

## WORKERS' REMITTANCES, GOVERNANCE INSTITUTION AND PRIVATE INVESTMENT IN NIGERIA

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**ABSTRACT.** Workers' remittances have been identified as an important investment driver, by easing credit availability and lowering cost of investment. However, the literature suggests that governance institutions play a crucial role in how this inflow affects investment. Nigeria has been experiencing continuous increase in workers' remittances over time while the level of investment is still low. This work sought to investigate the role of governance in the remittance-investment nexus in Nigeria. A GMM estimation technique was adopted to estimate a simplified institutional framework. The result shows that remittances performed better in influencing investment when governance institution improves. Hence, government is encouraged to improve the state of governance in Nigeria.

### 1. INTRODUCTION

The rate, size and uses of remittances from developed to developing countries is gaining continuous interest among researchers. The official volume of global remittances has increased systematically from less than a billion dollars in the 1980s to US\$101.3 billion in 2005. In 2006, global remittances was computed to be US\$317.9 billion and by 2010 (4 years later), it has increased to US\$440.1 billion. That is the average growth rate of global remittances between 2006 and 2010 was 8.5%, which was greater than world GDP growth rate.

Several academic and policy papers have examined the possible effect of this inflow on the receiving economy. The general consensus is that the consequence of remittances on development in the long run is yet to be well understood. Furthermore the impact of remittances on growth could be over shadowed by its impact on investment (Gheeraert et al, 2010). The literature suggests that remittances acts as a substitute to credit constraint in a country with weak financial sector while it complements access to credit in a country with sound financial development (Levine, 1997). However, of importance is the way remittances affects investment through improved governance institution. A country that exhibits sound governance institution tends to attract more private investment compared to a country with weak governance institution (Busse and Hefeker, 2007). This implies that investment-induced remittances could be severely constrained by weak governance.

A World Bank Report shows that in 2010, Nigeria was the world's 10th top remittance recipient and the 6th in the developing world. When countries were ranked according to the share of remittances in GDP, Nigeria was in the 9th position in Sub-Saharan Africa in 2009 with 5.6% of GDP (World Bank, 2010). In terms of volume, remittances were US\$22 million in 1980 but fell to US\$10 million in 1990. In 2000, the inflow rose dramatically to US\$1.3 billion

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and by 2005, the amount has risen to US\$3.3 billion while in 2010 it was computed to be US\$10 billion.<sup>1</sup> Given this trend, it appears the end to such increase is not on sight.

Since more than a decade now, the financial development of Nigeria has been improving going by the improvement in the performance of the stock market, the banking and insurance sectors. This relatively vibrant financial market has helped to mobilize both local and foreign capital<sup>2</sup> for investment purpose. However, as the financial market is improving, the country is still grappling with institutional challenges. These institutional challenges may hinder investment motive of remitters or remittance receivers. Lack of evidence on how remittances influence investment through governance institution may put government in the dark by not recognizing how investment are affected by remittances through governance situation of the country. This is the gap the present paper seeks to fill. Specifically, this work focuses on how institutional framework influences both remittances and investment on one hand and how remittances impact on investment on the other hand. It also examines the effect of the interaction of institutional framework and remittances on investment.

After the introductory section, the next section discusses some stylized facts about remittances, investment and institutional framework. Section three investigates theoretical and empirical evidence on the subject matter while section four contains methodological issues and technique of estimation. Section five presents result while section six concludes.

## 2. STYLIZED FACTS ABOUT REMITTANCES AND INVESTMENT IN NIGERIA

**Table 2.1 Share of each country in total SSA remittances**

Countries	1980-1990	1991-2000	2001-2009
Lesotho	9.48	6.82	2.51
Sudan	6.70	6.29	11.66
Burkina Faso	4.18	1.71	0.36
Senegal	2.64	3.09	5.85
Kenya	2.05	5.19	7.20
South Africa	2.02	3.43	4.35
Swaziland	1.89	1.59	0.64
Mali	1.82	1.88	1.57
Benin	1.78	1.82	1.16
Mozambique	1.78	1.01	0.56
<b>Nigeria</b>	<b>0.32</b>	<b>17.69</b>	<b>34.87</b>
Mauritius	0.00	2.10	1.56
Côte d'Ivoire	0.97	2.05	1.16
Uganda	0.00	0.89	2.88
Togo	0.43	0.41	1.43

*Source: Author's computation using the IMF Balance of Payments Yearbook, 2010 CD-ROM.*

Remittance inflows to Nigeria was in its infancy in the 1980s due to some reasons such as inadequate records of the inflow, very few Nigerians abroad, lack of/acute supply of money transfer agents, rigid currency convertibility etc. Top destination countries of Nigeria emigrants were the United States, the United Kingdom, Chad, Cameroon, Italy, Benin, Côte d'Ivoire, Spain, Sudan, and Niger (World Bank, 2011). It must be noted that the advanced countries account for more than 70% of Nigeria remittances with United States topping the list.<sup>3</sup> Thus the restrictive immigration policy of the advanced countries in the first decade that reduced opportunity to emigrate could account for the small inflow. In the second decade, 1991-2000,

<sup>1</sup>This amount precludes unofficial remittances which were assumed to be almost half of the official figure (Lucas, 2004).

<sup>2</sup>The IMF Balance of Payments defines foreign capital flow to include debt equity, direct investment and portfolio investment. Even though foreign portfolio is very minimal in Nigeria, it has been increasing.

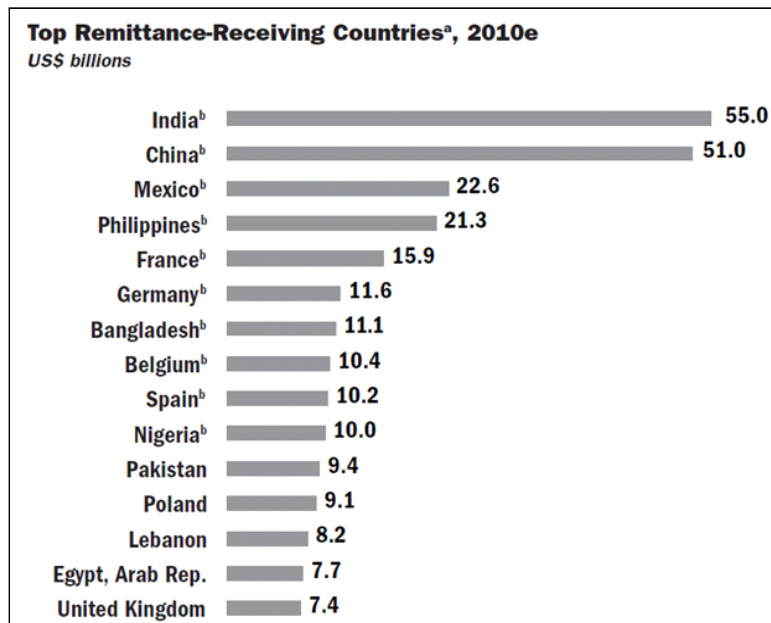
<sup>3</sup>See World Bank (2011).

