IMPACT OF BANKS DEPOSIT MOBILIZATION AND CREDIT FINANCING ON CAPITAL FORMATION

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ABSTRACT

Capital formation or real investment is an essential component for economic development and growth. Capital formation may take place for many reasons. In any of the cases, capital formation or real investment can only be realized if adequate funds are available. To finance investment required for economic growth and capital formation, the economy needs to generate sufficient savings. This requires an institutional arrangement that encourages savings, which will result into productive investment. Bank play vital role in the economic development of a country by promoting capital formation through rising of the financial resources. These savings are made available to the businessman; make use of them for productive purposes in the country. Therefore, banks' participation in the financial sector of developing nations raises many questions which remain unanswered. Key among them is the issue of how effective they have been in mobilizing domestic savings and in channeling the savings to enhance capital formation through the distribution of credit. Thus, this research paper investigated the role of bank deposit mobilization and credit financing in Capita Formation of banking industry in Ethiopia. The study was undertaken based on an ordinary least square (OLS) model by employing annual time series data of 21 years for the period of 1994 t0 2014. The study used Gross fixed capital formation (GFCF) as dependent variable, representing bank credit (BC), bank deposit (BD), bank investment (BI) as independent variables, and national saving (NS) and real interest rate (RIR) as control variables . The findings of analysis showed that bank deposit,

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bank credit and national saving has a great role on capital formation in Ethiopia since the coefficients of the variables are statistically significant. However; bank investment and real interest rate become insignificant effect on capital formation in Ethiopia, since the coefficients of the variables are turned out to be statistically insignificant. Therefore; Needless to mention, Ethiopia needs to continuously build a strong cooperation between banks and all concerned government bodies in order to take the major role to sustain the saving culture through financial literacy, should design and implement credit policy that promotes capital formation in the economy in order to finance medium and long term projects, and also enhance banks to contribute significant role on security portfolio investment in a country that leads to capital formation which is an essential component for economic development and growth.

Key Words*:* Capital formation, banking industry in Ethiopia, Bank Deposit, Bank Credit

Back Ground of the study

Capital formation or real investment is an essential component for economic development and growth. Capital formation may take place for many reasons. The existing capital stock may need to be replaced due to normal wear and tear, plants may need to be expanded in order to take advantage of economies of scale and to be competent with growing market demand. The intensification of the competition would dictate investment on latest technologies, plant assets and inventories may be required where supply of input or market for the end product reveal a high degree of seasonality. Social facilities have to be expanded and upgraded to improve the standard of the living of the population. In addition; infrastructure have to be laid in order to support productive investment of the country. In any of the cases, real investment can only be realized if adequate funds are available. For developing any nations, citizens need to mobilize adequate financial resources, which will aid economic development. In order to sustain economic development, government and other economic agents' especially financial institutions should make a conscious effort to ensure that adequate funds are available to drive sustainable development. This is indispensable because the mobilization of financial resources will lead to capital formation and capital formation requires the release of domestic goods and services, which promote the real investment. Therefore, any economy that wants to increase its capital formation must be able to provide a climate receptive to the resource from overseas and the encouragement of domestic savings. This requires an institutional arrangement that encourages savings, which will result into productive investment. An example of such an institutional

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arrangement is the establishment of banks that will serve as intermediaries in the financial market (Jude A.A & Ekundayo, 2014)

Access to financial services is important for growth and poverty reduction. Access to credit that enables an individual to accumulate funds in a secure place over time can strengthen productive assets by enabling investment in micro- enterprises, in new tools, equipment or fertilizers, or in education or health, all of which can play an important role in improving their productivity and income.(Bigstein and Soderbom, 2005). To finance investment required for economic growth and capital formation, the economy needs to generate sufficient savings or borrow from abroad. However, borrowing from abroad may not only have adverse effects on the balance of payment as these loans will have to be serviced in the future but it also carries a foreign exchange risk. (Uremadu, 2002). Therefore, domestic savings are necessary for economic growth because they provide the domestic resource needed to fund the investment effort of a country. Banks are statutorily vested with the primary responsibility of financial intermediation in order to make funds available to all economic agents. The intermediation process involves moving funds from surplus economic units of the economy to deficit economic units (Uremadu, 2002; Nnanna et al., 2004). In developing countries, low level of capital formation has made it difficult for firms to invest in modern machines, information technology and human resources development which are critical in reducing production costs, raising productivity and improving competitiveness. Low investments have been traced largely due to low saving culture of the community and unwillingness of banks to make credits available to manufacturers, owing partly to the mis-match between the short-term nature of banks' funds and the medium to long term nature of funds needed by industries. In addition, banks perceive manufacturing as a high risk venture in the developing countries environment, hence they prefer to lend to low-risk ventures, such as commerce, in which the returns are also very high. (Nwasilike, 2006)

