THE EFFECT OF DIASPORA REMITTANCE ON FINANCIAL DEVELOPMENT IN KENYA

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DECLARATION

This research paper is my original work and has not been presented for a degree award in any other University.

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APPROVAL

This research paper has been submitted for examination with my approval as university supervisor.

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DEDICATION

I humbly inscribe this research project to the loving memories of my late parents, Henry Nyangau Aboki and Marcella Kemunto Nyangau; for their constant support, inspiration and encouragement that have been vital pillars in all of my life.

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God bless you.

ABSTRACT

In spite of the importance of remittance inflows gaining prominence in their contribution to the foreign capital inflows, the effects of remittances on capital formation specifically the financial sector developments has not been sufficiently studied. This paper studies the effects of Diaspora remittances on the financial development in Kenya for the period 1970 to 2017. In this study, financial development was measured by bank credit to private sector as a proportion of GDP. Remittances on the other hand were measured by the private remittances as a proportion of GDP. Other macroeconomic variables included in the model were fiscal balance, investments all expressed as a portion of GDP, the real interest rates and the inflation. The data was analyzed using Auto-Regressive Distributed Lag (ARDL) model, given that some of the model variables were integrated of order zero and other integrated of order one. The results of the ARDL model show that remittances have a positive and a statistically significant impact on the financial development at the one percent level of significance. This implies that, an increase in remittances results to a significant increase in financial development. Other control variables found to have a positive and significant effects on the financial development include, investments and the interest rates. On the other hand, fiscal balance and inflation significantly and negatively determines the financial development. Additionally, the lagged financial development was found to significantly determine the financial development at one percent level of significance. Based on the study findings, the study recommends for policies geared towards boosting remittance inflows into the country in order to enhance financial sector development.

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ACRONYMS AND ABBREVIATION

2SLS   : Two stage least squares

ADF   : Augmented Dickey Fuller

ARDL   : Auto-Regressive Distributed Lag

ASCAs   : Accumulating Savings and Credit Associations

DOLS   : Dynamic Ordinary Least Squares procedure

ECM   : Error correction model

FDI   : Foreign Direct Investment

GDP   : Gross Domestic Product

GMM   : Generalized Method of Moments

IMF   : International Monetary Fund

LM   : Lagrange Multiplier

NGOs   : Non-Governmental Organizations

NPLs   : Non Performing Loans

OECD   : Organization for Economic Co-operation and Development

ODA   : Official Development Assistance

OLS   : Ordinary Least Square

PE   : Portfolio Equity

RESET   : Regression Specification Error Test

ROA   : Rate of return on assets

ROSCAs   : Rotating savings and Credit Associations

SACCOs   : Savings and Credit Cooperative societies

SSA   : Sub Saharan Africa

US$: US dollars

UNCTAD   : United Nations Conference on Trade and Development

VAR   : Vector Auto regressive

VECM   : Vector error correction model

WB   : World Bank

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

One of the long term goals of the Kenya's Vision 2030 is to increase the annual GDP growth rate to an average of 10 percent complemented by a 30 percent growth rate in investment, and to maintain the same until 2030. However, the major constraints standing in the way of the government achieving the above two goals are low investment and savings to GDP ratios (Republic of Kenya, 2007). Presently, the ratio of private investment to GDP needed to stimulate sustainable economic growth that will reduce poverty and create employment is very low averaging at 19.3%, compared to developed countries whose investment is in excess of 25 % of their GDP (World Bank, 2018).

The Vision 2030 recognizes the financial sector as one of the catalyst for high economic growth, achieved through increased rate of national savings and mobilization. It outlines the objectives of the financial sector development as, enhancing stability; heightening efficiency in provision of credit and other financial services, enhancing accessibility to financial products and services by many Kenyans (Republic of Kenya, 2007).

King and Levine (1993), defines financial development as policies and institutions that bring about effective and efficient financial markets. Sound financial systems facilitate efficient capital allocation, effective mobilization of savings and their subsequent allocation to high yielding projects, which in turn act as catalysts for economic growth and increased employment. Remittances on the other hand are current transfer earnings by migrant workers engaged in economic activities in the country where they are hosted, that are sent to recipients in the home country (World Bank 2014).

Whilst, the Kenyan financial sector has greatly diversified, it has been plagued by a major constraint whereby, most of its financial institutions, debt and equity markets have not had the capability to provide long term capital (World Bank, 2015). Therefore, with credit constraints being one of the major factors standing in the way of achieving the above twin goals of Vision

2030, there is need for sound financial systems that will effectively utilize the remittance resource in order to supplement the domestic savings and avail credit funds for investments. This will subsequently promote accumulation of capital required for long run economic growth.

1.1.1 Financial development in Kenya.

Financial development also known as financial depth can be measured by indicators like; the ratio of bank deposits as a percentage share of GDP, the ratio of bank credit to the private sector as a percentage share of GDP, the ratio of Non-performing loans (NPLs) to assets, Rate of return on assets (ROA), ratio of growth of the credit to the private sector and capital adequacy ratio (King and Levine, 1993; Massa, 2009).

Kenya's financial sector has been ranked, fourth largest in the Sub Saharan Africa (SSA) with South Africa leading followed by Nigeria then Angola (KPMG, 2016). The Kenya's financial sector comprised of the informal and formal sectors. Formal sector includes; insurance, banking, pension , capital markets, Sacco's, micro-finance institutions, development finance institutions, the financial infrastructure which enables trading, and the payments and settlement systems (Republic of Kenya, 2007; Republic of Kenya , 2011). The informal sub-sector on the other hand is one that provides financial services but is unregulated. This is made up of; the merry go rounds, money lending businesses, the Accumulating Savings and Credit Association (ASCAs,) and the Rotating savings and Credit Associations (ROSCAs) (Republic of Kenya, 2011; World Bank 2015).

In Kenya, the financial sector is mostly led by the banking sector whose growth has been attributed to, most banks going outside their conventional banking to provide investment, microfinance, insurance, custodial services, and private equity in a bid to generate long term funding. The growth has also been attributed to, branch network expansion both locally and across the border, technological and financial innovations such as, the adoption of mobile and internet banking, the expansion to accommodate low income markets and the enhanced financial systems interconnectivity (Kariuki, 2015; World Bank, 2015). Presently, the financial sector in Kenya is made of 44 commercial banks, 13 licensed microfinance institutions, one mortgage finance company, 8 agent offices for foreign banks, 76 authorized Forex bureaus, 3 credit reference

bureaus and 18 money remittance providers and the Republic of Kenya which is the regulator (Republic of Kenya, 2018).

Even though the Kenyan financial sector has been growing over the years, it has faced major financial crises experienced mainly in the mid-1980s, the 1990's and in the 2000's. For instance, the financial crises observed in 1986 to 1989, 1993 to 1994 and 1998, had resulted to the collapse of 37 banks as at 1998 (Githinji and Waweru, 2007). These massive bank failures had majorly been caused by Non-performing loans (NPLs) which were as a result of the imprudent insider lending and advancing of credit to borrowers engaged in high risk credit markets (Republic of Kenya, 1999). In recent past 2015-2016, three banks namely Chase Bank, Dubai bank and Imperial bank were at the blink of collapse resulting from poor corporate governance majorly due to poor risk management strategies and controls. These bad practices had majorly resulted to large numbers of non-performing loans, imprudent insider lending and conflict of interest, all which led to the banks being placed under statutory management by the Central Bank of Kenya so as to prevent their collapse (Gathaiya, 2017).

Figure 1 below shows the trends in the financial development in Kenya applying bank credit to private sector as a proxy indicator for financial development.

Figure 1: Trends in bank credit to the private sector in Kenya from 1970-2017 (current US$ millions')
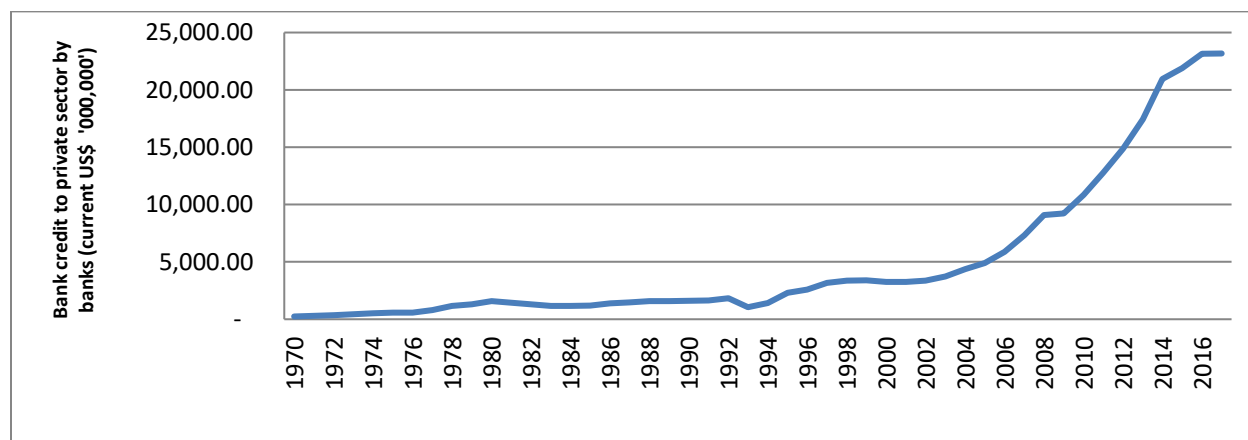
Source: Own computation based on World Bank data, 2018

In the past, Kenya has experienced various shocks that resulted to the decline in the financial development. These are shocks such as, the 1997 elections tribal clashes, the uncertainty behind

the 2002 elections and the post-election violence tied to the 2007 elections, the 1998 El Nino rains, as well as the stringent measures set by banks as a contagion against the global financial crisis of 2008. The adverse effects of these shocks was the decline in the financial development experienced in the respective years that is, 1998, 2001, 2008 (Mwega, 2009; Republic of Kenya, 2002).

1.1.3 Migration and Remittance inflow trends in Kenya

Migration from Kenya has increased in the past decades and subsequently most migrants are now based in the United States, United Kingdom and the Far East (Nyamwange, 2013). The major causes of migration in Kenya have been ; the fast pace of globalization, the burgeoning gap in the living standards of Kenyans compared to developed countries, increased corruption and insecurity (Kinuthia and Akinyoade, 2012).

Remittance inflows to Kenya have been on the increase and have overtaken the conventional external capital inflows hence becoming a major source of foreign currency, only rivaled by tourism, horticulture and tea export (Omondi, 2017).

