FINANCIAL DEVELOPMENT IN NIGERIA: THE ROLE OF REMITTANCES

Mustapha Ayobanji Rafiu[1], Bakare-Aremu Babatunde[2] and Sheu Mustapha[3]

Abstract
Given the increasing inflow of remittances to Nigeria, it is imperative to assess whether they have impact on financial development in Nigeria or not. So, the study examined the impact of remittances on financial development in Nigeria. The study used two indicators as proxies for financial development which include: money supply and market capitalization. The study used secondary data which were sourced from the Central Bank of Nigeria Statistical Bulletin and World Bank's World Development Indicators. Owing to the fact that the data used are stationary at different orders and are co-integrated, the study employed Auto-Regressive Distributed Lag Model (ARDL) to investigate the impact of remittances on financial development. The results from the regression indicate generally that remittances have impact on financial development. It was found in the result that remittances have positive impact on money supply in Nigeria. It however, exerts no-impact on market capitalization in Nigeria.

Keywords: Remittances, Financial Development, Market Capitalization and ARDL
JEL Classification No: E44

1.1   Introduction

Remittances may promote financial sector development which a country needs. But it may also result into unexpected increase in money supply and the Dutch Disease if the macroeconomic effects of the inflows are not controlled or "sterilised" by the monetary authority with the appropriate policy instruments. Hence, while reaping the gains of financial development, the authority needs to be up-and-doing in sterilizing its unwanted effects. They also need to be guided by a policy that depends on sound (empirical) studies on the effects of remittances on financial development. But to do this effectively, the authority needs to know whether or not remittances actually affect financial development and results into the Dutch Disease.

In order to realise the policy need as described above, various studies especially empirical ones have been undertaken on the issue as reviewed later in this work. However, such studies are scanty and not unanimous in their findings in addition to the fact that some of them exhibit some pitfalls that need to be rectified, as also discussed later.

The need to add to the existing few studies and fill part of a number of gaps in them necessitated the present study which aims at determining the effects, if any, of remittances on financial development in Nigeria. The increasing and fluctuating volumes of remittance

inflows into the country as presented by the data in Appendix Table 9 make the study compelling to be carried out.

Specifically, this study investigated the impact of remittances on financial development and used different estimation techniques to confirm the findings of the previous works. Though, it is generally believed that remittances are sent for the purpose of altruism, the recipients of remittances (who may be the father, mother, sister, brother or friend or any relative of the sender) may invest such money in return-yielding stocks in the capital market. Even, some workers abroad send remittances to Nigeria for the purpose of investment in stocks in the Nigeria capital market. The question, therefore arises, as to whether remittances do have impact on the capital market as an indicator of financial development? The general objective of this study was to examine the impact of remittance on financial development. The specific objectives include:

- an examination of the impact of remittances on money supply
- an examination of the impact of remittances on market capitalization

Justification of the study was born out of the importance of financial development in Nigeria which includes its effect on poverty alleviation and economic growth. It is not out of place if research effort is devoted to its study. Although, in Nigeria, the financial sector continues to deepen over time as indicated by the volume of money supply and market capitalisation, but it is yet to reach its optimum level. Meanwhile, the volume of remittances, which was a form of foreign capital inflow to Nigeria continue to rise (Babatunde, Olayinka&Okwy, 2011). Thus, the study intends to analyse the impact of remittances on the financial sector development in Nigeria.

Concerning the significance of the study, the study gives insight into the monetary authority, financial institution operators and policy makers on the nature of the impact of remittances on financial development. If the impact of remittances on financial development is positive or direct, the policy makers are expected to make policy that will engender increasing inflow of remittances to the country in order to achieve stronger financial sector. If the finding reveals that the impact of remittances on financial development is negative, the policy makers are expected to put in place a policy that will reduce the inflow of remittances to the country so as to deepen the financial sector. In totality, if it is revealed that the impact of remittances on financial development is insignificant, then, the policy makers, in their quest to promote financial development, are expected not to be bothered by the volume of remittances inflow into the country. Likewise, the study will form part of the reference materials for future researchers, who may be interested in the related studies or in the study, specifically.

The study employed data from 1985 to 2016 to study the impact of remittances on financial development in Nigeria. This period falls within the SAP era when the country witnessed many economic policy reforms. The study was divided into five sections. Apart from section one, which deals with the introductory aspect of the study, section two entails the theoretical review, empirical review and research gap. Section three consists of theoretical framework, model specification, measurement of variables and data collection and processing. Section

four deals with presentation, analysis and discussion of results, while, section five focuses on summary, conclusion and recommendation.

Review of Related Literature

2.1   Theoretical Review
Though, there are many hypotheses on financial development, but the study examines three of the hypotheses that are considered relevant to the study which include: the Law and Finance Hypothesis, the Endowment Hypothesis and the Simultaneous Openness Hypothesis.