Banks play several vital roles in any economy by mobilizing and channeling the deposited money through creating credit, and these roles are aimed at ensuring sound financial system and economic stability. Thus, banking system is the engine of growth in any economy, given its function of financial intermediation. Through this function, banks facilitate capital formation, which enhance to improve productive capacity of the economy. However, banks' ability to engender economic growth and development depends on the health, soundness and stability of

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the banking system itself (Alex E.O, 2012). The relationship between bank deposit mobilization, bank credit financing and capital formation is through the banking industry activities such as deposit mobilization, and credit creation. Yet it has been argued in the public domain that banks have not been performing the desired roles in improving capital formation to ensure sound financial system (Jhingan M. L. (2001). Therefore, banks' participation in the financial sector of developing nations raises many questions which remain unanswered. Key among them is the issue of how effective they have been in mobilizing private domestic savings and in channeling the savings to enhance capital formation through the distribution of credits. As capital formation is an important factor in economic growth, countries that are able to accumulate high level of capital tend to achieve faster rates of economic growth and development. The effects of investment on economic growth are three-fold. Firstly, demand for investment goods forms part of aggregate demand in the economy. Thus a rise in investment demand will, to the extent that the demand is not satisfied by imports, stimulate production of investment goods which in turn leads to high economic growth and development. Secondly, capital formation improves the productive capacity of the economy. Thirdly, investment in new plant and machinery raises productivity growth by introducing new technology and innovation which would also lead to faster economic growth (Orji Anthony, 2012). The study conducted by Greenwood and Jovanovich (1990) show that domestic savings, bank credits and bank investment provides a vehicle for diversifying and sharing risks, inducing capital allocation shift towards risky but "high expected return" projects. This shift then spurs productivity improvement, economic growth and promotes capital formation. Thus, by considering the above situation, the researcher motivated to conduct this research by taking appropriate variables which can go with the condition and situation in Ethiopian banking industry role on capital formation to come up with concrete results. Generally, this study is conducted with the aim of providing answers to the following basic research questions:

1. Does Ethiopian Banking industry deposit has a significant role on capital formation in Ethiopia?
2. Does Ethiopian Banking industry Credit has a significant role on capital formation in Ethiopia?
3. Does Ethiopian Banking industry investment has a significant role on capital formation in Ethiopia?

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The main objective of the study is to assess the role of bank deposit mobilization and credit financing on Capital Formation in Ethiopia. More specifically to achieve following other objectives are:

1. To analyze the effect of banks' deposit mobilization on capital formation in Ethiopia.
2. To analyze the effect of banks' credit financing on capital formation in Ethiopia
3. To analyze the effect of bank investment on capital formation in Ethiopia

Hypothesis of the Research: Based on the objective and past empirical review of the literature researcher develops the following null hypotheses:

Hypothesis1: Bank deposit has no significant & positive effect on Gross Fixed Capital Formation. Hypothesis2: Bank Credit has no significant & positive effect on Gross Fixed Capital Formation.

Hypothesis3: Bank Investment has no significant & positive effect on Gross Fixed Capital Formation.

Literature Review

Academicians come across narrower and broader definitions of capital, reflecting the historical conceptual variations and the practical difficulties in holding economic statistics. In contrast to the narrower definition of capital as physical-produced items that are used in the production process and providing income generating service, which have an extended concept of capital with a broader definition that includes stocks of physical-produced items, knowledge and skills (human capital) and stocks of natural and environmental assets (Atlaw Alemu et al. 2011). The widely applied literature that provides conceptual and accounting framework on capital and capital formation is the System of National Accounts (SNA) of the United Nations. The SNA is an internationally agreed standard for accounting economic activities based on economic principles and as such provides guidance for national accounts. This evolving standard since 1953, with major updates in 1968, 1993 and 2008, frames the concept of capital in the concept of economic asset, which is a store of value for the owner who holds or uses the entity over a period of time. In this system of accounts the coverage of asset extends only to those assets subject to ownership rights from which economic benefits flow. As such it excludes from the category of asset consumer durables, human capital and natural resources that are not capable of bringing economic benefits to their owners (UNSNA, 2008).