A review of the World Bank data for Kenya on remittance received from 2000 to 2017 shows remittances went up by 264.8% percent from U.S. $537.9 Million to $ 1.962 billion , the latter being a 2.62 percent share of the GDP (World Bank, 2018). The monthly remittance inflow survey for Quarter 3, 2018 by the Central Bank of Kenya, indicates North America as the leading source market for remittance inflows to Kenya, followed by Europe then the rest of the world with a percentage of 47.1%, 27.1%, and 25.8% respectively (Republic of Kenya 2018). Figure 3 below shows the trends in remittance inflows to Kenya in US dollars

Figure 2: Trends in remittance inflows to Kenya (in US $ '000,000') from 1970-2017
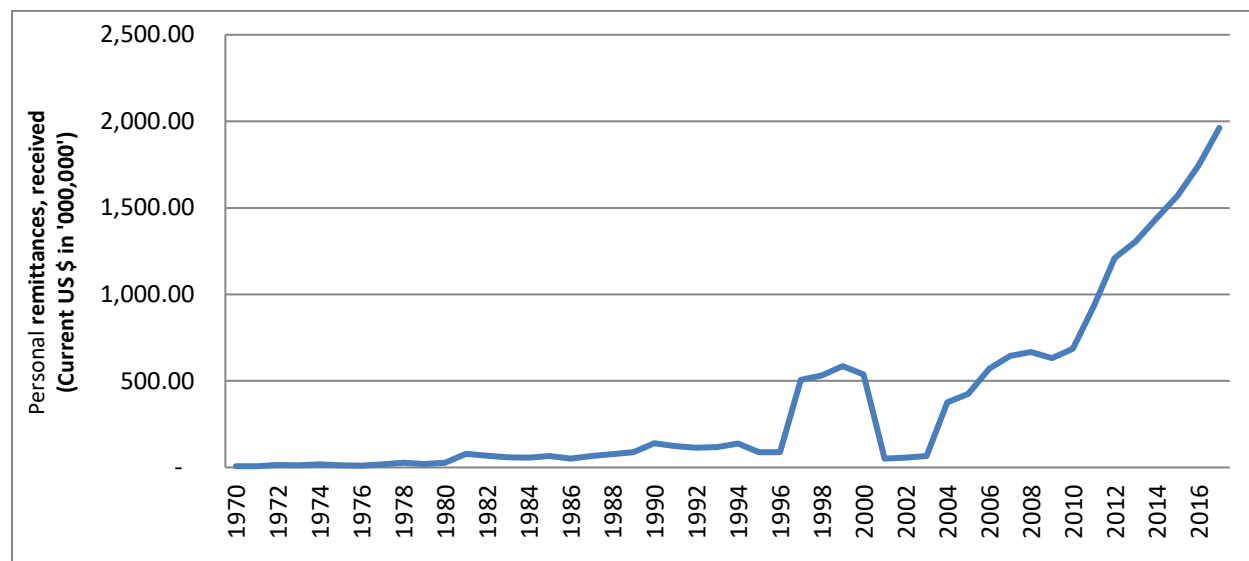
Source: Own computation based on World Bank data, 2018

The recent increase in the recorded remittance inflows to Kenya has majorly been due to, the expansion in the money transfer industry mostly attributed to the increased use of mobile money services, the partnership with international money transfer companies, increase in migrant stock and incomes as well as the increase in financial deepening of the Kenyan banks which has seen them provide competitive tailor made products for the Diasporas (Republic of Kenya, 2011).

On the other hand, factors that have hampered remittances inflows to Kenya include; high transaction costs of sending money to Kenya in addition to high costs associated with complying to regulations on international counter terrorism financing and anti-money laundering, frequent oil price fluctuations that have impacted remittance inflows from oil generating countries, poor access to formal financial institutions, high interest rates as well as volatile exchange rates Moreover, the euro debt crisis and the global financial crisis that recently plagued the advanced economies have caused persistent unemployment and reduced employment opportunities of Kenya migrants, resulting to decreased remittances from these areas (World Bank, 2014; Nagarajan, 2009).

1.1.2 Remittances and Migration.

According to data from World Bank the overall remittances for the period 2017 stood at $613 billion which was a 7% increase from $573 billion in 2016 and thrice the size of the Official Development Assistance (ODA). A review of World Bank data for this period of 2017 shows India as the world's largest recipients of remittances with ($68.97billion) followed by China ($63.86 billion), Philippines ($32.81billion) and Mexico with ($ 30.6 billion). In Africa on the other hand, the leading recipients of remittances are, Nigeria ($21.97 billion), Egypt ($ 19.98 billion) followed at a great distance by Morocco ($ 7.47 billion), (World Bank, 2018)

Remittances have been known to have a positive correlation with migration because they substantially link migration and development. This implies that, increased migration results to more remittance inflows which generate more investments that subsequently improve the economic growth (Ratha and Plaza, 2011). In the recent past, there has been increased migration from Sub-Saharan Africa to developed economies which has resulted to increased Diaspora remittances mostly driven by remittances to Egypt and Nigeria (World Bank, 2018).

The major determinants of remittance inflows have been noted to be, the length of time a migrant stays abroad, their income and savings, reason for remitting back home or the migrant's marital status, whether a migrant migrates with family members or alone and whether a migrant stays attached to his or her family back home (OECD, 2006).

Remittances have been seen to portray certain characteristics for instance, they seem to increase whenever there are natural disasters in that migrants usually act on humanitarian impulse and tend to remit more when their home country experiences a disaster or is in an economic downturn (World Bank, 2014). Secondly, remittances seem to be relatively more dependable and a stable source of external development finance compared to other foreign exchange inflows like FDI, Portfolio Equity, and ODA, which are normally highly volatile. In the presence of external economic shocks therefore, remittances will behave counter cyclically (Mohapatra *et al*. 2010; Ratha and Plaza, 2011). Figure 2 displays the relationship between remittances and other foreign inflows to developing countries in US dollars.

Figure 3: The relationship between remittance and other international inflows

Remittances to developing countries
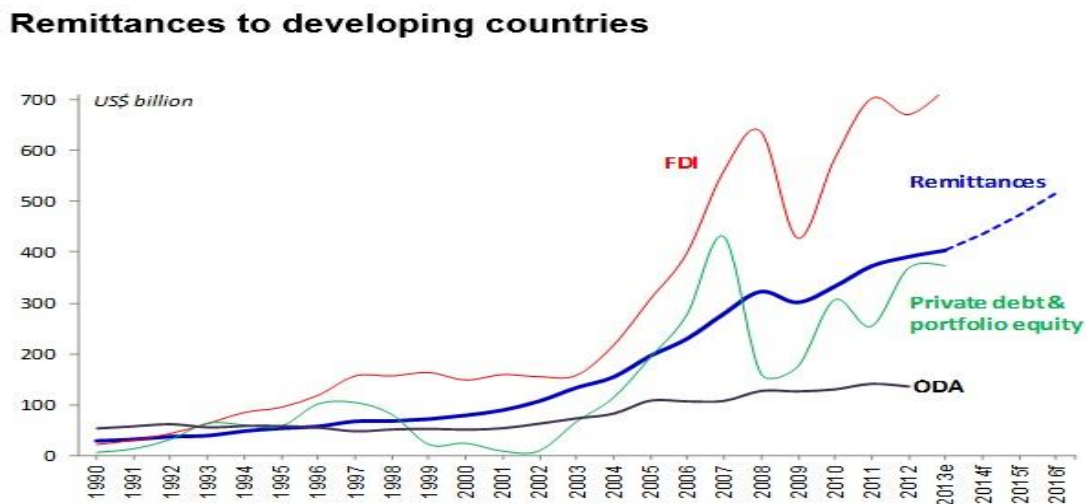
Source: The World Bank, *World Development Indicators*, and DEC Prospects Group estimates.

Thirdly, because remittances are mostly sent directly to beneficiaries, they have a tendency to be appropriately aimed for the beneficiaries' needs. Lastly, remittance inflows tend to be larger in poor countries or those affected by conflict, where they are mainly sent to provide a lifeline to the poor (Mahmoud and Ratha, 2014).

The actual size of total remittances to Kenya is believed to be much higher than the official record. This is because, the official tabulations only capture remittance inflows that are transmitted through formal channels like banks or authorized money transfer operators, Micro finance institutions and the mobile transfer operators . Large volumes are also remitted through informal channels like cash ferried in person or "hawala" (a money transfer system where money is given to an agent based in the remitter's country, who at a small fee instructs a remote associate located in the recipient's country to pay the final recipient) are left out of the official figures (UNCTAD, 2012; World Bank, 2010). Secondly, countries as well as international organizations like the International Monetary Fund and the World Bank often differ on what they capture as components of remittance inflows. For instance, some international transfers to embassies or to Non-Governmental Organizations (NGOs) are often included or not factored in the tabulations which then results to an overestimation or underestimation of remittance flows (UNCTAD, 2012).

1.1.4 Trends in the financial development and Remittance inflows to Kenya

Most of the financing in Kenya comes from banks which mostly rely on deposits as their source of loanable funds. The increase in the remittance volumes have led to increased uptake of bank products such as bank accounts resulting to an increase in bank deposits that have generated loanable funds, all which have enhanced financial deepening. On the other hand, the financial development has resulted to improved services such as the decrease in remittance transaction costs, provision of diaspora banking tailored for the Diasporas, all which have encouraged remittance inflows (Republic of Kenya, 2011). Figure 4 below illustrates the trends in financial development (i.e. bank credit to the private sector) and the remittance receipts in Kenya as a share of GDP.

