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Implications Of Foreign Direct Investment, Financial Development And Real Exchange Rate For Economic Growth In Cameroon

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Abstract : This paper assesses the effects of foreign direct investment (FDI), financial development and real exchange rate (RER) on economic growth in Cameroon using Cameroon's annual time series data spanning the period 1977 - 2010. To address these objectives, residual based Engle-Granger test, the OLS based Autoregressive Distributive Lag (ARDL) bound testing and maximum likelihood based Johansen cointegration techniques are employed. Results of Unit roots tests show that all the series possessed unit roots at level or first difference form. The ARDL model and VECM results reveal that the RER has a significant negative effect on economic growth, while FDI and Financial Development relate positively to economic growth. These findings have implications for stimulating economic growth by increasing efficiency of the financial sector in allocating credit to the private sector and preventing real exchange rate appreciation in the shortrun.

Keywords: FDI; Financial Development; RER; Economic Growth; bound test and VECM

1. Introduction

Many development economists in emerging economies have commonly postulated that the provision of external finance can be an important ingredient to a successful process of economic development if an economy is unable to provide sufficient access to finance on its own (Fischer, 1997). Several studies have shown that capital inflows from these external sources appreciate the real exchange rate in emerging markets. A perceived over-valuation of the real exchange rate may lead to capital flows drying up abruptly. Capital inflows have a definite consumption enhancing effect, although the effect on investment is generally indeterminate and might be exacerbated by the resulting real exchange rate appreciation from the inflows of capital to developing economies (Saborowski, 2009).

The experience of a number of developing Countries has shown that the real exchange rate appreciation resulting from Foreign Direct Investment (FDI) inflows may not only discourage investment but can severely destabilize macroeconomic management as a whole (Corden, 1994). The reason is that the real appreciation of the domestic currency brings about a reduction in the profitability of investment in tradable goods. A large real appreciation of a country's currency following excessive capital inflows will harm export competitiveness and lead to considerable current account deterioration and an increasing vulnerability to crisis (Cottani *et al*., 1990).

Developing the financial sector is a possible way of dealing with the exchange rate appreciation effect of capital inflows rather than merely applying modest capital controls and fiscal tightening policies as

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suggested in some studies. Saborowski (2009) argued that the development of a deep and active financial sector serves to weaken the problematic link between international capital flows and real exchange rate appreciation. A strong financial sector is capable of providing low cost information about investment opportunities and equally enables the economy to use its resources more efficiently by facilitating risk diversification and playing a vital role in the mobilization of savings (Acosta *et al,* 2009).

Economies with well-developed financial markets are able to benefit more from FDI in promoting their economic growth. Improvement in the efficiency of the domestic financial sector tends to reduce the threshold level of entrepreneurship and increases the social marginal product of FDI. In practice, financial markets affect both the financing of investment and day-to-day business activities. Hence, well efficient domestic financial markets encourage entrepreneurial activities and output, and attract more FDI (Alfaro *et al*, 2004).

The effects of Foreign Direct Investment, Financial Development, and Real Exchange Rate on economic growth could be inferred by examining the evolution of the outcome variable (economic growth) in Cameroon. The trend in economic growth has experienced many changes over time. There are periods of high economic growth and those of considerable economic decline. Rapid economic growth periods in most cases coincide with periods of stable real exchange rate, net inflow of FDI and rapid expansion in bank credits. Economic growth acts as incentive to inflow of foreign capital and the extent to which foreign investors might be willing to invest in a country depends to an extent on the real exchange rate and soundness of host country's financial system alongside other factors.

Based on Cameroon's data, net FDI as a percent of GDP experienced a steady increase from the late 1990s, likewise the ratio of total credit to the private sector, with few exceptions. From the eve of devaluation of FCFA, in the period 1993 to 1994 when the par value FCFA was lowered by 50 percent, real exchange rate declined sharply from 47.85 to -0.67 percent. Real exchange rate changes from 49.44 to 58.77 (that is 283.16 FCFA to 555.2 per unit of US Dollar) and total private credit fell from 10.3 to 9.2 percent of real GDP. With all these, growth rate improves from -3.2 to -2.5 percent from 1993 to 1994. This is an indication that the trend in economic growth determines or is determined by FDI, financial development and RER among other micro and macroeconomic variables.

