability. If there is any loss from loans it will be a great risk for banks to meet the demand of their depositors. Therefore, to prevent the bank from failure it is necessary to maintain a significant level of capital adequacy (Chen, 2003,). These are, Tier one, and Tier two. The capital adequacy for banking institutions the ratio should be superior to 8% or we can say that the total capital must be over 8% of its risk weighted assets.

the Capital Adequacy rating is formulated as CAR= (TIER I+TIER II)/RISK- WEIGHTED ASSETS and thus determines the ability of the bank to meet with obligation on time and other **risk** such as operational risk and credit risk etc.

Tier I: Tier one is a type of capital, it is a composed core capital or we can say own capital which consist primarily of common stock, preferred stock, convertible bonds and retain earning.
Tier II: It is a supplementary form of bank's capital. Tier II also known as hybrid because it includes that amount which is derived from issued bonds by the banks. These amounts reduced guarantees to buyers because these are of long-term in nature. Tier I should be at least half of the total amount the numerator.
Trautmann (2006)*Capital Rating 1, rating 2, rating 3,rating 4* and *rating 5* where assets of the bank exceed 25% of total capital. There is a great chance of better bank's capital adequacy if there is a higher value of index, because of this institution can totally rely on self-financing (Christopoulos, et al, 2011).
.*Asset quality rating* is one of the most important elements of CAMELS frame work to rate a financial institution/bank (Jerome, 2008). Evaluation of quality of the assets is primarily based upon assessment of the bank portfolio and the credit risk associated to it. Capabilities of a bank to identify, quantify, observe and control credit risk and judged whereas provision against these bad and non-performing debts are also taken into account (Christopoulos, 2011).
For the Net NPAs to Total Assets **are** measured as a percentage of Total Assets. The lower the ratio, the better is the quality of advances. The higher the reduction in Net NPAs levels, the better is for the bank. It is given by the formula: %Change in Net NPAs = (Net NPAs at the end of the year –Net NPAs at the beginning of the year)/Net NPAs at the beginning of the year (Matthews, 2013).Trautmann, (2006) provide the r*ating 1* described as 1.25%,*Rating 2*where NPL is less than 2.5%,*Rating 3* high level of overdue and non- performing,*rating4* and *rating "5"* indicates NPL where assets exceeds from 50% of the loans.
The Total Investments to Total Assets Ratio it is arrived at by dividing total investments by total assets. it indicates the extent of deployment of assets in investment as against advances. A higher ratio means that the bank has conservatively kept a high cushion of investments to guard against NPAs.
.
Management Efficiency is measured as the total business dividing by total number of employees or the sum of total deposits and total advances in a particular year. This ratio measures the efficiency of all the employees of a bank in generating business for the bank.
The Profit per Employee ratio is the Profit after Tax (PAT) earned dividing by the total number of employees it is valuing inputs to assess the real strength of a bank's branch network. The higher the ratio, higher is the efficiency of the management (Bryan, 2007).
Management Efficiency can be evaluated in the CAMELS framework according to (Sundararjan, Errico, 2002,) and trautman (2006), *Rating 1* shows loyal and strong management, *rating 2* to bank financial condition, *Rating 3* shows bank deficiencies in one or more important rating factors. The regularity supervision is very needed to know whether board and management take remedial action on the problems or not the problems, *Rating 4,* shows key flaws in a number of areas; *Rating 5 indicate that* Management Efficiency, to know the board of directors' functions weather they are performing well or not and its decision-making ability. Thus, the current study uses The Return on Net Worth ration is expressed as percentage of Average Net Worth thus being a measure of the profitability of a bank.
Earning is measured as the Net Profit to Average Assets is the net profit divided by average assets. This ratio measures return on assets employed or the efficiency in utilization of assets. The Higher ratio indicates better earning potential in the future
The Interest Income to Total Income is the Interest income includes income on advances, interest on deposits with the central bank, and dividend income. This ratio measures the income from lending operations as a percentage of the total income generated by the bank in a year the interest income to total income indicates the ability of the bank in generating income from its lending.
The Non- Interest Income to Total Income is the percentage derived from income earned by the banks excluding income on advances and deposits with the central bank.
A fee-based income account for a major portion of a bank's other incomes. The bank generates higher fee income through innovative products and adapting the technology for sustained service levels. *Rating 1* (ability to pay dividends to shareholders, good capital growth and reserve requirements can be fulfilled through with sufficient income), *Rating 2 (*shows bank produce satisfactory income to meet minimum reserve requirements and support growth in capital and to pay dividend to its shareholders, *Rating 3* indicates Capital position may be worse if there are insufficient earnings and good assessment, *rating 4* shows that earnings of the bank are not good there is earning problems for the bank. r*ating 5* indicates that the bank under examinations suffers from great losses and the bank may be become insolvent.
therefore, Higher quality earnings more faithfully represent the features of the firm's fundamental earnings process that are relevant to a specific decision made by a specific decision-maker (Dechow, Ge & Schrand, 2010) and are more informative and closer to the long run value of the firm (Kirschenheiter & Melumad, 2004.) thus this study use…….
Liquidity Management rating scrutinizes institution liabilities like interest rate, payment terms, tenor etc. It also evaluates fund availability to meet its credit demand and cash flow requirements (Christopoulos, 2011). Liquidity rating "1" of a bank under examination shows that its management has a comprehensive understanding of the items placed on the bank's balance sheet. It shows that; Rating "2" of a bank shows that it is going very well but has some deficiencies in one or two of the rating factors that can be rectified swiftly. These factors may be; Liquidity rating "3" of a bank shows that it has some foremost deficiencies in numerous Factors. Liquidity rating "4" indicated that bank is facing ruthless problems to meet their liquidity. Liquidity rating "5" of a bank indicates that it needs assistance from other financial institutions to fulfill their prevailing liquidity problems and to avoid bankruptcy that may be resultant from their inability of meeting obligations of the depositors and creditors.
Therefore, with higher liquidity, banks will have remarkable performance encouraging public confidence and soundness among banks thus higher capital requires to provide higher liquidity to financial institutions (Diamond &Rajan,2001). According to past research, among of the factors which significantly affect liquidity position of a bank is the profitability (Owolabi, Obiakor and Okwu, 2011).