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Bakare A.S (2011) defined capital formation which refers to the proportion of present income saved and invested in order to augment future output and income. It usually results from acquisition of new factory along with machinery, equipment and all productive capital goods. Capital formation is equivalent to an increase in physical capital stock of a nation with investment in social and economic infrastructure. Gross fixed capital formation can be classified into gross private domestic investment and gross public domestic investment. The gross public investment includes investment by government and public enterprises. Gross domestic investment is equivalent to gross fixed capital formation plus net changes in the level of inventories (Bakare A.S 2011). Finance is required for different purposes by different organizations, individuals and other economic agents. In order to provide the needed finance, there are varieties of institutions rendering financial services. Such institutions are called financial institutions. Commercial banks are among such institutions that render financial services. They are mainly involved in financial intermediation, which involves channeling funds from the surplus unit to the deficit unit of the economy, thus transforming bank deposits into loans or credits (Afolabi, 1998).

Theoretically, it is assumed that financial intermediation promotes growth by directing resources from saver to investment projects. Based on empirical findings by different authors, financial intermediation plays four major roles in economic growth. Firstly, financial intermediation improves the selection of funds-seeking investors and then scrutinizes the funds-receiving investor that improves the allocation of resources. Secondly, financial sector encourages the mobilization of savings. Thirdly, by screening and monitoring costs through economies of scale, financial intermediaries lower cost of transaction and finally, financial intermediaries provide for risk management and liquidity. (Atlaw, Alemu et.al 2011). Domestic savings mobilization by commercial banks and credit allocation functions stem from their role as the financial intermediaries in the domestic economy. Deposits are funds that customers place with a bank and that the bank is obligated to repay on demand, after a specific period of time or after expiration of some required notice period. Deposits are the primary funding source for most banks and, banks use deposits in a variety of ways, primarily to fund loans and investments. Financial intermediaries' special banks are the cornerstones, the linchpin of the economy of a country. Economic activity cannot be smooth sailing without the continuing flow of money and credit. The economies of all market-oriented nations depend on the efficient operation of complex and delicately balance systems of money and credit. Banks are an indispensable element in these

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systems. They provide the bulk of the money supply as well as the primary means of facilitating the flow of credit." Consequently is assumed that the economic well-being of a nation is a function of advancement and development of the banking industry (Agu, C.C.1988).

Effective banking systems expand financing opportunities for both large and small companies, while also supporting financial sector development and the expansion of access to funding among low-income retail customers and micro-enterprises. Beyond funding, banks also provide essential financial services to individuals and enterprises including the collection, custodianship, safeguarding of deposits made by savers and the provision of payment services. The link between domestic savings, commercial bank credits and capital formation is not a new discovery. Its debate has a long pedigree and is marked with conflicting conclusions. The difference in conclusion is due not only to differences in theoretical perspectives, but also to the way in which the link between them is taken into account by researchers.

McCaig and Stengos (2005) introduced more instrumental variables with a view to establishing a more robust empirical relationship between financial intermediation, economic growth and capital formation. The study uses a cross-country analysis of 71 countries for the period 1960 to 1995. This study also supports the argument that a positive relationship exist between financial intermediation and capital formation. However, it emphasized that this will be true if financial intermediation is measured by liquid liabilities(private deposits) and private credit as a ratio of GDP, while it will be weaker if it is measured using the Commercial-Central Bank ratio.

Hao (2006) seeks to establish the relationship between financial intermediation and capital formation, using a country-specific data from China. The study focused on the post-1978 reform period, using provincial data (28 Provinces) over the period 1985 to 1999. The study employed linear model, which expresses capital formation as a function lagged gross fixed capital formation, financial development indicators (banks, savings, and loan). The study uses the one-step parameter estimates for the Generalized Method of Moments (GMM) estimation and finds that financial intermediation has a causal effect and positive impact on capital formation through the channels of house-holds' savings mobilization and loans for private sector.