The Law and Finance Hypothesis is a brain-child of La Porta*et al* (1997) that put forth the idea that common law based systems, originating from English law, are better suited than civil law based systems for the development of capital markets, which is an indicator of the financial sector development. This is because English law was developed to protect private property from the ruling class while French law was developed with the aim of addressing corruption of the judiciary and enhancing the powers of the state. Over time, this meant that English law protected small investors a lot better than French law, which is thought to have been conducive to the development of capital markets.

The Endowment Hypothesis originated fromAcemoglu, Johnson and Robinson (2001) which identifies the importance of strong institutions for financial development and argued that institutional quality varies across countries because of varying initial endowments. Simply put, this hypothesis suggests that the disease environment encountered by European colonial powers in the past centuries – proxied in empirical studies by settler mortality - was a major retarding factor for the establishment of institutions that would promote long run growth. Therefore, the theory maintains that European colonial powers established extractive institutions that are unsuitable for long-term growth where the environment was unfavourable, and institutions that were better suited for growth where they encountered favourable environments.

The Simultaneous Openness Hypotheses as put forthby Rajan and Zingales (2003) postulates that interest groups, specifically industrial and financial gladiators, frequently stand to lose from financial development, as it usually results into competition which undermines their returns. They argue that incumbents' opposition will be weaker when an economy is open to both trade and capital flows, hence the simultaneous opening of both the trade and capital accounts holds the key to successful financial development. This is not only because trade and financial openness limit the ability of investors to block the development of financial markets but also because the new opportunities created by openness may generate sufficient new profits for them that outweigh the negative effects of increased competition.

2.2   Empirical Studies on Effects of Remittances on Financial Development
The previous studies reviewed in this work include: Aggarwal, Demirguç-Kunt and Martinez (2006), Gupta, Pattillo and Wagh (2009), Motelle (2011), Babatunde et al (2011) and Karikari, Mensah and Harvey (2016).

Aggarwal et al (2006) used balance of payments data on remittance flows received by 99 developingcountries over the period 1975-2003 to study the impact of workers' remittances on financialdevelopment. Specifically, the study examines whether remittances contribute to the development of thefinancial sector by increasing the aggregate level of deposits and/or the amount of credit to theprivate sector extended by the local banking sector. The data employed in the study include: financial development measured as the percentage of bank deposits and bank credit to GDP and remittances to GDP measured as the percentage share of remittances to GDP. The control variables include: GDP per capita, measured in constantdollars; log of GDP, stated in constant dollars; inflation defined as the percentage change in the GDP deflator; existence of multiple exchange rates in the form of a dummy capturing periods when multiple exchange rates were in effect; financial liberalization, proxied by a dummy identifying periods of liberalization in domestic interest rates; other flows to GDP, defined as the sum of foreign direct investment, non-FDI private inflows and AIDs expressed as a percentage of GDP; exports to GDP ratio; latitude defined in absolute terms and scaled between 0 and 1; existence of British legal origin, proxied by a dummy that is equal to 1 for countries with common law legal tradition and creditor rights. The study employed econometrics techniques such as fixed effect and random effect, Instrumental Variables and System Generalized Method of Moment (SGMM). Across all the estimations in the study, it was found that remittances have a positive coefficient, but the size of the coefficient in the bank deposits to GDP regressions was almost twice as large as the coefficient in bank credit to GDP regressions. Also, it was shown from the results that financial development was positively affected by a country's size and level of income, but negatively influenced by inflation and the adoption of multiple exchange rate regimes. However, export to GDP has a positive influence on financial development, but the size of capital inflows appears to have no effect.

The analysis of Aggarwal et al (2006) was robust as many estimation techniques were applied with different manipulations of variables. However, the study did not consider some important indicators of financial development like market capitalization and/or stock traded which are measures of financial development in capital market. In essence, the two indicators in the study, which are bank credit to GDP and bank deposit to GDP are basically money market indicators in measuring financial development. Also, the study pooled the data for 99 developing countries and generalised the findings on all the countries without minding the idiosyncratic attributes of the different countries. In essence, time series analysis could have been better applied on each country so as to enable the impact of remittances on the individual country's financial sector development to be more effectively studied.

Motelle (2011) is similar to Aggarwal et al. (2006) and Gupta et al. (2009) with the use of bank deposit to GDP, bank credit to GDP and M_2 to GDP as proxies of financial development. But it was different from previous works in terms of methodology and variables used as control variables in the model of the study. In essence, the study failed to employ a capital market variable as an indicator of financial development. Moreover, the study was specifically for Lesotho and not for any other countries of the world.

Babatunde et al (2011) examined the impact of workers' remittances on financial development in Nigeria. The study used the ratio of money supply (M2) to GDP; and the ratio of credit to private sector to GDP as indicators of financial development. However, the study did not use a variable that serves as an indicator of financial development in the capital market. Likewise, the study applied OLS in estimating the impact of remittances on financial development. By convention, OLS is not expected to be used as an econometrics technique for time series data, particularly when the series in the study are not stationary at levels.