Sensitivity of the market risk are examined by the banks to assess the changes in foreign currency, interest rate, product purchase and selling prices which totally effects the bank´s assets values and profits. The ratio used to measure the sensitivity of the market risk is Total securities to total assets = Total securities/Total assets. Banks now a day's have to changes their self because of market demands. Portfolio may boost the bank's profit if the price movement is in favor of banks, and if it is not then it may create big problems for the bank. The ratio tells the correlation of banks securities with total assets and provides us the percentage change of its portfolio with respect to alteration in interest rates or other issues associated with the issuer of the securities. The higher the value of this ratio is riskier, that the bank´s portfolio is subjected to market risk. The lower the ratio is good for the bank since it shows the response towards market risk is appropriate (Christopoulos, et al, 2011). According to Trautmann, (2006). The sensitivity to market risk is rated whereby rating 1 (Control risk associated with the business activities and to deal with complex situations, Composite rating "2" is usually given to fundamentally and financially strong banks and usually have component rating not more than 3, Composite rating "3" shows that the bank has weaknesses in different component areas. More than 2 rating components of the banks are above 3 rating. Composite rating "4" of a bank under examination shows risky and unstable performance of the bank. Unsatisfactory performance of banks is mostly because of managerial or financial insufficiencies. Most of it components ratings are above three and 1 or 2 of them are in 5 as well; Composite rating "5" indicate extremely unsound, risky and unstable performance of the bank; Most of its components are rated 4 and 5 and usually have negative earnings.

3.3.2. Dependent Variable

Rating one signifies safe and sound operations through strong performance and risk management practices. Second rating reflects safe and sound operations through satisfactory performance and risk management practices. Rating three, here the performance is marginal, unsatisfactory practices and flawed to some degree, means that weak performance but limited concern for failure. Rating four, is significantly below average, poor performance and requires close supervisory attention and immediate action. Rating five Reflects unsatisfactory performance, there is a great chance of failure and very difficult for the management to control. Immediate actions needed to be taken in the form of liquidation, payoff shareholders, merger, acquisition etc.

Bank profitability is a measurement of financial performance, Vodova (2013), employed return on equity (ROE) ratio as the proxy for banks profitability. Thus ROE, alternative bank profitability and indicators such as ROA and NIM as measurement of bank financial performance, this was used to examines the empirical effect of bank capital and other micro and macro - characteristics on liquidity creation, used ROA as proxy of profitability on one of his independent variable (Parameswar *et al,* 2012).

3.4. Data Analysis

Regression analysis was conducted for quantitative data gathered. Statistical tests were conducted by use of Pearson correlations (Agrest and flanklin, 2009), analyses of variable (ANOVA) to determine the relationship of CAMELS Model Analysis and Performance of BRD. Qualitative data gathered from interviews was subjected to descriptive while attributed numerical codes so that it can be analyzed statically. The mean ranges were used to reach the mean of the individual indicators and interpretation: Very satisfactory (3.26-4.00), Satisfactory (2.51-3.25), Fair (1.76-2.50), Poor (1.00-1.75). Correlation Coefficient/Positive or Negative The correlation coefficient takes on values ranging between+1 and -1. Correlation analysis, the purpose was to measure the strength and closeness of the relationship between each independent variable to the dependent (Fred, 2009). The following points are accepted guidelines for interpreting the correlation coefficient.

The following specific regression model will be useful for the analysis of this research:

$$y_{it1} = a_0 + C_{1t}b_1 + C_{2t}b_2 + C_{3t}b_3 + \varepsilon_{it} \quad (1)$$

$$y_{it} = a_0 + C_{1t}b_1 + C_{2t}b_2 + C_{3t}b_3 + x_{1t}b_1 + x_{2t}b_2 + x_{3t}b_3 + x_{4t}b_4 + x_{5t}b_5 + x_{6t}b_6 + \varepsilon_{it} (2)$$

Where

y_{it} is representing dependent variable i (ROE, ROA, NIM) at time t=1,2,3, years

a_0 is constant or slope for the regression model and b_i the coefficient

C_{it} is representing the controls (Capital Reserves, GDP Growth Rate and Inflation Rate) at time t=1,2,3, years in CAMELS Model analysis

x_{it} is representing the Capital Adequacy, Asset Quality, management Efficiency, Earning Quality, Liquidity management, Sensitivity to market risk, at time t=1,2,3, years in CAMELS Model analysis

ε_{it} is the terms error of variable i at time t=1,2,3 years

3.5. Test of Assumptions

The study examined how financial performance suffers from endogeneity problems. Nevertheless, the causal relationship between CAMELS factor and financial performance runs in both directions the estimation by the ordinary least squares (OLS) would be consistent estimates of the structural parameters. Results demonstrate the causal effect of CAMELS models on financial performance (McKnight & Weir, 2009). Furthermore, robustness checks were also conducted to address the issue related to reliability and validity of the results that obtained from the study. The robustness checkers was concerned with the data obtains from the respondents.

