Analyzing the Financial Development and Economic Growth in West Africa: With Specific Reference on Financial Economics

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Abstract

The financial sector development in developing countries and emerging markets is part of the private sector development strategy to stimulate economic growth and poverty reduction. It could be defined that, the financial sector is the set of institutions, instruments, and markets. This study analyzes the financial development and economic growth in West Africa with the main focus on financial development. The data were obtained from the world bank open data page website to estimate the financial development using dynamic panel data approach. The results show that official development assistance and broad money statistically has a significant impact on financial development in West Africa. It is therefore imperative that policymakers should implement policies that may attract official development assistance and broad money through regional stability, infrastructural improvement and creditors right reinforcement. It is also important to introduce reforms in the financial sector which may lead to a wide range of financial development. The coefficient of the speed of adjustment is small that is, it indicates a slow impact on the adjustment.

Keywords: *Financial Development; Dynamic Panel Data; West Africa*

Introduction

In the new global economy, financial development has become a central issue for any economic growth development. Therefore, financial development may hold the key to economic growth prosperity and may consequently be a powerful mechanism for reducing poverty worldwide. A well-developed and functional financial system is viewed to play a vital role in economic growth and development especially in developing countries (IMF, 2014). A well-functioning financial system provides the much-needed resource for investment that is made available to the investors through various avenues. It helps improve the productive capacity of the country leading to an increase in employment opportunities, alleviate poverty, unemployment, inequality, exchange rate volatility, and unfavorable trade balances (IMF, 2014).

Importantly, financial development has recently been identified as one of the most robust determinants of economic growth alongside with most of the alternatives (King and Levine 1993). Therefore, financial development may hold the key to economic growth prosperity and may consequently

be a powerful mechanism for reducing poverty worldwide. As a result of this widespread consensus, the finance growth-growth literature has recently begun to shift its attention towards understanding why some countries have been able to develop their financial system, while some others have not. Interestingly, both the strength and the casual nature of the relationship between financial development and growth appear to vary substantially both across countries and over time.

A developed financial system increases access to capital and consequently, to economic growth (Strike, 2015), the allocation of financial resources becomes more efficient as information is given to investors; an organized financial system has the propensity to draw financial resources from offshores with the support of the quality legal and regulatory environment. Studies have shown that financial development plays a key role in economic growth and development, Falahaty and Hook, (2011) assert that a well-functioning financial system brings about economic growth and development in both developed and developing economies.

Financial system plays a complementary role of providing financial resources vital for economic growth and development especially in the developing economies that are financially deficient, the extent of openness of developing economies to has a significant impact on the stock market liquidity and hence, financial development. Evidence has shown that stock market openness to the international investors increases volatility in the short run but the volatility tends to subside in the end but growth is sustained (Levine, 1997 and Strike, 2015). African Countries have implemented several economic reforms over the last few decades, with the aim of boosting the development of its financial system via the implementation of policies that aimed at boosting the growth and development of financial system that has the capability of propelling the growth and development of their economies rapid investment. In order to achieve this goal, there is a need to identify the determinants of financial development, which will help in the designation of policies and measures to improve financial development, especially in Africa.

Financial development has therefore been viewed as the ability to acquire information, enforce contracts, facilitate transactions and create incentives for the emergence of a particular type of financial contracts, market, and intermediaries at low cost by the financial sector (Rajan & Zingales, 2008, and Levine, 1999). These can be achieved if financial instruments, markets, and intermediaries ameliorate, or eliminate the cost of acquiring those services. It entails availability of ex-ante information on new investment, monitoring investment and implementation of corporate governance, savings mobilization and exchange of goods and services, all of which influence savings and investment decisions of individuals, and hence, economic growth. The financial market development theory postulate that, as long as there is proper regulation of the financial system especially the stock market, it will increase the confidence of both foreign and local investors and hence, will be attracted to easily access and invest in the financial system. The theory further asserts that financial development eases access to financial resources with the attraction of foreign capital into the system and that policies such as low-interest rate, low inflation rate, high investment, and good corporate governance system provide a base upon which financial development could achieve (Huang, 2010). The deficiency of domestic capital can hinder the growth and development of not only firms but also the economy at large, therefore, growth and development of a country depending on the development of the financial system especially developing countries including West African sub-region. This research focus on the financial development of West African. The aim of this study is to analyze the financial development of West Africa. Furthermore, this research fills in the gap of previous studies above that investigate the financial development of several countries in the world with limited variables. Due to data constrain the study use two variables to run the regression namely official development assistance (*ODA*), and broad money (*BM*). Dynamin panel data approach is employed with partial adjustment model. Unit root test is use to analyze the two variables (Data).