With difference in methodology and variable composition when compared with Babatunde et al (2011), Karikari et al (2016) studied whether remittances promote financial development in Africa or not. The study used data on remittance flows to 50 developing countries in Africa from 1990 to 2011 to explore the impact of remittances on financial development. The study employed credit to private sector, bank deposits, and money supply as proxies for financial development. The main explanatory variable in the study was remittances; and the control variables include: GDP per capita, inflation rate, exports and foreign direct investment (FDI). The study used fixed effects and random effect model as well as Panel Vector Error Correction Model (PVECM). The study found that remittances have a positive impact on financial development in the short-run but a negative effect in the long run with credit to private sector, bank deposit and money supply as measures of financial development. The finding generally implies that remittances positively and significantly influence some indicators of financial development such as bank deposits and money supply.

All the studies reviewed employed three of the indicators of financial development, This include: credit to private sector to GDP, bank deposit to GDP, and money supply to GDP. So all the studies focused on money market indicators of financial development and neglect the capital market indicators of financial development, which include market capitalization. Therefore, in analysing the impact of remittances on financial development in Nigeria, this study employed market capitalisation as one of the two indicators of financial sector development in addition to money supply to GDP as employed in previous studies such as Aggarwal et al. (2006), Gupta et al. (2009), Babatunde et al. (2011) and Karikari et al. (2016). Obviously, in this study, market capitalization was used as a proxy for financial development which is not used as a proxy for financial development in any previous study reviewed for Nigeria. Equally, the econometrics techniques adopted in the work was Auto-regressive Distributed Lag (ARDL), which differs from the techniques adopted in the previous works reviewed.

Methodology

3.1   Introduction
This section discusses theoretical framework, models specification, definition of variables, a-priori expectations, measurement of variables and data collection and processing.

3.2   Theoretical Framework
This study is premised on Rajan and Zingales (2003) Simultaneous Openness Hypothesis which postulated that financial development is a function of trade and capital account flow

(openness). The study used three indicators of financial development which are capital market variables to measure the impact of the explanatory variables on financial development in 24 selected countries. The selected countries cut across different continents of the world. The financial development indicators employed include: equity issues, equity market capitalization and number of companies. The hypothesis tests for the impact of the explanatory variables (such as: per capita industrialization, openness as ratio of GDP, tariffs and interaction of per capita industrialization and openness) on the indicators, respectively. The test was conducted using the data collected for the year 1913, 1929, 1938, 1950, 1960,1970, 1980,1990 and 1999. The OLS, Instrumental Variable (IV) and Fixed Effect results show that per capita industrialisation does not have impact on financial development. But when it was considered as an interaction variable with openness, it has impact on financial development. Likewise, openness on its own has influence on financial development. The hypothesis is however modified in this study such that financial development was considered as a function of openness (that is, the addition of total export and import), Remittances, FDI and per capita GDP.

Therefore, the model of Rajan and Zingales (2003) is modified as in equation 3.1 and 3.2

3.3 Model Specification

$$MC_t = \delta_{01} + \delta_{11}Rem_t + \delta_{21}OPENNESS_t + \delta_{31}FDI_t + \delta_{41}PCGDP_t + \varepsilon t \dots\dots\dots\dots\dots\dots\dots\dots.3.1$$
$$M_2 = \delta_{02} + \delta_{12}Rem_t + \delta_{22}OPENNESS_t + \delta_{32}FDI_t + \delta_{42}PCGDP_t + V_t \dots\dots\dots\dots\dots\dots.3.2$$

3.3.1 The Dependent Variables

MC is market capitalization measures as the percentage of market capitalization to GDP.M2 represents money supply which is measured as the percentage of supply of money to GDP.

3.3.2 The Explanatory Variables

Percentage of remittances to GDP denoted as Rem is the main explanatory variable. It is expected to have positive relationship with financial development. Openness, per capita GDP (which is measured in real term) and FDI were used as control variables. They were found in other studies such as Aggarwal et al (2006), Gupta et al.(2009), Motelle (2011) and Karikari et al (2016) to have impact on financial development. It was expected that the two indicators of financial development will grow as remittances grow; hence, $\delta_{11,}$ andδ_{12} are expected to be positive. The models equally assume that financial development increases as openness increases; hence, $\delta_{21,}$ and $\delta_{22}$are expected to be positive. FDI was also assumed to increase as financial development variables increase; therefore, $\delta_{31,}$ andδ_{32} are expected to have positive signs. Likewise, a rise in per capita GDP is expected to be associated with increase in financial development; therefore, $\delta_{41}$and δ_{42} are expected to be positive. $V_{t,}$, and$\varepsilon t$are stochastic error terms

3.4   Measurement of Variables

- Remittances (Rem): they comprise personal transfers. Personal transfers consist of all current transfers in cash or in kind made and received by resident households from nonresident households. It is measured as the percentage of remittances to GDP. The data is sourced from the World Bank's Global Financial Development (GFD), 2017.