First goodness of fit test for normal distribution was done using Kurtosis. This means high probability for extreme values; for Kurtosis, less than three, flatter than a normal distribution with a wider peak (Tharenou *et al.,* 2007) The probability for extreme values is less than 1 for a normal distribution, and the values are wider spread around the mean; for Kurtosis, equal to three- normal distribution. The result of the Table 2 shows that the distributions become positive skewed which means fitting in the study.

The study also assessed multicollinearity. According to Field (2005) strongest correlation between two or more independent variables is the sign of multicollinearity. Gujarati (2009) also added that the standard error is infinite when there is a perfect collinearity and large a standard error when there is less than perfect collinearity. The Table 5 indicate that variance inflation factor, where the variable indicates the range from (1.165 – 2.927), suggesting that there was no problem of multicollinearity (Hair *et al.,* 2006). The independence of the error term was detected using the celebrated Durbin-Watson D statistic which is the ratio of the sum of squared differences in successive residuals to the regression sum of squares (Durbin & Watson, 1950;Saunders *et al*., 2009 and Gujarati, 2004). The results were found to be 1.1098 which is approaching the acceptable threshold of 1.5-2.5 (Hair *et al.*, 2006) for regression analysis.

Furthermore, the test of homoscedasticity to whether the dependent variable has the same variability around the regression line and following Baltagi *et al.,* (2005b) method, the result indicates that the squared variance for all independent variable are more than zero thus the null hypothesis is rejected, and though no homoscedasticity among the dependent variable. Endogeneity which is a common problem with panel data was controlled using lags and tested using Hausman test. The results from Hausman test did not indicate endogeneity problem.

Model		Collinearity Statistics		
		Tolerance	VIF	Minimum Tolerance
1	Capital adequacy	.927	1.078	.911
	Asset quality-Mgt	.980	1.021	.957
	Management efficient	.985	1.015	.957
	Earning quality	.783	1.278	.783
	Liquidity management	.945	1.058	.926
	Sensitivity to market risk	.950	1.052	.929

Table 1: Collinearity

4. Results

This study was carried out to investigate the evaluation of CAMELS model and the financial performance. The result is presented to answer six hypotheses. The following provide the descriptive analysis.

4.1. Descriptive Analysis

The respondents' perception reflected on how each item was expressly addressed construed the fact for the analysis to support secondary data. In this research project, the statistics indicate the mean and standard deviation which were used to analyze and interpret the findings from the financial performance up to the CAMELS model analysis. The study did more emphasizing on mean, standard deviation and correlation.

The result from the table 2. shows that return on assets is 9 percent in 2011, 7 percent in 2012 and 9 percent in 2013. This implies that the decreasing and increasing trends status of Return on Assets. The benchmark analysis of performance indicates that when 4% and Above, this means a strong performance. Using Couto & Brasil, (2002) interpretation the result indicate that the Bank have the ability to pay dividends to shareholders, good capital growth and reserve requirements can be fulfilled through with sufficient income, the Bank have a strong control over income and expenses through strong budgeting, there is very less dependency on extraordinary items and finally All major earning indicators are showing positive trends

Using Couto & Brasil, (2002) interpretation the result indicate that the Capital position may be worse if there are insufficient earnings and thus improving earnings performance management do good assessment while reduce the unnecessary business activities. The Table 2 shows again that the Net Interest margin is 5 or 500 percent 2011, 4 or 400 percent in 2012 and 4 or 400 percent in 2013 This shows a decreasing together with a stable trend which indicate a strong level of performance thus the Bank have the ability to pay dividends to shareholders, good capital growth and reserve requirements can be fulfilled through with sufficient income.

Using rating benchmark of CAMELS model analysis whereas 12 percent and above means strong solvency, the capital adequacy rating means that BRD had a strong solvency as its percentage vary between 15 and 20 percent. Using Trautmann, (2006) the result is rating as one where all capital requirements are fulfilled and go beyond of the level, earning performance of the bank is very good, bank growth is controlled and administered well, nonperforming loans and assets are very less in number and finally the bank has the ability to raise new capital and give reasonable dividend. Table 3.

Using rating benchmark of CAMELS model analysis whereas 5% and below means strong management. Using Trautmann, (2006) rating, the result reveal rating two where troubled non-performing loans are less than 2.5% in proportion to the total loans, the bank under observation is facing negative movements in the level of unsettled long term debts and It shows weak underwriting standards set by the bank management and their controls actions.

The Table 2 shows also that Management efficient result trend is 4,47 in 2011, 6,25 in2012 and5,17 in 2013. The result shows the average of 3.16.Using rating benchmark of CAMELS model analysis and Trautmann, (2006) rating as two whereas , Full knowledge of risk linked with bank´s activities, Full knowledge and response to varying economy, Management has the ability to perform well in all area such as planning, control and monitoring , Suitable audit function , Management has the skill to make plans, to control, and implement the internal policies, Board of directors and management work together and interact with one another and At all level the employees have well knowledge of their duty although some differences in fating factor which do not require regularity supervision it can be easily corrected as well as bank financial condition.

