

International Remittance Inflows and Banking Sector Development in Nigeria

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Abstract: *This study employed Johansen Maximum Likelihood Estimator Test and Toda-Yamamoto Granger non-Causality (1996) methodology, to uncover the long-run relationship and the direction of causality between remittance inflows and banking sector development in Nigeria between 1984 and 2014. The empirical results suggest that remittances and bank development are cointegrated, indicating a stable long run equilibrium relationship. Further, the findings revealed a unidirectional causality from bank development to remittance inflows with the complimentary role of bank size and efficiency in remittance inflows. Also, a unidirectional causality was established from bank efficiency to bank size. Therefore, to increase remittance inflows, Government should create new policies and measures to develop the banking sector and thereby enhance the confidence of the migrant workers in the Nigerian banks to capture and channel the huge remittances for boosting the nation's foreign exchange and leverage it for development to turn around the dwindling fortune of the economy.*

Keywords: *Remittance inflows, Banking sector development, causality, Bank size and efficiency, Johansen Maximum Likelihood Estimator, Toda-Yamamoto Methodology.*

JEL Classification: *C22, F24, O16, P33*

I. Introduction

International remittance inflows are that part of international migrant workers' earnings sent to the country of origin from the country of employment. Remittances are defined as the addition of migrant remittances and compensation of employees. These include current transfers by migrant workers, with wages and salaries earned by non-resident workers (Cooray, 2010).

International remittance has made possible a drastic enhancement of the living standard of millions of household in migrant sending countries. Besides, it can be a good source of capital to promote financial development in the home countries by increasing the volume of deposits with financial institutions, thereby increasing the availability of credit to the banks' customers. Also, it can bring a large proportion of a country's rural and unbanked population in contact with the banking industry (IMF, 2005).

Due to the increasing trend of remittance which entail cross-border flows of relatively modest sum of money, some researcher have posited that it is a good source of capital to achieve developmental objectives in the home countries. Remittances offer a substantial source of financing for developmental programs and projects that can improve lives and livelihoods in developing economies. Study by Adam and Page (2003), found remittance inflows from developed countries into low and middle income countries to drastically reduce poverty. It has been found to be one of the major macroeconomic factors that significantly promote economic growth in Nigeria (Iheke, 2012). Remittances flow to the less developed countries is now increasingly part of discussion in public and academic forums. Starting from 2000, remittances to the less developed countries have been increasing on an average of 15% annually (Gupta, et al., 2009). A striking observation, apart from the growing trains in global remittance flows to less developed countries is the steady manners of reacting to volatile and unexpected economic event in the home countries (Iheke, 2012). As at 2003, it was about \$100 billion for 90 less developed economies, which amounted to 1.4% of aggregate Gross Domestic Product (GDP) (Freund and Spatafora, 2005). By 2005, the in-flow was \$188 billion which was twice the total amount of official assistance to developing countries (Gupta, et al., 2009). In 2008, 2009 and 2010, the total remittance flows to developing countries were \$338 billion, \$320 billion and \$325 billion respectively. By 2011, it exceeded \$350 billion.

According to the World Bank report, the size of Nigeria's remittances has been increasing over the last decade. Available data show that remittance flows to Nigeria in 2004 was about \$3 billion which was about ₦413.8 billion then (Okanta, 2011). As at 2005, it was \$3.3 billion (Adeagbo and Ayansola, 2014). In 2007, it rose to \$3.4 billion which was about ₦426 billion (Ugwuanyi, 2008). In 2012, about 17 million Nigerians in diaspora remitted about \$21 billion. The official remittance remained flat at \$21 billion in 2013. It however fell slightly to \$20.83 billion and \$20.77 billion in 2014 and 2015 respectively.

Nigeria has consistently been the largest recipient of international remittances in Sub-Sahara Africa and one of the six countries named in 2012 as top recipient of global remittances by the World Bank (Okanta, 2011, Iheke, 2012). The amount remitted to the Sub-Saharan Africa was about \$33 billion in 2015, with Nigeria accounting for about two-thirds of total remittance inflows to the region (World Bank, 2016). The country – specific surveys conducted in Sub-Saharan African Countries by United Nation Development Project (UNDP) in 2005 suggested that while a large proportion of remittance flows was spent on consumption, the propensity to save part of the funds by some recipients could be as high as 40%.