- Openness (Openness): this is the addition of total exports and imports, that is, the value of all goods and other market services provided to the rest of the world plus the value of all goods and other market services received from the rest of the world. It is measured as the percentage of GDP. The data is sourced from the World Bank's Global Financial Development (GFD), 2017.
- Per Capita GDP (PCGDP) is gross domestic product divided by midyear population. It is sourced from the World Bank's Global Financial Development (GFD), 2017.
- Foreign Direct Investment (FDI) as defined from the data source are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is measured as the percentage of FDI to GDP. It sourced from the World Bank's Global Financial Development (GFD), 2017.
- Market capitalization (MC), also known as market value, is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. It is calculated as the percentage of Market Capitalization to the GDP. It is sourced from the World Bank's Global Financial Development (GFD), 2017.
- Supply of Money (M_2) is the totality of currency plus demand deposit and time deposit. It is calculated as the percentage of money supply to the GDP. Sourced from the CBN Statistical Bulletin, 2016.

3.5   Data Collection and Processing

Data is generated from the World Bank's Development Indicators and Global Financial Development (2017) and the Central Bank of Nigeria Statistical Bulletin of 2016. The data were analysed using econometric software. It employed both pre-estimation test (that is unit root test and co-integration test) and post-estimation test like serial correlation test, heteroscedasticity test, multicollinearity test etc. The need for co-integration test is to determine whether the series in the model have a long-run relationship or equilibrium. The unit-root test is for the determination of stability and predictability of the time series in the model. The serial correlation test, heteroscedasticity test, multicollinearity test and normality test were conducted to ascertain whether the models in the study model violate the Assumption of Classical Linear Regression Model (ACLRM) or not.

Presentation and Discussion of Empirical Results

4.1   Introduction

This section comprises tabular presentation of short-run and long-run results and discussion of the results in the tables.

4.2   Discussion of Results

Stationary test was conducted on all the variables employed in the study in order to avoid spurious regression due to regression of non-stationary series against another non stationary series or on stationary series. So, the stationary test shows that OPENESS, REM and PCGDP are stationary at first difference (integrated of order one- I(1)). However, FDI, M_2 and MC are stationary at levels. That is, they are integrated of order zero (see Appendix Table 1).

Meanwhile, for the fact that the series are stationary at different orders, the ARDL bound test is applied to examine whether the series are co-integrated or otherwise. In model 1, where M_2 is the endogenous variable, the test reveals that the series are co-integrated as F-statistics (32.71) is greater than the upper bound critical value at 1% significant level (see Appendix Table 2).   In model 2, where MC is the dependent variable, the test reveals that the series are co-integrated as F-Statistic (5.97) is greater than upper bound critical value at 1% significant level (see Appendix Table 2).

Table 4.1 Short-run Regression Results

	MODEL1 (Money supply)		MODEL 2 (Market Cap)	
Variable	Coefficient		Coefficient	
D(M2(-1))	-0.29***		(0.00)	
D(M2(-2))	-0.23***		(0.00)	
D(M2(-3))	0.03***		(0.00)	
D(MC(-1))	-0.19		(0.23)	
D(MC(-2))	0.23		(0.14)	
D(FDI)	0.73***	2.75**		
	(0.05)	(1.00)		
D(FDI(-1))	0.75***		-2.10***	
	(0.04)	(0.56)		
D(FDI(-2))	0.99***		-1.96***	
	(0.03)	(0.49)		
D(FDI(-3))	-0.46***		-0.91	
	(0.02)	(0.58)		
D(PCGDP)	0.01***		0.06***	
	(0.0)		(0.01)	
D(PCGDP(-1))	0.03***		(0.00)	
D(PCGDP(-2))	0.02***		(0.00)	
D(PCGDP(-3))	0.04***			
	(0.00)			
D(OPENESS)	0.18***	0.52**		
	(0.01)	(0.20)		
D(OPENESS(-1))	0.29***		-0.04	
	(0.01)	(0.09)		
D(OPENESS(-2))	0.42***		0.33**	
	(0.00)	(0.11)		
D(OPENESS(-3))	0.61***			
	(0.01)			
D(REM)	-2.43***		0.64	
	(0.03)	(0.51)		
D(REM(-1))	0.11**		0.50	
	(0.04)	(0.67)		
D(REM(-2))	-0.47**		1.31**	

	(0.03)	(0.51)	
D(REM(-3))		-0.46***	2.02
	(0.02)	(0.60)	
D(@TREND())		-3.24***	1.21**
	(0.08)	(0.36)	
CointEq(-1)		-0.94***	0.59***
		(0.01)	(0.16)

Model1: measures the impact of the explanatory variables on money supply (M2), Model2: measures the impact of the explanatory variables on Market Capitalization (MC). T-statistic are in parentheses. ***, ** and * denote significant levels at 1%, 5% and 10% respectively. The explanatory variables include: Rem is the Percentage of remittances to GDP, OPENESS is the Percentage of openess to GDP, FDI is the Percentage of Foreign Direct Investment to GDP, PCGDP is Per Capita Gross Domestic Product.