The Table 2 shows also that Earnings ability result trend is 1,60 in 2011, 1,31 in2012 and1,34 in 2013. The result shows the average of 1.41 ability. Using rating benchmark of CAMELS model analysis whereas rated to Marginal. Using Trautmann, (2006), earning rating 4 shows that earnings of the bank are not good there is earning problems for the bank. Here the bank may have positive net profit but not enough to maintain capital growth, Strong administration skills are required to avoid loss of capital, Management has to take urgent action to decrease expenses and increase income, Reduce the unnecessary business activities and losses must be control to avoid bankruptcy.

The Table 2 shows also that Liquidity management result trend is 11,33 in 2011, i.e. 1133% 5,05i.e. 505% in 2012 and2,41 i.e. 241% in 2013. The result shows the average of 628%. Using rating benchmark of CAMELS model analysis Above 110% and above means strong, the Liquidity management rating means that BRD had a strong liquidity. Using christpoulous, (2006) the result is rating as one where bank management has a comprehensive understanding of the items placed on the bank's balance sheet, Bank has satisfactory level of highly liquid assets that are easily convertible into cash to meet the unexpected loan demands and unanticipated decline in the deposits, Bank dependence on the interbank market is very low and have good contingency plan and finally Planning, controlling and monitoring functions of the bank are performing efficiently.

The Table 2 shows also that Sensitivity to market risk result trend is 12,78 percent in 2011, 11,57 percent in 2012 and3,91 percent in 2013. The result shows the average of 9.42. Using rating benchmark of CAMELS model analysis whereas ±10% & below rated to first level and Using Trautmann, (2006) first level where denotes strong position of the bank, assigning of this rate shows the soundness and strongest performance of the bank in all aspects, and usually given to the banks who are rated 1 or 2 in almost all components. The Management and board of directors are strong enough to handle weaknesses easily and can control risk associated with the business activities and to deal with complex situations. The Fundamental risk management practices of the bank are strong enough and minimum level of supervisory is needed for the bank. The up mentioned factors of level of performance of BRD differ in the level of financial performance importance the following table provide detailed analysis of correlation between variables.

Key KIP	**Year observations**		
	2011(000)	2012 (000)	2013 (000)
Return on Assets			
Total income	8 752 563	8 752 034	16 495 269
Total asset	92 164 546	121 062 295	177 267 357
%ROA	**9%**	**7%**	**9%**
Return on equity			
Net income after tax	3 935 591	4 210 531	2 343 169
Total equity capital	20 209 668	30 566 011	44 403 907
% ROE	**19%**	**14%**	**5%**
Net Interest Margin			
Interest earned	8 752 563	8 752 034	16 495 269
Interest Paid	1 762 019	2 182 091	4 476 907
% NIM	**5**	**4**	**4**

Table 2: Analysis the level of BRD's financial Performance Indicators
Source: Compiled from Annual Report & Financial statements 2011-2013

Key Ratios	**Year of observations**		
	2011(000)	2012 (000)	2013(000)
Capital adequacy			
Total capital + reserves	13 733 163	21 469 370	34 589 340
Total assets	92 164 545	121 062 295	177 267 357
Capital adequacy ratio	**15%**	**18%**	20%
Asset Quality/management			
NPLS	2 825 673	2 788 790	2 343 169
Gross Loans	65 515 344	86 658 661	119 747 449
NPLS/Gross loans	**4,31%**	**3,22%**	1,96%
Management efficient			
Operating revenue	12 634 103	17 432 299	18 116 013
Total profit	2 825 673	2 788 790	3 505 310
Mgt efficient ratio	**4,47**	**6,25**	5,17
Earnings ability (annualised)			
Revenues of period	12 695 863	17 432 299	19 284 408
Expense of the period	7 925 922	13 293 540	14 409 003
Earning Marging ratio	**1,60**	**1,31**	1,34
Liquidity management			
total loans	65 515 344	86 658 661	119 747 449

	Total customer deposit	5 781 563	17 156 965	49 670 302
	liquidity mgt ratio	**1133%**	**505%**	241%
Sensitivity to market risk				
	total securities	11 774 231	14 011 402	6 927 703
	total assets	92 164 545	121 062 295	177 267 357
	Sensitivity market ratio	**12,78%**	**11,57%**	3,91%

Table 3: Analysis of the rating of BRD's CAMELS model factors
Source: Compiled from Annual Report & Financial statements 2011-2013

4.2. Correlation Analysis

The result from Table 4 indicate that CAMELS model factors are significant to different determinant of financial performance thus the Capital Adequacy where reflects if bank has enough capital is significant with capital adequacy and earning quality at 0,05, with the higher the ROA the more efficient for a bank in using its resources. Capital adequacy is significant to reflects banks aggressiveness in lending and able to influence respectively Measuring gap between the interest income the bank receives on loans, securities and interest cost of its borrowed funds, the cost of banks' intermediation services and efficiency of a bank and Net interest income to total earnings assets.

The Table 4 shows again that the CEMELS model related on Capital adequacy is positive correlate to earning quality to reflect the risk involved in banks' investment allows the performance of BRD on Shareholders' ROE looks in return for their investment with 0.05.it is therefore indicate the extent the bank deploy its assets in investment allows the BRD financial performance on Measuring mismatch between the interest income generated by banks and amount of interest paid to lenders with positive strong correlation.

