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# Policy Effect of Financial Deepening on Economic Augmentation in Ghana: A Co-Integration Analysis

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**Abstract**
Following the deterioration of the Ghanaian economy in 1983, the nation struggled with employment, food insecurity, and other travails. The Ghanaian government introduced the Structural Adjustment Program (SAP) as part of economic recovery program. The economy went through several economic reforms such as: Financial Sector Adjustment Program (FINSAP) in 2003. The FINSAP in its operation, set-up a Strategic Plan for development and augmentation known as Financial Sector Strategic Plan (FINSSP) in 2003 to ascertain economic augmentation (i.e. growth). In view of that, the study sought to find out whether these reforms have facilitated economic growth and development in Ghana. The study followed Johanson co-integration regression procedures with a sample size of 31 from a time series annual data between 1983 -2013. The study found out that financial deepening has a significant impact on economic growth in Ghana as far as the study period is concerned. The study therefore recommended that authorities must put in place a stringent measures and mechanisms in order to remove any unnecessary restriction in the financial sector for the sector to grow which will in effect brings entire growth and development to the nation.
**Keywords:** Co-integration, Financial Deepening, Financial market, Economic Growth and Development.

## 1.0 Introduction

Financial deepening is a term used habitually by economic development and growth experts. Theoretically, financial deepening refers to the ability on the part of the financial market to make available diverse financial services with a wider choice of services geared to all levels of society. Financial deepening generally means an increase in the ratio of money supply to GDP or some price index. It also refers to the flow and availability of liquid money or funds. There is an assumption that, if more liquid money is available in an economy, then more investment opportunities will exist for growth to be achieved. The primary roles of financial deepening in the financial market are to minimize cost of living, reducing risk through diversification, vulnerability for disadvantaged groups, and increasing the ability of individuals and households to access basic services like health and education, thus having a more direct impact on poverty reduction (Ang and McKibbin, 2005)). The association between economic growth and financial deepening has been a subject of a wide research interest.

The private sector also plays crucial role in socio-economic development in many economies; in view of that many nations has set-up the environment for the private sector to operate in order to achieve some level of economic development. Given that economic development is intertwined with both technological and financial development of economies, it makes it very imperative for every economy to have a well-developed and coordinated financial system to move excess funds from one agent to the other agents of deficit fund for investment in the system through financial intermediation and inclusion. When this pattern is well-developed and coordinated, it will help to stabilize and reduce volatility in the macroeconomic variables such as inflation, National Income, employment e.t.c. The development of the financial sector is a key component of economic development in many countries; this is because it facilitated the exchange of goods and services, savings mobilization, allocation of resources and diversification of risks.

Ghana's financial sector has witnessed momentous changes under various programs adopted in the sector since early 1980's after the deterioration of the economy. The promotion of the private sector became an integral part of Ghana's broad economic development strategy. The strategies included the Economic Recovery Program (ERP) and the Structural Adjustment Program (SAP) in 1983 and 1986 respectively. The private sector development, promotion strategies took into accounts the improvement of the investment climate. The investment climate was very crucial for sustaining and expanding businesses and stimulating economic growth (Eshun et al., 2014).

It is argued that the financial health of the economy is the microcosm of the health of the entire economy. Theoretically, if an economy makes domestic credit available to the private sector for investment, it triggers growth and development in the economy. Following the deterioration of the Ghana's economy in 1986, Structural Adjustment Program (SAP) was introduced as a part of the economic recovery program including the implemented of the Financial Sector Adjustment Program (FINSAP) in 2003. The FINSAP in its operation set-up a Strategic development plan known as the Financial Sector Strategic plan (FINSSP) in 2003 to ascertain economic growth and development (Bawumia, 2010).