Table 4.2: Long Run Regression Results

MODEL1			MODEL1
Variable	Coefficient	Coefficient	
FDI	3.08***		16.33**
	(0.14)		(6.67)
PCGDP	0.03***		0.07
	(0.00)		(0.04)
OPENESS	-1.02***		0.98
	(0.02)		(0.72)
REM	-2.42***		-9.04
	(0.09)		5.47)
C	88.41***		-220.31
	(2.95)		(129.70)
@TREND	-3.44***		2.07*
	(0.05)		(0.91)

Model1: measures the impact of the explanatory variables on money supply (M2), Model2: measures the impact of the explanatory variables on Market Capitalization (MC). T-statistic are in parentheses. ***, ** and * denote significant levels at 1%, 5% and 10% respectively. The explanatory variables include: Rem is the Percentage of remittances to GDP, OPENESS is the Percentage of openess to GDP, FDI is the Percentage of Foreign Direct Investment to GDP, PCGDP is Per Capita Gross Domestic Product

Meanwhile, due to the results of the stationary test and co-integration test, the study employed Auto-Regressive Distributed Lag (ARDL) technique to estimate the effect of the explanatory variables (PCGDP, FDI, REM, and OPENESS) on the explained variables (MC and M_2) respectively. Then, the results of the regression models are discussed in turns below.

4.2.1   FDI
In model 1 of Table 4.1, FDI estimate is statistically significant at 1% significant level and positively related to money supply. This is in consonance with the a-priori expectation. In essence, one percent change in FDI will results into 0.73% change in money supply (financial development). In Model 2 of the table, the coefficient of foreign direct investment in both the current and previous year are statistically significant at 5% significant level and equally shows that positive relationship exists between FDI and MC. This implies that the higher the FDI, the higher the MC and vice versa. So, one percent increase in FDI will result into 2.75% increase in market capitalization (financial development) and vice versa. As shown in Table 4.2, FDI exerts influence on the indicators of financial development in the long-run. The coefficients of FDI in models 1 is statistically significant at 5% level of significance as the coefficient is significant at 1% level of significance in model 2.

4.2.2   Per Capita GDP
As shown in model 1, the coefficient of PCGDP was statistically significant at 1% significant level and positively related to money supply. This relationship is in conformity to the a-priori expectation. Meanwhile, the results show that a unit increase in PCGDP will results into 0.01% increase in money supply (financial development). Therefore, the higher the PCGDP, the higher the money supply and vice versa. The finding is similar to Gupta et al (2009). Also in the model 2 results, the estimate of Per capita GDP (PCGDP) was statistically significant at 1% significant level and the relationship between PCGDP and MC is positive. This implies that the higher the PCGDP, the higher the MC and vice versa. So, a unit increase in PCGDP will result into about 0.1% increase in MC (financial development) and vice versa. This is in consonance with the a-priori expectation. Also, the finding is similar to the finding of Gupta et al (2009).

4.2.3   Openness
In model 1, the estimate of openness is statistically significant at 1% level of significance and positively related to money supply. This does not contradict the a-priori expectation. The results show that 1% increase in openness lead to about 0.2% increase in money supply. This implies that the higher the openness, the higher the money supply and vice versa. The finding is in consonance with those of Gupta et al (2009), Rajan and Zingales (2003) and Motelle (2011). The relationship between openness and Market Capitalization was positive which conforms to the a-priori expectation as revealed in Table 4.1 (model 2). Also, the coefficient of openness was statistically significant at 5%. By implication, openness influences market capitalization. As shown in the results.

4.2.4   Remittances
In model 1, remittance was positively related to money supply and its estimate was statistically significant at 1% level of significance. It was shown from the table that 1% increase in remittances will result into increase in money supply (M2) to the tune of 2.43%. This implies that higher remittances results to higher money supply and vice versa. This was similar to Babatunde et al (2011).

Although it was revealed from the results that there was a positive relationship between Remittances and MC which conforms to a-priori expectation, the estimate of REM was not statistically significant. This implies that remittances do not have impact or influence on market capitalization (financial development). This suggests that little or no remittances were invested in capital market (especially shares and stocks). This was in consonance with the general believe that remittances are sent for altruism purpose and they are spent on consumption like daily consumption, buying of jewelries, building of houses or buying of landed property.

