

Remittances and Domestic Investment in Africa: Do Banking Sector Development and Quality Governance Matter?

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Abstract

Migrant remittances to home countries have seen a significant increase over the years, especially in developing countries where due to a lack of jobs or unfavourable working conditions, citizens move to advanced countries to better their economic conditions and their dependents in home countries. This has been facilitated by globalisation in modern times. Whereas most previous studies have delved more into remittances and their impact on economic growth, less studies have examined the link between remittances and domestic investment. This study examined the impact of remittances on domestic investment in Africa using a system GMM econometric estimator. Our study departs from the few studies that examined this link by further investigating the moderating role of banking sector development and quality governance on the link between remittances and domestic investment. Using data from 41 African countries from 2004 to 2018, the study discovered that migrant remittances have a direct negative impact on domestic investment in home countries. The study, however, found that both banking sector development and quality governance significantly positively impact domestic investment in Africa. Thus, when we interacted banking sector development and good governance separately with remittances, each interactive term had a significant positive impact on domestic investment. This means that for remittances to influence domestic investment, banking sector and good governance will need to be improved.

Keywords: Remittances, Quality Governance, Banking Sector Development, Domestic Investment, Africa

Introduction

Migrant remittances to home countries have seen a significant increase over the years across the world. In developing countries, for instance, remittances have become one of the primary stable external financial inflows gradually overtaking the traditional sources (foreign direct investment, foreign portfolio investment and official aid) in size (Dash, 2020). For instance, the amount of money from documented remittances far exceeds that obtained from official aid and foreign direct investment (FDI) flows to developing countries (Maïga et al., 2016; Maïga et al., 2016 Meyer and Shera, 2017). This could be attributed to a lack of jobs or unfavourable working conditions in developing countries forcing citizens to move to advanced countries to better their economic conditions and dependents in home countries. In Africa, low wages, unemployment and the threat of political instability and violence are the main reasons for emigration to developed countries (Poppe et al., 2016; Mberu and Pongou, 2016). They are seen as the second-largest source of external development finance, after foreign direct investment, for developing economies (Meyer and Shera, 2017). This has actually been facilitated by globalisation in modern times (Mckenzie, 2005). Remittances received in host countries have contributed to development in several forms. For instance, remittances could lead to access to education, health care, poverty alleviation and promotion of economic growth (Chowdbury, 2016; Barajas et al., 2009). Despite the significant increase in remittance inflow into developing countries, empirical evidence of its impact on domestic investment is still scarce in the developing world. Whereas most previous studies have delved more into the impact of remittances on economic growth (Chowdbury, 2016; Nyeadi and Atiga, 2014; Barajas et al., 2009; Fayissa and Nsiah, 2008), fewer studies have examined the link between remittances and domestic investment in developing countries (See Issifu, 2018; Adams, 2008, Abbas, 2019; Dash, 2020) especially in Africa. Meanwhile, domestic investment is noted as a key enabler of job creation and economic growth (Park et al., 2016; Santandrea et al., 2015; Ade et al., 2017; McEwan et al., 2017). Besides, it leads to an increase in foreign direct investment (FDI), high employment and poverty alleviation (Obayori et al., 2018; Nwakoby and Bernard, 2016; Haroon and Nasr, 2011).

Theoretically, the link between remittances and domestic investment is mixed. While some argue that remittances lead to an increase in domestic investment, others contend that it is detrimental to domestic investment. Supporters of the positive link nexus between remittance and domestic investment believe that remittances boost recipients' credit worthiness and release them from financial constraints, making it possible for them to invest (Abbas, 2019; Barajas et al., 2009). Again, they believe that remittances make recipients join formal financial institutions where they can save and also benefit from credit facilities (Aggrawal et al., 2011). This view is supported by some empirical findings (Yiheyis and Woldemariam, 2016; Issifu, 2018; Dash, 2020). On the contrary, using the Dutch Disease effects, opponents of this positive nexus argue that remittances make some macro-economic variables such as inflation and exchange rate unfavourable for local investment (Abbas, 2019). Again, they believe that remittances not only stimulate the consumption of foreign goods to the detriment of local goods but also make recipients overly dependent, thus neglecting to work (Jawiad and Raza, 2016). There also exist some empirical pieces of evidence in support of this inverse relationship (Abbas, 2019; Jawiad and Raza, 2016; Khan and Islam, 2013; Chami et al., 2003). Arising from this inconclusive link, more studies are needed to settle this debate, especially in the developing world, where there are much inflows with fewer empirical findings. This study is therefore meant to bridge this gap in literature by investigating this link in Africa. This study has made some significant contributions. First, it has used the two-step system GMM estimator to examine this link. System GMM can produce robust outcomes by controlling for endogeneity, which is often found in most studies due to omitted variables, measurement errors, and most commonly, reverse causality links between variables. Most previous studies have ignored these endogeneity issues as they used estimators that have no power to control them, thus making their studies unreliable for policy purposes (see Basnet and Upadhyaya, 2013; Issifu, 2018; Sethi, 2020). Second, our study departs from the few studies that examined this link by further investigating the moderating roles of both banking sector development and quality governance on the link between remittances and domestic investment separately. We, therefore, argue that for domestic investment to be enhanced with the inflow of remittances, governance indicators (control of corruption, rule of law, governance effectiveness, regulatory quality and political stability) as well as banking sector development must be improved in Africa. The rest of the paper is organised as follows; section 2 reviews the

related literature, while section 3 examines the study's methodology. Section 4 looks at the findings and discussions of the study, with section 5 focusing on the conclusion and policy implication of the study.