Nigeria was the highest remittance receiving country in Africa and accounted for around 18% of the continent's remittances (Table 2.1)

This systematic increase can be traced to simultaneous unemployment level in the country and series of relaxed immigration policy of the advanced countries, particularly the US, Canada, Sweden and the UK. Increased unemployment rate creates tendency to emigrate, while the expansionary immigration policy acts as a channel through which emigration could be made relatively possible. In particular, unemployment acts as a push effect while the relaxed immigration policy made emigration less costly and so, increases the amount of emigrants pushed out by unemployment which later causes increase in remittances. The Table also shows that Kenya and South Africa took the second and third position respectively.

Another factor is the structure of Nigeria emigrants abroad. The World Bank (2011) reported that in 2000/2001, Nigerian expatriates in the OECD was 247,497 and constituted 55.1% of total emigrants (OECD, 2005). These highly skilled include the technicians, engineers, doctors, nurses, teachers, etc. These set of people tend to get a better paid job abroad and could remit huge amount back home. Hence, since 1991, Nigeria has been the top remittance receiving Sub-Saharan African country with its share surpassing two-third of the total remittance into the region.

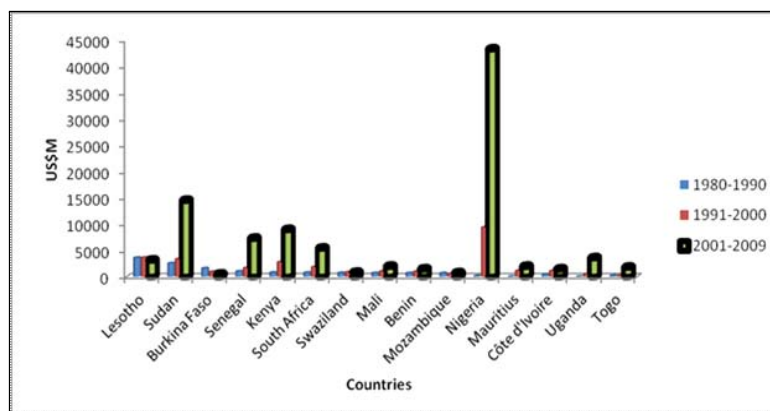
In the recent time, Nigeria has registered its name on the top remittance receiving countries in the world. As Figure 2.1 shows, Nigeria was the world's 10th remittance receiver in 2010 with the volume being, US\$10 billion. This amount was more than two-third of government total final consumption spending in the same year. The Figure shows that the country was the only Sub-Saharan Africa that appeared on the chart. India and China, two Asia countries topped the world remittance table in the same year.



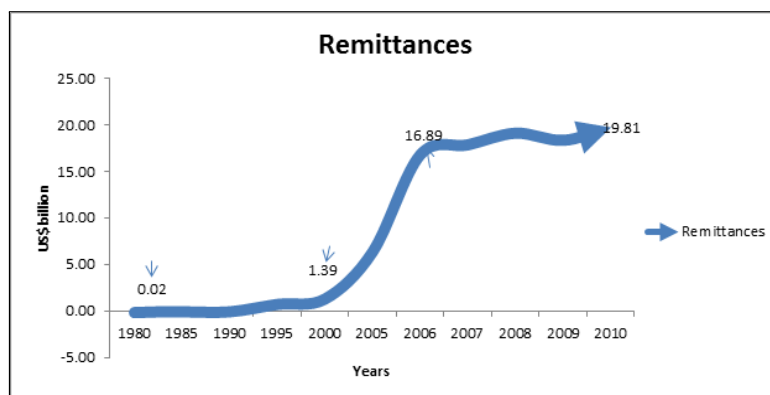
Source: Extracted from Migration and Remittances Factbook (2011a), 2nd Edition, the World Bank. Letter b represent top 10 remittances receiving countries.

Figure 2.2 shows the volume of remittance inflows to top remittance receiving SSA. In the 1980-1990 period, the highest remittance receiving country was Lesotho with US\$3.6 billion followed by Sudan with US\$2.5 billion while Nigeria recorded US\$121 million. The country's remittances rose to US\$9.37 billion in the 1991-2000 period while Lesotho which stood at the second position recorded US\$3.6 billion. Thus there was a dramatic increase in the inflow

of remittances to Nigeria in 1991-2000 period compared to 1980-1990 period. This dramatic increase continued to 2001-2009 when the country recorded US\$43.3 billion and in 2010 alone, the amount remitted was more than what was remitted in the 1991-2000 period. This Table clearly shows that the inflow of remittances into the economy has been increasing systematically since 1990 and the end to such increase appears not to be on sight.



**Volume of Remittances in Selected Sub-Saharan Africa.** *Source: Author's computation using the IMF Balance of Payments Yearbook, 2010 CD-ROM.*



**Trend of Workers' Remittances between 1980 and 2010.** *Source: computed. Note: data for 2005-2010 were extracted from CBN annual abstract and statement of accounts while data for other years were from IMF Balance of Payments Yearbook various issues).*

This statement was supported by the trend of remittances since 1980. Figure 2.3 shows that remittances was less than US\$1 million in 1980 but rose to US\$1.4 billion in 2000 while six years later, the flow climbed up to US\$16.9 billion. By 2010, the inflow rose markedly to US\$19.8 billion. The trend line (which is in log)<sup>4</sup> shows that Nigeria did not meet up with the trend

<sup>4</sup>Trend lines can be used to identify positive and negative trending charts, whereby a positive trending chart forms an upsloping line when the support and the resistance pivots points are aligned, and a negative trending chart forms a downsloping line when the support and resistance pivot points are aligned. Trend lines are typically used with price charts, however they can also be used with a range of technical analysis. The logarithmic transformation is just to show that the changes are really an attempt to approximate percentage changes than pure numerical value (see Robert and John, 1948).

started in 1985 but as from 2005, the country actually surpassed the line, an indication that there was no real fluctuation in the inflow.<sup>5</sup>

The reasons for the sudden jump from US\$1.3 billion in 2000 to US\$16.89 billion in 2006 were improved way of recording remittances, large outflow of Nigerians to the advanced countries. This large outflow was encouraged not only by expansionary migration policy of the West but also as a result of migration network that necessarily reduces cost of migration. Other reasons include large unemployed skilled graduates, spate of insecurity in the country, lack of sound economic environment and perhaps, trade liberalization.

**2.1. Remittances and other foreign inflows.** To show clearly the position of remittances in the country, it is imperative to present some important foreign inflows of Nigeria from abroad. In 2005, remittances were 6% of GDP while direct investment, and portfolio investment was 4.4% and 1% respectively (Table 2.2). During this period, crude oil inflow was almost half of the country's GDP. In 2006, while direct investment's share in GDP fell to 3.3% and that of crude oil fell to 38.4%, remittances rose to 12.0% and portfolio investment rose slightly to 1.9%. In 2006, the share of remittances in GDP was almost double the share of government expenditure in GDP. The flow experienced a slight downward trend in 2007 and 2008. The same thing occurred in the case of portfolio investment and crude oil inflow. It must be recalled that this period was marked with the global financial crisis and as a result, some inflows may likely be victims of the crisis.