In addition, in model 1 (Table 4.1), the previous year Money Supply is statistically significant and negatively related to current money supply. The table shows that 1% increase in previous year money supply leads to about 0.3% fall in current year money supply and vice versa. In model 2 (regression results), it is revealed that the previous year MC (Market Capitalization) is not statistically significant and thus the MC does not have significant impact on current year MC.

Also, from model 1, the coefficient of error term which measures by how much the money supply (M2) responds to disturbances in equilibrium. From the table, one unit equilibrium disturbance or error will cause money supply to fall by about 94% in the next period in order to restore equilibrium. From Table 4.1 (model2) the coefficient of equilibrium error which symbolizes by how much market capitalization responds to equilibrium error. That is, one unit equilibrium error will cause the market capitalization to fall by about 16% in the next period in order to restore equilibrium. Meanwhile, the robustness checks for all the three models are discussed below in turns.

In model 1, serial correlation test using Breusch-Godfrey Serial Correlation LM Test reveals that F-statistics is statistically insignificant with probability value of 0.42. Therefore, the study cannot reject the null hypothesis that there is no serial correlation. By implication, the model is devoid of auto-correlation (see Appendix Table 3). Also, the Breusch-Pagan-Godfrey Heteroscedasticity Test shows that the model is not heteroscedastic with 0.84 as the probability value of F-statistics (see Appendix Table 4). Likewise, the linearity test using Ramsey Reset Test shows that the model is valid and correctly specified. Hence, the null hypothesis cannot be rejected since the probability value of t-statistic and f-statistic are greater than 0.1 respectively (see Appendix Table 5). Meanwhile, normality test shows that the error terms are normally distributed as the probability value of Jarque-Bera (0.65) is greater than 0.1 (see Figure1).

In model 2, serial correlation test using Breusch-Godfrey serial correlation LM test reveals that F-statistics is statistically insignificant with probability value of 0.28. Therefore, the study cannot reject the null hypothesis that there was no serial correlation. By implication, the model is devoid of serial correlation (see Appendix Table 6). Also, the Breusch-Pagan-Godfrey heteroscedasticity test shows that the model is not heteroscedastic with 0.85 as the probability value of F-statistics (see Appendix Table 7). Likewise, the linearity test using Ramsey Reset test shows that the model is valid and correctly specified. Hence, the null hypothesis cannot be rejected since the probability value of t-statistic and f-statistic are

greater than 0.1, respectively (see Appendix Table 8). Meanwhile, normality test shows that the error terms are normally distributed as the probability value of Jarque-Bera (0.49) is greater than 0.1 (see Figure2).

Summary, Conclusion and Recommendation
Financial development is very important in any economic system. Economic growth and poverty reduction can be stimulated through financial sector development in any country. Some studies show that financial development is an important link between remittances and economic growth. Remittances are one of the major sources of foreign capital inflow to Nigeria. Hence, remittances by the migrants represent a significant source of external financing for many of the recipient developing countries after foreign direct investment (FDI) (Guiliano& Ruiz-Arranz, 2009).

Owing to the continuous increase in the volume of remittances to Nigeria, the work investigates the impact of remittances on financial development using two variables as indicators of financial development namely, Percentage of Money Supply to GDP and the Percentage of Market Capitalization to GDP. The main explanatory variable for the study is remittances. The control variables include: Foreign Direct Investment (FDI); degree of openness; and per capita GDP. The conclusion on the impact of each of the explanatory variable on financial development is discussed below.

The study found that remittances have positive impact on money supply but no impact on market capitalization. Since remittances have impact on one of the two indicators of financial development, both in the short-run and the long-run, it can be concluded that remittances have partial impact on financial development.

The impact of FDI on the two indicators of financial development was positive in the short-run and the long-run. Conclusively, FDI had impact on financial development. Also, openness has positive impact on money supply and market capitalization. Therefore, it can be said that openness had impact on financial development.

The effect of per capita GDP on money supply and market capitalization is positive, in the short-run. As a result of this, we can conclude that per capita GDP has impact on financial development. Based on the foregoing, the following are recommended.

- It was found in the study that remittances positively influence money supply. Hence, the monetary authority should monitor the flow of remittances into the country such that excessive flow of them does not result into the Dutch Disease and loss of competitiveness for Nigeria export goods. If there is excessive inflow of remittances into the country, it may lead to increase in the value of naira in the foreign exchange market and which may make the price of Nigerian export goods to be dearer in international market. Therefore, the monetary authority ought to be proactive in sterilizing the flow of remittances with the appropriate policy measures.
- The study found that FDI has positive influence on money supply and market capitalization. So, government should embark on policies that will encourage the

inflow of FDI into the country with the intent of influencing money supply and market capitalization positively.

- It is equally part of the findings in the study that trade openness positively influenced money supply and market capitalization. Based on the foregoing, government should put in place policies that will promote openness in order to boost the value of market capitalization in Nigeria. This can be achieved by strengthening institutions and legal system so that the investors will see the country as a safe haven for investment from all over the world.