Literature Review

Theoretical Literature

Theoretically, the link between remittances and domestic investment is two folds. First, remittances are said to be key drivers of domestic investment. This position is built on Lucas and Stark (1985) 'pure self-interest' motive of remittances. According to Lucas and Stark (1985), one of the key motivating factors for remitting is to satisfy the self-interest of migrants through investing on land, cattle and other livestock. This is normally fueled by the migrants' intention to return home and the presence of loyal and trust worthy family members ready to assist them in their investment process. They will sometimes invest in social assets in the form of houses and livestock so as to enhance their political and social status when they return home. One of the channels through which this happens is the power of remittances to increase the credit worthiness of recipients. Through remittances, recipients are able to boost their credit rating which grant them the opportunity to be able to borrow for investment purposes (Abbas, 2019). Again, remittances lead to an additional income to recipients, releasing them from financial constraints and paving the way for them to invest (Barajas et al., 2009; Abbas, 2019). Besides, larger portions of remittances are sent through financial institutions, making it possible for recipients to be included into the formal financial sector, thus allowing them to save and access to credits that could be channeled into investment (Aggrawal et al., 2011). Finally, remittances are argued to increase the money supply in the host countries, thus reducing discount rates which make investment more valuable and attractive to potential investors (Yiheyis and Woldemariam, 2016). Secondly, remittances are said to have an inverse relationship with domestic investment. This argument is built on the Dutch Disease Effect. Using a dynamic stochastic equilibrium model, Acosta et al (2009) demonstrated how an increase in remittances can cause appreciation in real exchange rate thus affecting domestic investment negatively. This is popularly called the Dutch Disease Effect. According to Acosta et al. (2009), an increase in household income led by inflows of remittances tend to reduce labour supply thus increasing wages. This can lead to a decrease in tradeable sector due to higher production cost.

This however shifts demand from the tradeable sector to non-tradeable sector hence increasing the prices in the non-tradeable sector causing hype in exchange rate movement in the home country. Remittances, for instance, can affect some macroeconomic variables negatively, which can be detrimental to domestic investment (Abbas, 2019). For example, an increase in inflation and exchange rate attributable to remittance flows could deteriorate domestic investment (Khan and Islam, 2013). Another channel through which remittances impact domestic investment negatively is the stimulation of the consumption of foreign and imported goods. As a result of recipients having access to remittances and their links with foreign countries through their relatives, they increase their desire for imported goods, making local investment unattractive (Abbas, 2019; Jawiad and Raza, 2016). Furthermore, remittances has the power to engender the culture of over-dependence. As recipients receive and expect to receive more remittances in the future from relatives abroad, such recipients become reluctant to engage themselves in domestic productivity and labour market (Chami et al., 2013).

Empirical Literature

Remittances and domestic investment

A host of empirical evidence supports this positive link between remittances and domestic investment. For instance, Issifu (2018) examined this link in sub-Saharan Africa (SSA) and reported that remittances positively impact domestic investment. Besides interacting political institutions with remittances, it was also noted that political institutions serve as a channel through which remittances positively impact domestic investment. In a recent study by Dash (2020), remittances were found to increase domestic investment both in the short run and long run. Remittance flows support the livelihood of poor families, reduce poverty and inequality, increase investment, and enhance economic development (Gubert et al., 2010; Beyene, 2014; Cilliers, 2021). Remittance is an integral part of globalisation and of the world economy, with the potential to promote financial inclusion drive in less developed countries. Increased remittances have been found to improve formal financial services delivery. In investigating the effects of remittances on financial services access in SSA, Tah (2019) reported the positive role of remittances on financial access. Basnet and Upadhyaya (2013) developed a model in which remittances serve as one of the determinants of observed variations in foreign direct investment (FDI). The authors found no evidence

that remittances explain cross-country variations in FDI in any significant way. However, by disaggregating the data into geographical continents, it was revealed that remittances positively impacted FDI in Africa, a negative effect on Asia-Pacific, and no effect in Latin America. This suggests that the effect of remittances varies based on locational conditions. Furthermore, Das and Sethi (2020) assessed the role of official development assistance, remittances, and FDI on economic growth in Sri Lanka and India. While FDI and remittances were revealed to have a significant positive impact on economic growth in India, foreign aid and remittances enhance Sri Lanka's economic growth. With economic growth in place, domestic investments are likely to increase due to technological progress, job creation, and productivity improvements. Rehman and Hysa (2021) recently examined the effect of financial sector development and remittances on economic growth across six countries. Both remittances and financial development were found to impact positively on economic growth. However, interactions of remittances and financial development showed negative significant effects on economic growth. Less empirical evidence, however, exists to support the inverse relationship between remittances and domestic investment. Abbas (2019) explored this link in selected countries in South Asia using ARDL bound test and realised the negative effect of remittances on domestic investment. An earlier study by Adams (2008) on the Ghanaian economy also yielded no significant impact of remittances on domestic investment.