From the foregoing, it could be observed that several developmental projects could be financed by mobilizing the power of remittances and diaspora savings. Unfortunately, remittances have not been leveraged properly for innovative financing and banking sector development in Nigeria, therefore bringing remittance recipient household into the formal financial sector is a major step in using remittances more effectively.

However, with the recent withdrawal of public sector deposit from Deposit money Bank (DMB) into the central Bank of Nigeria, could international remittances be a source for bridging the funding gap created? Also, while Nigerians await the economic diversification program of the government at all levels to gain traction and provide a buffer against the negative impacts of the current economic storm triggered by crashing oil prices in the international market, could international remittance inflows be the saving grace if properly annexed and appropriately utilized for banks' development? Therefore, this study is guided by the following research questions. Has increased remittances contributed to banking sector development in Nigeria? Is there any long-run relationship between international remittance inflows and banking sector development in Nigeria? What is the causal relationship between remittances and banking sector development? The need to answer the questions constitutes the focus of this study.

Although, there are few studies on the causal relationship between private sector remittance inflows and banking sector development in Nigeria, to the best of our knowledge, detailed and systematic empirical studies on the topic using dataset on Nigerian banking industry from 1984 to 2014 is sparse or non-existent. Since data set and sampling period are strong determinants of empirical results in research, we therefore explore the opportunity of filling the gap by examining the nexus between remittances and banking sector development in Nigeria using Johansen Maximum Likelihood Cointegration test and Toda-Yamamoto Granger Non-Causality test.

Based on the foregoing, the major objective of this study is to investigate the relationship between remittances and the Nigerian banking sector development. The specific objectives are; firstly, to examine the relationship between remittances and banking sector size. Secondly, to investigate the relationship between remittances and banking sector efficiency, and finally, to establish the bivariate and trivariate causal relationship between remittance flows and banking sector development.

For the purpose of data for the empirical analysis, this study concentrated on the Nigerian deposit money banks. The main hypotheses of the study, expressed in the null forms are that;

- Remittance inflow has no influence on the size of the Nigerian banks;
- Remittance inflow has no influence on the efficiency of the Nigerian banks, and;
- There is no causal relationship between remittances and banking sector development in Nigeria.

The rest of this paper is organized as follows: Section 2 examines the existing literature, section 3 describes the data, model specification and estimation techniques. Section 4 presents the empirical results and section 5 concludes the study with useful policy recommendation.

II. Review of Related studies

The link between remittance flows and banking sector development is one of the relevant issues in international finance-growth hypotheses. Apart from studying the growth effects of international remittances, an extensive body of literature has investigated the relationship between remittances and financial sector development. Studies on the relationship vary in empirical methods and results. The empirical studies could be divided into those that concentrated on a single or specific country and those conducted using panel of countries. Among those on country-specific surveys are Shahbaz et al. (2007), Giuliano and Ruiz-Arranz (2009), Jayaraman et al (2010), Motelle (2011), Oke et al. (2011), Godwin and Odianye (2012), Sami (2013). The list of those that used panel of countries are; Orozco and Fedewa (2005), Aggarwal et al. (2006), Gupta et al. (2009), Freund and Spatafora (2005), Acosta et al. (2009), Male (2009), Ahamada and Coulibaly (2011), Noman and Uddin (2011), Nyamongo et al. (2012) and Beine et al. (2012).

Shahbaz et al. (2007) investigated the impact of remittances on financial sector performance in Pakistan. The findings suggest that remittances promote financial sector performance in the long run. Giuliano and Ruiz-Arranz (2009) examined the relationship between remittances and the financial sector. The authors concluded that remittance can enhance financial sector development especially in developing economies. They explained further that remittances have investment potential through a compensatory role for a bad financial system. However, the study conducted by Abdih et al. (2008) reveals that remittance can cause a decline in

institutional quality in the home countries. In Mexico, Demirque-kunt, et al. (2011) examined the impact of remittances on banking depth and breadth. The authors established that remittance is strongly related to banking depth and breadth.