Figure 4: Trends in the bank credit to the private sector and remittances in Kenya (% GDP) from 1970-2017
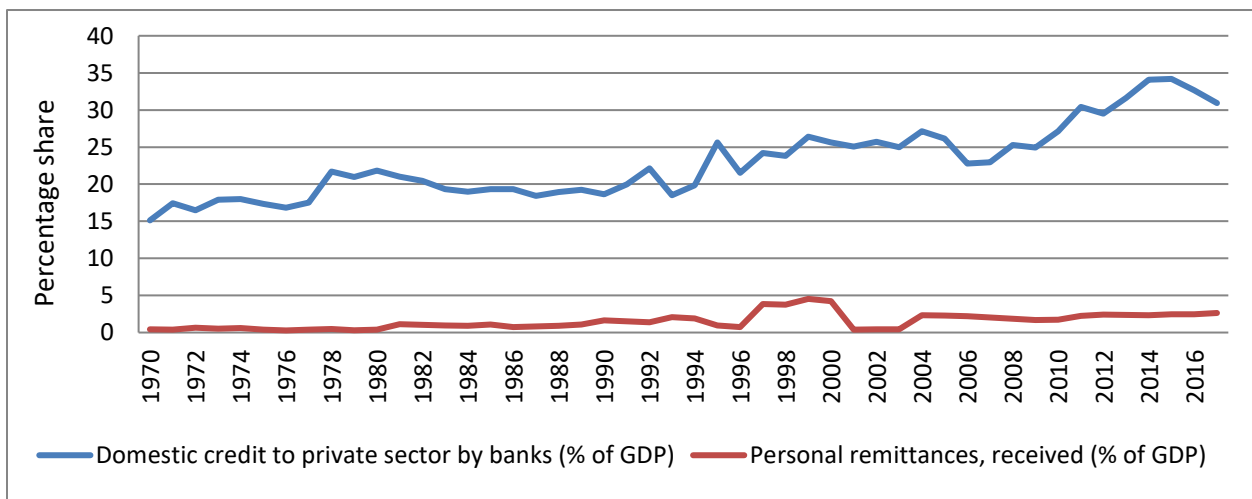
Source: Own computation based on World Bank data, 2018

1.2 Statement of the Problem.

Credit constraint has been a major problem that has persistently faced the financial sector in Kenya reason being, the banking sector relies mostly on bank deposits for credit financing. However, the level of loanable bank funds and the saving ratios have been below the levels required for sustainable economic growth (Republic of Kenya, 2018). The fact that official remittances mostly transit through the banking system, investigating their effects on the financial development cannot be underestimated.

Investigating the impact of international remittances however for different countries Kenya included, continues to face some challenges in terms of data collection and reporting. For instance, quantifying the exact remittance volumes and therefore their true impact on the economies has been a challenge given that statistics on remittances received through informal channels such as 'hawala', those carried home through relatives are not known and therefore not documented. Additionally, there is no universal standard way of measuring remittances hence, countries and international organizations differ when tabulating the components that constitutes the remittance resource. Another challenge is that, most studies conducted in Kenya test the link between remittances and other macroeconomic, microeconomic and social economic variables like, consumption, GDP, and poverty but not specific to its effect on financial development. Other studies are mostly done from a global or regional perspective hence country specific dynamics are lost in the process (Ombaba and Muriuki, 2018).

Noting the above shortcomings coupled with the fact that remittance inflows to Kenya having been on the increase over the years, it is on this basis that the researchable study problem is to empirically test the effects of the diaspora remittances on the financial development in Kenya

1.3 Research Questions
The study was guided by research questions stated below.
a) What role do the diaspora remittances play on the financial development in Kenya?
b) What are the policy implications that should be adopted to encourage remittance inflows through the formal channels that will spur financial development in Kenya?

1.4 General Objective
The general objective of the study was to analyze the effects of Diaspora remittances on the financial development in Kenya.

1.4.1 Specific Objectives
The study aimed to pursue the following specific objectives.
i) To analyze the effect of Diaspora remittances on the financial development in Kenya.
ii) Draw policy implications from the study findings.

1.5 Significance of the Study

The Vision 2030 identifies financial sector growth as one of the catalyst for high investment growth that will help spur the overall economic growth in the country. The investment, savings to GDP ratios in Kenya are however very low averaging at 19.3% and 5.4% respectively (Republic of Kenya, 2007; World Bank, 2018). With the trends in remittance volumes having been observed to be on the increase over the years, the study findings will be important to policy makers and the financial regulators as it will help in shedding light on how remittances can efficiently be used to supplement the low savings and investment rations both at the household and national level which will in turn contribute to financial sector development in Kenya. The paper will also inform the stakeholders in the financial institutions on the policies that can help in boosting remittance inflows received through banks for purposes of growing bank deposits, the bank loanable credit creation process, as well as diaspora banking innovations that cater for the Diasporas. Additionally, the study will provide relevant information for policy making that will speak into the financial inclusion of the unbanked beneficiaries of remittances as well as provide background information on the effects of remittances on other macroeconomic variables such as exchange rates, inflation that would be essential for financial sector stability. Noting that fewer studies have been done to test the link between the two study variables, the study is important as it will update the existing literature by providing empirical evidence to the relevant stakeholders for purposes of policy making on how the benefits of the remittance resource can be maximized in the country specific Kenya.

1.6 Scope of the Study.

The study set out to examine the effect of Diaspora remittances on the financial development in Kenya, employing secondary annual data spanning from 1970 to 2017.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews and presents both theoretical and empirical literature regarding the link between remittances and financial development. The first section highlights the theories that explain this topic. The second section discusses the empirical studies done by researchers and their results, whereas the final section gives a summary of these studies.

2.2 Theoretical Literature Review

Several theories have been put forth to explain the effects of remittances and the financial development. These include;

2.2.1 Complementarity and substitutability theories

These theories argue that remittances and the financial development have a complementarity and substitutability relationship, such that; remittances can expand the financial sector when received through formal channels like banks, because they expose a large number of recipients some who were formally unbanked, to the financial sector, where they can query and demand financial products resulting to increased uptake of credit and saving products thereby enhancing financial inclusion (Aggarwal, Demirguc-Kunt and Peria, 2011; Giuliano and Ruiz-Arranz, 2005; Orozco and Fedewa 2005). Moreover, in cases where remittance receipts are substantial and exceed the present needs of the recipients, they have been noted to increase the recipient's need for their safekeeping who then demands for financial products such as bank accounts. When the surplus is banked, it increases the bank deposits thus loosening the banks' liquidity constraints. Besides, they can result to domestic resource mobilization and increased revenue earned to the financial sector thereby expanding the financial sector development. Another argument put forth is that, where remittances are substantial and are received regularly to bank accounts, banks can use them as a substitute option for financing entrepreneurs who would otherwise not qualify for credit, which then would expand the credit market size (Aggarwal et al.,2011; Giuliano and Ruiz-Arranz, 2005; Orozco and Fedewa 2005) .

2.2.2 Theories on the level of Development of the financial and institutional systems

Some studies argue that a developed financial system can expand remittance inflows, such that they facilitate remittance transfers through a reduction or non-existent transaction fees that in turn encourages migrants to send more funds through the formal channels such as banks (Gupta et, al (2007). Specifically, where remittance recipients are seen as a market segment, developed financial systems will enable banks to compete for a share of this market through a reduction in remittance transaction costs which can encourage more remittance inflows. Secondly, developed financial systems encourage innovations of tailor made financial products that in turn encourage remitters to send more remittances and recipients to save and invest part of the remittances received. (Giuliano and Ruiz-Arranz, 2005; Orozco & Fedewa, 2006). Advanced institutions are known to have developed educational systems that in turn promote financial literacy of the remitters and the recipients of remittances. This in turn enlighten them on the need for remitting remittance funds through formal channels in addition to their effective usage on high yielding investments that in turn expand the financial sector and the economic growth. Additionally, developed institutions are also found to be highly industrialized have been linked to financial development more so where they lead to improved manpower skills which in turn expand job opportunities for the migrant workers (Brown, Carmignani and Fayad, 2011; Bjuggren, Dzansi and Shukur, 2010; Akkoyunlu, 2013)

On the other hand, where the financial sector is plagued by inefficiencies exhibited in the form of high transfer and transaction costs or delays in transfer of money and adverse exchange rates all will discourage remittance inflows (Ratha, 2005). Furthermore, where the public confidence on the financial sector is weakened, it will result to mistrust of the financial institutions by the public hence remittances may not lift bank deposit levels as they will be spent mostly on consumption thereby, hindering the credit availing role of remittances (Aggarwal, et al. ,2006).

2.2.3 Theory of Portfolio Management Decision

Proponents of this theory assert that, macroeconomic factors like, inflation, the rates of interest, exchange rates as well as and the rates of return on various financial and real assets, in both the host and home country are the determinants that may influence a migrant's motive to remit funds (OECD, 2006). Therefore, favorable macroeconomic conditions like the existence of a developed financial system in the home country will stimulate and increase remittance inflows, which will be

sent majorly for profitability proposes of growing the investment portfolio assets of the migrant. In this case, the portfolio motives of the migrant arise out of the saving differentiation and the available investment opportunities that are present in the home country, (OECD, 2006).

Therefore, the use of remittances to grow financial portfolio assets of a migrant indicates that remittance funds can significantly and positively enhance the financial development of the home country as they help in financial deepening.

2.3 Empirical Literature Review.

Most of the empirical literature on the remittances-financial development nexus tends to fall under two broad categories that is, country-specific and cross-country perspective. Few studies examine the effect of remittances on financial development form a country specific perspective.

Masuduzzaman (2014) examines the effects of remittances on the Financial Development and Economic Growth for Bangladesh by analyzing data from 1981 to 2013. The Johansen cointegration test and the vector error correction model (VECM) are used to analyze the data. The empirical results find remittances to have a positive and significant effect on financial development in Bangladesh. The conclusion of the study is remittance inflows are effective for countries that have developing financial sector and a fairly growing economy such as Bangladesh.

Similar findings are arrived at by Muktadir-Al-Mukit and Islam (2016) in another study for Bangladesh. The study tests the link between remittance and the banking sector credit disbursement by analyzing time series data for 1976 to 2012 using the VAR and VECM and Johansen's cointegration test. The study finds one co-integrating relationship between the variables. The empirical results indicate the two variables a positive and significant relationship where remittances boosted the quantity of credit disbursements. Moreover, the Granger causality test also reveals the presence of bidirectional causality between remittances and credit disbursements in Bangladesh.

In India however, remittances are found have a negative effect on the private investment as highlighted in a study by Hrushikesh (2012). The study tests the effects of remittances on private

consumption, investment and the overall growth, by analyzing data from 1966 to 2004 using the Dynamic Ordinary Least Squares procedure (DOLS .The negative effect from the study findings is attributed to the fact that remittances have a crowding out effect on private investment as most of remittance inflows are allocated to consumption expenditure.

Ojapinwa and Odekunle (2013) in a study for Nigeria analyzes annual data from 1977-2010 using the ADF and Phillips–perron modified unit root test based on DOLS to control for endogeneity. The study finds a positive and significant link between remittances and financial depth. The findings indicate that, where financial systems are developed, remittances have a complimentary relationship with financial development as they increase the liquidity position of banks, expanding loanable credit funds, which are in turn allocated to profitable investments that enhance capital formation a view which is supported by Aggarwal et.al (2011).Similar findings where remittances resulted to an increase in domestic credit are highlighted by Cooray (2010) in a cross country study for 98 countries. Data for 1990-2007 is analyzed using OLS and GMM methods to test and correct endogeneity of remittances inflows. The findings are that, remittances enable the recipients to open bank accounts, increases bank deposits thereby improving the liquidity of banks by availing credit funds that are loaned out to the public.