Banking sector development and domestic investment

Three schools of thought feature prominently in the banking sector development (BSD) and domestic investment literature. The first is that, banking sector development facilitates the inflow of FDI into host countries. Secondly, a positive feedback effect exists between banking sector development and FDI net inflows. Thirdly, there is no direct causal link between banking sector development and FDI. Mukhametov (2021) analysed the link between central bank independence (CBI) and FDI inflows in 180 countries over the period 1970-2012. The results showed that increase in CBI index positively and statistically influenced foreign investment inflow. Also, a negative relationship was found between CBI and FDI inflows, and various channels could influence this: (1) a more independent central bank contributes to low and more stable inflation; (2) strengthening macroeconomic stability boosts investor confidence and

encourages investment flows; and (3) the increased CBI is directly linked to long term lending and access to financial access (financial development). This helps to increase the potential of the economy, thus, enhancing its investment attractiveness at the domestic level too. Iheonu, Asongu, Odo and Ojiem (2021) analysed the impact of FSD on domestic investment in selected ECOWAS countries using the augmented mean group procedure. They found very interesting outcomes: (a) the impact of FSD on domestic investment depends on how FSD is measured; (b) domestic credit to private sector has insignificant positive effects on domestic investment. However, broad money supply and efficiency of bank intermediation have negative and significant influence on domestic investment; (c) cross-country differences exist in the impact of FSD on domestic investment; and (d) domestic credit to private sector affects domestic investment in the selected countries. This suggests that different country contexts and the choice of variables used to measure FSD matter in analysing the level of impact created on domestic investment. Paun, Musetescu, Topan and Danuletiu (2019) investigated the relevance of financial system development and sophistication for sustainable economic growth. They found that domestic credit and monetary expansion negatively impact on economic growth. On the other hand, the number of bank branches (expansion), increased stocks traded, and net foreign assets impact positively on economic growth. Furthermore, the sophistication of financial inclusion (accessibility and market sophistication) and financial system influence both economic growth and development positively. Also, the quality of the financial system (markets, institutions and instruments) positively influence economic growth (Paun et al., 2019). The findings confirm the positive impact of financial development as well as the effectiveness of the banking sector in promoting sustainable economic growth. Muyambiri and Odhiambo (2018) assessed the impact of financial development on investment in South Africa using the accelerator investment model and the ARDL bound test procedure. Bank-based and market-based composite financial indices were developed and used as independent variables. They found that market-based financial development has multiplier effect on investment with positive impacts in the long run. In contrast, bank-based financial development had negative effects in the short run. Similarly, Danquah (2019) investigated the nexus between financial development and economic growth in Ghana using the ADRL framework. Trade openness, FDI, and capital stock were found to stimulate economic growth both in the short run and long run. Financial sector liberalisation is positive when

the indicator (credit to the private sector) is used as a measure for financial development. Previously, Ndikumana (2003) analysed the effect of bank-based and stock-market-based financial systems on domestic investment. The study reported that the structure of the financial system does not impact investment/changes in output. Meanwhile, where financial development exists, investment responds to growth in output. The study highlighted the need to work towards reducing transaction costs and enforcing creditor investor rights to help stimulate domestic investment through banks and stock markets development. Furthermore, Sena, Asante and Brafu-Insaidoo (2021) analysed the link between monetary policy and financial development in Ghana using ARDL procedure. Financial development was found to strengthen the effectiveness of the monetary policy on economic growth. Financial development, monetary policy, FDI, remittances, capital and labour supply positively and significantly influenced economic growth both in the short run and long run. However, inflation is harmful to economic growth. In sum, the use of ARDL framework to establish causal relationships is growing among researchers. Evidently, developments in the banking sector has positive effects on domestic investments. The literature has largely focused on the nexus between financial sector development which occurs through the banking sector and FDI with little attention on domestic investment.

Quality of governance and domestic investment

One key factor that explains domestic investment, especially in Africa is economic growth and good governance matter. Using their 'Urgency Hypothesis' Issahaku et al. (2018) explained the effect of quality governance on the link between remittances and domestic investment. According to this hypothesis, the interaction of remittances with weak governance yields positive impact on domestic investment due to the higher possibility of efficient application of remittances in such economies as there are limited options of funding opportunities. This hypothesis believes that the inflows of remittances into strong governance structures may yield negative impact on domestic investment as there are higher chances of misapplication of remittances due to available alternative funding opportunities in such economies. Liu et al. (2018) assessed the impact of governance quality on economic growth and found that governance quality positively affects economic growth due to the control of corruption. The quality of governance exhibits diminishing marginal returns and a higher quality governance