Clearly, remittances were the second largest foreign inflows in Nigeria after crude oil inflow. Although, its share in GDP was three times lower than that of crude oil inflow, it was more resilient than crude oil inflow. In terms of financial capacity, the inflow can finance between 70% and 86% of Federal government spending while in 2006 alone, the amount of remittances is enough to settle the country's total spending in excess of 68%. Thus, as much as 70% of government budget (on average) are spent in various ways (not tied) by remittances recipients. The implication of this is that if there is no policy directive to indirectly control its uses, it can set government policy off balance.

**Table 2.2 Share of selected foreign inflows in GDP**

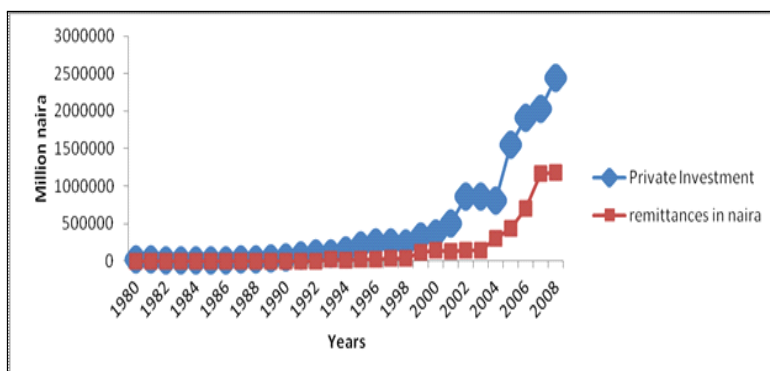
Years	Workers' remittances	Direct investment	Portfolio investment	Foreign inflow from crude oil	Govt. expend.	Remittances/ Govt. budget
2005	5.78	4.44	0.79	48.46	6.81	84.84
2006	11.51	3.34	1.93	38.43	6.86	167.81
2007	10.69	3.63	1.59	38.73	12.46	85.83
2008	9.17	3.94	0.64	40.19	12.71	72.15
2009	10.76	5.05	0.28	31.98	12.74	84.48
2010	9.98	3.07	1.89	36.07	14.46	68.98

*Source: computed using CBN Annual Report and Statement of Accounts (various issues).*

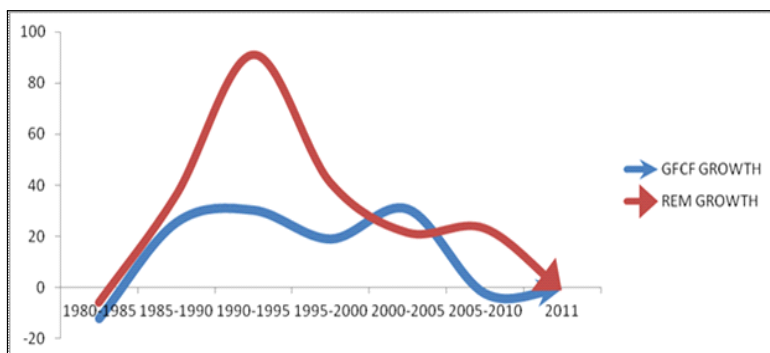
**2.2. Remittances and private investment in Nigeria.** Given the behavior of remittances over time, it is no doubt that it will provide additional fund for investment.<sup>6</sup> Figure 2.4 shows the behavior of private investment and remittances over time. Private investment was higher than remittances in any year, particularly from 1992. While remittances maintained an upward trend, private investment fell between 2002 and 2004 but recovered in the years later. This suggests that remittances are relatively more stable than private investment. Another observation from the Figure is that both remittances and private investment were increasing throughout the period except for a brief decline in investment in 2002 to 2004. This suggests that there might be a positive association between private investment and remittances.

<sup>5</sup>CBN started to compute and release Workers' remittances in the Statistical Bulletins and Statement of accounts starting from 2005. If such data were available before 2005, they were not readily accessible.

<sup>6</sup>Adepoju (2007), Orozco (2007) provide comprehensive review of the use of remittances in Nigeria.



**Remittances and private investment.** Note: data for 2005-2010 were extracted from CBN annual abstract and statement of accounts while data for other years were from IMF Balance of Payments Yearbook various issues).



**Growth rate of private investment and remittances.** Note: data for 2005-2010 were extracted from CBN annual abstract and statement of accounts while data for other years were from IMF Balance of Payments Yearbook various issues).

This association is clearly revealed in Figure 2.5. The graph relates average growth rate of remittances to private investment over time. Remittances grew faster than private investment in the 1980-1985 while in 1985-1995, it maintained relatively stable average growth rate as remittances grew systematically reaching its peak in 1990. From 1990, the growth rate fell considerably to the extent that in 2000-2005 periods, private investment grew relatively faster than remittances. The general observation from the graph is that when remittances were growing, private investment was also growing but remittances grew faster than private investment. When remittances was falling, private investment was also falling but remittances fell faster than investment. Thus, it can be conjectured that there is a positive association between remittances and private investment.

**2.3. Remittances, Private Investment and Governance institution.** The World Bank Group researchers computed and released six governance indicators namely voice and accountability, political stability and absence of violence, governance effectiveness, regulatory quality, rule of law and control of corruption. The Political Risk Service (PRS) released what can be assumed to be a more comprehensive governance indicators and it is called the International

Country Risk Guide (ICRG). The ICRG contains twelve governance indicators.<sup>7</sup> This study makes use of the ICRG because of its flexibility and consistency. The selected governance indicators are political accountability, corruption and law & order. Political accountability measures the perception of the likelihood that the government will be accountable for their actions and that the government will not be overthrown or destabilized by unconstitutional or violent means. Corruption measures the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests. Law and order measures the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence. The reason for selecting these three is based on adequate data availability and accessibility.

The maximum index placed on each indicator is six (6). The higher the value, the more improved is the governance indicator. Nigeria had the most improved political accountability in 1980-1985 and 2006 (Table 2.3). Hence, government was relatively more accountable during the democratic regime. There is a relatively positive relationship between remittances and governance and also between private investment and governance. For instance, when the share of private investment (GFCF/GDP) fell from 9.41 in 1985-1990 period to 8.83 in 1990-1995 period, political accountability also fell from 2.68 to 1.90 respectively. When GFCF/GDP rose from 9.41 in 2000-2005 to 11.11 in 2006, political accountability also rose from 3.05 to 3.08. It should be noted that between 1990 and 2000 when political accountability is very low, the share of private investment in GDP was also very low (less than 10%).