The Table 4 shows again that the CEMELS model such as Asset Quality has a positive and strong correlation on sensitivity to market risk to effects quality of asset in situation where management has not provided for loss allows the financial performance on Shareholders' ROE looks in return for their investment on Reflects how effectively the banks' management is in using shareholders' funds and the cost of banks' intermediation services and efficiency of a bank. The positive moderate correlation exists again between the Sensitivity Market Risk Interest risk define excess return that individual stock or overall market provides over risk free rate and Measuring the gap between the interest income the bank receives on loans, securities and interest cost of its borrowed funds.

From the result of the Table 4 it is revealed that the Net Interest Margin is positive and significant correlate on the liquidity management allows the financial performance on the Difference between interest income by bank and interest paid out to lenders with 0.05 and on measuring the gap between interest income and securities and interest cost. The analysis reveal again that liquidity depicts BRDs' ability to meet financial obligations allows the financial performance on Measuring the gap between the interest income the bank receives on loans, securities and interest cost and on Measuring the gap between interest income and securities and interest cost.

The findings revealed again that the return on equity has a moderated correlation on capital adequacy and liquidity management thus the better the bank in terms of profit generation, Measures ability of banks' management to generate income by utilizing banks' assets and reflects how efficiently the resources of the bank are used to generate the income the higher the NIM the higher is banks' profit and more stable cannot be computed because at least one of the variables is constant. Out of the level of financial performance and level of rating CAMELS model in BRD, there is a need for providing the relationship between these model and financial performance using regression model analysis especially using ANOVA.

	ROE	**ROA**	**NIM**	**Capital adequacy**	**Asset quality-Mgt**	**Management efficient**	**Earning quality**	**Liquidity management**	**Sensitivity to market risk**
ROE	1								
ROA	-.109	1							
NIM	.196	-.118	1						
Capital adequacy	.305**	.261*	-.100	1					
Asset quality-Mgt	-.019	-.174	-.113	.137	1				
Management efficient	.041	-.143	-.059	.044	-.075	1			
Earning quality	-.142	.237*	-.010	.247*	.113	-.186	1		
Liquidity management	.360**	-.174	.226*	.046	-.156	-.075	.000	1	
Sensitivity to market risk	.041	.013	.068	-.058	.323**	-.113	.068	.025	1

Table 4: Correlations between CEMELS model analysis and BRD financial performance
**(**) (***), 10%, 5%, 1% level of significance respectively.*
Source: Survey data, 2016

4.3. Multivariate Analysis

The model is composed with CAMELS models as independent variable and Predictors such as Sensitivity to market risk, Liquidity management, earning quality, Management efficient, Capital adequacy, Asset Quality-Management and financial performance composed with Return on Equity, return on Assets and Net Interest margin. Each dependent variable is separated analyzed to CAMELS models determinants.

The model 1 represent the control, capital reserve, GDP growth rate and inflation rate. The results differ according with the factor composing the financial performance ROE (26.6%), ROA (15.7%) and NIM (8.4%). The result indicates a non-significant effect on financial performance.

The model 2 analyze hypothesis. The result from the Table 5 the result showed that the r-square also differ ROE (35.7%), ROA (52.2%) and NIM (29.9%). The result from the Table 5 indicate that capital adequacy is positive and significant on return on equity (β= .916, p<0.01), positive and significant on Return on Asset (β= .210, p<0.01) and negative and non-significant on Net interest margin (β= -.092, p>0.1). this implied that only the return on equity and return on asset are the indicator of financial performance which are affected by the capital adequacy. The result fail to reject the first hypothesis.

From the model 2, the result from the Table 5 indicate that asset quality management had a negative and non-significant effect on return on equity (β= -.104, p>0.1), positive and significant on Return on asset (β= -.211, p<0.01) and negative and non-significant (β= .071, p>0.1). this implies that one of the indicator of financial performance which is affected by the asset quality management. Thus, the result fail to reject the second hypothesis.

From the model 2, the result indicated in the Table 5 show that management efficient had a positive and non-significant effect on return on equity, a negative and non-significant effect on return on asset and net interest margin. Thus, this result show the existence of null hypothesis.

From the model 2 again, the result indicates that earning quality had negative and significant effect on return on equity (β= -.1026, p<0.01), positive and non-significant effect on return on asset (β= .169, p>0.1) and negative and non-significant effect on net interest margin (β= -.021, p>0.1). though the result fail to reject hypothesis four.

From the model 2, the result indicate that liquidity management had a positive and significant effect on return on equity (β= .705, p<0.01), negative and significant effect on return on asset (β= -.174, p<0.05) and positive and non-significant effect on net interest margin (β= .178, p>0.1). this indicate that the result fail to reject the hypothesis five.

From theTable 5thesensitivity to market risk had a positive and non-significant effect on return on equity (β= .204, p>0.1), on return on asset (β= .054, p>0.1) and net interest margin (β= .092, p>0.1). the result accepts the sixth hypothesis. The achievement of Net Interest margin, the return on Asset and the return on equity was also investigated during this research study. using respondents' perception provide their opinions on how the implementation of CAMELS Model impact to the BRD achievement and though its performance. Through the interview, the respondents stated that the effects of CAMELS model analysis on the financial performance are to achieve the goals and the contracts performance;

as well as reducing the interest expenses as cost saving which implies that BRD continued to request outside fund, the BRD was able to provide more loan in toward long-term investment.