was directly related to faster economic growth effects and development. Iheonu (2019) analysed the impact of governance on domestic investment in Africa using panel data covering the period 2002-2015. It was revealed that all the indicators of governance (rule of law, control of corruption, property rights, regulatory quality, governance effectiveness, voice and accountability) except government effectiveness had positive and significant influence on domestic investment. Also, the control of corruption and voice /accountability influence domestic investment greatly (Iheonu, 2019). Furthermore, Biro et al. (2019) examined the impact of good governance on FDI in Latin America using the gravity model. Estimations from the Poisson pseudo-maximum likelihood provided better value for the indicators as evidenced by the goodness of fit compared to the OLS estimates which were very sensitive and biased leading to inefficient and inconsistent results. The results showed relatively high FDI inflows as good governance is an attractive factor, but its significance depends on the indicator used as a proxy for it. This means that the methodology applied and how variables are measured could impact on study outcomes. Bommadevara and Sakharkar (2021) investigated how policy uncertainty and institutional quality impact FDI inflow using data spanning from 2000-2019 in 22 countries. The results show that the quality of institutional infrastructure in the host country matter greatly to FDI inflows. Similarly, Seminas (2021) revealed that natural resources as a percentage of GDP, developed infrastructure, and trade openness are important macroeconomic factors influencing FDI and creating a favourable business climate for investing. Furthermore, voice/accountability, political stability and absence of violence, regulation quality and control of corruption had a positive and statistically significant effect on FDI. In analysing the link between governance and industrialisation in Africa, Asongu and Odhiambo (2019) found that governance positively impacts industrialisation while capital flight decreases it. Also, governance does not reduce the negative effects of capital flight on industrialisation in any significant way. With increased industrialisation, more jobs will be created, leading to higher incomes and increased domestic investments. On the contrary, poor governance has also been reported which is an attraction for investment, especially in transition economies (Bellos and Subasat, 2012; Subasat and Bellos, 2013). In sum, governance has several channels through which domestic investment can be impacted. Good governance reflects macroeconomic performance, financial development, institutional quality,

industrialisation, and human capital, all of which are crucial to enhancing domestic investments in the country.

Methodology

Data and Variables

This study made use of purely secondary data extracted from the World Bank Dataset. However, due to inconsistencies and unavailability of some of the data points for some countries in Africa, we finally settled on 41 African countries which have more than half of the data points for all the variables used in the study from 2004 to 2018. The study variables are defined in Table 1, and the systems generalised method of moments (System-GMM) was utilised to examine the link between the main variables. We used this method as it has the power to control for endogeneity problems often found in most economic models due to omitted variables or bi-directional causalities.

Table 1: Definition of variables, expectations and sources

Variable	Definition	A priori	Source
Domestic Investment (DI)	Gross fixed capital formation (% of GDP)		World Bank, African Development Indicators 2020.
Foreign direct investment (FDI)	Foreign direct investment (% of GDP)	+	World Bank, African Development Indicators 2020.
Openness (OPEN)	Volume of trade (% of GDP)	+	World Bank, African Development Indicators 2020.
Banking Sector Development(BSD)	Domestic credit to the private sector (% of GDP)	+	World Bank, African Development Indicators 2020.
Human Capital (SCH)	Log of secondary school enrolment.	+	World Bank, African Development Indicators 2020.
Remittances(REM)	Sum of workers' remittances, compensation of employees and migrant transfer received(% of GDP)	+	World Bank, African Development Indicators 2020.
Population(POP)	Log of total population	+/-	World Bank, African Development Indicators 2020.
Unemployment (UEMP)	It is the log of total unemployed people	+/-	World Bank, African Development Indicators 2020.
Control of Corruption(CC)	Control of corruption index (percentile rank 0-100)	+/-	World Bank, African Development Indicators 2020.
Regulatory Quality (RQ)	Regulatory quality index (percentile rank 0-100)	+	World Bank, African Development Indicators 2020.
Rule of Law(RL)	Rule of law index (percentile rank 0-100)	+	World Bank, African Development Indicators 2020.
Government Effectiveness (GE)	Governance effectiveness index (percentile rank 0-100)	+	World Bank, African Development Indicators 2020.
Voice and Accountability (VC)	Voice and accountability index (percentile rank 0-100)	+	World Bank, African Development Indicators 2020.
Political Stability(PS)	Political stability index (percentile rank 0-100)	+	World Bank, African Development Indicators 2020.

Empirical Strategy

Following the work of Issifu (2018), we examine remittances and domestic investment nexus as follows:

$$DI_{it} = \beta_0 + \beta_1 REM_{it} + \beta_2 QG_{it} + \beta_3 (REM_{it} * QG_{it}) + \beta_4 X_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

$$DI_{it} = \beta_0 + \beta_1 REM_{it} + \beta_2 BSD_{it} + \beta_3 (REM_{it} * BSD_{it}) + \beta_4 X_{it} + \eta_i + \varepsilon_{it} \quad (2)$$

Where

DI refers to domestic investment; *REM* refers to remittances; *QG* denotes quality of governance indicators (namely rule of law, control of corruption, regulatory quality, governance effectiveness, voice and accountability and political stability; *BSD* refers to banking sector development; *REM * QG* represents the interaction term between remittances and quality governance. *REM * BSD* represents the interaction term between remittances and banking sector development; *X* denotes a vector of control variables which include: FDI, human resource development, population, trade openness and unemployment. η shows the country specific unobserved factors that influence domestic investment but are not captured directly. ε is the error term.