Following the introduction, this paper is divided as follows: fist, the introduction of the topic, second, the literature review of the study, third, the methodology, fourth, the research findings, and last, the conclusion and recommendation of the studies.

Literature Review

There is a large volume of published studies describing the role of financial development, especially in developing countries. The Economic Community of West African States (ECOWAS) includes all West African countries. These countries are Benin, Burkina Faso, Ivory Coast, Ghana, Gambia, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Mauritania, and Togo. ECOWAS was founded in May 1975 at Lagos in Nigeria as a regional economic community for the purpose of promoting economic integration in all fields of economic activity, particularly in industry, transports, telecommunications, energy, agriculture, natural resources, trade, monetary and financial matters, social and cultural issues, etc. Its goals are to fight against poverty, improve living standards, maintain and enhance economic stability, and promote peace among its member countries. To attain this goal, the organization has created the following institutions: an authority of heads of state and government, a council of ministers, a community parliament, an economic and social council, a fund for cooperation compensation and development, a West African monetary agency. This later institution has been created for the establishment of a common currency for all ECOWAS members. The financial systems in ECOWAS countries are dual systems, comprising a formal financial system and an informal financial sector. The formal financial sector comprises the Central Bank, the banking sector and non-banking (or other) financial institutions. Eight members countries of the West Africa Economic and Monetary Union (WAEMU), including Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal and Togo share a common Central Bank, "la Banque Centrale des Etats de lAfrique de lOuest" (BCEAO), and a common currency, "le Franc de la Communaut FinanciŁre dAfrique" (FCFA). Each of the non-WAEMU countries has its own Central Bank and currency. The banking sector in ECOWAS countries includes commercial, development, cooperative and savings banks, while other financial institutions include government statutory agencies, finance companies, leasing companies, insurance companies, etc.

The financial system is dominated by commercial banks. ECOWAS has three stock exchanges: the Nigerian stock exchange, the Ghana stock exchange, and "la Bourse Regionale des Valeurs MobiliŁres" (BRVM) for WAEMU countries located in Abidjan (Ivory Coast). Kablan, (2010) investigated the impact of financial development on bank efficiency in Sub Saharan Africa over a period of 1980 to 2002, using the generalized method movement (GMM) technique, found that regulatory and credit environment significantly determined bank efficiency while the political and economic environment was insignificant over the study period. Aluko and Ajayi (2018) investigated the determinants of banking sector development in Sub- Saharan Africa, using system GMM, report that population density, simultaneous trade openness, and influence the level of banking development. They also report that banking laws, inflation, and religion influence the level of banking efficiency while trade openness, income level, and ethnic diversity affect banking development. Elkhuizen et al, and Meesters (2018), study financial development, liberalization and social capital in 82 countries using random and fixed-effect model, they report that financial liberalization and social capital influence financial development in both developed, emerging and developing countries. Tayssir and Feryel (2018) study the nexus between the central bank and financial development in 89 countries over the period of1980 to 2010, report that central bank, all over the influence level of financial development. Cherf and Dreger (2016) investigated the institutional determinants of financial development in the middle east and north Africa (MENA) countries, using random and fixed effect model they report that institutional conditions are main determinants of financial development in the MENA countries. Their report also indicate that corruption plays a key role the banking sector and rule of law in the stock market, and generally, income per capita,

and trade inflation, trade openness plays a key role in all aspect of financial development. Strike (2015) investigated the determinants of financial development in Southern African countries, over a period of 1996 to 2010. Using GMM technique, found that, public sector credit, income per capita, GDP, gross fixed capital formation, financial openness, interest rate, significantly determined financial development while savings and government debt were found to have a negative impact on financial development over the study period. In a separate study, Shaheen, et. al. (2011), Rachdi & Mensi, (2012), Takyi & Obeng (2013), also investigated the determinants of financial development, using GMM technique, the result show that, strong institutions, adequate implementation of financial reforms, savings, interest rate, financial openness, sound macroeconomic policies, remittances, liquidity, level of income, cultural differences, geographical characteristics, and low inflation collectively determined financial development.