The above findings are however contradicted by a study for Nigeria conducted by Oke, Uadiale and Okpala (2011) which tests the remittances-Financial Development nexus. Two different estimation techniques, the ordinary least square estimation (OLS) technique and the Generalized Method of Moments (GMM) are used to analyze data for 1977 to 2009. The two estimation techniques however show contradicting results in that, from the OLS estimation, remittances are found to have a positive and significant impact on the financial development in Nigeria excluding financial deepening, while the GMM technique on the other hand, finds the two study variable to have an insignificant relationship. The study finds remittances in Nigeria unlikely to be used as for investment projects as they are mostly used for consumption needs.

A study for Kenya done by Ombaba and Muriuki (2018) tests the connection between remittance, domestic credit and money supply in the banking sector. Data for 2007-2016 is analyzed using time series econometric techniques. The study results show remittances to be   positively and

significantly related to loanable domestic credit by banks. Remittances are also found to be positively and significantly related to money supply in Kenya for the period under study. Additionally, in the long run, an increase of remittances results to an expansion in the liquidity position of the banks which enables them to enhance credit disbursement. The study advocates for policies that promote educational development and industrialization which will improve the financial literacy and manpower skills for both the remitters and the recipients of the remittances.

Akkoyunlu (2013) examines the relationship between remittances and financial development for the country Turkey which has a well-developed financial system. Data for over the five decades is analyzed using the VAR model together with the Toda and Yamamoto (1995). The empirical results show no link between remittances and financial development. Additionally, the study finds no causal relationship between the two variables. This is attributed to that fact that, where financial systems are well developed the relationship between the two variables might be non-linear as the positive correlation only occurs in the early period while in the current period it is negative, therefore resulting to an insignificant overall effect.

Studies from a cross-country perspective that are reviewed include; Aggarwal et.al (2011) who studies the link between remittances and the financial sector growth with special interest on bank deposits and credit both as ratios of GDP for 109 countries. The study examines data for 1975-2007 using the GMM dynamic framework applying lagged regressors and instrumental variables (IV) to check for endogeneity. The study confirms a positive and significant link between remittances; bank deposits and credit to the private sector as a share of GDP, reason being remittances boost the deposits for banks over and above the private sector credit. Specifically the study found evidence that, a one percent growth in remittances as a share of GDP will generate a 0.3percent increase in credit and a 0.5 to 0.6 percent increase in bank deposits. The study advocated for developed financial system as these will boost channeling of remittance through banks.

The link between the development of the banking sector, foreign remittance and GDP is examined by Abdullah and Gazi (2011) in a study on four South Asian countries which export large numbers of migrant workers, Sri Lanka, Pakistan, India and Bangladesh. Data for 1976 to 2005 is tested using multivariate Granger causality tests, based on error correction models. The study finds evidence that in the long-run, remittances granger cause advancement in banking sector only for

Sri Lanka and Pakistan and not for India and Bangladesh. This contradicts the empirical results for Bangladesh posted by Masuduzzaman (2014) and Muktadir-Al-Mukit and Islam (2016).

A cross-country study is conducted by Ajilore and Ikhide (2012) on five sub-Saharan African countries; Nigeria, Lesotho, Togo, Cape-Verde, Lesotho and Senegal. Country-data for 1985 to 2009 is analyzed using the Auto-Regressive Distributed Lag (ARDL) technique. The study finds a positive long-run relationship between remittances and financial development in the other four countries and not Nigeria, which corroborates the findings by Oke et al. (2011). The study recommends for, developed financial systems to help boost transfer of remittances in addition to policies that facilitate financial institutions to innovate tailor made products that attract more remittances

A study for selected Sub-Saharan African (SSA) countries conducted by Atanda and Ogboi (2014) tests the link between remittances and economic growth, where special focus is on the financial development and investment channels. Co-integration panel least square technique is used to test data. The study finds evidence that remittance boost growth in the Sub-Saharan African region and that investment and financial development play a crucial role in the remittance-output nexus. The empirical results also shows that the level at which the financial sector is developed determines a migrants motivation to remit funds to their home country.

Another study on the Sub-Saharan Africa (SSA) countries conducted by Balde (2010) investigates the macroeconomic effect of both remittances and foreign Aid on savings and investment. Two stage least squares (2SLS) and Ordinary Least squares (OLS) methods of estimation are used to analyze data for 1980-2004. The study finds the coefficients of the remittance variable to be 6 to 7 times greater than those of the foreign aid variable, which consequently shows remittances to be more effective that foreign aid in enhancing savings and investment in SSA.

A study of 36 African countries conducted by Nyamongo et al. (2012) examines the role of both remittances and financial development on the economic growth. Panel econometrics techniques are applied to analyze data spanning from 1980 to 2009. The empirical findings are that, remittances seem to work as a complement of financial development in addition to generating

economic growth at least for the study period. Financial development however, appears to be weak in promoting economic growth in these countries.

Chowdhury (2016) conducts a study on 33 developing countries that are the largest recipients of remittance inflows. Data for 1979-2011 is analyzed using the dynamic panel estimation. The aim is to investigate the effects of remittances on the economic growth specifically, under different levels of financial development. The study finds insignificant effects of remittances on the financial development implying that, the two variables do not have a complementarity nor substitutability relationship. This is a contrast to the empirical findings by Nyamongo et al. (2012). The study advocated for policies that promote financial literacy, reduction of bank costs associated with receiving remittance to boost use of formal financial channels

Bjuggren et al. (2010) in a study on 79 developing countries for the period 1995 to 2005, uses dynamic panel data to test for endogeneity of remittance inflows. The empirical results show that, where the existing financial institutions are developed, there is a positive and significant link in the remittances-financial development nexus. This is to say, high quality institutional structures together with developed credit markets resulted to efficient allocation of remittances to profitable investments expanding capital formation. A similar finding are arrived at by Mundaca (2009) who finds that, sound financial systems advance loans through screening of potential borrowers which then facilitates efficient allocation of credit financing to high yielding investments. The above findings are however refuted by Brown et al. (2011) in their study on the impact of remittances on bank credit for developing countries. A cross-country panel data for 1960-2009 is analyzed from both macroeconomic and microeconomic level. The study finds a negative relationship between remittances and financial development where remittances seem to discourage the use of formal banking products or services; which is attributed to the presence of weak legal, regulatory and institutional environments that are inherent in the developing countries.

2.4 Overview of Literature Review

Remittance inflows in Kenya have been on the increase in the last decade therefore becoming one of the largest sources of foreign exchange. Consequently, this has generated debate regarding their impact on the different economic variables such as the financial development. The empirical

literature on the remittance-financial development nexus has generated conflicting empirical evidence. Some studies have found a positive and significant link between remittances and the financial development (Aggarwal et.al, 2011; Ajilore and Ikhide, 2012; Bjuggren et al., 2010; Muktadir-Al-Mukit and Islam, 2016; Masuduzzaman, 2014; Ojapinwa and Odekunle, 2013; Ombaba and Muriuki, 2018); others have found the relationship to be insignificant (Chowdhury, 2016), while others have found a negative relationship between the two study variables Brown et al., 2011; Hrushikesh, 2012). A review of the empirical studies recognized endogeneity as major estimation problem. The endogeneity problem which is inherent in remittances was mostly addressed using the generalized methods of moment (GMM) (Aggarwal et.al, 2011; Cooray, 2010; Oke, Uadiale and Okpala, 2011). Some empirical studies analyze the effects of remittances on multiple macroeconomic variables such as financial development, poverty, GDP therefore loosing focus on the specific effects of remittances on the financial development (Atanda and Ogboi, 2014; Balde, 2010; Ombaba and Muriuki, 2018; Hrushikesh, 2012). Additionally, most studies conducted from a cross- country perspective draw results from a combination of data from different countries which tends to overlook the country specific dynamics(Aggarwal et.al ,2011; Ajilore and Ikhide, 2012; Atanda and Ogboi, 2014; Balde, 2010; Bjuggren et al., 2010; Brown et al., 2011; Cooray, 2010; Chowdhury, 2016; Nyamongo et al., 2012), while those done from a country-specific stand point, mostly focus on countries that are large recipients of remittances with few focusing on the specific country Kenya (Akkoyunlu,2013; Hrushikesh, 2012; Ojapinwa and Odekunle, 2013; Oke, Uadiale and Okpala , 2011; Masuduzzaman, 2014; Muktadir-Al-Mukit and Islam, 2016).

The above shortcomings create a gap in research which calls for further investigation. It is in that regard, that this study seeks to address this gap by investigating the effects of Diaspora remittances on financial development for the country specific Kenya by analysing data from 1970-2017.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter introduces the theoretical and the conceptual frameworks, the empirical model, the study variables, their explanation and expected sign, data sources and data analysis.

3.2 Theoretical Framework

The underlying argument in the empirical literature on the remittance-financial development nexus examines two hypotheses which are; the substitutability and the complementarity hypotheses. The substitutability hypothesis advances that, the importance of remittances in investment creation is substituted by high financial development. For instance, remittances can expose a large number of recipients and people who were previously not banked to gain access to the financial system, whereby they are able to access and demand financial products such as bank accounts which results to enhanced financial inclusion. Additionally, where remittance volumes are huge, they create a need on the recipients to demand bank accounts for their safe keeping. Moreover, remittance receipts that are substantial and consistently received can be used as substitute collateral through which loans can be advanced by banks. Thus the increase in bank deposits through remittance receipts improves the liquidity constraints of the banking sector, thereby providing adequate loanable credit funds that in turn results to financial deepening.

On the other hand, complementarity hypothesis implies that, developed financial systems will facilitate the reduction of remittance transaction costs, resulting to increased remittance inflows which are in turn directed to high yielding projects hence increased private investment. More so, developed financial systems facilitate innovations which generate products that are tailored for the Diasporas which in turn encourage increased remittance receipts.

It is in the context of these two hypotheses therefore, which warranted a study on the effects of diaspora remittances on the financial development specifically on the emerging market, Kenya.

3.3 Conceptual framework

Figure 5 below shows the relationship between bank credit to the private sector (this being the proxy indicator for financial development) in Kenya and the related factors which include, remittances, trade openness, investments, fiscal balance, inflation and the real interest rates.