A study conducted by Jayaraman et al. (2010) on the nexus between remittances and financial sector development, found that remittances receipt through banking channels promote financial intermediation. The findings further suggest that well developed financial institutions may encourage increased inflow of remittances. Using different measures as proxies for financial development, Motelle (2011) investigated the relationship between remittance flows and financial sector development in Lesotho. The author found causality only from financial sector development to remittances.

In Nigeria, Oke et al (2011) studied the relationship between remittances and financial development using a dataset from 1977 to 2009. The findings suggest that remittance flows have positive impact on financial sector development. Using a structural break approach, Godwin and Odianye (2012) examined remittance flows and financial sector development in Nigeria. The result of the Auto Regressive Distributed Lagged (ARDL) model reveals that international remittance flows have positive but insignificant impact on financial sector development.

Also, Sami (2013) investigated the relationship between remittances and banking sector development in Fiji Islands. The causality analysis based on VAR-ECM reveals that there is causal impact of remittance flows on banking sector development in Fiji.

Turning to panel studies; Orozco and Fedewa (2005) examined the relationship between remittances and financial sector development, using a data set from nine financial institutions in South America. The authors found that financial institutions' distribution of transfers and financial services provided depend on the available resources of the institution and its presence in the locality. Using a panel study on dataset from 99 developing countries from Latin America countries, Aggarwal et al. (2006) studied the impact of remittances on financial development. The findings suggest that remittances lead to financial development by increasing the aggregate volume of Banks deposits and credit intermediation.

In an unbalanced panel data from 44 Sub-Saharan African Countries from 1995 to 2004, Gupta et al. (2009) investigated the impacts of remittances on financial development. The authors suggest that the impact depends on how the recipient households utilize the funds. They established that remittances promote financial development when used for investment.

Examining the effect of remittances on financial sector development, using a panel dataset covering 104 countries, Freund and Spatafora (2005) observes that informal transmission channels are cheaper when compared to formal transmission channels. They argued that remittances are usually transmitted through the formal channel in a country with a well-developed financial system. Acosta et al. (2009) examined the impact of remittances on exchange rate, using 109 developing and transition economies. The authors found that the upward pressure on exchange rate by increase in remittance is lower in countries with well-developed financial markets. In a panel study in south-Eastern and Easter-European countries, Male (2009) investigated the impact of remittances on financial development. The findings reveal a positive impact of remittances on financial development.

With dataset from 87 emerging and developing economies, Ahamada and Coulibaly (2011) examined how financial development influences the impact of remittance flows on growth volatility. The authors found that a well-developed financial system produces a better stabilizing impact of remittance on growth volatility.

Noman and Uddin (2011) investigated the relationship between remittance flows, banking sector development, and economic growth, using data from four south Asian countries of Bangladesh, Pakistan, Sri Lanka and Indian. The authors found that while remittances Granger cause banking sector development in Pakistan and Sri Lanka, banking sector development Granger cause remittances in Bangladesh and Indian. In a similar study, Nyamongo et al. (2012) examined the impact of financial development and remittance flows on economic growth in a panel of 36 African countries from 1980 to 2009. The findings suggest remittance to be a compliment to financial development.

Using data from 66 developing countries from 1980 to 2005, Beine et al. (2012) investigated the relationship between remittance flows and financial openness. The findings reveal a positive and significant impact of remittance flows on financial openness.

Generally, the existing literature on remittances and banking sector development could also be separated into those conducted with data from developed economies and those carried out with data set from developing economies. However, recent empirical methods and findings have been mixed and as a result the debate on the impact of remittances on banking sector development remains at best unresolved. On the whole, findings from one strand of the literature relates to the development impact of remittances, the other strand provides evidence that financial development promote the propensity to remit.