As for Loayza and Ranciere (2005), they argue that financial intermediation (private credit as a percentage of GDP) affects positively and significantly economic growth in the long run, but the effect is negative and significant in the short run. However, different aspects of the financial development process (financial deepening and financial fragility) would also explain these contradictory results. Indeed, financial deepening increases significantly economic growth while the financial fragility captured by financial volatility and bank crises deteriorates significantly economic growth. The total effect of financial liberalization and financial intermediation on economic growth could be a combination of these effects where the relative influence of financial deepening and financial fragility would depend on the level of financial development of each country. Karlsson and Mansson (2015) find similar results in the case of 10 Asian economies from 1971 to 2013. Some authors find a non-significant effect of financial development on economic growth. This is the case for example of Hermes and Lensik (2005) and Esso (2005). Hermes and Lensik (2005) find a non-significant negative effect of the private sector credit to GDP on the per capita GDP growth rate with panel data from twenty-five emerging countries. The results obtained by Esso (2005) show an indifference of economic growth to various financial indicators in the West African Economic and Monetary Union (WAEMU) countries from 1960 to 2002. Caporale, Rault, Sova, and Sova (2009) examined the relationship between financial development and growth in 10 new European Union member states over the period 1994-2007. The result shows that the financial market is underdeveloped in these countries and therefore its contribution to economic growth is limited because of a lack of financial deepening. On the other hand, they find that a more efficient banking sector is accelerating growth. Lipovina-Bozovic and Smolovic (2016) assert that economic development is positively influenced by general financial development and the efficiency of the banking sector. Karagiannis and Kvedaras (2016) show that financial structure plays a central role in the relationship between financial development and economic growth. However, this study is in accordance with the study of Karagiannis and Kvedaras (2016). The result of this study shows the significant value of financial development.

Methodology
Data

This study introduced a quantitative method to analyse financial development in West African. The method of analysis used is dynamic panel data regression models with partial adjustment model from the 16 West Africa countries namely, Benin, Burkina Faso, Ivory Coast, Ghana, Gambia, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Cape Verde, Mauritania, and Togo. The data used in this study is secondary annual time series covering from 2010-2017. The data were obtained from the World Bank Website.

Model Specification
Dynamic Panel Data

Dynamic panel data is used in this study. In the context of panel data, we usually must deal with unobserved heterogeneity by applying the within (demeaning) transformation, as in one-way fixed effects models, or by taking first differences especially if the second dimension of the panel is a proper time series. The model used in this study is Partial Adjustment Panel Data Model.

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 Y_{it-1} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots(i)$$

The variables for this analysis are Financial Development as dependent variable, Official Development Assistance (ODA), and Broad Money (BM) as independent variables. The variables in the equation is describe as follows; FD is the sum of private credit divide by gross domestic product (GDP), the ODA is the sum of ODA divide by the GDP, the Broad money (BM) is constant in this equation.

$$FD_{it} = \beta_0 + B_1 ODA_{it} + \beta_2 BM_{it} + \beta_3 FD_{it(-1)} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots..(ii)$$

This explains the dynamic panel data model, specifically the Partial Adjustment Model that is used in this study. Model testing step includes: Unit root panel data model, test of panel data model i.e. Common, Fixed Effects or Random Effects.

Panel Data Unit Roots
Augmented Dickey Fuller-Fisher (ADF-Fisher)

ADF-Fisher is introduced by Mandala and Wu (1999). ADF-Fisher combines unit root tests of the value of ρ for each cross-section i in testing unit roots in the data panel (Baltagi, 2005).

$$P = -2 \sum_{i=1}^{n} Ln\, Pi \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(iii)$$

The unit root tests became a current step for analysis of time series stationarity. However, practical application of these tests on panel data is recent. The tests most frequently used are those of Levin and Lin (LL) and of Im, Pesaran and Shin (IPS).

Empirical Result
Panel Data Unit Roots Test

Table 1 Panel data unit roots test for Official development assistance (ODA) variable

Method	Level		First Difference	
	Statistics	**Prob**	**Statistics**	**Prob**
Levin, Lin & Chu (LLC)	-1.47760	0.9302	-11.9049[***]	0.0000
Im, Pesaran, and Shin W-stat	-0.01546	0.4938	-4.37142[***]	0.0000
ADF-Fisher Chi-square	38.2906	0.2055	81.6069[***]	0.0000
PP - Fisher Chi-square	51.8515[**]	0.0147	99.7012[***]	0.0000

Note: *, ** and *** explain 10%, 5% and 1% significant level respectively

Table 2 Panel data unit roots test for Broad Money (*BM*) variable

Method	Level		First Difference	
	Statistics	**Prob**	**Statistics**	**Prob**
Levin, Lin & Chu (LLC)	2.23881	0.9874	-11.4581^{**8}	0.0000
Im, Pesaran, and Shin W-stat	2.54223	0.9945	-2.04436^{**}	0.0205
ADF-Fisher Chi-square	26.1568	0.7566	55.1742***	0.0067
PP - Fisher Chi-square	39.7145	0.1640	62.9786***	0.0009