The CAMELS model helps the achievement of fixed assets serving the purpose of backing credit lines, this indicates that when the loan is disbursed the rate of recovering thereafter the net income revenue is raised up. reduce the Level of risk for BRD by creating provision for long-term assets,the bank augmented its reserve and reduced the burden of taxes as result capital reinvested increasesthis implies that portfolio increases. the Cost/benefit of investing in fixed assets increasing the foreign loan portfolio. CAMELS model helps the reduction of BRD's lack of planning and assessment of its long-term assets while increasing Skilled Human Resources and Increasing of information Technology System.

	Return on Equity		Return on Asset		Net Interest Margin	
	Model 1 Controls	Model 2 Main effect	Model 1 Controls	Model 2 Main effect	Model 1 Controls	Model 2 Main effect
(Constant)	6.284(2.539)***	1.141(4.035)	4.232(.706)***	5.527(1.167)***	5.033(.876)	4.231(1.606)
Capital Reserves	.385(.280)	.628(.275)**	.017(.078)	-.047(.080)	.030(.096)	.045(.110)
GDP Growth Rate	-.373(.392)	-.310(.379)	.027(.109)	-.118(.110)	.002(.135)	.095(.151)
Inflation Rate	-.340(.334)	-.299(.298)	.098(.093)	.102(.086)	-.066(.115)	-.065(.118)
Capital adequacy		.916(.297)***		.210(.086)***		-.092(.118)
Asset quality-Mgt		-.104(.295)		-.211(.085)***		-.071(.117)
Management efficient		.061(.309)		-.116(.089)		-.028(.123)
Earning quality		-1.026(.400)***		.169(.116)		-.021(.159)
Liquidity management		.705(.283)***		-.174(.082)**		.178(.113)
Sensitivity to market risk		.204(.324)		.054(.094)		.092(.129)
Rsquare	.266	.357	.157	.522	.084	2.991
Durbin Waston	2.471	2.431	1.971	1.971	1.907	1.907
F-stat	3.208	3.771	.473	2.837	..134	.751

Values of standardized regression coefficients, with standard errors in parenthesis
*p<0.1; **p<0.05; ***p<0.01

Table 5: Regression Model Results

5. Discussion and Conclusion

In this study, the analysis was based on (60) respondents who represented the whole population. It is in this context that the researchers set the questionnaires for the purpose of investigating whether CAMELS model can affect the financial performance of

BRD. Finally, it was found out that the financial performance increases. A Statistical Package for Social Sciences (SPSS) version 16.0 was used to analyze the data collected throughout a questionnaire.

From the findings, the secondary data gathered indicated that return on assets is 9 percent which means a strong performance, the Return on equity is 19 percent which indicate fair, marginal and unsatisfactory level of equity performance while the Net Interest margin is 5 or 500 percent which indicate a strong level of performance thus the Bank have the ability to pay dividends to shareholders, good capital growth and reserve requirements can be fulfilled through with sufficient income.

The capital adequacy rating means that BRD had a strong solvency as its percentage vary between 15 and 20 percent, Asset Quality/management result is 4,31 percent which means strong management, Management efficient result trend is 4,47rating as one whereas Earnings ability result trend is 1,60 which indicate that earnings of the bank are not good there is earning problems for the bank while for the Liquidity management result trend is 11,33 which means strong liquidity and finally the Sensitivity to market risk result trend is 12,78 percent denotes strong position of the bank, assigning of this rate shows the soundness and strongest performance of the bank in all aspects.

Therefore, the second model tested hypothesis by using ANOVA. Thus, the result indicates that capital adequacy, earning quality and liquidity management had a significant effect on financial performance thus have an impact on the implementation of CAMELS model especially on interest expenses by reducing the cost of saving therefore being an indicator of bank leverage in developing country among in Rwanda which contribute to Kalfaoglou(2012) result. This increased and contribute to other scholars while Increase the knowledge whereas share of regional rural banks increase the stake include dividend income and interest expended, interest paid on deposits, loan from the central bank, and other short-term and long- term loans) and the interest expended as a percentage of total assets (Bennaceur & Goaied 200; Bodla and Verma, 2006 and Sisdiya *et al.,*2008).

Therefore, the increasing of the liquidity level for domestic and foreign commercial banks which is mainly related to bank specific characteristics as highlighted by different studies among others (Pasiouras & Kosmidou 2007 and Mobeen *et al.,* 2011). Positive and significant of asset quality management on the financial performance thus the fixed assets serving the purpose of backing credit lines, creating provision for long-term assets, the fixed assets being used appropriately thus fluctuations in prices affect the value of collateral required for international funding (Mendoza, 2010). The result from the model two also reveal that management efficiency and sensitivity to market risk had a non-significant effect on return on equity, return on asset and net interest margin. This result is adding the Chen and Pan (2012) whose their ideas was that banks should have different strategies of risk management to survive in the changing environment when banks have low competitiveness and low profitability should consider to be merged with other banks or reexamine their actions and activities in their management.

5.1. Practical Implication

The CAMELS model had always been a factor of analysis for rating commercial banks rather than the development banks which are engaging in the long-term investments, the requirement rate for commercial banks would be different for the development banks.