Establishing a relationship between these variables and economic growth in Cameroon is particularly vital as it will certainly assist in the formulation and attainment of Growth and Employment Strategy Objectives and development goals by 2035. The first focuses on the vision which has to be achieved between 2010 and 2020 include: reducing poverty to a socially acceptable level, becoming a middle-income country, reaching the stage of newly industrialized country, and strengthening national unity and consolidating democracy (IMF, 2012). According to IMF, great ambitions of Cameroon emerging by 2035 is only possible if the country raises growth rate to least 5.5 percent on average between 2010 and 2020, reduces poverty to less than 28 percent by 2020, and equally reduces underemployment from 75.8 percent to less than 50 percent by 2020.

Despite the great vision of emerging in the nearest future, the world economy was recently trapped down into another severe crisis which injured almost all the sectors of Cameroon's economy. The crisis slowed down the rate of economic growth to less than half of the targeted rate thereby ruining the country's efforts for emerging by 2035. What policies were adopted since the 1980s crisis to sustain a sound economic environment, were all the necessary macroeconomic instruments used accordingly? If the policies were effective and took into consideration the effects of essential macroeconomic variables such as FDI, financial development, the RER and others, then how comes

the signals of another external shock just two decades later which manifested itself by continuous decline in real GDP growth rate from 4.5 percent witnessed in 2001 to barely 1.9 percent in 2009 .

In this context, the main objective of this paper is to assess the extent of the effects of FDI, financial development and RER on economic growth in Cameroon. The corresponding hypotheses are, other things being equal: (1) FDI contributes positively to economic growth in Cameroon; (2) Financial development is economic growth enhancing; and (3) RER appreciation weakens the rate of economic growth. To verify these hypotheses, the remainder of the paper is organized as follows: Section 2 reviews the relevant literature, while Section 3 describes the data and methodology used. The empirical results are presented and analyzed in Section 4, while Section 5 concludes the paper.

2. Literature Review

The first strand of the literature in this paper focused on the possible linkages among Foreign Direct Investment, Real Exchange Rate and Financial Development. According to Otker-Robe, Polanski, Topf, and Vavra (2007), more efficient financial markets and institutions provide a broader range of investment opportunities and direct investment inflows towards their most productive uses, thereby avoiding the flows of capital from being channeled to sectors where they increase demand without adding to the productive capacity of the economy. The appreciation effect of capital inflows on the real exchange rate (the relative price of non-tradable goods) should therefore be attenuated if financial markets and institutions are well-developed (Saborowski, 2009).

Athukorala and Rajapatirana (2003) show that the exchange rate appreciation effect of foreign direct investment inflows has been stronger in the emerging markets of Latin American as compared to their Asian counterparts during the period 1985–2000. The simple reason being that, capital markets in Latin America, despite the intense reform efforts, have remained underdeveloped compared to other regions (De la Torre, Gozzi, and Schmukler, 2007). Spill-over effects emanating from FDI inflows are particularly strong, making their efficient absorption relatively more urgent.

Sekmen (2007) examines the cointegration and causality among foreign direct investment in tourism sector, GDP, and exchange rate volatility in Turkey using VECM and Granger causality test. The study reports one way causality from GDP to FDI and a bidirectional causality between exchange rate volatility and GDP. The adjusted coefficient associated with change in FDI was significant but instead negative while the effect of exchange rate was positive.

MacKinnon (1973) was of the view that the development of financial markets is necessary and sufficient to foster the adoption of best-practice technologies and learning by doing process. Limited access to credit markets restricts entrepreneurial development. If an entrepreneur adopts new technologies made available by FDI, then the absence of well-developed financial markets limits the potential positive FDI externalities (Alfaro *et al*., 2004). This is because a well-functioning financial market lowers the costs of transactions, ensures that capital is allocated to the projects that yield the highest returns, and therefore enhances growth rate.

The economies with well-developed financial markets are able to benefit more from FDI in promoting their economic growth. Improvement in the efficiency of the domestic financial sector tends to reduce the threshold level of entrepreneurship and increases the social marginal product of FDI. In practice, financial markets affect both the financing of investment and day-to-day business activities. Hence, well efficient domestic financial markets encourage entrepreneurial activities and output, and attract more FDI. Although FDI alone plays an ambiguous role in contributing to economic growth as in

some studies, Alfaro et al, (2004) found that the presence of active and well developed financial markets may alter the results significantly.

Hermes and Lensink (2003) argue that the development of active domestic financial system of the recipient country is an important precondition for FDI to have positive impact on economic growth. The financial system enhances the efficient allocation of resources and helps to improve the absorptive capacity of a country with respect to FDI inflows. Choong, *et al*. (2003) emphasized the role of financial institutions and argued that the lack of development of local financial markets can limit the ability of economy to take the advantage of potential FDI spillovers.