- The study also found that per capita GDP has positive impact on money supply and market capitalization. So, government should formulate policies that facilitate the growth of per capita GDP in order to achieve expansion in market capitalization and increase in supply of money.

References

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, *91*(5), 1369-1401.

Adams R. H. Jr. (2006). *Remittances and poverty in Ghana.* World Bank Policy Research Paper 3838. Washington, DC.

Aggarwal R, Demirguç-Kunt A, Martinez P, Maria S (2006). Do workers' remittances promote financial development? *J Dev Econ* 96:255–264

Alexander, S. (1964). *Price movements in speculative markets: Trends or random walks?* In Cootner, P. (Ed.). The Random Character of Stock Prices, MIT Press, Cambridge, Mass

Azam, J., &Gubert, F. (2006). Migrant remittances and the household in Africa: A review of evidence. *Journal of African Economies 15(2)*, 426–462.

Babatunde O. O., Olayinka M. U. and Okwy P. O. (2011). Impact of workers' remittances on financial development in Nigeria. *International Business Research Vol. 4*, No. 4; October 2011, *ISSN 1913-9004, E-ISSN 1913-9012*

Black, F. & Scholes, M.S.(1973). The pricing of options and corporate liabilities. *Journal of Political Economy, 81,* 637-54.

Friedman, M. (1956). *The quantity theory of money—a restatement.* In M. Friedman (Ed.), Studiesin the quantity theory of money (pp. 129–38). Chicago: University of Chicago Press.

Giuliano P, Ruiz-Arranz M. (2009). Remittances, financial development, and growth. *J Dev Econ 90*:144–15

Gupta S., Pattillo C. A. and Wagh S. (2009) Effect of remittances on poverty and financial development in Sub-Saharan Africa. *World Development Vol. 37*, No.1 pp, 104-115, 2009

Karikari, N. K., Mensah, S., & Harvey, S. K. (2016). Do remittances promote financial development in Africa? *SpringerPlus*, *5*(1), 1011.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., &Vishny, R. W. (1997). Legal determinants of external finance. *The journal of finance*, *52*(3), 1131-1150.

Levine, R. (2005). Finance *and growth: Theory and evidence.* In P. Aghion& S. Durlauf (Eds), Handbook of economic growth(pp. 866–34). Amsterdam: North-Holland Elsevier Publishers.

Markowitz, H.M.(1952). Portfolio selection. *Journal of Finance, 7*, 77-91.

Massey, D. &Parrado, E. (1998). International migration and business formation in Mexico. *Social Science Quarterly,* Vol. 79, No. 1, pp. 1-20.

McKinnon, R. I. (1973). *Money and capital in economic development.* Washington, DC: Brookings Institution.

Meyer, D., &Shera, A. (2017). The impact of remittances on economic growth: An econometric model. *EconomiA*, *18*(2), 147-155.

Modigliani, F. & Miller, M.H. (1958) The cost of capital, corporation finance, and the theory of investment. *American Economic Review, 48*,No.3, 261-97.

Mundaca, G. (2005). *Can remittances enhance economic growth? The role of financial markets development.*Unpublished, Department of Economics, University of Oslo, Oslo
Norway.

Motelle, S. I. (2011). The role of remittances in financial development in Lesotho: Evidence from alternative measures of financial development. *Journal of development and agricultural economics*, *3*(6), 241-251.

OECD (2014). http://stats.oecd.org/glossary/detail.asp?ID=6815

Paola G. and Marta R. (2006). Remittances, financial development, and growth.*International Monetary Fund WP/05/234.*

Pradhan, G., Upadhyay, M., &Upadhyaya, K. (2008). Remittances and economic growth in developing countries. *The European Journal of Development Research,* 20(3), 497–506.

Rajan, R. &Zingales, L. (2003). The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics*, 69(1), 5-50.

Sharpe, W.F. (1964). Capital asset prices – a theory of market equilibrium under conditions of risk. *Journal of Finance, 19,* No.3, 425-42.

Shaw, ES. (1973). *Financial deepening in economic development*. New York, NY: Oxford University Press.

Stahl, C.W., &Habib, A. (1989). The impact of overseas workers' remittances on indigenous industries: Evidence from Bangladesh. *The Developing Economies,* 27(3), 269–85.

Word Bank (2014). *Global Economic Prospectus.* Washington, DC.

World Bank (2006), *Global economic prospects: Economic implications of remittances and migration*. Washington DC

Ziesemer, T. (2006). *Worker remittances and growth: The physical and human capital channel*. UNU-Merit. Working Paper Series No. 020. United Nations University, Maastricht, The Netherlands.