**Table 2.3: Remittances, investment and governance institution**

	GFCF/GDP	PREM/GDP	REM/GFCF	Political Account- ability	Corruption	Law and Order
1980-1985	17.2	0.0	0.1	3.08	1.83	1.00
1985-1990	9.4	0.0	0.2	2.68	2.00	1.00
1990-1995	8.8	0.7	12.1	1.90	2.00	2.49
1995-2000	6.2	1.8	33.3	1.94	1.58	3.00
2000-2005	9.4	2.7	28.8	3.05	1.00	1.93
2006	11.1	6.2	55.8	3.08	1.00	1.50
2007	9.8	9.5	97.1	3.06	1.00	1.50
2008	10.4	10.7	102.3	3.06	1.00	1.50
2009	10.1	10.1	99.6	3.06	1.00	1.50

*Source: computed using CBN Annual Report and Statement of Accounts (various issues) and Political Risk Service (PRS).*

The Table shows that corruption index in Nigeria is very low, an indication that the level of corruption in the country is still high, particularly in the 2000s. Also, law and order is very weak, hovering around 1.00 and 3.00. From 2000 to 2009, the share of private investment in GDP hovered around 9% and 11%. Thus, there appear to be a relatively positive association between governance and private investment. The general picture suggests that governance institution is very weak and investment tends to be associated with the behavior of governance institution.

### 3. LITERATURE REVIEW

Private investment is affected by governance directly through rational behavior of agents and indirectly through its effect on remittances. The direct effect of governance on investment is emphasized by North (1981) where it was argued that “good” governance institutions reduce

<sup>7</sup>The ICRG indicators are governance stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality.

uncertainty and promote efficiency. The forward looking nature of investment underlines the importance of a stable and secured environment, improved bureaucratic performance and more predictable level (North, 1981; World Bank, 2004). Further, better governance contributes to the effective delivery of public goods that are necessary for productive business.

The work of Alesina and Perotti (1993) test on a sample of 70 countries for the period 1960-85 and found that weak political stability creates fear for investors and therefore reduces investment. Pastor and Sung (1995) investigated the effect of democracy on investment in 15 developing countries (in Europe) in a pooled regression and show theoretically and empirically that democracy is positive and significant in a very diverse country set and over several different specification, and in either ordinary least-squares-dummy variables or random effects regressions. Rodrik (1989) shows that policy uncertainty tends to act as a tax on investment, and as result, sensible investment reform may prove ineffective if there exists policy uncertainty.

Aysan and Nabli and Varoudakis (2007) investigate the effects of convergence in governance on investment decisions among a sample of 43 developing countries, using dynamic system GMM estimations. They investigate the impact of Black Sea Economic Cooperation (BSEC) on its member countries regarding convergence of governance institutions and show that convergence occurred within the region with respect to bureaucratic quality, control over corruption, law and order, internal conflict, ethnic tensions, but not to government stability and democratic accountability. In particular, they show that governance institutions such as quality of administration, political stability and democratic accountability have positive and significant effect on investment. Specifically, investment would increase by 0.58% per year if bureaucracy quality and control of corruption catches up with the EU-12 average or a yearly increase of 0.17 and 0.18% respectively

Everhart and Sumlinski (2001) examine whether higher levels of public investment are associated with higher or lower levels of private investment, the impact of corruption on this relationship, and the long-run implications for growth and sustainable development. The paper provides evidence consistent with the hypothesis that corruption lowers the quality of public investment which in turn lowers private investment.

The indirect effect, which works through remittances is investigated by some authors such as Ghreeraert, Sukadimata and Traça (2010), Bjuggen, et al (2010), Faini (2007), Ratha (2003), World Bank (2006) Catrinescu et al (2008) and a host of others. Although much of the theoretical and empirical findings support a positive effect of governance institution on investment through remittances, authors do not agree on the specific methodology that establishes this positive effect.

Bjuggen, et al (2010) investigated the effect of remittances on investment in 79 developing countries during 1995-2005. With the aid of dynamic panel data approach, it was found that high quality institutional framework and well developed credit market increase investment even though, the marginal effect of remittances as a financial source for investment decreases with improved institutional framework and a more developed credit market. This implies that remittances tend to substitute for weak governance and less developed credit market.

In the works of Faini (2007) and Ratha (2003), remittances promote investment in an environment where sound governance prevails. According to Faini (2007), for the full impact of remittances on investment to be realized, a sound policy environment is needed – one that does not foster macroeconomic uncertainty, does not penalize agricultural activities, and supports the build-up of social and productive infrastructures. Moreover, in less systematic analysis, Ratha (2003) finds that during 1996-2000, remittance receipts averaged 0.5 percent of GDP in countries with a higher-than-median level of corruption compared to 1.9 percent in countries with lower-than-median corruption, giving an indication that corruption has an effect on the level of income generated from remittances.

According to the World Bank (2006) remittances are more effective in both raising investment and enhancing growth in countries with higher levels of human capital, strong institutions, and good policy environments. In particular, it was reported that remittance flows have grown



significantly as a result of favourable government policies that have improved access to banking, improvements in technology that enhances the processes related to money transfers, better collection of data, concerns of money laundering and terrorist financing, lower and affordable costs of remittance transactions, and a wider network of service providers in the remittance market.

Using Dynamic Data Panel estimates, Catrinescu et al (2008) find that remittances exert a weakly positive impact on long-term macroeconomic growth. The paper also considers the proposition that the longer term developmental impact of remittances is increased in the presence of sound economic policies and institutions. Using dynamic panel data model, the authors show that remittances will contribute to investment in countries with higher quality political and economic policies. They apply the model to 90 countries and do not differentiate the case of developing countries and more precisely that of Sub-Saharan Africa countries. These countries should face continually governance issues, and the slow pace or lack of political and economic progress does affect investor's perceptions.

Ahoure (2008) examines the role of governance in remittances and investment in Sub-Saharan African countries based on panel data between 2002 and 2006. Using the system GMM developed by Blundell and Bond (1998) they found that over all, remittances negatively affects investment when controlled for governance. However, countries with high governance index (over the median point) tend to have low negative effect of remittance on investment. Thus, he suggests that governance indicators such as political stability, control of corruption and general state of governance are prerequisites to improve the impact of remittances on economic growth.

Abdih et al (2008) address the issue of remittances and institutional quality in the recipient country. They employed simple two-period overlapping generation model, and found that increase in remittances tends to deteriorate institutional quality- specifically to an increase in the share of funds diverted by the government for its own purposes. The empirical investigation of the model for a cross section of 111 developing countries shows a negative impact of the ratio of remittance inflows to GDP on domestic institutional quality. They found that a higher ratio of remittances to GDP is associated with lower indices of control of corruption, government effectiveness and rule of law.