 

The financial sector reforms faced numerous of challenges which include; the harmonization of the payment scheme, multifaceted foreign exchange management, inefficiencies in financial intermediation, crowding-out of the private sector by government in the credit market, high interest rate spreads, and large unbanked populace. Also some regulations of Financial Sector Strategic Plan (FINSSP) include the Banking Act 2004, Payments Systems Act 2003, Long Term Savings Act 2004, Borrowers and Lenders Act 2008, Non-Bank Financial Institutions Act 2008 and Home Mortgage Finance Act 2008, Venture Capital Trust Fund Act 2004, Foreign Exchange Act 2006, Credit Reporting Act 2007 among others were also part of the challenges (Bawumia, 2010). Theoretically, inflexibilities, regulations outside financial liberalization of such nature, impede the growth of private investment which in effect reduces the output levels of the economy. The study sought to find out the effect of the various financial deepening indicators on economic growth.

## 2.0 Literature Review

Abimbola (2013) did a study on financial deepening on savings and per capita growth. The study adopted a time series data set from some selected African countries. The study found out that, financial deepening promoted savings and per capita growth in Africa. Again, the findings supported the loanable fund theory, where an increase in savings rate increases funds for firms to access for investment and increase output levels in the economy.

Also, Bawumia (2010), argued that, Financial Deepening measures the extent to which the financial sector and institution of a country are able to meet the financial needs of the society with increased provision of financial services where wider choice of services are geared to all levels of societies.

Okereke et. al., (2009) did a study on financial deepening and economic development of Nigeria. The study adopted a secondary data source, for a period of 22 years. The study specified nine explanatory variables for the study based on theoretical underpinnings. The paper sought to establish a relationship between these variables and financial deepening index. The two stages least squares analytical framework was used in the analysis. A trend analysis was also done in the study. The study found out that, financial deepening index was low in Nigeria over the years. They also found out that, the nine explanatory variables, as a whole were useful and had a statistical relationship with financial deepening. However, four of the variables; lending rates, financial savings ratio, cheques/GDP ratio and the deposit money banks/GDP ratio had a significant relationship with financial deepening. The study recommended that the regulatory framework should be restructured to ensure good risk management, corporate governance and stemming the systemic crisis in the system.

According to Ang and McKibbin (2005), the main function of financial system in every economy is to be able to mobilize excess funds from one economic agent and re-allocate these resources to the economic agent with deficit resources efficiently, minimize risks through diversification, induce liquidity and reduce information asymmetry and transaction costs.

A study done by McKinnon and Shaw (1973), on financial liberalization theory argued that liberalizing the financial sector with respect to interest rate deregulation, increase in bank competition, among others enhances private investment growth. The study further hypothesized that, in relation to the accelerator principle an increase in national income (i.e. increase in GDP) is associated with increase in investment since it is always assumed a fixed relationship between the level of output and the desired level of capital stock in the economy where firms are able to have access to investment funds as against competition with Government for funds on the credit market. The theory further argued that, financial liberalization will lead to a long-run economic growth and development through the private sector investment.

## 3.0 Method And Materials

The study adopted the Johanson co-integration regression procedures with a sample size of 31 from a time series annual data between 1983 -2013 (World Bank data and Bank of Ghana). The study used Augmented Dickey-Fuller tau test statistic to test for the unit root. A multivariate analysis was also used to analyze the long run and short run relationships between the variables. The study used Gretl software for the process and data analysis.

### 3.1 Model Design

The Johansen (1991) maximum likelihood test was used to test for the co-integration between broad money supply, private sector deposits to banks, credit to the private sector and the exchange rate. The model followed Ndebbio (2004) growth function as specified below:

**GDPG=*f* ( M2/GDP, BD/GDP, CPS/GDP,REXCH)**……..…….(1)

Where:

GDPG= GDP per capita growth (**Dependent Variable**)

**Regressors or Independent Variables include;**

M2/GDP,= Broad money supply to GDP ratio

BD/GDP= Banks deposits to GDP ratio

 

CPS/GDP= Credit to the private sector to GDP ratio
REXCH = Real exchange rate: weighted-average foreign exchange value of the Ghanaian Cedis against foreign currencies of the major trading partners
The laudable econometric model in log-linear form can be formulated as;