The few available studies, though contributing immensely in explaining the remittances – banking sector development nexus, suffer from a number of shortcomings. These include the use of cross section data, which

may not satisfactory address country specific issues. There are significant dangers in lumping together in cross section models, countries with very different experiences which may reflect different institutional characteristics, different policies targets and differences in their implementations and applications. Also, bearing in mind the problem of endogeneity and the decentralized decision-making process that characterizes the use of remittance flows, it is difficult to measure their aggregate effects, either through direct or indirect impact analysis. Therefore, studies on the relationship between remittances and financial sector development using cross-country data could be said to be inappropriate or inconclusive. Hence, the need to research more into the direct link between remittances and banking sector development using country-specific data.

While there are some studies that have examined the relationship between remittances and financial sector development in developing countries, literature describing remittances and banking sector development specifically are very few, especially with dataset from Nigerian Banking industry. Consequently, very little is known about remittances and banking sector development in Nigeria. Therefore, given the dominant role of banking sector compared to non-banking sector in Nigerian financial system, it is of interest to see if increased remittance bears any specific relationship with banking sector development.

According to Owoputi, Kayode and Adeyefa (2012), the Nigerian banking industry occupied an important position in the country financial system, serving as mechanism for financing economic growth. Hence, this study is important because discovering the appropriate direction of causation between remittances and banking sector development in Nigeria has important policy implications for development strategies. More so, the few available studies on the impact of remittances on banking sector development focused only on banking sector size, as measured by the; ratio of banking sector credits to private firms and household/GDP, ratio of deposits/GDP and ratio of liquid assets/GDP. These measures as widely used in empirical studies indicate banking sector size (see; Greenwood and Javanovic, 1990; Jayaraman et al., 2010; Anwar et al., 2011 and Sami, 2013).

This study differs from the existing literature in that it not only examines the effect of remittances on banking sector size but also on efficiency. The impact of remittances on banking sector efficiency as measured by either overhead cost or net interest margins is unknown in developing countries, especially in the Nigeria context. If remittance inflows lead to an increase in efficiency, overhead costs and net interest margin would fall and the public would benefit immensely with an increase in access to finance. On the other hand, an increase in overhead costs and net interest margin would lead to a fall in banking sector efficiency. As a result of the foregoing, this study attempts to fill the gap by; examining the relationship between remittances, banking sector size and efficiency in Nigeria.

Data Description, Model Specification and Estimation Technique

Data Description:

The study uses annual data from 1984 to 2014, obtained from Central Bank of Nigeria (CBN) Statistical Bulletins (various years), the National Bureau of statistics (NBS) and the World Bank Publications. Also, we define the data as follows:

- **Remittance** is a transfer of money by a foreign worker to an individual in his or her home country. It is defined as the addition of migrant workers remittances and compensation of employees. It is the main independent variable in the study, measured as the ratio of remittance inflows to Real Gross Domestic Product (RGDP) per capital.
- **Banking Sector Development** could be defined as the ability of Banks to facilitate resource mobilization, identify profitable ventures, ease risk management and improve consistently on earnings. For this study, banking sector development is estimated by size and efficiency as the dependent variables. In the literature, proxies for banking sector size are: (1) the ratio of banks domestic credit to private sector as percentage of GDP, (2) the ratio of total deposit as percentage of GDP, and (3) the ratio of banks' total assets as percentage of GDP. Banking sector efficiency is the ability of Banks to perform their expected duties well, leading to desired results. It could be measured by: (1) the ratio of banks' overhead cost to total assets, and (2) the ratio of banks' net interest margin to total assets. It is expected that increased competition among banks should increase access to finance by customers and also reduce the banks' overhead costs and interest margins. These financial sector indicators are used by Beck, Demirgüç-Kunt and Levine (2003), Aggarwal, Demirgüç-Kunt and Martinez-Peria (2006), Jayaraman et al. (2010), Anwar et al. (2011) and Sami (2013). For the purpose of this study, we adopted the ratio of banks' total assets to GDP and the ratio of overhead cost to total assets as proxies for banks' size and efficiency respectively.
- **Control Variables.** Based on previous studies, inflation, per capital income and openness are included in the empirical analysis.

Inflation is a persistent rise in the general price level. Apart from acting as a proxy for risk and uncertainty, it also discourages financial intermediation.

Per capital income. This is included to capture the level of development in Nigeria. It is proxy by per capital GDP.