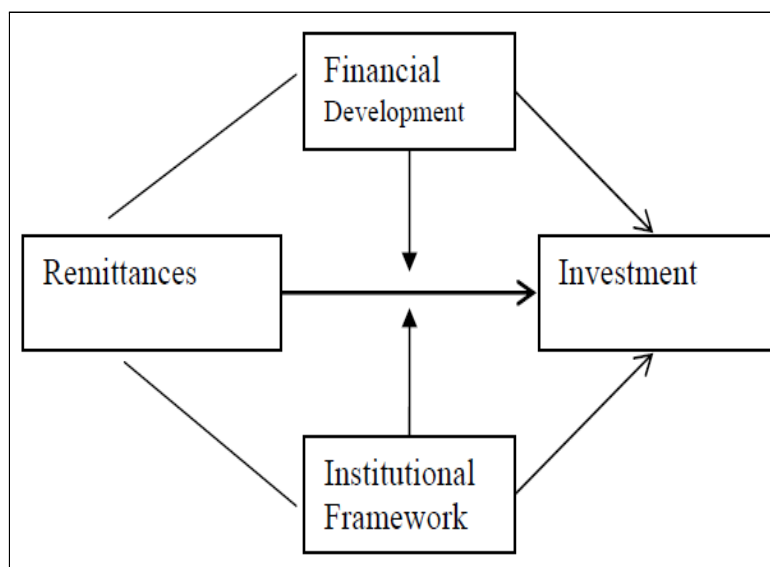
Although, the literature review on the subject matter is not exhaustive, the ones treated show that investment is driven by remittances and governance institution. Meanwhile, remittances itself is also affected by governance institution, an indication that both remittances and governance variables should not be treated as exogenous variables in the investment model. Failure to recognize this will lead to inefficient and inconsistent estimation of the coefficients. Also, it is not impossible to discover that this coefficient and others in the investment model may not show any significant effect. Even though this has been empirically corrected, the evidence is still scarce in the case of Nigeria. Thus, this study seeks to fill these gaps.

**3.1. Theoretical Motivation.** The connection among financial development, governance institution and remittances is presented in Figure 3.1. There is a direct and positive relationship between financial development and investment on the one hand and governance institution and investment on the other hand. Sound and functioning financial institution reduces credit constraints and provides access to credit for the existing and potential investors, thereby raising investment level of the country. Conversely, in a country where financial development is malfunctioning, access to credit will be difficult and such credit constraints could hinder investment prospect (King & Levine). To prevent this, remittance inflow could serve as a substitute so that the causation runs directly from remittances to investment. Therefore, remittances will not be held as financial instrument due to high risk arising from poor financial institution, instead, it will be channeled to investment directly.

In the same vein, a well developed governance institutions guarantees investors with certainty that they will reap where they sow. They also know with certainty that justice will be done to any investment promise not fulfilled. Conversely, a country with weak institution places

high investment risk on investors and investors will react by reducing their level of investment. Observably, the nature of the moderating effect of institutional quality on the investment impact of remittances is unclear. On the one hand, in the presence of poor institutional quality, remittances could be the only external capital available to entrepreneurs. In a case like this, remittances substitute for bad governance institution and so, the causation runs directly from remittances (the straight line from remittances to investment in Figure 3.1).

Apart from the direct relationship, governance institution and or financial development can also affect investment through remittances. As the Figure shows, good institutions influence remittances which in turn make investment desirable. Sound governance institution motivates remitters because they know for sure that their money will be effectively put to use. Further, remittances are likely to be disclosed and thereby officially recorded if institutions are supportive. The officially reported fund could be made available to reduce credit constraint for investment. On the other hand, the effect of institutional environments may transcend access to external finance. Poor institutional quality may result in weak incentives to invest. For instance, in an institutional environment characterised by political instability, inefficient bureaucracies, and lack of just and fair legal recourse, entrepreneurs may find it difficult to identify safe and secure profitable opportunities. Conversely, sound institutional frameworks are more likely to create the appropriate incentive structure for investment from remittance proceeds. Therefore, if financial development is effective and governance institution is sound, the complimentary effect dominates. In this case, remittances pass to investment through institutional quality/financial development. Hence an additional hypothesis is the more complementary governance and remittances are, the greater remittances positively impact on investment. Meanwhile, arrows in Figure 3.1 can be reversed. Investment can influence financial development and institutional framework which, in turn, can influence remittance flow.



**The Theoretical link among Remittances, Governance and Investment**

#### 4. METHODOLOGY

The objective of this study is to find whether remittances have any causal effect on investment expenditure. Following the theoretical motivation discussed above, investment function is specified as follows:

$$INV_t = f(\text{rem}_t, \text{inst}_t, \text{mp}_t, \text{rem} * \text{inst}_t, X) \quad (4.1)$$

Where INV means private investment, rem represents workers' remittances, inst is a measure of institutional quality, mp is monetary policy instruments and X represents other catchall variables that, in the literature affect private investment. These variables include growth rate of GDP, growth rate of government spending, inflation rate, and exchange rate. The interactive variable in equation is meant to capture the complementarity or substitutability of remittances and governance institution in affecting investment.

**4.1. Measurement issues and description of variables.** The major problem confronting governance measurement is the issue of data quality. Data are not always of good quality because their coverage is spotty, and comparable. The World Bank researchers attempted to address these problems by developing indicators that rank countries according to quality of governance by drawing on many available sources (Kaufmann, Kraay and Mastruzzi, 2006). This is called the Worldwide Governance Indicators (WGI). The WGI rank countries with respect to six aspects of good governance: Voice and Accountability, Political Stability & Violence, Government Effectiveness, Rule of Law, Regulatory Quality, and Control of Corruption. These indicators have been used by researchers as explanatory variables and by some developed countries such as United States to allocate aid packages (Thomas, 2010). These indicators describe the effectiveness of government in formulating and implementing sound policies, the respect for the rule of law, the state of the institutions that govern against corrupt practices, and the stability of the political environment.

While the authors have drawn explicit attention to the large standard errors associated with the governance estimates, they argue that the methodology employed for developing the indicators has three important strengths. First, the aggregation methodology makes the WGI more informative than any individual data source. Second, it allows calculation of the margins of error of the estimated indicators. A third advantage of the methodology is that it creates a dataset that is global in coverage, albeit with some missing values. However the WGI are not available for a long time period, not very comprehensive and cannot facilitate comparison, thereby reducing its capability of long run prediction.

To address these issues, a number of aggregate governance indicators have been produced, such as the International Country Risk Guide (ICRG) produced by the PRS group. The ICRG separated economic and financial governance from political governance. The political risk assessment was centered on the subjective interpretations of pre-specified risk components whose predetermined weights are made the same for all countries to facilitate comparison across countries and over time. The political risk components comprises government's ability to stay in office and to carry out its declared programmes, contract viability, reduction of internal and external conflict, political violence, corruption, military in politics, religious and ethnic tensions, democratic accountability, bureaucratic quality and strength and impartiality of the legal system (Arndt and Oman 2006).

The ICRG indicators was adopted for this study for at least two reasons. First, the indicators are more comprehensive and more recent than the WGI. Second, data on this indicators are relatively accessible for longer period than the WGI. Three governance indicators namely control of corruption, law and order and control of political instability, were used in this study. The reason is that these three have more effect on remittances than others. Corruption affects economic activities adversely more so in developing countries, though developed countries are not immune to it. Hence the more a country controls corruption, the more it attracts remittances and investment.