Empirically, Sanjib (2008) has concerned with the analysis saving and capital formation which is the two major macro-economic indicators of the National Accounts Statistics. An accurate measure of the domestic saving and capital formulation helps in formulation of the monetary and fiscal policy. Some issues related to the present methodology of compilation of domestic saving and capital formation has been discussed in the paper. Empirically, it has been found that the

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domestic capital formation in India is mainly financed by the domestic saving. Evidence of existence of long-run equilibrium relationship between domestic capital formation and domestic saving has been found through the application of co integration analysis. Some authors, including McKinnon (1973), Shaw (1973), and Athukorala and Sen (2004) have argued that the relationship between real interest rate and saving is positive for a developing economy. They hinge their argument on the fact that the financial markets of these countries are not well developed. The result shown in study of Orji (2012) in Nigeria that real interest rate in Nigeria has a statistically significant negative relationship with savings in the long run. This result does not conform to a priori expectation because theoretically, interest rate is expected to be positively related to savings.

Alex (2009) has conducted a study on the role of banks in capital formation and economic growth in developing nations using ordinary linear square (OLS) regression technique. The explanatory variables employed include commercial banks deposit liability, maximum lending rate, commercial banks' credit and investment by banks. The dependent variables are gross fixed capital formation and gross domestic product, which is a measure of a nation's economic performance – economic growth in this instance from the various test carried out, it was find out that commercial banks deposit liabilities is elastic to gross fixed capital formation. This positivity of the coefficient of commercial banks deposit liabilities is in conformity to the economic a prior expectation of a positive impact of commercial banks deposit liabilities on gross fixed capital formation. Also, the regression result shows that a commercial banks credit has a positive impact on gross fixed capital formation. It is therefore, the study recommended that efforts should be made by the monetary authorities to effectively manage the banks' maximum lending. This policy thrust will most likely result into increased investment activities which will enhance capital formation in developing nations needed for its real sector investments and industrial growth.

Orji (2012 has conducted a study on the impact of bank savings and bank credits on capital formation and economic growth in Nigeria. The study adopted two impact models; Distributed Lag-Error Correction Model and Distributed Model. The empirical results showed a positive impact exists between the lagged values of total private savings, private sector credit, public sector credit, interest rate spread, exchange rates on capital formation and economic growth. Hence, the study recommend, among others, that government's effort should be geared towards improving per capita income by reducing the unemployment rate in the country in a bid to

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accelerate growth through enhanced savings. Hence this research aimed at assessing the role of bank deposit mobilization and credit financing on Capital Formation in one of the developing country Ethiopia.

Research Design and Methodology

A quantitative approach is one in which the investigatory primarily uses postpositive claims for developing knowledge and employs strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistics data (Creswell, 2002). Hence in this study quantitative research approach used because it is the best approach to use to test a theory or explanation (Creswell, 2002). This study adopted an explanatory approach by using time series data of 21 years to realize a stated objective. As quoted from Chris Brooks (2008) while longitudinal (time series) studies are often more time consuming and expensive than cross-sectional studies, they are more likely to identify causal relationships between variables. Thus, it is the most appropriate design for identifying the relationships between the level of capital formation and three explanatory variables representing bank saving, bank credit and bank investment. To increase the confidence of the results of estimation most researchers used control variables, which are specific to business firms and general to the economy as a whole (Amir, 2009; Adusei, 2011). Accordingly, in addition to independent variables National Saving and Real interest Rate were included in this study as control variables. The required data is collected from published reports of National Bank of Ethiopia, World Bank and MOFED (Ministry of Finance & Economic Development) for the period of 1994-2014. Gross fixed Capital formation (GFCF) data is Macro level data collected from annual report of MOFED while Bank deposit, Bank Credit and Bank investment data are industry level data collected from central bank annual financial report of Banks operating in Ethiopia. Hence the sample used in this study is equal to all the banks working in Ethiopia.