Equations (1) and (2) can be estimated using a number of estimators such as ordinary least squares, random effects, fixed effects, panel standard corrected errors etc. However, these estimators can produce biased results due to their inability to deal with reverse causality (remittances and domestic investment) and address the problem of endogeneity. This reverse causality induced endogeneity between remittances and domestic investment can emanate from the possibility that countries with booming domestic investment environments could also signal the inflow of remittances as migrants try to cash in on the thriving domestic investment. This means countries with the higher domestic investment will stand the chance of receiving more remittances than countries with low domestic investment. It, therefore suggests that as we expect inflows of remittances to increase domestic investment, domestic investment on the other hand could also attract remittances thus leading to self-selection biases in estimation. This

problem is best solved by using the system generalised methods of moments (GMM) to obtain consistent and unbiased results as proposed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998). In modeling our system GMM, equations (1) and (2) are transformed to the following:

$$\Delta DI_{it} = \beta_0 + \beta_1 \Delta REM_{it} + \beta_2 \Delta QG_{it} + \beta_3 \Delta (REM_{it} * QG_{it}) + \beta_4 \Delta X_{it} + \Delta \varepsilon_{it} \quad (3)$$

$$\Delta DI_{it} = \beta_0 + \beta_1 \Delta REM_{it} + \beta_2 \Delta BSD_{it} + \beta_3 \Delta (REM_{it} * BSD_{it}) + \beta_4 \Delta X_{it} + \Delta \varepsilon_{it} \quad (4)$$

From the above equations, two interactive terms are noted and we have explained the basis for their inclusion. With the quality of governance and remittances, we expect that the interplay among these two variables would certainly have an impact on domestic investment in Africa. First, the inflow of remittances into countries with quality governance will engender growth in domestic investment since quality governance prevents information asymmetry and market distortions (Issahaku et al. 2018). On the contrary, the inflows of remittances into poorly governed economies have a higher tendency to retarding domestic investment in such countries. Similarly, with economies that are advanced in banking sector development, more opportunities are available by way of investing in both money and capital markets. Thus the inflows of remittances into such countries will enhance investment whereas countries that are low in banking sector development will present less investment opportunities to their citizens leading to possible consumption of remittances instead of investing them. The above equations are estimated using a two-step system GMM estimator which is more efficient than the one-step system GMM (Mohammed et al., 2020). Developed by Blundell and Bond (1998), the two-step system GMM while replacing the first difference GMM by Arellano and Bond (1991), it can deal with high persistence data. In such data, lagged instruments are weakened due to potential correlations between the endogenous regressors and first difference GMM estimates. In dealing with the weak instrument problem, system GMM adds a level equation to the difference equation so as to overcome this in persistent data (Roodman, 2009, Mohammed et al., 2020). Besides, the procedure permits domestic investment to be treated as a dynamic activity where initial investment has the potential to influence future investment. More also, the number of countries (N) are more than our time periods (T) making this method more appropriate. Finally, the two-step system GMM can also control for endogeneity arising from omitted variables, measurement errors and reverse causality links in variables (Mohammed et

al., 2020). It does this by using internal instruments since it is difficult to get external instruments. In system GMM, instrument validity is critical as it affects the consistency of the model output. We employed two-steps in examining this. First is the Sargan test of over identification restrictions, and the other is the second order serial correlation test of Arellano and Bond. The Sargan test examines the validity of the instruments using the moment conditions generated from the estimation. In this case, the number of instruments count should be less than that of the group to ensure that the results obtained can be relied on. For the serial correlation, the error term must not be correlated with the second-order since that would amount to model misspecification (Mohammed et al., 2020).

Findings and Discussions

Descriptive Statistics

The summary statistics of the variables used in the study are presented in Table 2. The variable of interest (domestic investment) is shown to have a high standard deviation of 7.699, a mean of 22.175 and a minimum of 2.004. This shows that while some countries are doing very well on fixed asset investment, others are seriously lagging behind. It is not surprising because, when it comes to development in terms of educational facilities, health care, and establishment of businesses, while some African countries like South Africa, and Egypt have reached a level comparable to developed countries, others are very much behind in these issues and rely heavily on other countries for these services. This is reflected heavily in human development where there are great regional disparities. Another variable worth commenting on is trade openness. It records the highest standard deviation (41.3) among all the variables showing that while some countries have opened up to trade with the world, others are still reserved in opening up. All the variables of quality governance together with the banking sector development also have high standard deviations, indicating high dispersion among the governance and banking sector development indicators in Africa. The pairwise correlation matrix (Table 3) revealed that the majority of the variables are correlated positively with domestic investment except for population, human development, remittances and voice and accountability, which are seen to have no significant relationship with domestic investment. With the exception of the banking sector development and quality governance indicators, the coefficient of correlation of all the

variables is within the acceptable range; thus, combining such variables in a model will not lead to any multicollinearity problems. As a result, all the quality governance indicators were modelled separately to avoid any multicollinearity problems from the models.

Table 2: Summary Statistics

Variables	Mean	St. Dev	Min	Max
DI	22.175	7.699	2.004	54.304
FDI	8.227	1.764	0.279	12.098
SCH	46.968	24.200	8.706	109.441
InPOP	16.249	1.304	13.482	19.092
OPEN	72.473	41.398	0	347.996
InUEMP	8.130	6.740	0.32	31.77
REM	0.700	1.621	0.11	12.226
BSD	20.407	18.871	0.934	106.260
VA	30.982	19.128	1.477	83.253
PS	30.967	20.512	0.476	93.750
GE	27.776	19.783	0,947	81.730
RQ	29.957	18.509	0.407	83.653
CC	29.778	20.946	0	83.902
RL	29.983	20.053	0.473	83.253