Law implies an appraisalment of the durability and impartiality of the legal system, while order implies the popular observance of the law. A reliable judiciary system reduces transaction costs for enterprises and sends positive signals to remitters and investors that rules of law are equitably and consistently protected and enforced. Thus, the more improved the rule of

law, the more remitters are willing to remit for investment. Political instability increases the vulnerability of an economy both in the eyes of its citizens and foreign investors. Several authors, using different indicators of political uncertainties, have brought empirical evidence that institutions associated with political instability hamper remittance-induced investment (Rodrik, 1989; Alesina and Perotti, 1993).

As a standard practice, we also include a set of control variables in order to isolate the effects of the variables at the core of this investigation. The first of these relates to the view that investment outlays respond to economic growth. Intuitively, real growth of total output is equivalent to increase in purchasing power and hence demand. On the aggregate, such increases in demand are invitations to expand the productive capacity as outlined in the Keynesian accelerator theory. The growth rate of GDP is therefore used to capture the accelerator theory. The financial resources required to undertake necessary and important investment is scarce and costly. This is likely to constrain the optimum investment, *ceteris paribus*. Lending rate is used to capture the cost of capital. The higher the interest rate, the higher the cost of capital and hence, the lower the investment.

The third variable we control for is the access to the international market. Whilst the importance of domestic market cannot be overemphasized, access to international market is an increasingly important factor considering where to invest and at what scale. The share of trade (exports plus imports) in GDP is used to proxy access to both input and output international markets. Furthermore, the price of imported raw materials and capital goods is affected by the country's exchange rate. Depreciation or devaluation of a country's currency with respect to its trading partner will make imports more expensive and this leads to increase in the prices of imported products. Hence, exchange rate is expected to negatively affect investment.

Remittances are often defined as the sum of workers' remittances, compensation of employees, and migrants' transfers. Workers' remittances are current private transfers from migrant workers residing in a given country to recipients in their country of origin. If the migrants live in the country of settlement for a year or longer, they are considered residents, regardless of their immigration status. If the emigrants have lived in the country of settlement for less than a year, their entire income in the host country is classified as compensation of employees. Since the objective of this study is to examine how money sent by migrants abroad affects investment and how institutional quality facilitates the inflow, workers' remittances are considered in this study.

In order to capture the effect of fiscal and monetary policies on investment, some fiscal and monetary policy instruments such as government spending, credit to the private sector are included in our model. Expansionary government spending is expected to increase national income and hence increase investment. Increase in credit to the private sector implies easy access to credit by economic agents and this lead to increase in investment. It follows that the two policies are expected to positively affect investment.

**4.2. Technique of estimation.** There is no doubt that equation 4.1 is fraught with endogeneity problems. One of such problems is the dependence of the error distribution on the regressors' distribution, that is, there is the possibility of heteroscedasticity. The usual forms of the diagnostic tests for endogeneity and overidentifying restrictions will be invalid if heteroskedasticity is present. These problems can be partially addressed through the use of heteroskedasticity consistent or "robust" standard errors and statistics. The usual approach today when facing heteroskedasticity of unknown form is to use the Generalized Method of Moments (GMM), introduced by Hansen (1982). Efficient GMM brings with it the advantage of consistency in the presence of arbitrary heteroskedasticity, but at a cost of possibly poor finite sample performance. If heteroskedasticity is in fact not present, then standard instrumental variable (IV) may be preferable. Even when IV or GMM is judged to be the appropriate estimation technique, the necessary condition for validity is that the number of the IV must be greater than or equal to the number of the explanatory variables. In this case, J-statistics act as a test for

model mis-specification. A large J-statistic indicates a mis-specified model. Thus the OLS and GMM versions of equation 4.1, after log-linearizing all the variables discussed above (except inflation and GDP growth rate), are specified as follow:

$$\mathbf{INV}_t = \alpha_0 + \alpha_1 \mathbf{REM}_t + \alpha_2 \mathbf{INST}_t + \mathbf{X}'\beta_i + \varepsilon_t \quad (4.2)$$

$$\Delta \mathbf{INV}_t = \alpha_0 + \alpha_1 \Delta \mathbf{INV}_{t-1} + \alpha_2 \Delta \mathbf{REM}_t + \alpha_3 \Delta \mathbf{INST}_t + \Delta \mathbf{X}'\beta_i + \varepsilon_t \quad (4.3)$$

$$\begin{aligned} \Delta \mathbf{INV}_t = & \alpha_0 + \alpha_1 \Delta \mathbf{INV}_{t-1} + \alpha_2 \Delta \mathbf{REM}_t + \alpha_3 \Delta \mathbf{INST}_t \\ & + \alpha_4 \Delta \mathbf{REM}_t * \Delta \mathbf{INST}_t + \Delta \mathbf{X}'\beta_i + \varepsilon_t \end{aligned} \quad (4.4)$$

Where  $\alpha$  and  $\beta$  are parameters to be estimated and  $\varepsilon$  is stochastic disturbance. All other variables are as defined in equation 4.1. Equation 4.2 is the OLS version while equations 4.3 and 4.4 are the GMM versions. While equation 4.3 shows the direct effect of remittances on investment, equation 4.4 shows that remittances may not, on its own affect investment, but interact with governance institutions. As noted earlier one, the interactive term is used to investigate the complementarity or substitutability between the remittances and governance institution. A positive and significant coefficient of the interaction term between institutional quality and remittances would imply that remittances are more effective in inducing investment in sound institutional environments. In that case, higher institutional quality would be deemed as complimenting remittance inflows to boost investment. The converse would suggest that remittances are life line to investment in institutionally difficult settings.

**4.3. Sources of Data and scale of measurement.** Data on governance indicators are sourced from the ICRG published by the Political and Risk Service (PRS) and data on the relevant governance indicators are extracted from the PRS (2011). The study employed three of the twelve governance indicators published by the institution on the ground of data availability. These are law and order (lod), corruption (cor) and political stability (pol). The highest value for lod and cor is 6 while the lowest is 0. The highest value for pol is 12 while the lowest is 0.

Data on investment, GDP, openness, interest rate, exchange rate, government spending, and credit to the private sector were extracted from the newly released World Development Indicators made available by the World Bank (2012). Since the data are extracted from different sources, all the variables are expressed in log form except interest and inflation rates.

## 5. EMPIRICAL RESULTS

Inflation rate reached its peak in 1995 with 72.8% (Table 5.1). This period coincided with the military regime and when the country was facing severe economic and political crisis. The minimum inflation rate was 5.4% and it occurred in 1986 and 2007. The minimum inflation rate was experienced when the country adopted SAP<sup>8</sup> and when the country experienced relatively stable economic environment. The highest growth rate of investment in the period was computed to be 26% and it occurred in 1981 while the minimum investment growth rate was 5.4 occurring in 1999.

The minimum growth rate of remittances was less than 1% while the maximum growth rate was 10.7%. The highest growth rate of credit to the private sector occurred when the country adopted SAP while the minimum which was 9% was recorded in 2005. Highest growth rate of GDP was computed to be 10% and it occurred in 2003 while the economy recorded the least growth (growth decay) in 1981 to the tune of -13%. It must be recalled that Nigeria slumped

<sup>8</sup>Structural Adjustment Programme.

into severe economic crisis in the early 1980s but experienced boom in the 2000s. Hence it is not surprising to see how major economic variables track the behavior of the economy over time. Clearly, the descriptive analysis suggests that the economy did relatively well during the SAP period and during the democratic dispensation that commenced in 1999. This is an indication that relatively stable political terrain and democratic governance together with appropriate economic reforms are relevant for favourable economic performance.