Openness. This reveals the degree of liberalization /participation in the Nigerian economy. It is proxy by the ratio of foreign direct investment to GDP.

Exchange Rate. This is included as a measure of external sector distortions which influences the nominal value of the amount remitted.

These financial sector indicators are used in empirical studies by; Aggarwal et al. (2006), Giuliano and Ruiz-Arranz(2009), Cooray(2010) and Okanta, (2011).

However, the major limitation of this study is that it is only able to capture formal remittance inflows that are recorded in the National Account. Those transmitted through informal channels could not be captured. Also, the major innovations of the study are; the use of both size and efficiency as measures of development in the Nigerian bank and the application of Toda-Yamamoto Granger non-causality technique to unravel the direction of causality between the variables.

III. Estimation Technique

The first step involves carrying out unit root tests on all the variables in the models using both Augmented Dickey-Fuller (ADF) and Philips-Perron tests at 1% and 5% significant levels. This is to ensure that the variables enter the model in a non-explosive form. Prior to conducting any empirical analysis, all the variables in the models are transformed into natural logarithms.

Further, to examine the existence of long run relationship between remittances and banking sector size and efficiency, we used Johansen and Juselius (1990) Maximum likelihood testing procedure.

However, many tests of causality have been developed and adopted in empirical studies to establish the direction of causation such as Granger (1969) and Sims (1972) tests. The tests are premised on null hypotheses formulated on zero restrictions in the coefficients of the lags of subset of the variables in a model. Hence, the test is based on asymptotic theory. The usual shortcoming in using causality tests is the likely presence of stochastic trends in the variables of interest. Also, the traditional F tests and its Wald test counterpart to establish whether some parameters of a stable Vector Autoregressive Model are jointly zero are not appropriate for non- stationary processes, because the test statistics do not have a standard distribution (Toda and Phillips, 1994). To deal with these problems, we adopted Toda and Yamamoto (1995) Granger non-causality test procedure. They developed a technique that has become attractive to researchers because the power of traditional unit root test techniques are very weak and Toda-Yamamoto causality methodology can be applied irrespective of the integration and cointegration properties of the variables included in the model (Oladipo, 2008). The procedure involves using a modified Wald Statistic for testing the significance of parameters of a VAR(s) model, where s is the lag length in the system. The lag length of the variables in the causal model is dictated by Akaike Information Criterion (AIC). It should be noted that last lag is not considered while using Toda and Yamamoto causality test procedure.

IV. Model Specification

For the purpose of our empirical analysis, two models are formulated to establish the relationship between remittances and banking sector development in Nigeria.

$$LBSS_t = \beta_0 + \beta_1 LRMC_t + \beta_2 LINF_t + \beta_3 LPIC_t + \beta_4 LOPN_t + \beta_5 LEXR_t + U_t \dots \quad 1$$

$$LBSE_t = \alpha_0 + \alpha_1 LRMC_t + \alpha_2 LINF_t + \alpha_3 LPIC_t + \alpha_4 LOPN_t + \alpha_5 LEXR_t + \mathcal{E}_t \dots \quad 2$$

Where

LBSS = Natural Logarithm of Ratio of Bank Deposit to Real Gross Domestic Product (a measure of Bank size)

LBSE = Natural Logarithm of Ratio of Banks' Overhead cost to total assets (a measure of Bank efficiency)

LRMC = Natural Logarithm of Ratio of Remittances to Real Gross Domestic Product (a measure of remittance)

LINF = Natural logarithm of inflation rate

LIPC = Natural logarithm of per capital income

LOPN = Natural logarithm of openness

LEXR = Natural logarithm of exchange rate

U_t and \mathcal{E}_t = The Error Terms.