Model Specification

The model used in this study derived on the basis of previous studies of Orji Anthony (2001), and Dunning, (1993) with some modification to examine roles of Ethiopia banking industry deposit mobilization and bank credit financing in capital formation from the period of 1994 to 2014 by using Multiple Linear Regression Model by employing Ordinary least square (OLS) method. The chosen model is strongly believed to capture the essence of the subject under research. The explanatory variables include Banks Deposit (BD), Banks' Credit (BC) and

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Investment by banks in Ethiopia (BI) and additional macro level control Variables of National Saving (NS) and Real Interest Rate (RIR).

The econometric model is specified as:

GFCF = ƒ (Bank Deposit, Bank Credit, Bank Investment, National Savings, Real Interest Rate)

GFCF = β1 + β2BD +β3BC + β4BI+ β5NS+β6RIR+ ε ――――――― (1)

Where:

GFCF = Gross Fixed Capital Formation

BD =   Banks' Deposit

BC =   Banks' Credits

 BI =   Banks' Investment

NS=   National Savings

RIR=   Real Interest Rate

β1 =Coefficient of Intercept

β2-β4= Coefficient of Independent variables

β5-β6= Coefficient of Control Variables

ε= Error Term

Table-1: Variable-Indicator List

Dependent Variable	Indicator
Gross Fixed Capital Formation	Percentage of GFCF as % GDP
Independent Variable	
Bank Deposit	Bank Deposit as % of GDP
Bank Credit	Bank Credit as % of GDP
Bank Investment	Bank Investments as % of GDP
Control Variable	
National Savings	National Saving as % of GDP
Real Interest Rate	RIR as % of GDP

Source: researcher own computation.

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Data Analysis and Discussion

The study uses Multiple Linear Regression Model in order to check the role of Banks deposit mobilization and credit financing on capital formation. To analyze the data, statistical package STATA software version 11 was employed. Further STATA software was used to tests stationary, co-integration, model accuracy and other econometric problems like test for multicollinearity, heteroscedasticity, and autocorrelation.

Summary of Descriptive Statistic

The following summary of descriptive statistics of all dependent and explanatory variables gives the general distribution of the data set and used in order to get insight into the trend of capital formation in Ethiopia and for those variables incorporated in this study over a period of time.

Table-2 Summary of Descriptive Statistics

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GFCF	21	26.81868	6.185783	16.70772	40.27009
BC	21	11.78557	6.606523	6.639567	18.44365
BD	21	23.99847	7.007823	18.561748	34.02213
BI	21	7.295615	3.188731	3.788262	13.23522
NS	21	12.55499	4.956885	3.438776	20.68316
RIR	21	2.012404	8.912168	-17.12178	17.63548

The above table shows descriptive statistics which includes the mean distribution, the standard deviations, minimum and maximum values of the study variables for the study period, (i.e., 1994 to 2014). The study has used six key variables for the analysis purpose including three independent variables, two control variables and one dependent variable. Those are gross fixed capital formation (GFCF) as a dependent variable and bank credit (BC) and bank deposit (BD), bank investment (BI) as an independent variable and national saving(NS) and real interest rate as a control variable. As indicated in Table 2, the average capital formation is 26.81 percent in proportion to GDP, which is nearly equivalent to minimum requirement for economic development. However, the standard deviation of gross fixed capital formation accounts 6.18 percent. This deviation shows that the capital formation varies over the sample period. The

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minimum GFCF to GDP over the sample period were 16.70 percent and the maximum of 40.27 percent.

Correspondingly, the average bank deposit (BD) is 23.99 in proportion to GDP. It means that on average banks mobilize deposit from the public around 23.99 percent out of total GDP of the country. On the other hand, the standard deviation of bank deposit was 7 percent in proportion to GDP with the minimum proportion to GDP was 18.56 percent and the maximum of 34 percent.

Likewise, the descriptive statistics for bank credit (BC) is also presented in the same table which is measured by the amount money granted by banks. The mean value of bank credit in proportion to GDP is 11.78 percent and a standard deviation of 3.9 percent. This deviation shows that the BC fluctuates by 3.9 percent from its mean. The minimum proportion of BC to GDP is 6.63percent and the maximum is 18.4 percent. The other independent variable used in this study was bank investment (BI). On average the bank investment over sample period was 7.2 percent of total gross domestic product with the dispersion of 3.1 percent. The minimum bank investment over sample period was 3.78 percent and the maximum was 13.23 percent.