**Table 5.1: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
infl	32	19.78	18.11	5.40	72.80
gfcf	32	10.51	4.74	5.49	26.24
rem	32	2.65	3.60	0.01	10.67
fdi	32	6.62	5.63	2.37	33.73
credit	32	23.64	12.87	9.01	49.90
interest	32	17.36	5.31	7.50	29.80
grate	32	3.54	4.86	-13.13	10.69
pol	32	2.67	0.76	0.50	3.58
cor	32	1.54	0.47	1.00	2.00
lod	32	1.80	0.83	1.00	3.00
open	32	61.93	23.05	23.00	92.76
exh	32	55.19	56.52	0.55	133.50

The pairwise correlation result presented in Table 5.2 shows that inflation, foreign direct investment, interest rate and exchange rate have negative relationship with private investment, with interest rate having the strongest relationship. The inverse relationship between inflation and investment, interest rate and exchange rate is consistent with received theories. When inflation increases, purchasing power falls and this leads to decrease in spending and hence decrease in investment. It may also be the case that as inflation increases, cost of production also increases, and this leads to decrease in investment. On the other hand, increase in investment may lead to increase in cost of production and hence increase in price level.

The relationship between interest rate and investment is negative, relatively strong and significant. This relationship is in line with the Keynesian investment theory (the cost of capital). Increase in interest rate increases cost of capital, increases cost of production and hence reduces investment. The negative relationship between exchange rate and investment suggests that depreciation or increase in exchange rate makes imports expensive and since most Nigerian investment is import dependent, investors will reduce the purchase of imported capital goods and raw materials which are now expensive, thereby reducing private investment.

There is a positive relationship between investment and credit to the private sector, GDP growth rate and degree of openness. Increase in investment leads to increase in GDP while increase in GDP also leads to increase in investment. In the same vein, if the country's degree of openness increases, there is tendency for investment to increase. Remittances and two of governance indicators show positive relationship with private investment.

Table 5.3 shows the OLS (equation 4.1) result of the effect of remittances and governance on investment. Model 1 reveals the investment model without remittances and governance variables. The model was able to explain 41% of total variation in investment. The inclusion of remittances increased the explained variation and as each of the governance indicators was included, the share of explained variation was increasing. This suggests that governance appears to be an important driver of investment in Nigeria.

The first model shows that when remittances and governance variables were not included, four variables significantly affected investment. When remittances were included, all the variables maintained their signs but exchange rate was insignificant. This is an evidence of the presence of endogeneity. Also, remittances were not only wrongly signed, but also not significant. When political stability variable was introduced, remittances were still negatively signed

and insignificant. In the fourth model, corruption was included and surprisingly it was negative but insignificant, this suggests that corruption appears not to be a serious constraint to investment in Nigeria. It may also suggest that corruption does not directly affect investment. Finally, law and order shows negative and significant sign.

**Table 5.2: Pairwise Correlation Matrix**

	gfcf	infl	rem	fdi	cre	int	gra	pol	cor	lod	open	exh
gfcf	1											
inf	-0.21	1										
rem	0.14	-0.38*	1									
fdi	-0.01	-0.08	-0.17	1								
cre	0.25	0.27	-0.65*	0.22	1							
int	-0.55*	0.30	0.04	-0.29	-0.36*	1						
gra	0.44*	-0.21	0.34	-0.14	-0.46*	0.33*	1					
pol	0.26	-0.08	0.27	0.18	0.15	-0.32	-0.02	1				
cor	0.08	0.48*	-0.74*	0.06	0.62*	-0.08	-0.26	-0.40*	1			
lod	-0.58*	0.36*	-0.01	0.04	-0.34	0.41*	-0.01	-0.45*	0.01	1		
open	-0.16	0.41*	0.72*	-0.24	-0.91*	0.35*	0.44*	0.00	-0.81*	0.16	1	
exh	-0.21	-0.38*	0.79*	-0.17	-0.71*	0.23	0.42*	0.34	-0.94*	0.06	0.87*	1

In summary, the OLS result shows that all conventional variables that drive investment in Nigeria are rightly signed, except income which was negative but insignificant. Also, remittances show negative but insignificant effect while the governance indicators were wrongly signed except political stability. The reason why some of these variables behave abnormally could suggest serious endogeneity problems. It could also be the case that remittances and governance variables may not independently affect investment due to seeming link among them. It is in view of this that generalized method of moment (GMM) specified in equation 4.3 were adopted and the result is presented in Table 5.4.

**Table 5.3: OLS result showing the effect of remittances on investment**

Variable	1	2	3	4	5
infl	0.00255	0.00147	-0.0268	-0.0203	0.012
fdi	-0.15	-0.158	-.216*	-.225*	-0.132
credit	.287*	0.27	0.173	0.173	0.0366
interest	-.515***	-.508**	-.377**	-.374**	-.327*
grate	-0.249	-0.246	-.273*	-0.248	-.351**
open	.299**	.293*	.347***	.347**	.244*
exh	-.0599**	-0.0522	-.109***	-.123**	-0.0825
rem		-0.166	-0.216	-0.207	-0.281
pol			3.61***	3.58***	2.05
cor				-1.77	-1.17
lod					2.26*
_cons	-0.708	0.5	-8.68	-5.29	7.79
r2_a	0.41	0.43	0.551	0.552	0.59
rmse	3.64	3.7	3.18	3.25	3.04
F	4.08	4.49	5.22	5.52	6.05

**Note:** \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

As argued earlier, sound institutional quality might motivate migrants to remit for investment purpose. Not only that, remittances receivers will be willing to embark on promising or viable project if government policy is credible. If the political institutions lack credibility, remittance receivers will devote larger proportion to consumption. The first model in Table 5.4 (Model 6) was able to explain about 68% of total variation in investment while in model 7, which included the association of remittances and law and order shows 73% of total variation. As remittances

interact with governance indicators one after the other, the explained variations also increases. Other statistical properties satisfy statistical validity for using the GMM technique.

Interest rate and exchange rate maintain their direction of effect. Remittances, inflation, FDI, political stability and exchange rate did not show any significant effect. Corruption and openness show significant and expected direction of effect. The result shows that if interest rate falls by 1%, investment will increase by 0.2% whereas if GDP grows by 1%, investment will fall by 0.5%. One reason attributable to reduction in investment following increase in income is that increase in income favours consumption of imported final products thereby reducing purchase of home-made goods which could have increased incentives for increasing investment.

Nigeria's continuous openness to the rest of the world serves as impetus to investment. The result shows that if the country raises her share of trade in GDP by 1%, investment will increase by 0.2%. This shows that trade restriction is a drag to investment because such action will increase cost of imported intermediate and capital goods and hence reduce investment.