The *a priori* expectations are that:

$$\beta_1, \beta_3, \beta_4 \text{ and } \beta_5 > 0, \text{ while } \beta_2 < 0 \text{ Also, } \alpha_1, \alpha_3, \alpha_4 \text{ and } \alpha_5, > 0 \text{ while } \alpha_2 < 0$$

V. Results and Discussions

Table 1: Unit Root Test Results

Variable	ADF Statistics			PP Statistics		
	r(i)	r(ii)	r(iii)	Z(t _a)(i)	Z(t _a)(ii)	Z(t _a)(iii)
LBSS	-0.68	-2.01	-2.86	0.63	-1.48	-1.98
ΔLBSS	-2.82	-4.32	-4.76	-2.68	-4.25	-5.32
LBSE	-1.78	-0.86	-2.97	-0.84	-0.29	-2.04
ΔLBSE	-8.77	-5.29	-5.18	-6.87	-4.26	-4.18
LRMC	2.30	-0.58	-2.39	1.96	-1.49	-3.33
ΔLRMC	-6.56	-7.52	-7.48	-6.77	-15.24	-14.99
LINF	2.21	-0.99	-1.15	1.82	-1.22	-2.14
ΔLINF	-5.54	-5.96	-5.27	-5.77	-5.96	-5.86
LPIC	-0.28	-0.82	-2.48	-1.38	-0.86	-2.18
ΔLPIC	-2.72	-3.58	-4.75	-5.24	-3.84	-6.46
LOPN	-2.58	-2.80	-1.86	0.68	-0.67	-2.61
ΔLOPN	-4.78	-5.12	-4.72	-2.52	-5.12	-8.72
LEXR	-0.18	-1.36	-2.42	-1.82	-2.43	-1.64
ΔLEXR	-3.65	-4.76	-5.02	-3.93	-5.06	-4.92
Significant levels Critical Values for Stationarity						
1%	-2.65	-3.65	-4.36	-2.65	-3.65	-4.36
5%	-1.95	-2.95	-3.57	-1.95	-2.95	-3.57

Notes: (i), (ii) and (iii) indicate the models statistics without either drift or trend, with drift only and with drift and trend. The optimal lag length used for the augmented Dickey-Fuller tests (ADF) and the truncation lag parameter in the Phillips-Perron tests (PP) were determined based on Akaike information Criterion (AIC).

Source: Authors' computations from E-view results

The results in Table 1 indicate that all the variables exhibit random walk process and are stationary at first difference. They are integrated of order one i.e. they are 1 (1) series. Hence, the null hypothesis of at least one unit root in the variables can- not be rejected. The presence of unit root in the variables necessitated the conduct of cointegration test to examine their long run relationship

Table 2: Johansen maximum likelihood cointegration test results for model 1.

Hypothesized no of cointegrating equations	Eigen value	Likelihood Ratio	5% critical value	1% critical value	Series
None**	0.98	161.28	86.14	92.16	LBSS, LRMC
At most 1**	0.88	120.93	78.53	86.06	LINF, LPIC, LOPN and LEXR.
At most 2**	0.80	74.62	57.21	54.48	
At most 3	0.26	29.84	29.98	36.65	
At most 4	0.36	11.73	15.44	20.08	
At most 5	0.04	0.27	2.76	7.62	

Notes: * (**) denotes rejection of the hypothesis at 5% (1%) significant level

LR indicates 3 cointegrating equation(s) at 1% significant level

Source: Authors' computations from E-view results

Based on the results in Table 2, the maximum eigenvalue rejects the null hypothesis of no co-integration, in favour of three co-integrating vectors at 1% significant level. Also, in Table 3, the eigenvalue rejects the null hypothesis of no co-integration in favour of 4 co-integrating equations at 5% significant level. Thus, the co-integration tests suggest that with the strong influence of other factors, there exist a long run equilibrium relationship between remittance inflows and banking sector size and efficiency in Nigeria. This implies the existence of a strong long-run relationship between remittances and banking sector development in Nigeria through the interaction of inflation, per capital income, openness and exchange rate. The finding of long run relationships between the variables included in the models suggests causality in at least one direction. Our causality equations are specifically on remittances, banking sector size and efficiency. Toda-Yamamoto bivariate and multivariate causality tests are carried out for that purpose.

Table 3: Johansen Maximum Likelihood Cointegration Test Results for Model 2.