Moreover, this study also used control variables in order to clearly reveal the role bank of banking industry on capital formation; this study has used two control variables that is represented by NS and RIR. National saving (NS) of the country over the sample period was recorded an average of 12.55 percent in proportion to GDP and shows slightly a big gap of percentage between the highest national saving of 20.68 percent and the smallest of 3.4 percent. Regarding to real interest rate (RIR), the mean value is 2.02 percent in proportion to GDP with the standard deviation of 8.9 percent. The minimum RIR over sample period is -17.12 percent and the maximum of 17.63. A gap between the highest and the smallest percent may be due to the high volatility over a sample period. This descriptive analysis supports the regression result that on average the bank deposit and Bank credit over the sample period per GDP, shows upward trend over the sample period and indicated that banks has the largest financial intermediaries role in Ethiopia because the role in mobilizing domestic resource in raising the national saving was remarkable.

Correlation Analysis

The correlation analysis was done to analyze the relationship between GFCF and BC, BD, BI, NS and RIR. To examine the relationship among these variables, Pearson correlation coefficients were calculated. In this section of the study, the analysis and interpretations of the correlation results between dependent and explanatory variables are presented. As indicated in the

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correlation analysis between Bank deposit and Bank Credit has strong relation. This strong correlation between Bank deposit and Bank Credit suggests that performance of the latter is directly tied with increased deposit. The correlation matrix in Table 3 resulted in a positive correlation between GFCF and national saving, bank credit and, bank deposit. And thus, these relations are statistically significant at 1, 5 and 10 percent level. Nevertheless, variable bank investment and real interest rate resulted insignificant positive relationship with gross fixed capital formation

Table 3 Correlation Matrix

	GFCF	BC	BD	BI	NS	RIR
GFCF	1.0000					
BC	0.5160 (0.0166)	1.0000				
BD	0.4098 (0.0650)	0.6637	1.0000			
BI	0.2020 (0.3799)	0.1755	0.5703	1.0000		
NS	0.3698 (0.0090)	-0.3163	-0.1533	0.2121	1.0000	
RIR	0.2759 (0.2260)	0.2570	0.4834	0.4968	-0.3474	1.0000

On the other hand, Table 3 reveals the extent of relationship between dependent and explanatory variables. The correlation coefficients for bank deposit, bank credit, and bank investment with GFCF are 40.98 percent, 51.60 percent and 20.2 percent respectively. Likewise the correlation coefficients for control variables represented by national saving and real interest rate with GFCF are 36.98 percent and 27.59 percent respectively. Moreover, pair-wise correlation matrix is one method of detecting multicollinearity among explanatory variables. If the pair-wise correlation among two repressors is in excess of 0.8, we suspect that multicollinearity poses serious challenge to our estimates (Gujarati, 2003). Thus, according to Table 3, the maximum correlation coefficient above 60% is correlation between BD and BC which equals to 66.37%. Even that it is not problem for the study, when compared to the standard which is more than 80% coefficient. To sum up the correlation analysis, although the pair wise correlations give proof of relationship between two variables; these measures do not allow us to identify causes and effect relationships between such variables. From the results of correlation analysis, it is difficult to say whether independent variables have effect on capital formation. Simply the correlation result shows the coefficient and the direction of relationship between two variables with the level of significance. Another shortcoming of correlation analysis is that it does not provide reliable indicators or coefficients of association in a manner which control for additional explanatory variables.

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However, it should be noted that a complete assurance about the significance of the relationship between the endogenous and exogenous variables can be obtained from the regression results which are discussed in the forthcoming section.

Regression Analysis

To investigate more formally the relationship between the role of banking and capital formation in Ethiopia (in order to answer the research questions of the study properly and to test hypothesis) time series regression models were computed. Before running the regressions, the data sets were tested for stationary, co-integration, multicollinearity, heteroscedasticity, autocorrelation and for model specification to test goodness of data collected and where fitness of the model specified were discussed above. As result revealed in the test of unit root and co-integration of Engle-Granger approach, since the original series are non-stationary and the variables are co integrated, consequently; obviously there would be no sense in forming an Error Correction model (ECM), and it's appropriate to form a model in first differences only.