The effect of FDI on the growth rate of the economy is positively associated with the level of financial markets development, that is, the greater the deepening of the financial markets in the host country, the higher will be the effect of FDI on the growth rate of the economy. Alfaro *et al*. (2004) tested and confirmed this hypothesis using bound testing approach of co-integration.

Mello (1999) considered that FDI affects growth through the accumulation of capital as well as by the transfer of knowledge. These hypotheses were tested with time series and panel data. The time series results were not conclusive. The panel data showed that FDI has appositive effect upon growth as a result of the transfer of knowledge in OECD countries. The effect upon the accumulation of capital was only manifested in the non-OECD countries. This indicates that the end result depends on the complementarily or substitution of foreign and domestic investment.

Basu *et al*. (2003) study a panel of 23 developing countries from Asia, Africa, Europe and Latin America, and find the causal relationship between GDP growth and FDI to run both ways in more open economies, and in only one direction, from GDP growth to FDI, in more closed economies. Trevino and Upadhyaya (2003) find a comparable result, based on their study of five developing countries in Asia, that the positive impact of FDI on economic growth is greater in more open economies. Whether other factors, especially the level of financial development and the real exchange rate which directly affect FDI and economic growth, also influence FDI-growth relationship remains an open question.

Examining the relationship between the financial development and issues associated with long-run growth is important. First of all, financial institutions may influence the level of income per capita and the magnitude of cyclical fluctuations (Bernanke and Gertler 1989). Secondly, many economists stress that understanding the evolution of financial systems is essential for understanding economic development (Engerman and Sokoloff 1996).

César and Lin (2002) uses the Geweke decomposition test on pooled data of 109 developing and industrial countries from 1960 to 1994 to examine the direction of causality between financial development and economic growth. He finds that (1) financial development generally leads to economic growth; (2) the Granger causality from financial development to economic growth and the Granger causality from economic growth to financial development coexist; (3) financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries; (4) the longer the sampling interval, the larger the effect of financial development on economic growth; (5) financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth, with the latter channel being the strongest.

Moreover, a well-functioning financial sector is involved in the trading, hedging and pooling of different kinds of risk in the economy. By facilitating risk diversification and effectively providing a broader range of investment opportunities, savings rates and the allocation of available resources can

be greatly improved. These arguments are at the core of the idea that financial development suppresses pressure on real exchange rate appreciation resulting from influx of foreign capital and should be beneficial for economic growth in general.

A good number of studies have examined FDI-growth nexus using cross section data or country's specific data with mix results (Nunnenkamp and Spatz, 2002, among others). Most studies conducted in domain in Cameroon neglect the causality between FDI and economic growth (Khan and Bamou, 2006, and Njong, 2008). Using error correction mechanism procedure to cointegration, Njimanted (2009) finds that change in the log of FDI is positively related to change in the log of GDP in current period. There is need to complement these findings with a related study using ARDL approach to cointegration analysis with updated dataset and different measures of the variables.

Although the role of finance was neglected in early literature on development, since the work of Bagehot (1873) and Schumpeter (1911), majority of studies have established a positive link between finance and growth (Goldsmith, 1969; McKinnon, 1973, Habibur, 2007)[3]. A bulk of this research is concentrated mainly on developed countries. In Cameroon, for instance, very few studies are devoted for finance-growth debates (Tabi, Njong and Neba, 2011). With the outbreak of recent financial crisis by 2007 which slowed down the real GDP growth rate of Cameroon by more than two percent (IMF, 2012), issues on finance-growth nexus deserve a particular attention especially in formulating policies for the vision of emerging by 2035 to be attained.

Many studies find that real exchange rate misalignments particularly RER appreciation weakens the general economic performance (Edwards, 1989; Ghura and Grennes, 1994). Little quantitative work is based on a relation of this nature in Cameroon. The few studies on real exchange rate in Cameroon concentrate on investigating the determinants of RER and or degree of RER misalignment (Amin, 1996; Amin and Awung, 1997; Baye and Khan, 2002).

A very negligible number of studies in economics literature integrate foreign direct investment, financial development, real exchange rate and economic growth (Acosta *et al*., 2009 and Saborowski, 2009). For the case with Cameroon, we have not yet found an empirical study on the effects of FDI, financial development and RER on economic growth. The present study is intended to fill this vacuum especially as recommendations from the study are certainly helpful in preparing growth and employment strategy paper (GESP) and equally in formulating better growth-led policies in the country.