Hypothesized no of cointegrating equations	Eigen value	Likelihood Ratio	5% critical value	1% critical value	Series
None**	0.94	171.27	86.14	92.16	LBSE, LRMC,
At most 1**	0.84	110.76	78.53	86.06	LINF, LPIC, LOPN and LEXR.
At most 2**	0.69	64.65	57.21	54.48	
At most 3*	0.46	32.84	29.98	36.65	
At most 4	0.11	11.75	15.44	20.08	
At most 5	0.01	1.17	2.76	7.62	

Notes: * (**) denotes rejection of the hypothesis at 5% (1%) significant level

LR indicates 4 cointegrating equations(s) at 5% significant level

Source: Authors' computations from E-view results

Table 4: Toda-Yamamoto Causality Test Results

H_0	X^2	P -Value
BSS→RMC	5.64374	0.00009*
BSE→RMC	8.48456	0.00014*
BSS,BSE→RMC	15.5875	0.00006*
RMC→BSS	1.75534	0.68897
BSS→BSE	0.98655	0.50366
BSE→BSS	6.84723	0.02238**
RMC, BSE→BSS	0.88764	0.41762

Note: * and ** denotes rejection of the null hypothesis of non-causality at 1% and 5% respectively.

Source: Authors' computations from E-view results.]

Table 4 presents the results from the modified Wald test and it reports the X^2 -test statistic obtained, together with the estimate P -values and the results for the bivariate and multivariate causality tests. Our results confirm not only that bank size causes remittance inflows but also the existence of bank efficiency – remittance inflows nexus, as there exists a positive causality relationship going from bank size and bank efficiency to remittance inflows. Hence, this study provides evidence for a unidirectional causality from bank development to remittance inflows in Nigeria. The results suggest that big banks with enhanced efficiencies (fall in overhead costs) promote remittances. This finding is reasonable considering that migrant workers repose more confidence and are ready to remit more funds through big and efficient banks. The finding is in line with the positions of Noman and Uddin (2011) for Pakistan and Sri Lanka and Motelle (2011) for Lesotho, that financial development leads to increase remittances. However, it contradicts the findings of Sami (2013), who suggests that remittances could possibly facilitate banking sector development in Fiji Island. Also, it differs from the findings of Shahbaz et al. (2007) for Pakistan and Oke et al. (2011) for Nigeria, who suggest that remittances lead to financial development. The result is not consistent with the findings of Cooray (2010), who suggests that remittances lead to a fall in overhead costs and net interest margins. Further, our result suggests that there is a unidirectional causality from bank efficiency to bank size in Nigeria. This finding is equally reasonable because an efficiently managed bank is expected to become big.

VI. Summary, Conclusion and Recommendation

This study investigated the relationship between remittance inflows and banking sector development in Nigeria from 1984 to 2014. Having established the presence of unit root in the variables using Augmented Dickey Fuller (ADF) and Phillip-Perron (PP) tests, the Johansen and Juselius Maximum Likelihood estimator test was carried out to examine the long run relationship between the variables in the models. Also, the study presented some rather careful tests of causality between banking sector size, efficiency and remittance inflows in both bivariate and multivariate system using the Toda and Yamamoto methodology.

The empirical results suggest that all the variables are $I(1)$ and that bank size, efficiency and remittance inflows are cointegrated indicating a stable long run equilibrium relationship. Further, the findings revealed a unidirectional causality between bank size and remittance inflows. Also, a unidirectional causality from efficiency to remittances is established with the complementary role of bank efficiency and bank size in remittances. In addition, it is revealed that bank efficiency causes bank size. In all, the study provides an evidence to support a unidirectional causality from bank development (bank size and efficiency) to remittance inflows in Nigeria. The major implication of the findings is that, policies that would improve the confidence of the migrant workers in the Nigerian banks would lead to higher remittance inflows which can be channeled appropriately for economic development in Nigeria. Therefore, the Nigerian government should create new policies and measures that would enhance banking sector development to promote migrants remittance inflows and thereby capture and channel the huge funds for boosting the nation's foreign exchange and leverage it for development to turn around the dwindling fortune of the economy. Also, since large portion of remittance market fall under an undocumented economy, government should articulate policies that would allow it to trade freely in the autonomous market to further deepen the foreign exchange market and thereby unlock and stimulate the huge potentials in remittance inflows for development.

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