**$LnGDPG=\beta 0+ \beta_1 LnM2/GDPt+\beta_2 LnBD/GDPt+\beta_3 LnCPS/GDPt+\beta_4 LnREXCHt+ et$ ….. (2)**

The equation (2) above represents the long run equilibrium relationship. The betas (βs) represents elasticity coefficients which ranges from one (1) to four (4), *e* is the error term, t is time and *Ln* denotes natural logarithm which is used to transform the growth model. All the variables to be examined are in natural logarithm. According to Stock and Watson (2007), the choice of the log-linear model is based on the premise that log transformation allows the regression model to estimate percentage changes in the dependent variables resulting from the percentage changes in the independent variables. The transformation also helps reduce the problem of Heteroscedasticity and Multicollinearity that existed or fraud with financial data. Also, Gujarati (1995) argued that, when a model is transformed, it reduces the scale in which the variables are measured from a tenfold to a twofold, creating uniformity in measurement of variables (The econometric software Gretl was used to analyzed the data).

**3.1.1 Study Hypotheses to the Growth Model**

Theoretically, in relation to the models the coefficient of both $\beta_1$ - $\beta_3$ are expected to be signed positive, indicating that if financial sector achieves some level of growth in the economy, GDP growth rate would also be improved, all things being equal.

Real Exchange rate ($\beta_4$) is the price of one currency in terms of another. It is an index of the weighted-average foreign exchange value of the Ghanaian Cedis against foreign currencies of the major trading partners. The real exchange rate appreciation reduces exports since domestic exports becomes, less competitive, i.e. becomes more expensive on the foreign market; On the contrary, real exchange rate depreciation tends to increase exports volumes since domestic goods are now relatively cheaper, therefore the signing of β4 is indeterminate a priori (Marrewijk, 2000).

In consideration to an output revealed from the data analyses, the study tested the appropriateness or otherwise of each of the model parameters such that one of the coefficient of the

$$\beta_i \neq 0 \qquad for\ at\ least\ one\ i\ .$$

The appropriate hypothesis is given as

$$H_0: \ \beta_1 = \beta_2 = \beta_3 \ldots = \beta_k = 0\ against\ the\ alternative\ that$$
$$H_1: \ \beta_i \neq 0 \qquad for\ at\ least\ one\ i$$

*At* $\alpha = 0.01, 0.05\ and\ 0.1$ *levels of significance respectively*

Where $\beta_i$ are the model parameters for all the four (4) independent variables.

**3.2 Unit Root Analysis for Stationarity**

In relation to the multivariate analysis for time series data, a univariate unit root tests is adopted following Dickey and Fuller (1979). The well known Augmented Dickey Fuller tests use a parametric autoregression to approximate the ARMA structure of the errors in the test regression.

The time series features of the variables were investigated to determine the order of integration of the choice variables. According to Granger (1969), the existence of unit root in a variable implies non-stationarity. However, estimations based on non-stationary variables are very likely to lead to the production of spurious results. Non-stationarity is very common in most time series variables as well as financial data. Therefore, in order to avoid spurious results from the regression models estimated, the test for stationarity of variables was conducted. The study applied the Augmented Dickey-Fuller (ADF) test was introduced by Dickey and Fuller (1981) to perform the unit root test by estimating equation (3). The ADF test involves testing the null hypothesis of non-stationarity (presence of unit root) against the alternative hypothesis of stationarity (no unit root). This analysis will help the study to check the stationarity of the data; otherwise ordinary least square may generate false results. The Augmented Dickey-Fuller (1981) revealed the unit root problem in the data, which is an indication for non stationarity of the data. The ADF test is based on the following general equation:

**$(1-L)Y_t = b0 + (a-1)*Y_t(-1) + \ldots + e_t$** …… (3)

Where, L is a lag operator, t denotes time trend, and $e_t$ is a white noise error term. $Y_t$ denotes the variables for which study is testing unit root problem. $Y_t(-1)$ are the lagged values of variables of our study. (a-1) are the coefficients of the estimated values for the lagged values of *Y*t (-1) to capture the optimum lag length. The optimum lag length ensures that there exist no correlation between the error term and the regressors of this equation. Lag length is selected by SIC (Schwartz Information Criterion). There is evidence for a co-integrating relationship if: (a) The unit-root hypothesis is not rejected for the individual variables and (b) The unit-root hypothesis is rejected for the residuals (uhat) from the co-integrating regression.