N=615

Table 3: Pairwise correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. DI	1.00													
2. FDI	0.32*	1.00												
3. SCH	0.01	0.49*	1.00											
4. POP	0.02	0.56*	-0.07	1.00										
5. OPEN	0.23*	0.09*	0.30*	-0.41*	1.00									
6. UEMP	0.14*	0.22*	0.55*	-0.28*	0.22*	1.00								
7. REM	-0.07	0.39*	0.11*	0.48*	-0.19*	-0.06	1.00							
8. BSD	0.07*	0.36*	0.51*	-0.02	0.13*	0.35*	0.05	1.00						
9. VA	0.03	0.08	0.39*	-0.08*	0.05	0.21*	-0.07*	0.49*	1.00					
10. PS	0.17*	-0.17*	0.16*	-0.48*	0.15*	0.38*	-0.29*	0.19*	0.51*	1.00				
11. GE	0.18*	0.15*	0.56*	-0.03	-0.03	0.32*	-0.03	0.48*	0.52*	-0.23*	1.00			
12. RQ	0.12*	0.07	0.48*	-0.04	-0.02	0.23*	-0.03	0.53*	0.73*	0.55*	0.88*	1.00		
13. CC	0.20*	0.01	0.45*	-0.14*	0.07	0.36*	-0.07	0.55*	0.73*	0.59*	0.88*	0.83*	1.00	
14. RL	0.18*	0.07*	0.50*	-0.08*	-0.01	0.34*	-0.02	0.61*	0.75*	0.62*	0.91*	0.89*	0.89*	1.00

Results of the link between remittances, banking sector development and domestic investment

The results of our findings are shown in Tables 4 to 6. From these results, all the models are shown to fit well for the estimations. The validity of the instruments used has been checked by the Sargan/Hansen test which shows that all the instruments are valid and hence appropriate for the models. Another test that GMM models must pass is the serial correlation. Again, as shown in all the models under the AR (1) and AR (2), our models have no serial correlations. Thus, the results reported from all our models are very robust and consistent. Besides, the lag values of domestic investment indicate a significant positive relationship with domestic investment in all the models. This suggests that in all our models, previous domestic investments have a significant positive influence on future investments in the region. Table 4 reports the two-step system GMM results on the impact of remittances on domestic investment incorporating quality governance. Column 1 shows the results of the link between remittances and domestic investment without incorporating quality governance variables. Columns 2 to column 7 indicate the involvement of the various elements of quality governance, while column 8 shows the inclusion of the average of the six elements of quality governance. Our concentration here is in Table 4. From column 1, it is shown that the main independent variable, remittances is negative and significant at 1% level. This means that an increase in the inflow of remittances into Africa leads to a significant reduction in domestic investment. The result goes to support some earlier findings, which discovered that remittances are injurious to domestic investment in economies (Chami et al., 2003; Khan and Islam, 2013; Jawiad and Raza, 2016; Abbas, 2019). It, however, contradicts the findings that established that the inflow of remittances is investment enhancing (Aggrawal et al., 2011; Yiheyis and Woldemariam, 2016; Issifu, 2018; Dash, 2020). This inverse relationship between remittances and domestic investment can, however, be explained. First, the inflows of remittances can affect some macroeconomic variables, which can negatively affect domestic investment (Abbas, 2019). Some macroeconomic variables (e.g. inflation and exchange rate) can be inflated by the inflow of remittances, which will make the local investment very unattractive for investors (Khan and Islam, 2013). This could be true as inflation and exchange rates keep on increasing astronomically in Africa. Another reason that can inform these results is the stimulation of

consumption of foreign goods by the inflow of remittances in Africa. With the links to relatives abroad, recipients of remittances sometimes use these resources in consuming foreign goods since they can afford them or they have become used to them through their relatives. Thus, making local industries suffer and destroying local investments and initiatives (Jawiad and Raza, 2016; Abbas, 2019). Most countries in Africa depend on the importation of foreign goods for their citizens due partly to their love for the use of foreign goods. Finally, these results can be attributable to the over dependency syndrome caused by inflows of remittances. Remittances can cripple the local investment as they make recipients overly depend on the receipts and hence becoming unproductive at home (Chami et al., 2003). On the control variables, it is noted that only population is not significant in column 1 (Table 4) but all other variables are significant but with different directions of impacts on the dependent variable. While foreign direct investment and unemployment are found to have an inverse relationship with domestic investment, human resource development measured by secondary school completion, and financial openness are shown to have a direct positive relationship with domestic investment. It, therefore, means an increase in the flow of FDI and unemployment causes domestic investment in Africa to shrink whereas the increase in human resource development and financial openness enhances and boosts the performance of domestic investment in Africa. In column 2, we introduced voice and accountability, which is one of the indicators of quality governance, into the original model and noted that it has no significant impact on domestic investment. Columns 3 to 7 however, indicate that all the quality governance indicators have a significant positive impact on domestic investment. It means that rule of law, political stability, regulatory quality, governance effectiveness, and control of corruption all influence domestic investment positively in Africa. This is confirmed by column 8 where the average quality governance is not only found to have a significant positive relationship with domestic investment, but its coefficient is higher than all the individual quality governance indicators' coefficients in Table 4. It generally shows, that quality governance is impactful to domestic investment, as noted by Akanbi (2010) and Asongu et al. (2015). This reinforces the findings of Al-Sadig (2010) who indicated that corruption destroys domestic investment. This further supports the findings of Iheonu (2019) where all the indicators of quality governance except for governance effectiveness, were found to be significantly positive. It again reinforced the work of Aysan et al. (2011) where quality of governance