Figure 5: Conceptual framework

Independent variable   **Dependent variable**

| Remittances | → | Investments
Trade openness
Fiscal balance
Real interest
Inflation | → | Bank credit to the private sector |
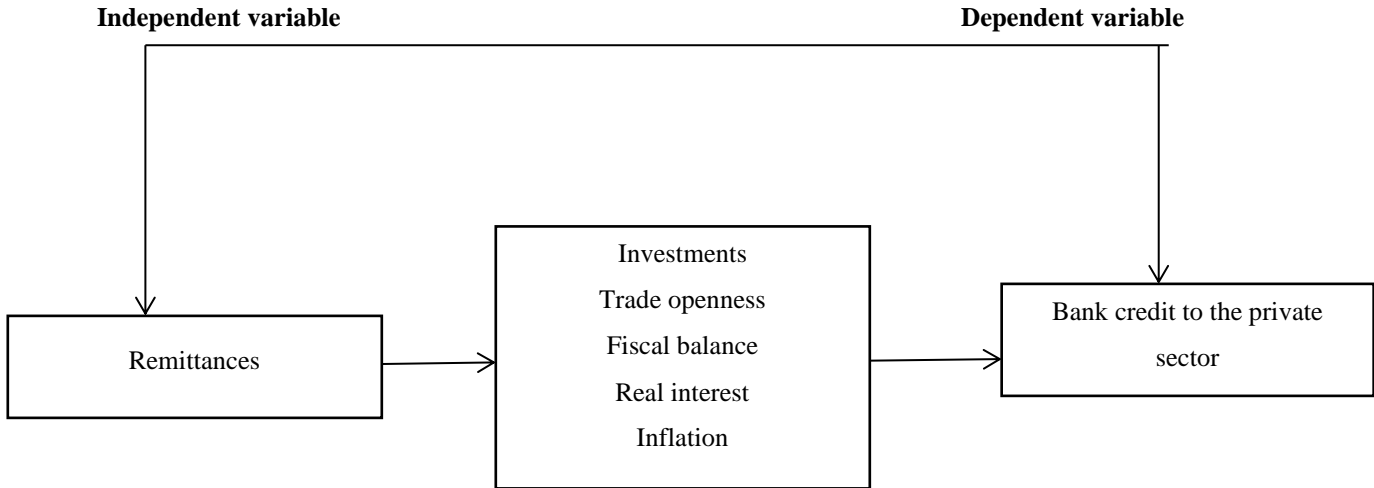
Source: Own computation based on the existing literature review

3.4 Model Specification

In an effort to establish the specific objectives for this study, a regression model linking remittances to financial development was applied. To achieve this, the study adopted the model by Giuliano and Ruiz-Arranz (2005) that used the panel data analysis where a cross – country analysis was applied. For this study, the model was modified to a time series model where the cross - sectional element in modeling was dropped to be left only with the time series aspect.

The study empirical model was specified as follows:

$$FD_t = \beta_1 Rem + X_t \beta + \mu_t \quad\text{..}(1)$$

Where; *FD* denotes the financial development,   *Rem* refers to remittances; X is the set of all other control variables, while μ is the error term.

More specifically we defined our empirical model as follows:

$$FD_t = \beta_0 + \beta_1 \text{remmittanc es} + \beta_2 tradeoppenness + \beta_3 Inflation + \beta_4 FiscalBalance$$
$$+ \beta_5 Investment + \beta_6 InterestRates + \varepsilon_t ....…………...(2)$$

3.5 Definition and measurement of variables.

From our empirical model, we define and measure the study variables as follows:

Table 1: Variable definition and sources

Variable type	Definition and Source	Expected Sign
Dependent variable		
Financial development	This is the ratios of bank credit to the private sector expressed as a percentage of GDP (King and Levine, 1993).	
Independent Variables		
Remittances	Personal transfers by migrants engaged in economic activities in the host country, sent to recipients in the home country as a ratio of GDP (World Bank, 2014).	Positive
Investment	This is the ratio of Gross fixed capital formation to GDP	positive
Fiscal Balance	This is the difference between the government revenue and government expenditure. This will be measured by the ratio of central government fiscal balance to GDP	Negative
Inflation	The economy's rate of price change, computed as a percentage change in consumer price index (World Bank, 2014).	Negative
Real Interest Rate	This is the rate of return on alternative assets adjusted for inflation (World Bank, 2014).	Negative
Trade Openness	It is computed by the summation of exports plus imports as a percentage share of GDP (World Bank, 2014).	Positive

3.6 Sources of data.

This study used annual data for the period 1970-2017. This was in consideration of; the unavailability of data for other periods prior to 1970, the need to determine how the study variables had evolved over time as well as the need to establish the development of the financial sector since independence. The study used secondary data from, World Bank Database, International Monetary Fund database, Economic Surveys and Statistical Abstracts.

3.7 Time series properties Diagnostic Tests.

Owing to the use of time series data in this study, it was important to test for the violation of classical linear regression assumptions to avoid biased and inconsistent estimates. The analysis of data was divided into two types namely, the pre-estimation and the post estimation analysis as explained in the table 2 below.

3.7.1 Diagnostic Tests.

Table 2 below presents the various diagnostic tests that will be applied on the data.

Table 2: Diagnostic analysis and tests

Diagnostic Analysis	Tests for	Test
Pre-estimation Analysis		
Autocorrelation	Tests for serial correlation among variables. When lagged variables are incorporated on the right hand side of time series regressions, it results to the estimated residuals being correlated across time leading to small standard errors that cause biased and inconsistent estimates (Green, 2012).	Breusch - Godfrey serial correlation test
Unit Root Test	Tests whether the mean together with the variance of the study variables are independent of time or whether constant over time (tests for stationarity / the order of integration among variables. (Gujarati, 2003).	Augmented Dickey Fuller (ADF) test

Causality test	Tests for direction of causality (reversal causality), (Gujarati, 2003).	Granger causality test
Co-integration test	Tests for the long run relationship among variables, (Gujarati, 2003).	Johansen test
Post estimation tests for residuals		
Bound test	It checks for the presence of cointegration of estimated models.	Breusch-Pagan test for serial
Autocorrelation Test	It tests for the serial correlation within the estimated models	Breusch-Godfrey LM
Multicollinearity test	It tests for multicollinearity in the model	The Variance Inflation Factor test

3.7.2 Estimation technique.

Upon conducting the pre estimation tests, the Auto-Regressive Distributed Lag (ARDL) technique was used to estimate the empirical model. The study used both the Co-integration and the Auto-Regressive Distributed Lag model to determine the short run and the long run equilibrium relationship.

To achieve the first objective, the empirical model was regressed and the respective hypotheses on the significance of these objectives were analyzed to establish whether the respective independent variables significantly determined the financial sector development or not. In addition, the joint test for all the variables was carried out to determine whether all the independent variables jointly influenced financial sector development. Subsequently policy implications are discussed to achieve the second objective.

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction.

The analysis of data and discussion of the results were presented in this chapter, with a descriptive statistics summary of, financial development, fiscal balance, remittances, inflation, trade openness, interest rates and investments. In addition, the chapter covered, the correlation matrix that explained the link between the variables, the unit root test results that explained the order of integration for variables, cointegration test and lastly the regression results for the model.

4.2 Descriptive statistics.

The descriptive statistics for the variables are presented in table 3 below. This comprises of the mean values, minimum and maximum values, variance and standard deviation values, skewness and kurtosis values of the variables.

Table 3: Descriptive statistics

	Financial Development	Fiscal Balance	Remittances	Inflation	Openness	Real Interest rates	Investment
Mean	22.8713	-5.9560	1.5106	10.0389	57.0946	5.9943	20.6702
Std. Dev.	4.9375	3.1716	1.0865	7.7666	7.8621	6.8861	3.3855
Minimum	15.1189	-15.5866	0.2849	-9.2192	36.7514	-8.0099	15.0038
Maximum	34.1900	-0.5084	4.5352	41.9888	74.5734	21.0963	29.7893
Variance	24.3786	10.059	1.1806	60.3203	61.8133	47.4177	11.4614
Skewness	0.6684	0.54464	1.0014	1.3553	0.0158	0.07192	0.2853
Kurtosis	2.5818	3.1379	3.46779	7.9545	3.4234	2.8026	2.5883
Observations	48	48	48	48	48	48	48

The above results show that there are 48 observations in total, for the period under review. The mean values of the variables are such that; the bank's credit to private sector as a percentage of GDP is 22.87 percent, while that of the Fiscal balance as a percentage of GDP is -5.9560 percent. The mean value of the ratio of remittances to GDP is 1.5106, while that of trade openness and

investments as a share of GDP stands at 57.09 and 20.67 percent respectively. Lastly, the mean values of real interest rates and inflation rate are 5.99 and 10.04 percent respectively. On the other hand, analyzing the measures of dispersion as evidenced by standard deviation, the study found that, trade openness has the highest deviation of 7.8621 with remittances having the least measure of dispersion of 1.0865.

On the skewness of variables, it was noted that all other variable are positively skewed implying that they are more skewed to the right of their mean values. For the distribution of the variables which was measured by their respective kurtosis values, the study found that fiscal balance, remittances, trade openness and real interest rates have close to normally distribution given that their respective kurtosis values are close to is 3.0. However, inflation, financial development and investments were found to be non – normally distributed. However, this is not an anomaly as it is expected of financial related data because such data is known to have thick tails; leptokurtosis instead of normal tails. Figure 6 below supports this argument on the distribution of the respective variables.