3. Data and Methodology

Macroeconomic data used in this study are solely Cameroon's data obtained mainly from World Development Indicators, IMF International Financial Statistics and National Institute of Statistics spanning from 1977 to 2010. Borrowing from the methodology of Jarita (2006) and Sekmen (2007), like in other related studies, the methodology adopted in this paper is presented in three steps. The first step involves testing the stationary properties of the variables through unit root tests. The second task is to test for cointegration relationship between variables using the OLS based ARDL approach and maximum likelihood based Johansen cointegrationtechniques, and

Vector error correction model (VECM) as in Jarita (2006) and Sekmen (2007) is developed as follows:

[3] These studies are in line with supply-leading hypothesis (Patrick 1966) unlike demand-leading hypothesis which posits causality instead from economic growth to financial development (Gurley and Shaw, 1967, and many others).

$$\Delta Z_t = \mu + \alpha_t + \lambda Z_{t-1} + \sum_{i=1}^{p-i} \gamma_t \Delta Y_{t-i} + \sum_{i=1}^{p-1} \gamma_t \Delta X_{t-i} + \varepsilon_t \quad (1)$$

Where Δ is the first-difference operator, Y_{t-i} is the dependent variable and X_{t-i} is vector of independent variables. The VECM procedures are imperative in the testing of at most one cointegrating vector between dependent variable and a set of regressors. The model displays the normalized cointegrating vector and the error correction models involving $\Delta LnRGDP_t$, ΔFDI_t, $\Delta LnFD_t$ and $\Delta LnRER_t$ as dependent variables. The coefficient attached to each variable in the cointegrating regression is the adjusting parameter with associated t-values. Trace correlation which is similar to the conventional R^2 in linear regression model is equally calculated to verify the goodness of fit of the model and for the various equations.

Autoregressive Distributed Lag (ARDL) modelling approach to cointegration analysis is equally used in this study. It is similar with VECM procedure but instead with unrestricted intercepts and no trends. This approach does not involve pre-testing variables, which means that the test on the existence relationship between variables in levels is applicable irrespective of whether the underlying regressors are purely I(0), purely I(1) or mixture of both (Jarita, 2006). Pesaran *et al*. (2001) advocated the use of the ARDL model for the estimation of level relationships because the model suggests that once the order of the ARDL has been recognised, the relationship can be estimated by OLS and equally, the technique is suitable for small sample size.

Basically, the OLS based ARDL bound testing approach to cointegration involves estimating the conditional error correction version of the following ARDL model (adapted from Jarita, 2006 and Noula, 2012) for economic growth and its determinants:

$$\Delta Ln(RGDP)_t = \delta_0 + \delta_1 Ln(RGDP)_{t-1} + \delta_2 Ln(FDI)_{t-1} + \delta_3 Ln(FD)_{t-1} + \delta_4 Ln(RER)_{t-1} + \delta_5 Ln(OP)_{t-1} +$$

$$\delta_6 Ln(LFQ)_{t-1} + \delta_7 Ln(STR)_{t-1} + \delta_8 Ln(INDR)_{t-1} + \delta_9 Ln(GOV)_{t-1} + \sum_{i=1}^{p} \phi_i \Delta Ln(RGDP)_{t-i} + \sum_{i=0}^{p} \theta_i \Delta Ln(FDI)_{t-i} +$$

$$\sum_{i=0}^{p} \lambda_i \Delta Ln(FD)_{t-i} + \sum_{i=0}^{p} \varphi_i \Delta Ln(RER)_{t-i} + \sum_{i=0}^{p} \eta_i \Delta Ln(OP)_{t-i} + \sum_{i=0}^{p} \psi_i \Delta Ln(LFQ)_{t-i} + \sum_{i=0}^{p} \beta_i \Delta Ln(STR)_{t-i} + \quad (2)$$

$$\sum_{i=0}^{p} \gamma_i \Delta Ln(INDR)_{t-i} + \sum_{i=0}^{p} \sigma_i \Delta Ln(GOV)_{t-i} + \upsilon_t$$

Where;

Δ is first-difference operator and *p* is the optimal lag length,

Ln(*RGDP)* represents natural log of real GDP growth,

LnFDI is the natural log of foreign direct investment,

Ln(FD) is an indicator of financial development in natural logarithm,

Ln(RER) is real exchange rate in natural logarithm,

Ln(OP), Ln(LFQ), Ln(STR), Ln(INDR) and *Ln(GOV)* stand for natural logs of trade openness, quality of labour force, level of infrastructural development, rate of industrialization and public spending respectively.