The analysis of CAMELS model reveals that earning is not relevant and though can't explain the performance, this is due the low requirement of 5% ceiling. Thus, this does not allow increasing investment which in turn would generate more earning to development bank. There is a need for reviewing such requirement while including the return on equity and the return on investment as additional to management analysis.

5.2. Policy Implication

To enable the development bank to increase its earnings and leverage the risk, it should request another system of rating or simply improving CAMELS model variables which would enable it to comply with regulation.

6. Conclusions

From the findings indicated in this result, it can be observed that the CAMELS model and the financial performance are interrelated. It has been explained in the findings that, the CAMELS Model financial factors are with meaning towards financial performance.

The strengths found during this research study were as follows: a strong positive relationship was observed between the CAMELS model which allows for the financial performance. The strong significant correlation exists again between the capital adequacy, asset quality and liquidity which allows for the performance of ROE and ROA in BRD, and the evaluation and comparison based only on the performance on ROE, ROA and NIM were rated from 1 to 3. This implies that the CAMELS model can help the financial performance where return on asset is above 4% and NIM is above 100%, capital adequacy is 15.66%, Asset quality is 3.16, liquidity management is 628%, sensitivity to market risk is 9.42 indicate strong performance.

However, the weaknesses found in this research study were as follow: the earning is weak and management efficient are not related to explain financial performance while the Net Interest Margin is no longer significant to any of CAMELs model financial factors.

Therefore, the CAMELS model financial factors had been positively affect BRD performance since are linear correlated to the financial performance as well as Capital adequacy, Asset quality, Liquidity management to return on equity and return on asset factors in turn a quite number of impact were realized and used. Out of this, there are still improvements necessarily toward financial performance by moving out management efficient while adding to market risk assessment other attribute to the analysis and rating bank which do not present problem for the purpose of controlling and managing financial crisis.

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Appendices

	Key Ratios	Period (2001-2005)	Benchmarks (Earnings ratios are annualised)				
			Strong	Satisfactory	Fair	Marginal	Unsatisfactory
1	Capital ratios		1	2	3	4	5
1.	Core Capital/RWA1	13,1%	12% and above	10% -<12%	8% - <10%	6% - <8%	Below 6%
	Asset Quality		1	2	3	4	5
2.	NPLs/Gross Loans	30,5%	5% and below	>5% - 10%	>10% - 15%	>15% - 20%	Above 25%
3.	Earning Assets/Total Assets	62,9%	Above 80%	70% - 60%	60%-50%	50% - 40%	Below 40%
	Earnings ratios		1	2	3	4	5
5.	Return on Assets	1,9%	4% and Above	3% - <4%	2% - <3%	1% - <2%	Below 1%
6.	Return on equity	26,9	Above 25%	20% - <25%	15% - <20%	10% - <15%	Below 10%
7.	Cost to income ratio	77,2%	Below 60%	60% - 70%	>70% - 80%	>80% - 90%	Above 90%
	Liquidity ratios		1	2	3	4	5
8.	Liquid Assets2/Deposits3	62,6%	Above 110%	100% - <110%	90% - <100%	80% - <90%	Below 80%
	Sensitivity to market risk		1	2	3	4	5
9.	Forex Exposure/Core Capital	-3% - 8,6%	±10% & below	±10% to 20%	±20% to 30%	±30% to 40%	±40% & above

Appendix 1: CAMEL RATING BENCHMARKS
Source: Primary data

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Banks' KPI are indicated by ROA, ROE&NIM	109,967	59	,000	4,867	4,79	4,94
ROE reflects how much profit a bank can earn compared to total shareholder's capital	151,913	59	,000	4,933	4,88	4,99
ROE is what shareholders look in return for their investment	151,913	59	,000	4,933	4,88	4,99
Reflects how effectively the banks' management is in using shareholders' funds	109,967	59	,000	4,867	4,79	4,94
Ratio of income to its total assets	35,454	59	,000	4,667	4,45	4,89
Measures ability of banks' management to generate income by utilizing banks' asset	--	--	--	--	--	--
reflects how efficiently the resources of the bank are used to generate the income	--	--	--	--	--	--

Appendix 2: Analysis the level of BRD's Performance Indicators
Source: Primary data survey 2014

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
The higher the ROA the more efficient for a bank in using its resources	151,913	59	,000	4,933	4,88	4,99
Measure mismatch between the interest income generated by banks and amount of interest paid to lenders	151,913	59	,000	4,933	4,88	4,99
Measures gap between the interest income the bank receives on loans, securities and interest cost of its borrowed funds	109,967	59	,000	4,867	4,79	4,94
reflects the cost of banks' intermediation services and efficiency of a bank	92,174	59	,000	4,800	4,71	4,89
higher ROA shows bank efficient in using their resources	151,913	59	,000	4,933	4,88	4,99

Appendix 3: Analysis the level of BRD's Return on Asset (ROA
Source: Primary data survey 2014

[1] Minimum requirement of Core Capital/RWA is 10% (Solvency ratio as per regulation)
[2] Liquid assets: Cash on hand + balances with the Central Bank + balances with other banking institutions
[3] Liquidity ratio as per regulation: 100%

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Difference between interest income by bank and interest paid out to lenders	109,967	59	,000	4,867	4,79	4,94
Net interest income to total earnings assets	92,174	59	,000	4,800	4,71	4,89
Measure the gap between interest income and securities and interest cost	109,967	59	,000	4,867	4,79	4,94
Reflect the cost of bank's intermediation serviceand efficiency of bank	151,913	59	,000	4,933	4,88	4,99