Figure 6: Normality distributions of variables
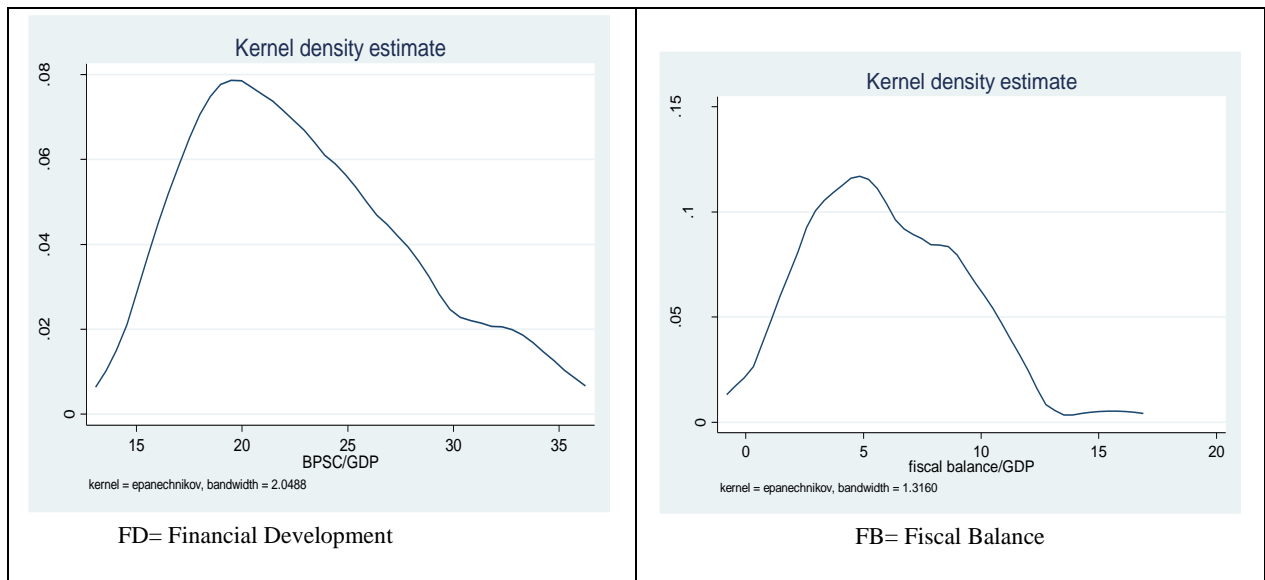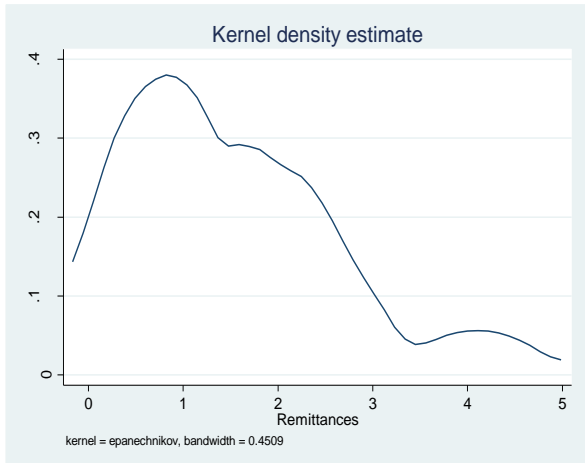
FD= Financial Development   FB= Fiscal Balance

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Kernel density estimate

REM=Remittances

kernel = epanechnikov, bandwidth = 0.4509

Kernel density estimate

INF-Inflation

kernel = epanechnikov, bandwidth = 1.8386

Kernel density estimate

Trade openness

kernel = epanechnikov, bandwidth = 2.7457

Kernel density estimate

RII= Real interest rate

kernel = epanechnikov, bandwidth = 1.8987

Kernel density estimate

I= Investments

kernel = epanechnikov, bandwidth = 1.4048

26
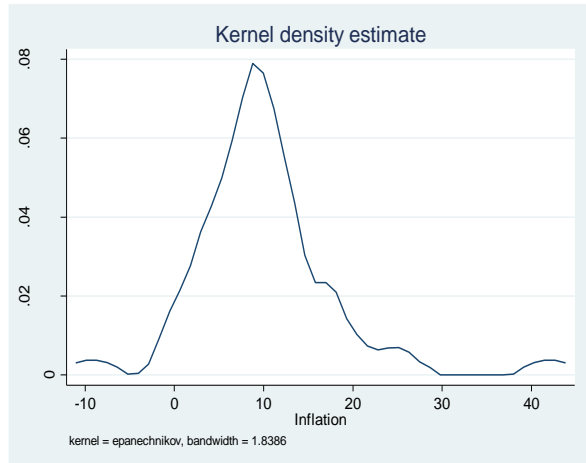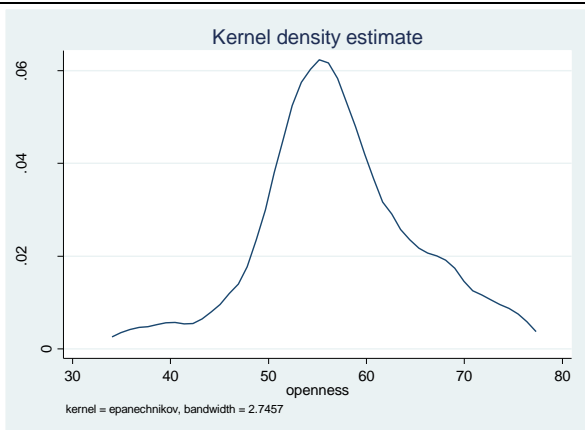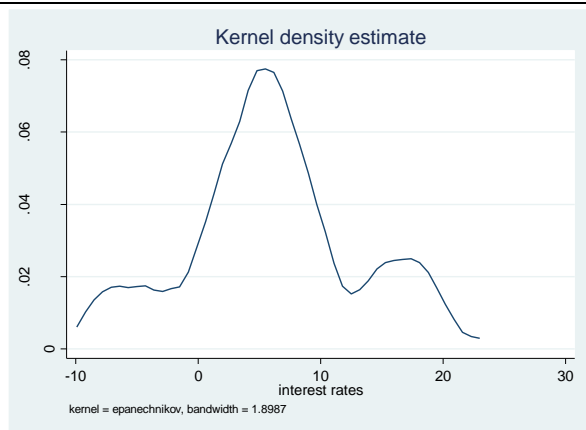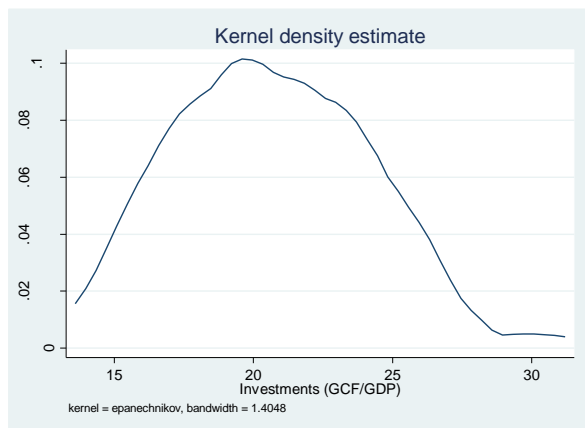
4.3 Correlation Analysis.

To understand the correlation among the study variables, a correlation analysis was conducted to compute the correlation coefficient and the results presented in table 4 as follows:

Table 4: Correlation matrix

	Financial Development	Fiscal balance	Remittances	Inflation	Openness	Interest rates	Investments
Financial Development	1.0000						
Fiscal balance	-0.4925	1.0000					
Remittances	0.5821	0.2549	1.0000				
Inflation	-0.0588	-0.1241	0.2264	1.0000			
Openness	-0.4839	-0.2368	-0.4057	0.2379	1.0000		
Interest rates	0.3814	0.1176	0.2674	-0.5383	-0.3192	1.0000	
Investments	0.3578	0.0551	-0.4668	-0.1357	0.2614	-0.3746	1.0000

From the correlation matrix results the study concluded that there aren't any two variables that have a high correlation between themselves. Reason being, none of the coefficients are greater than the 70 percent value to warrant a conclusion of a strong correlation. Therefore, there was no need of dropping any of the variables from the empirical model. The coefficients revealed that financial development is negatively related to fiscal balance (fiscal debt), trade openness and inflation while it is positively correlated to, remittances, interest rates and investments

4.4: Pre- estimation tests

4.4.1: Unit Root tests

Unit root test was essential in establishing the variables order of integration prior to the empirical model estimations. This is because estimation of the empirical model without prior knowledge on the order of integration of the variables may lead to spurious regression problems. The Augmented Dickey – Fuller test was used to test the presence or the absence of unit roots among the variables. Prior to testing for the unit roots, the variables were plotted and the resulting plot graphs showed that all the variables are non – stationary and have a trend. This means that the variables are trending and are following a random walk. This therefore implies that when testing for the unit

root, we apply the test taking into account the deterministic trend. The plot graph is given in Figure 7 below.