**3.2.1 Study Hypothesis for the Unit root Analyses**

 

The existence of unit root in a variable implies non-stationarity and estimations based on non-stationary variables are very likely to lead to the production of spurious results (Granger, 1969).
In consideration to an output revealed from the data analyses, the study tested the appropriateness or otherwise of each of the model parameters such that the coefficient of the

$$(a-1)_i \neq 0 \qquad for\ at\ least\ one\ i\ .$$

The appropriate hypothesis is given as

$$H_0: \ (a-1)_i = 0 \ \ (there\ exist\ a\ unit\ root\ and\ hence\ non-stationary)$$
$$H_1: (a-1)_i \neq 0 \ \ (there\ is\ no\ unit\ root\ and\ hence\ stationary)$$

*At* $\alpha = 0.01, 0.05\ and\ 0.1$ *levels of significance respectively*
**Decision Rule:** a large negative tau value is generally an indication of stationarity. Thus if the absolute value of the calculated or estimated tau is greater than the D-F critical tau value then stationarity is implied for the Null hypothesis to be rejected. However, if the absolute value of the calculated or estimated tau is less or smaller than the D-F critical tau value then the time series is not stationarity, so do not reject the Null-hypothesis.

### 3.3 Co-Integration Test (Johanson Maximum Likelihood Test)

After the selection of the lag orders and the stationarity test of the variables, the co-integration of the variables is checked. Johansen co-integration test is conducted in order to check whether the selected variables are co-integrated. The Johansen (1991) maximum likelihood test was used to test for the co-integration between Exchange rate, final household consumption, final government consumption expenditure, firms' investment in fixed capital and inflation. These variables explain very well about the financial growth and development as well as the growth of the nation. Here, the co-integration variables will examines, whether the series are driven by common trends (Stock and Watson, 1988) or, equivalently, whether they are co-integrated (Engle and Granger, 1987). The test is based on the following equation of the VAR model.

$$\mathbf{V_t = \delta_1 V_{t-1} + \delta 2 V_{t-2} + \ldots + \delta k V_{t-k} + e_t} \quad \ldots\ldots (4)$$

The model can be further rewrites as presented by Rehman et al., (2012) as:

$$\mathbf{\Delta Vt = \theta Vt\text{-}1 + \sum_{i=1}^{p-1} \lambda \Delta V t\text{-}1 + et} \quad \ldots\ldots (5)$$

Where, $\boldsymbol{\theta = \sum_{i=1}^{p} \lambda \delta i - Ii}$ ..... (6)
And $\boldsymbol{\lambda = \sum_{j=1}^{p} \lambda \delta j}$ ..... (7)

The Granger representation theorem asserts that if the coefficient matrix θ has reduced rank r < v, there exists v V r matrix ω and Ω each with rank r such that θ = ωΩ' and Ω'Vt is stationary. r is the number of co-integrating relations (the co-integration rank) and each column of Ω is the co-integrating vector. The elements of ω are known as the adjustment parameters in the Vector Error Correction Model (VECM). Johansen's method is to estimate θ matrix in an unrestricted form, to test whether we can reject the restrictions implied by the reduced rank of θ. Where $V_t$ is the vector of non-stationary I (1) variables; $\delta_1$, $\delta_2$, ..$\delta_k$ are the parameters, assuming the optimum lag length is k; e is the vector of random errors which is distributed with zero mean and Ω variance matrix or normally distributed.
The Johansen test put forward two likelihood ratio tests namely; the trace test and the maximum Eigen-value test. The trace test tests the null hypothesis of *R* co-integrating vectors against the alternative hypothesis of *n* co-integrating vectors.