Note: *, ** and *** explain 10%, 5% and 1% significant level respectively

Table 3 Panel data unit roots test for Financial Development (*FD*) variable

Method	Level		First Difference	
	Statistics	**Prob**	**Statistics**	**Prob**
Levin, Lin & Chu (LLC)	-6.47849***	0.0000	-425.718^{***}	0.0000
Im, Pesaran, and Shin W-stat	-1.50119*	0.0667	-56.8415^{***}	0.0000
ADF-Fisher Chi-square	38.8197*	0.0565	44.5924^{***}	0.0030
PP - Fisher Chi-square	61.1032***	0.0001	45.2983^{***}	0.0024

Note: *, ** and *** explain 10%, 5% and 1% significant level respectively

The test statistics of the dynamic panel unit-root tests detailed in Table 1, Table 2, and Table 3, above show that the series of analyses for this study is partial adjustment model unit root test. All the result from the three tables indicate 5 percent level of significance of statistics. Specifically, the variables of official development assistance (proxied as *ODA*) is a financial development factor, the broad money (proxied as *BM*) is the money supply or credit to the general public; which serves as an indicator of financial development. The index of financial development (proxied as *FD*) are unit-root and have to differentiate at order 1 before it could be stationary.

Dynamic Panel Data Model

In this study, all the cross-sectional data *i* of the 16 countries over 8 years period were collected (time series t). The cross-sectional sample is used and the sample exhausts all cross-sectional units. Hence, the results of the testing of the panel data model recommend the fixed effects model. Furthermore, we compare the Hausman test to decide statistically on the appropriate model to be used. Based on the various test results, the fixed effects model was chosen as the most suitable option for this research. The financial development served as the development variable in this study. In this study, we use the dynamic panel data model. The dynamic model used is a partial adjustment model (PAM).

The estimated partial adjustment model of the short-run shows that the two variables *ODA* and *BM* have the correct sign and that it is statistically quite significant, as its p-value is almost zero. The coefficient of the speed of adjustment is λ= (1−0.733750) = 0.26625, indicating a slow impact on the adjustment.

Table 4 Estimation Result of PAM Fixed Effects Model

Independent Variables	Coefficient	T-Statistics
C	0.000495	0.154469
ODA	0.107101*	1.869153
BM	2.86E-15**	2.189797
FD(-1)	0.733750***	14.70050
1 – λ = (SPEED OF ADJUSTMENT)	0. 26625	
R²	0.980970	
F-STATISTICS	202.9704	
DW STATISTICS	1.765881	

Note: *, ** and *** explain 10%, 5% and 1% significant level respectively

λ = Coefficient β₃ (coefficient of FD(-1))

1 - λ = speed of adjustment

The fixed effect model results differ quite significantly from that of the random effect model. The *ODA* have a coefficient value of (0.107101) and *BM* coefficient value of (2.86E-15) both variables match with the hypothesis indicating a positive impact on financial development. The t-statistic of *ODA* show a value of (1.869153) and (2.1897970) for *BM*. The *FD* has a coefficient value of (0.733750) with t-statistics value of (14.70050). The F-statistics has a value of (202.9704). The R-squared show a positive value in fixed effect model with (0.980970). The DW Statistic has a high value of (1.765881) which is close to 2.

In the long-run, the only thing to be done is to divide the short-run coefficient through λ (speed of adjustment) for the two variables plus the constant. That is:

$$FD_{it} = 0.00185 + 0.40225\ ODA_{it} + 1,074\text{E-}14\ BM_{it}$$

Hence, the result can conclude that the two variables *ODA* and *BM* are determinant of *FD* in West Africa but did not show significant value in the long run compare to the short run.

Conclusion

This study aimed to analyze the financial development in West Africa using a dynamic panel data approach with partial adjustment model from 2010-2017. Empirical Analysis of this study finds that *ODA* and *BM* consistently prove to be a key explanatory variable of financial development in West Africa. In the fixed-effects model, the result has shown significant value for all the 16 countries in West Africa as well as the unit root test. Unlike for the common and random-effects model that does not show any significant value of this study together with the Hausman test.

Recommendation

In order to foster the financial development in West Africa countries, it is therefore imperative that policies which may deliberately increase financial depth be vigorously pursued. Target macroeconomic policies that control for official development assistance, and broad money. Also, other variables of financial development like inflation, trade openness, and foreign direct investment are

necessary. Policymakers should implement policies that may attract foreign direct investment through regional stability, infrastructural improvement and creditors right reinforcement. It is also important to introduce reforms in the financial sector which may lead to a wide range of development. A better way of approaching this whole issue of *FD* in West Africa may be to model the West Africans economy as a small open economy and build some traceable model where the dynamic of *ODA* and *BM* from other contributing countries could be traced under some macroeconomic environment.

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