Figure 7: Plot graphs for all variables

FD=Financial Development

FB=Fiscal Balance

REM=Remittances

INF=Inflation

OPNN=Trade Openness

RII=Rate of interest

I=Investment
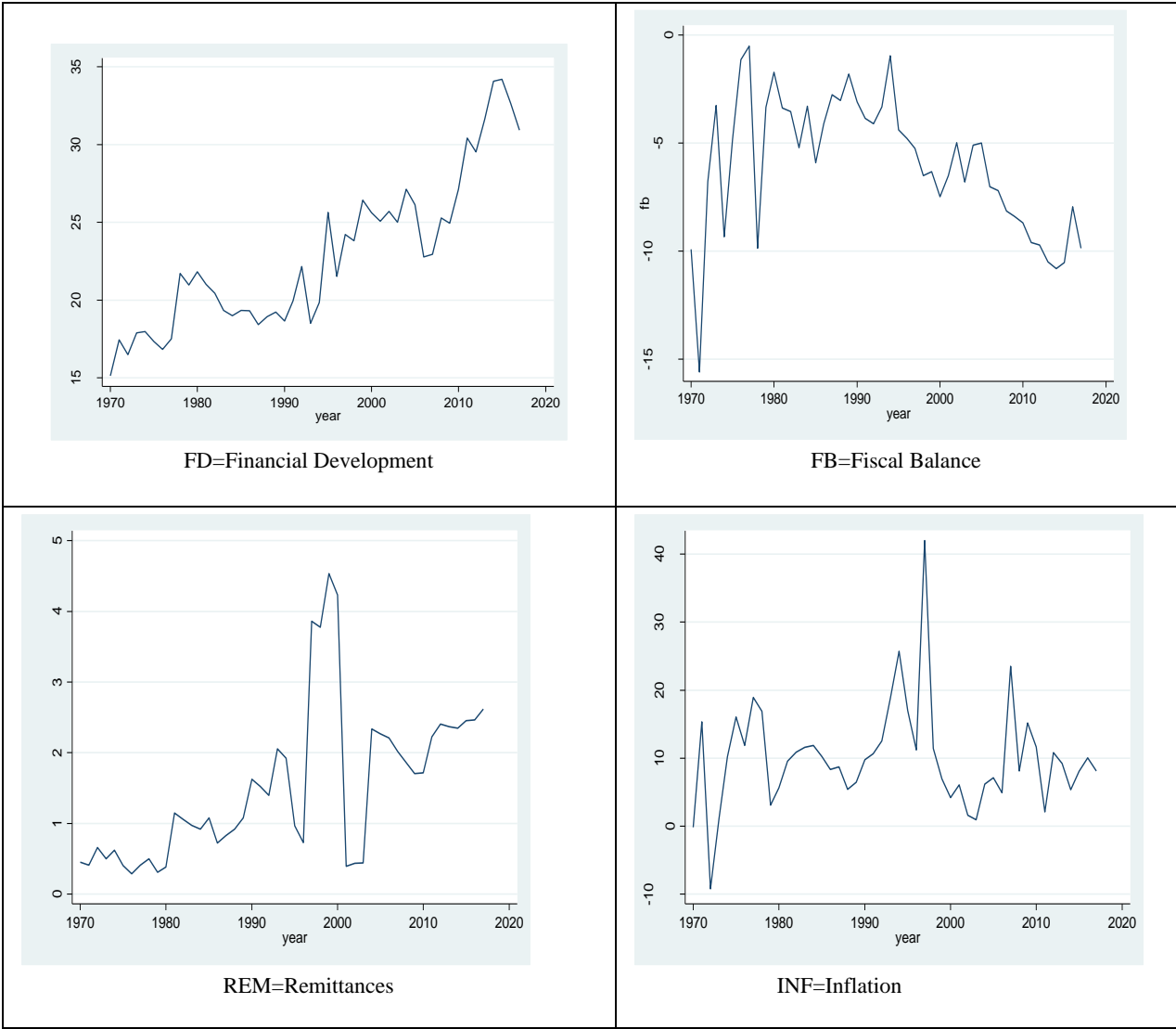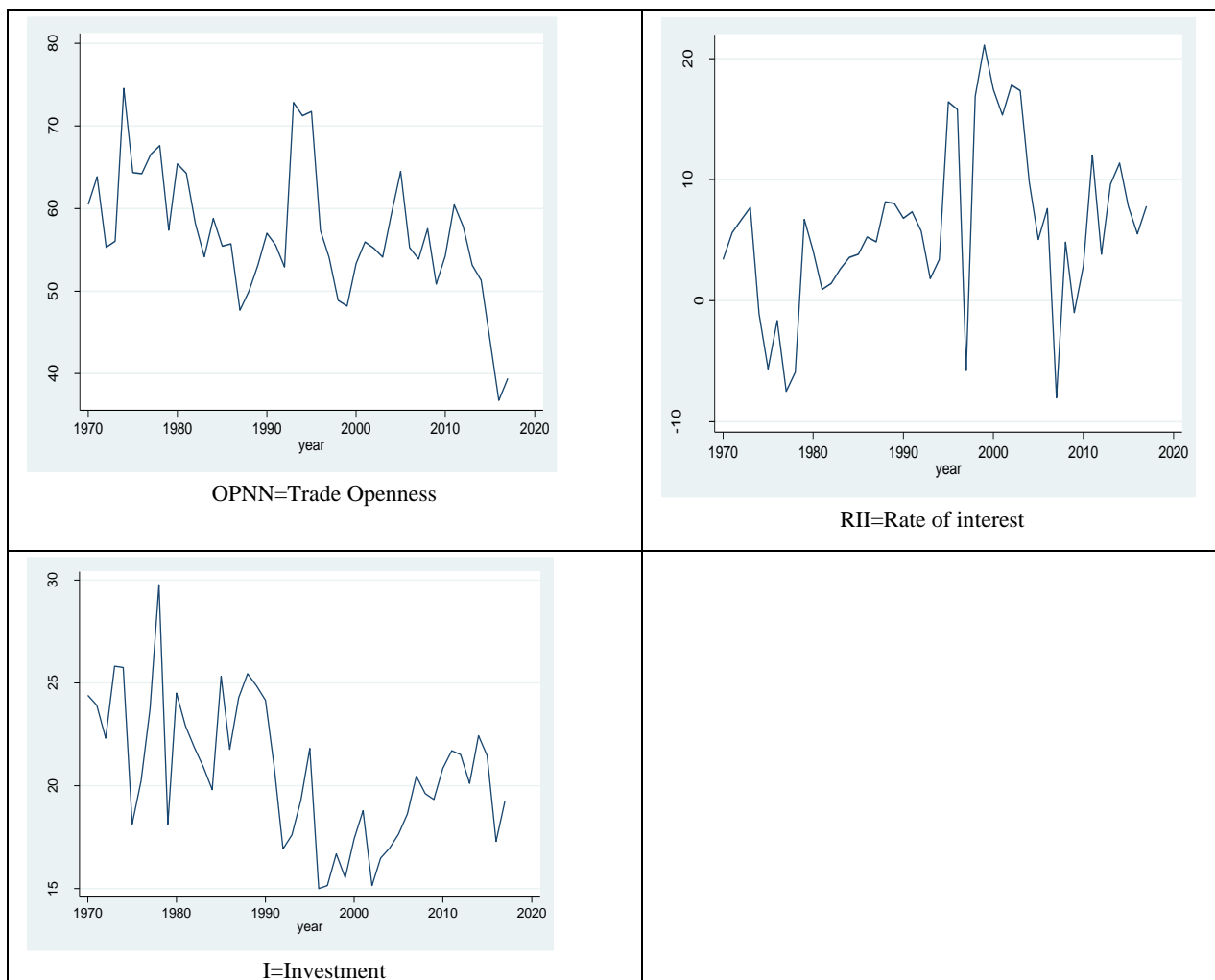
Table 5: Unit root test results

	t- statistics	At level			Order of Integration
		Critical values			
		1%	5%	10%	
Financial Development	-3.150	-4.178	-3.512	-3.187	I(1)
Fiscal balance	-4.205	-4.178	-3.512	-3.187	I(0)
Remittances	-3.725	-4.178	-3.512	-3.187	I(0)
Inflation	-5.474	-4.178	-3.512	-3.187	I(0)
Openness	-3.471	-4.178	-3.512	-3.187	I(0)
Interest rates	-4.306	-4.178	-3.512	-3.187	I(0)
Investments	-4.412	-4.178	-3.512	-3.187	I(0)

After carrying out the unit root test and the results generated as shown on table 5 above, the study found that, at level, financial development is non-stationary implying it has a unit root at levels because, the t – statistics values for the financial development variable is higher than the critical values at ten percent level of significance. All the other variables that is; Fiscal balance, remittances, investments, inflation, real interest rate and trade openness are all stationary at levels. Since we have a variable integrating of order one and the remaining five variables integrating of order zero but, none is integrating of order two, we therefore run the ARDL model.

4.4.2: Cointegration test

After testing for the stationarity of the variables, the study looked at the cointegration among the model variables where the Johannsen cointegration test was applied. The results for the test are presented in table 6 below.

Table 6: Cointegration test results

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.751121	59.80396	46.23142	0.0011
At most 1	0.594854	38.85086	40.07757	0.0683
At most 2	0.539035	33.30059	33.87687	0.0585
At most 3 *	0.499395	29.75329	27.58434	0.0259
At most 4	0.381212	20.63969	21.13162	0.0585
At most 5	0.119410	5.468024	14.26460	0.6820

 Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level

From the results in table 6 above, the study looked at the max Eigen value and the corresponding p - values. The results concluded there is a one cointegrating equation, suggesting that, in the long run the financial sector development and all other explanatory variable move together. Therefore financial sector development and other study variables have a long run relationship.

4.4.3: Optimal number of lags

Upon determining the nature of stationarity of the variables, the optimal number of lags was determined in order to establish the number of lags that ought to be applied when running the ARDL model. In determination of the optimal number of lags for the model variables, four criteria were used. These are the Final Prediction Error Criterion (FPE), Akaike Information Criterion (AIC), Hannan–Quinn Information criterion (HQIC) and Schwarz Information Criterion aka Bayesian Information Criterion (SBIC). The overall results as presented in table 7 reveal that the optimal number of lags for all variables is one and is significant at one percent level of significance as evidenced by the respective p – value. The HQIC and SBIC select one lag as the optimal lag for all the variables.

Table 7: Determination of the maximum number of lags for model variables

Selection-order criteria								
Sample: 1970 - 2017					Number of observations = 44			
Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-803.672				2.4007	36.8487	36.954	37.1326
1	-662.455	282.43	49	0.000	369725	32.657	33.4992*	34.9278*
2	-602.054	120.8	49	0.000	261099*	32.1388	33.7178	36.3966
3	-547.051	110.01	49	0.000	324848	31.866	34.1818	38.1106
4	-473.189	147.73*	49	0.000	334469	30.7358*	33.7885	38.9675

Therefore the results for the optimal number of lags imply that when running the ARDL model, one lag is applied for all the variables in the model.

Table 8: Overall ARDL Model results

FD	Coefficient	Std. Err.	t	P>|t|
FD (-1)	0.9302***	0.0870	10.70	0.000
Fiscal balance	-0.0709***	0.1249	-0.57	0.004
Fiscal balance (-1)	-0.1768	0.1378	-1.28	0.209
Remittances	0.4607***	0.4179	1.10	0.008
Remittances (-1)	0.5024	0.3856	1.30	0.202
Inflation	-0.1661**	0.0644	-2.58	0.015
Inflation (-1)	-0.0313	0.0645	-0.48	0.631
Openness	0.0358	0.0511	0.70	0.489
Openness (-1)	-0.0099	0.0547	-0.18	0.857
Interest rates	0.2328***	0.0806	2.89	0.007
Interest rates (-1)	-0.0946	0.0796	-1.19	0.243
Investments	0.3117**	0.1291	2.41	0.021
Investments (-1)	-0.0879	0.1079	-0.81	0.421
Constant	-7.7965	5.8136	-1.34	0.189

Note: Figures in parenthesis *, ** and *** denotes level of significance at 10%, 5%, and 1% respectively.

The total sample size was 48 meaning that we were dealing with the z – statistics. The study findings highlighted on table 8 above show that, the lagged financial development significantly determines the financial development at one percent level of significance. Additionally, remittances have a positive and a statistically significant impact on the financial development at one percent significant level. This implies that, an increase in remittances results to a significant increase in financial development. Other control variables found to have a positive and significant effects on the financial development include, investments and the interest rates. On the other hand, fiscal balance and inflation significantly and negatively determines the financial development. The results derived in this study where remittances have a positive and a statistically significant effect on the financial development are similar to those obtained in other empirical studies such as,(Ajilore and Ikhide, 2012; Muktadir-Al-Mukit and Islam, 2016; Masuduzzaman, 2014; Ojapinwa and Odekunle, 2013; Ombaba and Muriuki, 2018).