#### 3.3.1 Study Hypothesis for Co-Integration Test

In consideration to an output revealed from the data analyses, the study tested the appropriateness or otherwise of each of the model parameters such that the coefficient of the

$$\Lambda_i \neq 0 \qquad for\ at\ least\ one\ i\ .$$

The appropriate hypothesis is given as

$$H_0: \ \Lambda_i = 0 \ \ (the\ variables\ are\ not\ co-integrated\ \ of\ order\ one\ )$$
$$H_1: \Lambda_i \neq 0 \ \ (the\ variables\ are\ \ co-integrated\ \ of\ order\ one\ )$$

*At* $\alpha = 0.01, 0.05\ and\ 0.1$ *levels of significance respectively*
**Decision Rule:** Note: Trace test indicates 2 co-integrating equation(s) at the 0.05 level, * denotes rejection of the null hypothesis at the 0.05 level and **MacKinnon-Haug-Michelis (1999) p-values

In relation to the estimation, if the estimated or calculated trace statistic or value is greater than the critical co-integrating value then there is an indication of the existence of co-integration and leads to the rejection of no co-integration hypothesis. The reverse is true.

## 4.0 Empirical Results

This section presents the Augmented Dickey-Fuller unit root test, the Johansen co-integration rank test and the discussion of the long-run relationship among the variables.

 

### 4.1 Augmented Dickey-Fuller Test for Unit Root

The time series features of the variables were investigated to determine the order of integration of the choice variables.

**Table 4.1** presents the unit root test results. The test includes, the constant term, constant term with trend at the actual levels and also constant term with trend at the first difference.

**Table 4.1: Unit Root Test Results**

| VARIABLES | Level Constant | Level Constant with Trend | 1st Differencing Constant | 1st Differencing Constant with Trend |
|---|---|---|---|---|
| *LnGDP/CAP* | -3.054535 | -3.017771 | -7.577927*** | -7.457805*** |
| *LnM2/GDP* | -1.526445 | -1.587416 | -5.773056*** | -5.882551*** |
| *LnBD/GDP* | -1.139209 | - 0.484766 | -4.207586*** | -4.981832*** |
| *LnCPS/GDP* | -1.680491 | -3.092147 | -5.965284*** | -6.776058*** |
| *LnREXCH* | -0.531612 | -1.466191 | -3.941329** | -3.720185 ** |

Note: *,**,***, denotes the rejection of the null hypothesis of unit root at the 10%, 5% and 1% significance levels respectively. The critical values for the ADF tests statistics are -3.159, -3.46 and -4.076 at the 10%, 5% and 1% significance levels respectively. . The lag length in the ADF test is based on Schwarz Information Criterion. Results were obtained from Eviews 7.0 econometric software.
***Source: World Bank and Bank of Ghana, between 1983-2013***

At the level (constant only) all the variables were non-stationary. The variables were then tested again by adding trend. With the addition of the trend still none was found to be stationary.

At the first difference without trend and with trend all the variables were found to be stationary. at 1% and 5% significance levels. However, the exchange rate was also f ound to be significant at 5% and10% significance level but not 1%.

The results therefore show that the variables are log level non-stationary and therefore exhibited a unit root. They however achieved stationary after first differencing; all these series are stationary around a deterministic trend. This therefore implies that the series are integrated of order one, I(1), as all series achieve stationarity after first differencing. The economic implication of the presence of unit roots in the data is that shock to any of the variables in this study will have permanent effect. This further implies that, reverting mechanism is absent in all the variables. As pointed above, the statistical implication for the presence of unit root in forecasting is that, it could lead to estimation of spurious relationships, unless the underlying series are co-integrated.

The study then proceeds to test for the existence of co-integration based on the Johanson maximum likelihood rank test framework. The results of the co-integration test are presented in Table 4.2.1 and 4.2.2 below.

Since the study has affirmed that all the variables are integrated of order one, the study then proceed to test for the existence of co-integration based on Johansen and Juselius (1990) co-integration analysis. This co-integration procedure allows for the testing of the long-run equilibrium relationships (co-integration) among the series.

At the 5% level of significance, both the trace and maximum Eigen-value tests indicated two co-integrating equation among the variables. Thus, the null hypothesis of no co-integration relationship among the variables is flatly rejected at the 5% significance level, by both the trace test and the maximum Eigen-value test. The optimal lag length of one was selected based on SIC.