After estimating the ARDL equation (2), the Wald F- test is computed to verify the long-run relationship between the concerned variables. The test involves asymptotic critical value bounds, depending whether the variables are I(0) or I(1) or a mixture of both. Critical values for the I(1) series are referred to as upper bound critical values, while the critical values for I(0) series are referred to as

the lower bound critical values. If the computed *F*-statistic is greater than the upper bound value, then growth and its determinants share a long-run level relationship and the following ARDL model is estimated:

$$Ln(RGDP)_t = \alpha_1 + \sum_{i=1}^{p} \phi_{1i} Ln(RGDP)_{t-i} + \sum_{i=0}^{p} \beta_{1i} FDI_{t-i} + \sum_{i=0}^{p} \theta_{1i} Ln(FD)_{t-i} + \sum_{i=0}^{p} \lambda_{1i} Ln(RER)_{t-i} + \sum_{i=0}^{p} \eta_i Ln(OP)_{t-i} + \sum_{i=0}^{p} \psi_i Ln(LFQ)_{t-i} + \sum_{i=0}^{p} \beta_i Ln(STR)_{t-i} + \sum_{i=0}^{p} \gamma_i Ln(INDR)_{t-i} + \sum_{i=0}^{p} \sigma_i Ln(GOV)_{t-i} + \mu_t \quad (3)$$

Pesaran and Shin (1999) recommended a maximum of 2 lags for annual data, the lag length that minimizes SBC is often selected (Jarita, 2006). The ARDL specification of the short-run dynamics can be derived by constructing an error correction model (ECM) of the following form:

$$\Delta Ln(RGDP)_t = \alpha_2 + \sum_{i=1}^{p} \phi_{2i} \Delta Ln.(RGDP)_{t-i} + \sum_{i=0}^{p} \theta_{2i} \Delta Ln.(FDI)_{t-i} + \sum_{i=0}^{p} \lambda_{2i} \Delta Ln(FD)_{t-i} + \sum_{i=0}^{p} \varphi_{2i} \Delta Ln(RER)_{t-i} + \psi ECM_{t-1} + \vartheta_t \quad (4)$$

Where ECM_{t-1} is the error correction term and ψ represents the speed of adjustment. The short-run effects are captured by the coefficients of the first-differenced variables in equation (4).

Finally, a causality test using standard Granger-causality approach is conducted to verify the direction of causality among the variables. In order to test for direct short run causality between any pair of variables, for instance, the natural logs of foreign direct investment (LnFDI) and economic growth (LnRGDP), we perform a pairwise Granger causality test by estimating equations (5) and (6):

$$LnRGDP_t = \gamma + \sum_{i=1}^{p} \alpha_i LnRGDP_{t-i} + \sum_{i=1}^{q} \beta_i \cdot LnFDI_{t-i} + \mu_t \quad (5)$$

$$LnFDI_t = \phi + \sum_{i=1}^{p} \delta_i \cdot LnRGDP_{t-i} + \sum_{i=1}^{q} \lambda_i \cdot LnFDI_{t-i} + \eta_t \quad (6)$$

Where $LnRGDP_t$ and $LnFDI_t$ are stationary time series sequences, γ and ϕ are the respective intercepts, μ_t and η_t is white noise error terms, and, p and q are the maximum lag length used in each time series. If in equation (5), $\sum_{i=1}^{k} \beta_i$ is significantly different from zero, then we conclude that FDI Granger causes RGDP. Similarly, if $\sum_{i=1}^{k} \delta_i$ in equation (6) is significantly different from zero, it implies that real GDP Granger causes FDI. Granger causality in both directions is, of course, a possibility. This procedure is repeated to verify the direction of Granger causality between the main variables under study.

4. Presentation and discussion of Results

In line with the methodology, the results of unit root tests is first presented, followed by results of cointegration tests (ARDL and VECM) and those of pairwise Granger Causality tests.

4.1. Results of the Unit Roots Tests

The order of integration of variables is checked because ARDL-bounds test approach depends on the time series characteristics of the data set. Although both I(0) and I(1) variables can be used in the ARDL approach, the implementation of unit root tests is necessary in order to ensure that none of the variables is I (2) or higher.