APPENDIX
Table 1: Order of Integration for the Variables in the Study

Variables	Order of integration	Probability Value
Openness	I~(1)	0.000
Rem	I~(1)	0.000
PCGDP	I~(1)	0.003
FDI	I~(0)	0.016
M_2	I~(0)	0.000
MC	I~(0)	0.029

Table 2: ARDL Bounds Test for M2 and Market Cap

Test Statistic	Model 1(M_2)		Model 2(Market Cap)	
	Value	k	Value	k
F-statistic	32.70555	4		
Critical Value Bounds			5.969374	4
Significance	I0 Bound	I1 Bound	I0 Bound	I1 Bound
10%	2.45	3.52	2.45 3.52	
5%	2.86	4.01	2.86	4.01
2.5%	3.25	4.49	3.25	4.49
1%	3.74	5.06	3.74 5.06	

Table 3: Serial Correlation Test for M_2 (Model 1)

Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.641975	Prob. F(1,1)	0.4219
Obs*R-squared	17.40187	Prob. Chi-Square(1)	0.0000

Table 4: Heteroscedasticity Test for M_2 (Model 1)

Breusch-Pagan-Godfrey Heteroscedasticity Test

F-statistic	0.499761	Prob. F(25,2)	0.8437
Obs*R-squared	24.13634	Prob. Chi-Square(25)	0.5115
Scaled explained SS	0.148321	Prob. Chi-Square(25)	1.0000

Table 5: Ramsey Reset Test for M_2 (Model 1)

	Value	df	Probability
t-statistic	9.644953	1	0.6580
F-statistic	93.02511	(1, 1)	0.6580

Table6: Serial Correlation Test for Model 2 (Market Cap)

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	1.632880	Prob. F(2,5)	0.2846
Obs*R-squared	11.06266	Prob. Chi-Square(2)	0.0040

Table 7: Heteroscedasticity Test for Model 2 (Market Cap)

Breusch-Pagan-Godfrey Heteroskedasticity Test			
F-statistic	0.564689	Prob. F(20,7)	0.8507
Obs*R-squared	17.28597	Prob. Chi-Square(20)	0.6343
Scaled explained SS	0.769238	Prob. Chi-Square(20)	1.0000

Table 8: Ramsey Reset Test for Model 2 (Market Cap)

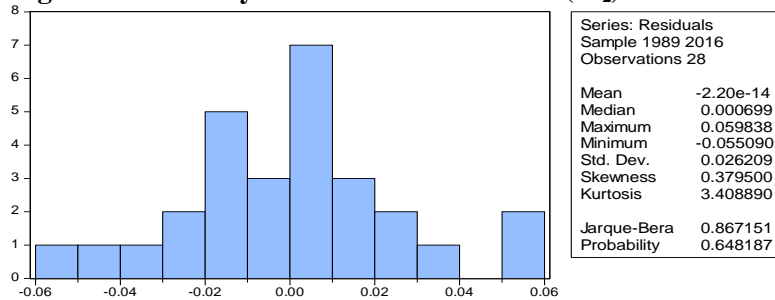|	Value	df	Probability
t-statistic	1.327469	6	0.2326
F-statistic	1.762173	(1, 6)	0.2326

Figure1: Normality Test Result for Model 1 (M$_2$)
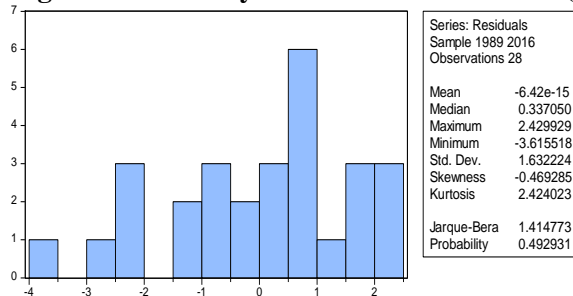

Figure2: Normality Test Result for Model 2 (Market Cap)

Table 9: Percentage of Remittances to GDP from 1985-2016

YEAR	PREM
1985	0.034875
1986	0.019254
1987	0.011368
1988	0.010418
1989	0.042027
1990	0.032541
1991	0.239276
1992	0.192651
1993	5.02346
1994	3.04026
1995	0.875901
1996	0.847684
1997	1.63512
1998	1.40151
1999	3.62706
2000	3.00053
2001	2.64311
2002	2.04503
2003	1.57092
2004	2.5872
2005	13.0426
2006	11.6428
2007	10.8226
2008	9.22949
2009	10.8378
2010	5.34996
2011	5.00721
2012	4.45662
2013	4.03854
2014	3.65983
2015	4.39809
2016	4.86328

Contact Information

Mustapha Ayobanji Rafiu[1], Bakare-Aremu Babatunde[2] and*Sheu Mustapha*[3]

[1]Department of Economics, Al-hikmah University, Ilorin, Nigeria (Email Address:abdulrafiumustapha@gmail.com)

[2] Department of Economics, National Open University, Abuja, Nigeria

[3] School of Basic and Remedial Studies, Kwara State College of Education, Ilorin, Nigeria