Table 9: ARDL Model with Long Run and Short Run Models

	D. Financial development	Coefficient	Std. Err.	t statistic	P>|t|
ADJ					
	Financial development				
	L1.	-0.2228**	0.1032	-2.16	0.038
LR					
	Fiscal balance	-2.7793***	0.9755	-2.85	0.007
	Remittances	0.6132**	1.6726	0.37	0.016
	Inflation	-0.6042	0.4010	1.51	0.141
	Openness	0.2709	0.2401	1.13	0.267
	Interest rates	1.0842*	0.5537	1.96	0.059
	Investments	1.4383	0.8962	1.60	0.118
SR					
	Financial development				
	D1.	-0.3126**	0.1460	-2.14	0.040
	Fiscal balance				
	D1.	- 0.3497**	0.1558	- 2.24	0.032
	Remittances				
	D1.	0.5953***	0.3449	1.73	0.004
	Constant	-10.5812**	4.7881	-2.21	0.034

Note: Figures in parenthesis *, ** and *** denotes level of significance at 10%, 5%, and 1% respectively.

Upon running the overall ARDL models, it was crucial to decompose the overall model into the long run and short run models in order to determine the relationship between financial development and the model variables. The results are presented in table 9 above. The results indicate that financial development has a long run relationship with the model variables implying that in the long run they move together. Additionally, the results show evidence of a cointegrating model with the coefficient of -0.2228 significant at one percent level of significance. This implies that the short run disequilibriums in the models are corrected as a rate of 22.28 percent annually to arrive at the long run equilibrium.

Looking at the long run model, results posit that fiscal balance, remittance and interest rates have a long run relationship with the financial development significantly implying that in the long run they move together as evidenced by their respective probability values. The short run model results evidence that, the lagged remittances positively and significantly influence the financial development while the lagged fiscal balance and the lagged financial development negatively and significantly influence the financial development respectively.

4.5 Post estimation tests

Upon estimation of ARDL model, post estimation diagnostic tests were carried out to determine the fitness of the models fitted. They included the bound test, autocorrelation, multicollinearity and heteroskedasticity tests.

4.5.1: Test for cointegration - Bound test

Bound test was conducted to determine the presence of cointegration of estimated models. The Pesaran/Shin/Smith (2001) ARDL Bounds Test was used to carry out the bound test. The results shown on appendix 2 indicate that from the ARDL results with the optimal lags the results for Case 3 show that the value of F - statistic = 1.258 which is less than critical value of upper bound F_{ub} = 3.23 at 10 percent level of significance as shown below on table 10. These results are the same for 5 and 10 percent level of significance. We therefore accept the alternative hypothesis of cointegration implying that there is cointegration among the between financial Development and all the I(1) regressors. This supports the findings of the decomposed model for short run and long run model which revealed presence of cointegrating equation.

4.5.2 Autocorrelation Test

In testing for the serial correlation within the models, the test applied was the Breusch-Godfrey LM. From the ARDL model the probability values for the respective F – statistics for the Breusch-Godfrey LM are greater than 5 percent indicating absence of autocorrelation. The results therefore conclude that the introduction of distributed lags in the model removes any serial correlation from the errors as shown on below on table 11.

Table 10: Test for Autocorrelation

Breusch-Godfrey LM test for Autocorrelation for ARDL model			
lags(p)	chi2	df	Prob > chi2
1	5.022	1	0.1250
H0: no serial correlation			
lags(p)	chi2 - statistic	df	Prob > F
1	3.828	1	0.1504

H0: no serial correlation		

4.5.3 Multicollinearity test

The Variance Inflation Factor test was applied in testing for multicollinearity in the model. From the mean variance inflation factor as shown in table 13, the results posit that the mean value of VIF is equal to 3.20. Using a rule of thumb of 10, we conclude that there is no multicollinearity among the variables since the mean VIF is less than 10.

Table 11: Test for Multicollinearity

Variable	VIF	1/VIF
Interest rates	4.86	0.205618
L1.	4.75	0.210467
inflation		
L1.	3.97	0.251803
L2.	3.81	0.262276
Remittances	3.2	0.312923
Investment	2.94	0.339746
Fiscal balance		
L1.	2.92	0.341934
Financial development		
L1.	2.75	0.363743
Remittances		
L1.	2.72	0.368156
Openness		
L1.	2.6	0.384006
L2	2.55	0.3926
Fiscal balance	2.4	0.416727
Investment		
L1.	2.1	0.47511
Mean VIF	**3.2**	

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter concludes the study by giving the main findings and policy recommendations. It also discusses the limitations of the study and also indicates areas for further research

5.2 Summary of Findings

This study sought to examine the effect of diaspora remittances on the financial development in Kenya. In addition it was also within the sphere of the study to find out whether financial development causes remittance inflows. The study focused on the 1970 – 2017 period thus using time series data. Financial development was measured by the ratio of banks' credit to private sector to GDP. This was informed by the fact that official remittance inflow can lead to growth in the banks' deposits thus aiding the creation of credit funds by the banks. In addition official remittances are core in financial inclusion whereby they help bank the unbanked beneficiaries of such remittances.

Within the study model, a number of control variables were included namely; trade openness to GDP ratio, investment to GDP ratio, fiscal balance to GDP ratio, inflation and the real interest rates. In addition, various pre – estimation tests namely unit root test, autocorrelation test and cointegration test were applied. Upon this, the Auto-Regressive Distributed Lag (ARDL) was used to estimate the empirical model and hypothesis testing.

The core findings of the study were that, remittances have a positive and a statistically significant impact on the financial development at one percent significant level. This implies that, an increase in remittances results to a significant increase in financial development. Other control variables found to have a positive and significant effects on the financial development include, investments and the interest rates. On the other hand, fiscal balance and inflation significantly and negatively determines the financial development. More so, the study found there was presence of a one cointegrating equation implying that there existed a long run relationship among the study variables. As such, the financial development and the explanatory variables move in the same

direction in the long run. The estimation of the empirical model revealed that only remittances, fiscal balance and inflation were important in influencing the financial development at 5 percent level of significance. This is because their respective p – values were found to be less the 5 percent level of significance.

5.3 Conclusion.

From the results, it was evident that Diaspora remittances play a crucial role in enhancing financial development via a surge in the bank deposits and credit to the private sector as a percentage of GDP. The study concluded therefore that, the official Diaspora remittances inflows positively and significantly affect the financial development in Kenya hence the positive nexus between the two.

The positive effect of the remittances on bank's credit to private sector could be due to a number of reasons like; official Diaspora remittances mostly transit through the banking system, where they are likely to increase the bank deposits hence easing the liquidity constraints for banks through creation of the loanable credit funds by banks. This feeds into the financial intermediation process within the banking industry thus facilitating financial development.

Secondly, remittances enhance financial inclusion whereby they expose a large number of recipients and people who were previously not banked to gain access to the financial system, where they are able to access financial products like bank accounts, debit cards which results to financial inclusion. Consequently, where remittance volumes are high, they create a need on the recipients to demand bank accounts for their safe keeping. On the other hand, remittance receipts that are substantial and consistently received can be used as substitute collateral through which loans can be advanced by banks.

The study therefore concluded that the role of remittances in financial development in Kenya supports the complementarity hypothesis implying that, developed financial systems will facilitate the reduction of remittance transaction costs, resulting to increased remittance inflows which are in turn directed to high yielding projects that consequently increase private investment. More so, developed financial systems facilitate financial innovations, resulting to products that are tailor made for the Diasporas that lures them to bank locally hence the subsequent increase in remittances.

5.4 Policy recommendation.

A number of policy implications and recommendations can be fronted from the study findings. There is need to formulate policies that will enhance more diaspora remittance inflows. This could be through enhancing diaspora banking by banks that can be achieved through innovating and developing competitive products tailored for the Diasporas that will lure them to bank locally. Secondly, the cost of sending and receiving these remittances need to be addressed and make it more affordable to facilitate more remittance inflows. Additionally, given the developments in the telecommunication industry which banks are leveraging on to boost business, there is need to address the structural constraints and the entry barriers that will in turn help banks leverage on the remittance transfers through mobile banking platforms. Lastly, there is need to intensify the demand for formal financial services by the locals as well as the diasporas, by availing financial information and rigorous financial education which would create awareness in areas such as the existing remittance transfer channels as well as their costs, all which will empower the would-be consumers of such financial services therefore subsequently enhance the transfer of remittances trough formal channels.

On the government side, there is need to set up rigorous and efficient regulatory framework that would enhance the provision and the affordability of financial services; which would be achieved through addressing the structural constraints, enhancing healthy competition in the financial sector we well as facilitating easy access to the financial sector . More so there is need for the government to maintain fiscal discipline reason being, from the study findings, the fiscal balance is negative and affects the financial development adversely. Increased domestic borrowing by the government in attempts to finance the budget deficit adversely affects financial development which in turn would negatively affect remittance inflows given that financial development causes remittance inflows.

5.5 Limitations of the Study

This study focused on the effect of diaspora remittance inflows on financial development in Kenya. Due to scarcity of data on domestic remittances, the study could not examine the effect of internal remittances on financial development.

5.6 Areas for Further Research

This study analyzed the effect of external remittances on financial development in Kenya. Future studies could investigate the impact of domestic remittances on financial development in Kenya in order to provide a complete picture of the effects of remittances on financial development.

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APPENDICES

Appendix 1 Bound test- test for cointegration

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Pesaran/Shin/Smith (2001) ARDL Bounds Test
H0: no levels relationship              F =  1.258
                                        t = -0.802


Critical Values (0.1-0.01), F-statistic, Case 3

        | [I_0]   [I_1] | [I_0]   [I_1] | [I_0]   [I_1] | [I_0]   [I_1]
        |  L_1     L_1  |  L_05    L_05 |  L_025   L_025|  L_01    L_01
  _____|_____|_____|_____|_____
  k_6   | 2.12    3.23  | 2.45    3.61  | 2.75    3.99  | 3.15    4.43
accept if F < critical value for I(0) regressors
reject if F > critical value for I(1) regressors


Critical Values (0.1-0.01), t-statistic, Case 3

        | [I_0]   [I_1] | [I_0]   [I_1] | [I_0]   [I_1] | [I_0]   [I_1]
        |  L_1     L_1  |  L_05    L_05 |  L_025   L_025|  L_01    L_01
  _____|_____|_____|_____|_____
  k_6   | -2.57   -4.04 | -2.86   -4.38 | -3.13   -4.66 | -3.43   -4.99
accept if t > critical value for I(0) regressors
reject if t < critical value for I(1) regressors

k: # of non-deterministic regressors in long-run relationship
Critical values from Pesaran/Shin/Smith (2001)
```