by way of control of corruption, law and order, bureaucratic quality, political environment, and investment-friendly administration were found to play a critical role in private investment. After realising the direct positive impact of quality governance on domestic investment, we decided to interact all the quality governance indicators with remittance to see the moderating effect of quality governance on the remittance-domestic investment nexus. The results are shown on Table 5. Again except voice and accountability interaction with remittances that yielded insignificant results, all the other interactive terms have resulted in a significant positive impact on domestic investment. This shows that countries in Africa with quality governance practices realise positive results of remittances inflows on their domestic investment. This is contrary to the findings by Ameer et al. (2020) where institutional quality was found to be a driving factor that enhances domestic investment in developed countries but was rather found to be detrimental to domestic investment in developing countries. It also strongly buttressed the work of Issifu (2018) where political institutions were found to be mechanisms through which remittances positively impact domestic investment. It means that quality governance is very crucial to attracting remittances and boosting local investment in Africa. To extend the study further, we examined the link between banking sector development (BSD) and domestic investment and the moderating effect of BSD on the link between remittances and domestic investment in Africa. The results of these estimates are shown in Table 6. In column 1, it is noted that there is a significant positive relationship between BSD and domestic investment, indicating that any increase in BSD will lead to an increase in domestic investment in Africa. This is in direct support of these studies (Schich and Pelgrin, 2002; Ndikumana, 2000; Ndikumana, 2005; Obafemi et al., 2016; Githaiga, 2020). This link is possible as BSD alleviates financial constraints and allows firms to increase investment in response to demand (Ndikumana, 2005). We finally investigated the moderating effect of BSD on the link between remittances and domestic investment. As shown in column 2, the interactive term of BSD and remittances is found to be significantly positive indicating that development in the banking sector significantly moderates the link between remittances and domestic investment in SSA. It shows that, for domestic investment to be impacted positively by remittances, the banking sector in Africa must be developed.

Table 4: System GMM Results on Remittances and Domestic investment with Quality Governance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
L.DI	0.689*** (0.015)	0.695*** (0.022)	0.676*** (0.020)	0.713*** (0.018)	0.724*** (0.019)	0.666*** (0.026)	0.721*** (0.024)	0.710*** (0.019)
FDI	-0.467** (0.187)	-0.363 (0.248)	-0.575** (0.243)	-0.650*** (0.197)	-0.511** (0.233)	-0.850*** (0.145)	-0.402** (0.183)	-0.364** (0.183)
SCH	0.079*** (0.021)	0.076*** (0.022)	0.072*** (0.013)	0.084*** (0.010)	0.071*** (0.013)	0.042** (0.018)	0.069*** (0.011)	0.071*** (0.012)
logPOP	0.495 (0.513)	0.515 (0.530)	0.281 (0.414)	0.755** (0.314)	0.847*** (0.292)	1.342** (0.612)	0.672** (0.335)	0.569** (0.286)
OPEN	0.088*** (0.010)	0.089*** (0.011)	0.071*** (0.012)	0.081*** (0.011)	0.087*** (0.010)	0.137*** (0.006)	0.097*** (0.012)	0.094*** (0.009)
logUEMP	-0.254*** (0.038)	-0.278*** (0.044)	-0.283*** (0.039)	-0.252*** (0.041)	-0.286*** (0.048)	-0.458*** (0.058)	-0.265*** (0.031)	-0.298*** (0.053)
REM	-1.290*** (0.259)	-1.343*** (0.269)	-0.624** (0.271)	-1.213*** (0.321)	-1.337*** (0.193)	-0.955*** (0.280)	-1.233*** (0.181)	-1.214*** (0.282)
VA		0.011 (0.010)						
PS			0.085*** (0.009)					
GE				0.086*** (0.007)				
RQ					0.076*** (0.008)			
CC						0.100*** (0.006)		
RL							0.119*** (0.005)	
AVGOV								0.122*** (0.008)
Constant	10.440 (8.198)	9.379 (8.343)	10.410* (5.817)	6.857 (4.204)	3.239 (4.436)	-3.376 (9.117)	4.065 (5.282)	5.932 (4.175)
Hansen Sargan test:								
Prob > χ^2	0.621	0.655	0.900	0.574	0.602	0.826	0.537	0.607
Chi2(9)	33.764	33.040	26.480	34.751	34.166	28.909	35.546	34.053
AR (1) p-value	0.004	0.003	0.009	0.003	0.003	0.005	0.003	0.003
AR (2) p-value	0.677	0.683	0.592	0.748	0.724	0.715	0.654	0.694
Observations	321	321	307	321	321	316	321	321
Number of Country	41	41	40	41	41	40	41	41

Note: ***, ** and * implies Significance at 1%, 5% and 10% respectively. The t-ratios are in parentheses are t-ratio. AR (1) and AR (2) represents Arellano-Bond test for in first differences and second difference respectively.