**Table 5.4: Generalized Method of Moment result showing the effects of remittances & governance on investment**

Variable	6	7	8	9
Rem	0.00493	1.54***	1.05	-1.08***
Infl	0.0159	-0.0106	-0.0184	-0.0501
fdi	-0.0149	0.00952	0.006	-0.0413**
credit	0.124	.156**	.159***	.114**
interest	-.182*	-.133*	-.128*	-.117*
grate	-.472***	-.462***	-.434***	-.25***
Pol	0.829	1.79	1.88	1.31
Cor	3.85*	0.533	-0.759	-22.3***
lod	-2.47***	-0.512	-0.523	1.47*
open	.227*	.249***	.251***	.29***
exh	-0.0253	-.0512*	-.0606*	-.258***
remlod		1.13***	1.18***	2.37***
remcor			0.536	0.86***
rempol				4.97***
_cons	-4.47	-5.32	-3.2	40.4***
r <sup>2</sup>	0.697	0.727	0.732	0.786
rmse	2.35	2.23	2.21	1.98
GMM stat Chi	3.43	3.62	15.27	14.15
Hansen J stat	15.22	16.15	16.75	14.4
J-stat (prob)	0.1725	0.1356	0.1155	0.2118

legend: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

It could also imply that if the foreign trading partners reduce impediments to Nigeria's exports, investment will thrive. However what could have complemented trade liberalization to improve investment was FDI which was not significant. The possible interaction between remittances and each of the governance variables as as specified in equation 5.4 is presented in models 7 to 9 in Table 5.4. When remittances were allowed to interact with governance indicator, in this case, law and order, some variables driving investment were rightly signed and significant. The interaction of remittances with law & order has a positive and significant effect on investment. This suggests that remittances and law & order are complements and that their complementarity matter significantly for remittances. The extent to which remittances affect investment depends on how improved the country's law & order is. Specifically, if 1% increase in remittances interacts with 1 point increase in law & order, investment will increase by 1.1%. The interaction of this governance indicator with remittances also causes remittances to affect investment. The model showing the interaction of remittances with corruption further intensifies the importance of sound governance institution in investment. The result shows that



if remittances increase by 1%, while control of corruption increased by 1 point investment will increase by 0.5%. The model also shows that the complementarity of remittances and law & order is still very strong and significant. Thus, improvement in corruption and law & order tend to motivate remitters to increase the inflow for investment purpose.

Model 9 incorporated the interaction of remittances with each of the governance indicators. The result produced a notable improvement and one of such improvement is the positive and significant effect of FDI on investment. Based on this interaction, remittances reported a significant effect on investment. Remittances and law & order are complementary and it is the case that when such complementarity increased by 1%, investment rose by 2.4%. Improvement in corruption also complements remittances to affect investment. As the result shows, a 1% increase in such complementarity led to 0.9% increase in investment. In the same vein, the interaction of remittances with political stability to the tune of 1% would have increased investment by 4.9%. The interpretation of this is that improvement in governance indicator complements remittances behavior and such interaction impact positively on investment.

A closer inspection at the result reveals that investment is more sensitive to the interaction of remittances and political stability, while it is less responsive to law & order. What this implies is that political stability tends to drive the degree with which investment responds to remittances more than any of the other governance indicators. This result confirms the fact that unstable political situation of a country tends to increase investment risks and so the risk-averse investors and remitters apply "safety/survival first" approach in which case, attention will be on how to survive rather than to invest. The result also shows that corruption has the least effect on investment when associated with remittances. This suggests that corruption is likely to be less pronounced in the private sector and so, remitters need not worry so much on corruption level. Nevertheless, improvements in corruption strongly raise investment level.

Interest rate maintains its sign and significant all through. However, its magnitude of effect tends to reduce as more governance indicators are introduced in to the model. This suggests two effects at play. First, improvement in governance institution sends a signal to the remitters and the remittance receivers to increase the share of banked remittances. The increase in such deposit leads to increase in deposit money and hence decrease lending rate later, leads to increase in investment. Thus, if governance institutions improve, remittances reduce cost of capital and hence, increase investment. The second effect is in form of substitution. That is remittances substitute for bank loan. In this case, as more money is remitted back home, the rate of request for bank loan for investment reduces. Such substitution effect also leads to reduction in interest rate and hence increases in investment.

The interaction of remittances and governance institution create both direct and indirect effects on investment. First, it changes remitters and remittance receivers' perception about the investment situation in the country. Second, such interaction leads to decrease in interest rate. Growth rate maintains negative sign all through. However, the effect is falling as more and more interaction is included. The negative effect is very difficult to interpret but it could suggest that remittances and governance institution act as insurance (or substitute) for the effect of economic growth on investment.

## 6. CONCLUDING REMARKS

Nigeria is one of the top remittance receivers in the developing world and the inflow has been on the increase in the recent time. The increase is informed by, but not necessarily limited to increase in the emigration of highly skilled workers triggered by the expansionary immigration policy of the West and unemployment situation in the country. This inflow serves many purposes in Nigeria such as freeing up credit accessibility for investment, raising human capital development, increasing and expanding consumption among others. However, misuse of the inflow could lead to inflation, low economic growth, and current account deterioration. The productive use of remittances is contingent on the investment climate and general condition of

the economy. Governance institution play an important role in a country's investment situation and so, the potency of remittances in aiding investment is driven by governance institution.

This study sought to investigate the effectiveness of remittances on investment either directly or indirectly through governance institution. Data were collected on relevant variables from 1980 and 2010 and two alternative techniques of estimation, namely OLS and GMM, were employed. The result showed that remittances will effectively and significantly affect investment if governance institution improves. Improvement in some governance indicators such as law and order, political stability and corruption tend to create incentives for the remitters and the receivers to adjust their remitting and spending decision in favour of investment. It follows that the senders and the receivers of remittances tend to care about the prospect, future and returns they will receive if they decide to invest their money. If they are rational expectationists, and if the governance position in the past was bad, there is no reason why they should divert remit for investment purpose, rather they use the inflow to tackle immediate (consumption) problem. This implies that the cost of bad governance is the diversion of remittances to nonproductive use with no significant effect on investment.

The purpose of remitting to Nigeria, particularly from the advanced countries has gone beyond altruistic motive given the ever increasing number of highly skilled emigrants and the fact that most of the emigrants are not actually from low income bracket. Our findings warn that if governance situation is bad and not improved, spenders will find no reason for engaging in investment. This result is consistent with the findings of other scholars such as World Bank (2006), Ahoure (2008) and Catrinescu et al (2008). Thus it is imperative for Nigerian government to intensify efforts on the building of a favourable governance institution. In particular, government should ensure sound law and order, improved political stability, and reduction in corruption so as to create conducive atmosphere for the effectiveness of remittances on investment. This becomes very important given the fact that investment in Nigeria is not so much driven by income but by interest rate. The reason for this is not unconnected with the low level of income in Nigeria. But if governance institutions can improve, remittances will substitute the low income level to raise investment.

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