Appendix 4: Analysis the level of BRD's Net Interest Margin (NIM)
Source: Primary data survey 2014

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Reflects if bank has enough capital	76,039	59	,000	4,667	4,56	4,77
Ensure that bank can absorb reasonable level of loss	92,174	59	,000	4,800	4,71	4,89
Indicates how much banks' business is financed via debt and equity	109,967	59	,000	4,867	4,79	4,94
Reflects banks aggressiveness in lending	30,916	59	,000	4,500	4,26	4,74
Reflects the risk involved in banks' investment	76,039	59	,000	4,667	4,56	4,77

Appendix 5: Analysis the level of BRD's capital adequacy
Source: Primary data survey 2014

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Examine the degree of financial strength	151,913	59	,000	4,933	4,88	4,99
Disclose efficiency of bank in assessing credit risk	82,216	59	,000	4,733	4,64	4,83
Indicate the extent the bank deploys its assets in investment	72,124	59	,000	4,600	4,49	4,71
Shows the trends in net NPA in current year versus previous year	109,967	59	,000	4,867	4,79	4,94
Effects quality of asset in situation where mgt has not provided for loss	72,124	59	,000	4,600	4,49	4,71

Appendix 6: Analysis the level of BRD's asset quality
Source: Primary data survey 2014

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Adherence to set of norms, standards and guidelines of bank	82,216	59	,000	4,733	4,64	4,83
Indicates ability of banks' mgt in converting deposits into high earning advances	109,967	59	,000	4,867	4,79	4,94
Indicates surplus earned per employee	109,967	59	,000	4,867	4,79	4,94

Appendix 7: Analysis the level of BRD's Management efficient
Source: Primary data survey 2014

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Determines BRD's ability to earn consistently	151,913	59	,000	4,933	4,88	4,99
Reflects how bank can earn from its operations for every rupee spent in working fund	109,967	59	,000	4,867	4,79	4,94
Reflects return on asset employed	151,913	59	,000	4,933	4,88	4,99
Shows capacity of BRD in generating income from its lending business	92,174	59	,000	4,800	4,71	4,89
Difference btn interest income versus interest expended	109,967	59	,000	4,867	4,79	4,94
Determine efficiency on assets employed	151,913	59	,000	4,933	4,88	4,99
Measure income from operation versus total income	109,967	59	,000	4,867	4,79	4,94

Appendix 8: Analysis the level of BRD's Management efficient
Source: Primary data survey 2014

	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Liquidity depicts BRDs' ability to meet financial obligations	68,771	59	,000	4,467	4,36	4,58
measure liquidity available versus total deposits of bank	92,174	59	,000	4,800	4,71	4,89
reflects ability of bank to meet demand from demand deposits in particular year	109,967	59	,000	4,867	4,79	4,94
showed the BRD total amount invested in approved security compared to total assets	82,216	59	,000	4,733	4,64	4,83
reflects gov't security as proportionate to total assets to measure risks involved	151,913	59	,000	4,933	4,88	4,99

Appendix 9: Analysis the level of BRD's Liquidity efficient
Source: Primary data survey 2014

Management efficient indicators	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
SMR Interest risk define excess return that individual stock or overall market provides over risk free rate	82,216	59	,000	4,733	4,64	4,83
SMR- Liquidity risk used as financial transaction in currencies other than base currency of the bank	151,913	59	,000	4,933	4,88	4,99
SMR- credit risk resulted from future uncertainty of bank	109,967	59	,000	4,867	4,79	4,94
SMR- Reputational Risk that a borrower will default on any type of debt by failing to make required payment	92,174	59	,000	4,800	4,71	4,89
SMR- Risk of loss resulting from damage of banks' reputation	76,039	59	,000	4,667	4,56	4,77
SMR-Financial risk BRD cannot refinance by borrowing to repay the existing debt	82,216	59	,000	4,733	4,64	4,83
SMR Operational risk BRD actual losses resulted from inadequate internal processes or people	47,112	59	,000	4,733	4,57	4,90

Appendix 10: Analysis the level of BRD's Sensitivity to market risk
Source: Primary data survey 2014

N0	Department	Number of staff	% of size	Selected sample size
1	Investment Department	20	13%	8
2	Finance Department	21	14%	8
3	Credit Administration Department	18	12%	7
4	Compliance and risk mgt Department	17	11%	7
5	Corporate affairs Department	28	19%	11
6	Operational Departments	25	17%	10
7	Kayonza branch	6	4%	2
8	Huye branch	8	5%	3
9	Musanze branch	7	5%	3
Total		**150**		**60**

Appendix 11: Respondents are dispatched proportionally to size as follows:
Source: researcher survey, 2014

Variables	Measurement
Capital Adequacy	Total Capital plus reserves / Total Asset
Asset management	Non-performing loans/ total loans
Management Efficiency	Total Operating Revenue/ Total Profit
Earning ability	Revenues of period minus expense of same period
Liquidity Management	Total Loans/ Total Customer Deposit
Sensitivity to Market risk	Total securities/Total assets
ROA	Total income/ its total asset
ROE	Net Income after Taxes / Total Equity Capital
NIM	% of earns on loans in a time period and other assets minus the interest paid on borrowed funds divided by the average amount earning assets

Appendix 12: Summary of measurement of variables