The results of unit roots test following Augmented Dickey-Fuller test and Philip Perron test (presented in Table 1) revealed that the natural logs of all the variables are stationary at the level form or first difference form.

Table 1. Results of the Augmented Dickey-Fuller and Philip Perron Unit Roots Tests

Unit Roots Tests		**LnRGDP**	**LnFDI**	**LnFD**	**LnRER**	**LnQLF**	**LnOP**	**LnSTR**	**LnGOV**
ADF	Level form	-1.61	-2.32	-1.28	-2.04	-1.09	-1.30	-4.25[a]	-1.32
	First difference	-2.60	-3.20[b]	-3.33[b]	-3.89[a]	-3.59[a]	-4.15[a]	-5.52	-4.10[a]
PP	Level form	-1.67	-3.71[b]	-1.12	-2.26	-1.44	-1.05	-5.55[a]	-0.31
	First difference	-3.85[a]	-7.37[a]	-4.28[a]	-5.89[a]	-4.19[a]	-4.73[a]	-8.55	-4.00[a]
Order of integration		***I(1)***	***I(1)***	***I(1)***	***I(1)***	***I(1)***	***I(1)***	***I(0)***	***I(1)***

Source: Computed by the Author.

Notes: [a], [b] indicate variables significant at 1% and 5% respectively. The conclusion is based on the results of both tests with the only exception being LnRGDP whose conclusion is drawn only from PP unit roots test.

4.2. Results of Cointegration Test and Short-run Causality Test

Cointegration relationship is tested using ARDL framework and the VECM cointegration procedure while short-run causality is verified using the Pairwise Granger Causality test.

4.2.1. Results of ARDL bound testing cointegration relationship

From Table 1, we observe that variables are a mixture of both I(0) and I(1), we then verify whether Wald F- statistic exceeds their respective upper critical values to conclude for the existence of a long-run relationship between the variables or not. The result of Wald F-statistics reported in Table (2) for the case of unrestricted intercept and no trend shows that Wald F-statistics is greater than the upper bound critical value at 1 percent level of significance as 4.29 is greater than 3.97. This implies that the null hypothesis of no cointegration cannot be accepted at 1 percent and therefore, there is a strong long-run cointegration relationship between economic growth and the independent variables

Table 2. Wald F-statistic of bound testing for level of cointegration relationship

Wald test statistic	Value	***k***	Significance level	*Bound Critical values of Pesaran et al. (2001)*		
				I(0)	I(1)	**Decision**
F-statistic	**4.29**	**9**	1% 5% 10%	**2.65** **2.14** **1.88**	**3.97** **3.30** **2.99**	Longrun relation Longrun relation Longrun relation

Notes: Computed F-statistic of 4.29 is significant at 1% when compared with the Critical Values from Pesaran and Shin (2001) as in the appendix. **k** stands for the number of regressors

Source: Computed by the Author

Since there is evidence of long-run relationship (cointegration) between variables, we proceed with the estimation of the ARDL model. The results reported in Table 3 indicate that the model is globally significant and has a good explanatory power of 76.9 percent. The effect of financial development on real GDP is positive and highly significant. The effect of FDI on economic growth is positive but insignificant. The effect of real exchange rate on real GDP growth is equally significant but negative indicating that real exchange rate appreciation enhances long run growth of real GDP in Cameroon. Level of industrialization, quality of labour force, and, government spending are identified as other important correlates of real GDP in Cameroon.

Table 3. Estimation of ARDL model of economic growth in Cameroon

Dependent Variable: Natural Log of real GDP ($LnRGDP_t$)		
Independent Variables	**Coefficient**	**Std. Error**
Constant	5.894*** (7.601)	0.775
Log of Foreign Direct Investment **($LnFDI_t$)**	0.021 (1.287)	0.016
Log of Real Exchange Rate **($LnRER_t$)**	-0.189** -(2.288)	0.083
Log of Financial development **($LnFD_t$)**	0.277*** (5.140)	0.054
Log of Infrastructural Development (**$LnSTR_t$**)	0.018 (1.259)	0.014
Level of industrialisation (**$LnINDR_t$**)	0.209* (2.017)	0.104
Log of Quality of Labour Force**($LnQLF_t$)**	0.176* (1.813)	0.097
Log of Trade Openness of the economy **($LnOP_t$)**	0.155 (1.320)	0.117
Log of Government Expenditure**($LnGOV_t$)**	0.199* (1.956)	0.102
Unit roots test on ECT (PP)	**3.436****	
R-squared	**0.853**	
Adjusted R-squared	**0.769**	
F-statistic	**10.13***(p=0.0001)*	
Jarque-Bera Normality Test	**1.129***(p=0.569)*	
Breusch-Godfrey LM Test	**0.218***(p=0.807)*	
White Heteroskedasticity Test	**0.616***(p=0.795)*	