### 4.2 Johanson Co-integration Rank Test

Table 4.2.1 and 4.2.2 present the Johansen co-integration rank test (both the trace and the Maximum Eigen value test) results for all the variables (per capita GDP, M2/GDP, banks deposits/GDP, credit to the private sector as a percentage of GDP and the Exchange rate) in the study**.**

 

**Table 4.2.1: Johanson Co-integration Rank Test Using the Trace Statistics**

| Hypothesized No. of CE(s) | Eigen- Value | Trace Statistic | Critical-value (0.05) | Prob.** |
|---|---|---|---|---|
| **None *** | 0.647968 | 87.92363 | 68.91879 | 0.0172 |
| **At most 1 *** | 0.477105 | 49.63856 | 47.75614 | 0.0294 |
| **At most 2** | 0.401358 | 25.99694 | 29.79707 | 0.1132 |
| **At most 3** | 0.183766 | 7.525676 | 15.49471 | 0.4531 |
| **At most 4** | 0.005974 | 0.215703 | 3.841466 | 0.3423 |

Note: Trace test indicates 2 co-integrating eqn(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level and **MacKinnon-Haug-Michelis (1999) p-values. ***Source: World Bank and Bank of Ghana, between 1983-2013***

From the estimation above, it could be observed that the trace statistic of 87.92363 was greater than (>) the critical value of 68.91879 for the first equation, and again, 49.63856 was greater than 47.75614, for the second equation and very significant p-values. This implies that there is an existence of co-integration and this will then leads to the rejection of the null- hypothesis which states that the variable are not co-integrated of order one (1).

**Table 4.2.: Johanson Co-integration Rank Test Using the Maximum Eigen-Values**

| Hypothesized No. of CE(s) | Eigen- Value | Max-Eigen Statistic | Critical-value (0.05) | Prob.** |
|---|---|---|---|---|
| **None *** | 0.647968 | 38.58616 | 34.87688 | 0.0172 |
| **At most 1 *** | 0.477105 | 28.34152 | 26.58434 | 0.0294 |
| **At most 2** | 0.401358 | 18.47127 | 21.13162 | 0.1132 |
| **At most 3** | 0.183766 | 7.309973 | 14.26460 | 0.4531 |
| **At most 4** | 0.005974 | 0.215703 | 3.841466 | 0.3423 |

Note: Trace test indicates 2 co-integrating equation(s) at the 0.05 level, * denotes rejection of the null hypothesis at the 0.05 level and **MacKinnon-Haug-Michelis (1999) p-values. ***Source: World Bank and Bank of Ghana, between 1983-2013***

From the first equation, it could be observed that the Maximum Eigen statistic value, 38.58616, is greater than the critical value of 34.87688 and again, 28.34152 is greater than 26.58434, for the second equation which were statistically significant at 0.05% significance level, given the P-value of 0.0172 and 0.0294 respectively, indicating the presence of co-integration. However the other three equations were not statistically significant at 0.05% significance level, given their respective P-values.

Since the results from the Johanson co-integration test indicated strong evidence of co-integration relationship among the series, the study then proceed to analyze the long-run equilibrium relationships among the variables consistently without generating any spurious relationships results.

**4.3: Results of the Long-Run Relationship among the Financial Deepening Variables**

**Table 4.3: Result of the Long-Run Relationship**

| VARIABLES | Coefficients | Student t-Statistics |
|---|---|---|
| *LnM2/GDP* | 0.953481<br>(0.45406) | 2.0999 |
| *LnBD/GDP* | 2.830776<br>(1.02307) | 2.7669 |
| *LnCPS/GDP* | 3.428708<br>(0.55742) | 6.1510 |
| *LnREXCH* | 28.77233<br>(7.88790) | 3.6477 |