Table 5: System GMM Results on Remittances and Domestic Investment with Good Governance Interacted

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
L.DI	0.693*** (0.020)	0.702*** (0.021)	0.680*** (0.017)	0.707*** (0.013)	0.602*** (0.025)	0.692*** (0.017)	0.687*** (0.014)
FDI	-0.484** (0.209)	-0.524*** (0.191)	-0.541*** (0.197)	-0.614*** (0.203)	-0.249 (0.197)	-0.525*** (0.166)	-0.648*** (0.237)
SCH	0.073*** (0.022)	0.072*** (0.017)	0.071*** (0.013)	0.068*** (0.012)	0.044** (0.018)	0.051*** (0.014)	0.068*** (0.013)
logPOP	0.533 (0.476)	0.521 (0.533)	0.438 (0.308)	0.572** (0.274)	0.847** (0.341)	0.087 (0.321)	0.431 (0.270)
OPEN	0.081*** (0.013)	0.078*** (0.010)	0.075*** (0.007)	0.077*** (0.008)	0.149*** (0.007)	0.065*** (0.009)	0.077*** (0.008)
logUEMP	-0.252*** (0.043)	-0.216*** (0.050)	-0.223*** (0.048)	-0.232*** (0.041)	-0.365*** (0.025)	-0.200*** (0.041)	-0.231*** (0.044)
REM	-1.084*** (0.267)	-1.412*** (0.432)	-2.092*** (0.248)	-2.114*** (0.331)	-2.464*** (0.467)	-1.721*** (0.331)	-2.468*** (0.321)
REM_VA	-0.0074 (0.005)						
REM_PS		0.040*** (0.007)					
REM_GE			0.043*** (0.006)				
REM_RQ				0.046*** (0.006)			
REM_CC					0.058*** (0.010)		
REM_RL						0.0492*** (0.005)	
REM_GOV							0.070*** (0.008)
Constant	10.35 (7.565)	9.124 (8.013)	12.82** (5.004)	11.44** (4.625)	6.691 (5.257)	16.78*** (5.027)	13.52*** (4.418)
Hansen Sargan test:							
Prob > χ^2	0.624	0.749	0.714	0.675	0.831	0.894	0.721
Chi2(9)	33.704	30.915	31.719	32.609	28.772	26.718	31.559
AR (1) p-value	0.004	0.003	0.005	0.004	0.004	0.004	0.004
AR (2) p-value	0.661	0.634	0.755	0.773	0.936	0.610	0.747
Observations	321	307	321	321	316	321	321
Number of Country	41	40	41	41	40	41	41

Note: ***, ** and * implies Significance at 1%, 5% and 10% respectively. The t-ratios are in parentheses: are t-ratio. AR (1) and AR (2) represents Arellano-Bond test for in first differences and second differenc respectively.

Table 6: System GMM Results on Remittances and Domestic Investment with Banking Sector Development

	(1)	(2)
Variables		
L.DI	0.681***(0.012)	0.707***(0.0302)
FDI	-0.685***(0.215)	-0.305(0.241)
SCH	0.041***(0.012)	0.049***(0.015)
logPOP	1.068***(0.250)	0.817***(0.302)
OPEN	0.099***(0.006)	0.099***(0.013)
logUEMP	-0.319***(0.046)	-0.296***(0.049)
REM	-1.078***(0.211)	-2.714***(0.248)
BSD	0.129***(0.011)	
REM_BSD		0.089***(0.007)
Constant	3.826(3.870)	7.654(5.319)
Hansen Sargan test:		
Prob > χ^2	0.820	0.771
Chi2(9)	29.080	30.369
AR (1) p-value	0.004	0.005
AR (2) p-value	0.617	0.875
Observations	316	321
Number of Country	40	41

Note: ***, ** and * implies Significance at 1%, 5% and 10% respectively. The t-ratios are in parentheses are t-ratio. AR (1) and AR (2) represents Arellano-Bond test for in first differences and second difference respectively.

Conclusion and Policy Implications

Remittances, as part of foreign capital flows, have become critical in the development of host countries worldwide. This study examined the link between remittances and one of the development factors (domestic investment) in Africa. To extend earlier studies on this link, we investigated further the moderating effect of quality governance and BSD on the link between remittances and domestic investment in the region. To examine this link effectively, we employed a two-step system GMM on 44 countries in Africa with a data point ranging from 2004 to 2018. System GMM has the power to control endogeneity problems arising from missing variables, measurement errors and reverse causality links. From the findings, we realised that remittances inflow to Africa directly negatively impact domestic investment. This shows that the direct inflow of remittances into the region is investment retarding instead of boosting investment. However, both financial sector development and quality governance have a strong positive impact on domestic investment. When we interacted both quality governance and banking sector development separately with remittances, the two interactive terms resulted in a significant positive impact on domestic investment in Africa. This means that for remittances

to influence domestic investment, there is a need for quality governance and banking sector development in Africa. Based on these findings, the following are recommended for implementation by policymakers to accelerate economic growth in Africa through local investment. First, good governance indicators should be given serious attention by policymakers to boost domestic investment, which is a key component of economic growth. This can be done by educating citizens on the importance of quality governance so that citizens will be ready to accept the tenants and consequences that are presented with quality governance. Besides, politicians and technocrats should be committed to developing laws that will enhance quality governance and make sure that enforcement mechanisms are put in place to enforce such laws without fear or favour. Secondly, the banking sector should be strengthened to make remittances' positive impact on domestic investment realised. This can be achieved by implementing policies such as reducing taxes on financial products so to reduce transaction costs in financial intermediation. Besides, laws should be developed and enforced to protect the system's creditors and investors' rights. Finally, the government should ensure that macroeconomic variables like inflation and exchange rate are not distorted by inflows of remittance to discourage investment in Africa.

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