The dynamic model as signified in model specification test is

$\Delta GFCF = \beta 1 + \beta 2 \Delta BC + \beta 3 \Delta BD + \beta 4 \Delta BI + \beta 5 \Delta NS + \beta 6 \Delta RIR + \Delta \varepsilon.$

Thus, the regression analysis result of the model is presented here under table 4.

Table 4 OLS Estimation of capital formation as percent of GDP using time series data

Particulars	Specification (1)
ΔBC	.9121279* (0.000)
ΔBD	3.756348** (0.016)
ΔBI	-.7549615 (0.278)
ΔNS	1.254795* (0.003)
ΔRIR	-.4586974 (0.378)
_cons	-33.68848* (0.000)
R-squared	0.5622
F statistics	38.9* (0.0001)
N	21

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Figures in parenthesis denote p-values, * significant at 1 percent, & **significant at 5 percent

Table 4 reveals that three variables BD, BC &NS are statistically significant while, BI and RIR are insignificant. The intercept is statistically significant at 1 percent. The adjusted R squared values show higher explanatory powers of the explanatory variables. In the regression independent variables explain the variability of the dependent variable to the extent of 56.22 percent. In addition, the overall significances of the regressions when measured by their respective F statistics are 38.9 with P-values of 0.0001 indicated that the model is well fitted at 1 percent level of significance. Accordingly Table 4 gives the main findings of the study on the role of bank deposit and credit on capital formation over a sample period of 1994-2014. Thus, its detail interpretation on each variable based on the findings of regression analysis can be discussed in paragraphs as below.

Hypothesis testing H1:

Ho*: Bank Deposit has no significant and positive effect on Gross Fixed Capital Formation*

Result: *the null hypothesis is rejected at 5% percent level of significance (95% level of confidence)*

The finding on bank deposit, measured amount of money mobilized by banks as a share of GDP, indicated that bank deposit has significant positive effect on capital formation. Holding other variables constant, each percentage increase in bank deposit will lead to an average 3.75 percentage increases in capital formation. Thus, the null hypothesis regarding bank deposit is rejected because bank deposit has significance positive effect on capital formation at 5% percent level of significance. This significant and positive effect of bank deposit on capital formation revels that bank deposit had significant contribution on capital formation on the sample period in Ethiopia and then boost the capital formation in the country. This finding is supported by empirical studies in developing countries in general and in African countries particularly by Alex (2009), Ayodele (2007) and Nwaeze, et.al (2012), which reveals that bank deposit has a significant positive effect on capital formation in Ethiopia.

Hypothesis testing H2:

H0: *Bank Credit has no significant and positive effect on Gross Fixed Capital Formation.*

Result: *the null hypothesis is rejected at 1% percent level of significance (99% level of confidence)*

The bank credit, represented by BC, had a positive and significant effect on capital formation. The result indicates that, one percent (1%) increase in bank credit granted to investors will lead

to an average 0.91% percent increase in capital formation. Thus, the null hypothesis regarding bank credit is rejected because bank credit has significance positive effect on capital formation at 1% percent level of significance. The positive influence of credit granted by banks in Ethiopia on capital formation may signify that the growth of the economy with emergent and undiscovered market potentials coupled with the double digit economic growth over the years of 1994-2014 in Ethiopia was promoting banking sector growth and creating availability of fund for loan that is mobilized by banks from public. Thus, promotes the production of more goods and services and then investors are eager to borrow invest in a productive sector of the economy that promotes the production more goods and services, capital formation and employment opportunities. The previous studies in developing countries, and Africa countries revealed that bank credit had a significant positive effect on the capital formation. Thus, the significant positive effect of bank credit on capital formation in Ethiopia is consistent with the empirical studies by Orji (2012), Alex (2009) and Sanjib (2008).

Hypothesis testing: H3

H0: *Bank Investment has no significant and positive effect on Gross Fixed Capital Formation*

Result: *the null hypothesis is not rejected even at 10% percent level of significance i.e. the alternative hypothesis is rejected.*

The bank investment had statistically insignificant and negative effects on the capital formation in Ethiopia. Thus, the null hypothesis regarding bank investment is not rejected because bank investment has insignificance effect on capital formation. Thus, the insignificant effect of bank investment on capital formation in Ethiopia is consistent with prior studies in Nigeria particularly and in developing countries in general by Orji (2012) and Abdulsalam (2013).