Notes: the superscript***, ** and *indicate variables significant at 1%, 5% and 10% respectively. Values in parentheses represent the calculated t-statistics and p values are the respective probabilities

Source: By Author

The error term following the ADF test is negative, possesses a unit roots at the level form and exceeds two in absolute term to confirm the existence of the Error Correction Model for the growth regression. The results of error correction model for economic growth model reported in Table 4 indicate that real exchange rate is an important growth promoting factor in the short run. The estimate coefficient of the RER is positive as expected and significant indicating that the real exchange rate depreciation enhances growth of real GDP in Cameroon. The effect of FDI on growth is negative as postulated by the dependency theory. The coefficient of financial development is insignificant and does not bear the right sign. Level of infrastructural development, government expenditure, and quality of labour force are equally important in contributing to growth.

Result of further diagnostic tests applied to the two models (included in Table 3 and 4) disclosed that the models possessed the necessary econometric properties. It has a correct functional form and the models' residuals are serially uncorrelated, normally distributed and homoskedastic. The lagged error correction term (ECT_{t-1}) in the error correction model is negative and significant at 1 percent level indicating evidence of causality in at least one direction. The coefficient of "-0.586" indicates high rate of convergence to equilibrium.

Table 4. Error correction model of economic growth in Cameroon

Dependent Variable. Change in the natural Log of real GDP- ($\Delta LnRGDP_t$)		
Variables	**Coefficient**	**Std. Error**
C	-0.014 (-0.755)	0.0185
$\Delta(LnFDI_{t-1})$	-0.003 (-0.918)	0.004
$\Delta(LnRER_{t-1})$	0.081* (2.041)	0.040
$\Delta(LnFD_{t-1})$	-0.131 (-1.597)	0.082
$LnSTR_t$	0.016* (1.951)	0.008
$\Delta(LnINDR_t)$	-0.080 1.827)	0.044
$\Delta(LnQLF_t)$	0.385* (2.081)	0.185
$\Delta(LnOP_t)$	-0.103 (-1.782)	0.058
$\Delta(LnGOV_t)$	0.401** (3.090)	0.130
Lagged error correction term (ECT_{t-1})	-0.586** (-2.430)	0.241
R-squared	**0.893**	
Adjusted R-squared	**0.699**	
F-statist(-ic	**4.613** *(p=0.053)*	
Jarque-Bera Normality Test	**0.434** *(p=0.805)*	
ARCH Test for heteroscedasticity	**0.025** *(p=0.878)*	
Breusch-Godfrey LM Test	**1.118***(p=0.434)*	

Notes: the superscript ** and * indicate variables significant at 5% and 10% respectively. Values in parentheses represent the calculated t-statistics and p values are the respective probabilities

Source: By Author

4.2.2. Results of Johansen Likelihood test for cointegration and cointegrating vectors

Results of Johansen test following the likelihood ratio reported in the second column of Table 5 indicate four cointegrating equations at 5 percent significant level. The results equally report three cointegrating relations at 1 percent as the va rious Trace test statistics (likelihood ratio) exceed the respective critical values computed by Osterwald- Lenum (1992).

Table 5. Results of Trace test for cointegrating relations

Series. Δ(LnRGDP) Δ(LnFDI) Δ(LnFD) Δ(LnRER)				
Lags interval: 1 to 1				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.638	69.98	39.89	45.58	None **
0.439	38.46	24.31	29.75	At most 1 **
0.394	20.52	12.53	16.31	At most 2 **
0.148	4.97	3.84	6.51	At most 3 *

Notes that:* and ** denotes rejection of the null hypothesis of no cointegration at 5 and 1% significance level respectively.

Source: By Author

From the results of the Johansen cointegration test, the cointegrating vector is then identified by some arbitrary normalization. The results of normalized cointegrating relation reported in Table 6 indicates that, the adjusted coefficient associated with the financial development equation bears the positive sign indicating that increase in the efficiency of the financial sector in allocating credit to the private sector contributes to GDP growth. From the adjusted coefficient for the RER, we conclude that, there exist a negative between the RER variations and growth rate in Cameroon. This is an indication that RER appreciation does not really slows down the rate of economic growth as earlier perceived. The coefficient of FDI is positive and significant meaning that FDI promotes economic growth.