Note: Standard errors are presented in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively. Since Gretl has no default estimates for p-values when there is linear deterministic trend assumption, the study used t-statistics computed to determine the statistical significance of the variables estimated. The rejection of the null hypothesis was set at the 5%, significance levels of the Two-tailed, with t-critical value of 1.960; approximately 2.0. Results were obtained from Gretl. ***Source: World Bank and Bank of Ghana annual data between 1983 to 2013.***

As shown in Table 4.3 above, almost all the estimated coefficients have their expected signs and were significant in the model estimated. In relation to the model, M2/GDP was significant in both co-integration equations estimated. From the table it can be observed that the coefficient of M2/GDP, 0.953481 was positively signed as expected, implying that a unit increase in the broad money supply will increase per capital GDP, in the

 

economy by approximately 0.95 in the long-run, This finding supports the finding of Nnenne's study on the topic, evaluating the nexus between financial deepening and stock market in Nigeria. Again, the findings buttresses on Adu-Frimpong, et. al., (2016) theory on the financial inclusion and intermediation the role of money supply as a tool for development and growth.

Again, in relation to table 4.3 above, it was observed that banks deposits were positively related to per capita GDP growth in Ghana and this was statistically significant at 5% significance level since its calculated t-value of 2.7669 is greater than the t-critical value of 1.960. The coefficient of 2.830776 implies that, a 10% increase in the bank's deposits will lead to about 28.0% increase in per capita GDP growth in Ghana. This finding confirmed that of Abimbola (2013) study in Nigeria from some selected African countries. The study concluded that financial deepening promoted savings and per capita growth in Africa. Again, the findings supported the loanable fund theory, where an increase in savings rate increases available of funds for firms and private investors for investment, which will in effect increase output levels in the economy.

The coefficient of 3.428708 implies that a unit increase in the credit to private sector will increase per capita GDP growth by 3.428708 units, and this was very significant. However, the real exchange rate also attained the expected sign. It was also statistically significant at 5% significance level, with the coefficient value of 28.77233. This implies that, any appreciation of the cedi by 1 unit change will increase per capita GDP by 28.8 units. This finding is also consistent with economic theory of exchange rate appreciation when fixed capital formation of firms is mostly determined by ruling prices on the international market; an appreciation of the cedi will make imports for capital goods cheaper, and this dynamics feeds into firms investment decisions and hence increase output levels in the economy to triggers growth and development.

## 5.0 Conclusion, Policy Recommendations and Implications.

The evidence from the study shows that Ghana's financial sector have been influenced by the two programmes of financial sector reforms implemented between1983 and 2013. The study has revealed that growth in the financial sector in an economy had a tremendous positive and significant effect on Gross Domestic Product per capita growth in the long-run of the economy.

The proceeding litany of points discuss below are the policy recommendations based on afore discussed findings. In relation to the findings, the study strongly recommends the following;

i. From the study, broad money supply improves GDP per capita (growth) which was used as a proxy for economic growth. In view of that, the study strongly recommends that, the government should put in all the necessary mechanism to increase broad money supply reasonably enough to trigger an efficient operation of the monetary transmission mechanism in the economy (i.e. where an increase in the money supply reduce the interest rate, for the reduction in the interest rate also leads to a fall in the cost of borrowing for investment, for investment and output in the economy to increase). This will go in long way to improve the living standards of the people in the economy.

ii. Again, banks deposit rate restrictions through the cash ratio policy and interest payment targeting designed by the central bank will reduce the availability of loanable funds and can increase the user cost of capital unnecessarily, this in the long run, will reduce investment and output levels in the economy and per capita incomes. In view of the above reason, the study strongly recommends that banks deposit rate restriction should be removed in order to entice people to save more. This will enable more availability of loanable funds to enhance growth in the financial sector. This will in effect discourage the private individuals from keeping their excess funds in piggy boxes, and pots or deposit them with the elderly and family heads at homes. Also if deposit rate increases through bank savings, funds accessibility by the firms in the banks for investment at various levels of production would be improved.

iii. Finally, the study recommends that mechanisms should be put in place to avoid unnecessary competition between the government and private sector in their attempt to access credit for investment, in order to facilitate the activities of the private business investment since the private sector investment is also seen as an engine of growth.

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