The finding of national saving as a control variable, measured by amount of money mobilized by depository financial institution as a share of GDP, indicated that national saving has significant positive effect on capital formation. Holding other variables constant, each percentage increase in national saving will lead to an average 1.25 percentage increases in capital formation. This positive impact of national saving may signify that expansion of modernization and accessible the saving institution, rise of income level of the society, climb awareness and saving habit among the society, and availability of appropriate saving products enhance the national saving rate to be increased from year to year and then increases the capital formation of the country through making loanable funds in banking industry. This finding is supported by empirical

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studies in developing countries in general and in African countries particularly by Alex (2009), Ayodele (2007) and Nwaeze, et.al (2012), which reveals that national saving has a significant positive effect on capital formation. Real interest rate had a negative insignificant effect on capital formation. The insignificance effect of a variable real interest rate may be due to that real interest rate may correlated with other factors that also influence capital formation which are not included in the model of the study. This conclusion is consistent with prior studies in developing countries by Hao (2006), McCaig and Stengos (2005) and Ayodele (2007) and the studies revealed that real interest rate has insignificant effect on capital formation.

Conclusion

Descriptive statistics was used to examine the trend of the chosen variables over the sample periods. Both correlation analysis and OLS models of time series data were used to analyze the relationships among dependent and independent variables and identify the role of bank on capital formation. Finally, the study concludes as follows The findings of correlation analysis reveals that there exist strong significance positive relationships between capital formation and national saving, bank credit and, bank deposit. On the contrary, correlation analysis reveals that there exist insignificance relationships between capital formation and bank investment and real interest rate. The research questions were to explore whether the independent variables bank deposit, bank credit and bank investment had significant positive effect on capital formation in Ethiopia, which was investigated through the regressions analyses. Accordingly, the findings of regression analysis are discussed below as follows:

Bank deposit has a positive and significant effect on capital formation. This result of the study conforms to a prior expectation since increased bank deposit will lead to greater availability of investment fund which will lead to greater productivity, and higher growth of capital formation in the economy. This regression finding is supported by descriptive analysis that on average the bank deposit over the sample period accounted to be 23.9 percent as compared to GDP, shows upward trend over the sample period and indicated that banks has the largest financial intermediaries role in Ethiopia because the role in mobilizing domestic resource in raising the national saving was remarkable. Bank credit had statistically significant positive effects on capital formation in Ethiopia. This result in this study implies that bank loans granted to the productive sector of the economy exhibit increased over the sample period, hence, this progress

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of bank loan influences a rational consumer to put that into good use, enhance private sector transactions level and investments, and reinforces the significance of private sector development within the economy. Which was subsequently accelerated the growth of the capital formation in Ethiopia over the sample period of the study. This regression finding is supported by descriptive analysis that on average the bank credit over the sample period accounted to be 11.78 percent as compared to GDP and also shows upward trend over the sample period. The finding on bank investment indicated that bank investment had insignificant effect on capital formation. This result of the study implies that banks were not directly involved invested in productive sector of the economy. Hence, as per the national bank directives currently banks are allowed to involved in security investment such as Treasury bond and great renaissance dam bond rather than in other portfolio investments.

National saving had significant positive effect on capital formation. The positive effect of national saving on capital formation confirms a prior expectation since increased national savings will lead to greater availability of investment fund which will lead to greater productivity, and higher growth of capital formation in the economy. This regression finding is supported by descriptive analysis that on average the national saving over the sample period accounted to be 12.55 percent as compared to GDP and also shows upward trend over the sample period. Lastly, real interest rate had insignificant effect on capital formation in Ethiopia. This result of the study implies that depositors are not sensitive on real interest rate. Thus, accumulation of financial saving in Ethiopia is determined more by the desire to invest than the desire to live on interest income. To sum up, the findings of regressions analysis showed that bank deposit (BD), bank credit (BC) and national saving (NS) has a great role on capital formation in Ethiopia because the coefficients of the variables were statistically significant. However; bank investment and real interest rate become insignificant effect on capital formation in Ethiopia, because the coefficients of the variables were turned out to be statistically insignificant.

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