Table 6. Results of Vector Error Correction Estimates

Dependent Variable: Change in Natural Log of of Economic growth(ΔLnRGDP)			
Independent variables	**ΔLnFDI**	**ΔLnFD**	**ΔLnRER**
Adjusted parameter	**0.164** *(0.078)*	**0.201** *(0.167)*	**-0.136** *(0.179)*
Coef. of Determination (R^2)	0.81	0.18	0.58
F-statistic	27.389	1.430	9.00

The numbers in parentheses under the estimated coefficients are the asymptotic standard error.

Source: By Author

4.2.3. Results of Causality Tests

The test consists of rejecting the null hypothesis (H_o) of no causality when the probability of the F-Statistics is less than 10 percent. The results report one-way causality runs from real GDP to FD which is in line with demand-following hypothesis. Another evidence of causality is noticed from RER to real GDP which is highly significant.

Table 7. Results of pairwise causality test

Direction Of Causality	F-Statistic	Probability	Decision
LnRGDP =>LnFDI	0.191	0.668	Accept Ho
LnFDI =>LnRGDP	0.004	0.950	Accept Ho
LnFD =>LnRGDP	1.797	0.190	Accept Ho
LnRGDP =>LnFD	3.635*	0.066	Reject Ho
LnRER =>LnRGDP	20.809***	0.0001	Reject Ho
LnRGDP =>LnRER	0.623	0.436	Accept Ho

Superscripts (***) and (*) denote significance at 99 and 90 percent confidence level respectively.

Source: computed by Author

These results imply that changes in real gross domestic product can significantly provoke a change in the financial development but the reverse is not true. Unidirectional causality from the real exchange rate to real GDP further support the hypothesis that evolution of the real exchange rate explains changes in economic growth as noticed earlier but growth of real GDP does not cause significant changes on the RER movement.

5. Conclusions and Policy Recommendation

This paper intends to study the implications of foreign direct investment (FDI), financial development (FD) and the real exchange rate (RER) for economic growth in Cameroon. We started by briefly looking at the trend of economic growth in Cameroon, explored some literatures around the issues and then presented and analyzed the empirical results. It was noticed that the trend of growth rate in Cameroon was increasing up to the mid-1980s, became negative for over five years due to crises, but latter ameliorated toward 1995 though at a slower rate.

Empirical analysis is based on Cameroon's data for 1977-2010 period published by World Bank, IMF, and NIS-Yaoundé. Regarding the unit root properties of time series data, all the variables are at least stationary with the first difference. The Wald F statistic of ARDL model is greater than upper bound critical value at 1 percent and likelihood ratios of Johansen test are greater than the respective critical values at 5 percent levels of significant which is sufficient to reject the "no cointegration" hypothesis for the variables.

The effects of FDI and that of financial development are positive. RER equally has a positive and significant impact on growth in the short run. This implies that growth of GDP in Cameroon can be fostered by preventing real exchange rate appreciation in the short run as well as developing the financial landscape of the economy with a view to expanding credit to the private sectors. According to the findings of this study, policies relating FDI to economic growth should be taken with a lot of caution because no significant relation is established between the two variables (i.e. FDI and economic growth). In addition to our key variables, availability of skilled labour, government expenditure and level of industrialization also

contribute to economic growth in Cameroon.

Given the fact that there is still much debate regarding causality relation between direct investment and GDP growth, financial sector development and GDP and real exchange rate and GDP, Granger-causality test is used to examine the pairwise causality between the variables. The results of causality between economic growth and FDI show that no significant causality exists in both directions. The test reports a unidirectional causality from real GDP to financial development and equally a one-way causality from real exchange rate to real GDP.

The one-way causality from real exchange rate to real GDP growth is not surprising because the devaluation of FCFA in 1994, for instance, lowered the nominal exchange rate and caused the RER to depreciate. This alongside with other factors, succeeded to get the economy out of recession. In addition, financial development entails increment in private credit which promotes growth by financing massive investment. Moreover, as an economy expands, there is a greater need for financial service as difference sectors of the economy demand credit for obvious reasons. With this, the bidirectional causality between financial development and economic growth is very conceivable though the results of this study have reported only one-way causality from GDP growth to financial development.

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