THE ROLE OF PERSONAL REMITTANCES IN FINANCIAL SECTOR DEVELOPMENT: EVIDENCE FOR AFRICA

by

Margaret Kumire

Submitted in accordance with the requirements for the Degree of

Master of Commerce in Business Management

in the subject

Financial Management

University of South Africa

Supervisor: Professor Ashley Mutezo

June 2020

DECLARATION

I, Margaret Kumire, do hereby certify that this thesis, which is submitted to the University of South Africa, Pretoria, is my own work and all sources that I have used have been cited and acknowledged by means of complete references.

Signed: M Kumire Date: 15 June 2020

DEDICATION

This dissertation is dedicated to my late father, Manwere Midiati, and my mother, Erica, who instilled and ignited the spirit of hard work within me. Special mention also goes to my husband Celestine, and our children Ruvimbo, Tendai and Rutendo, who taught me life-long lessons that hard work, patience, resilience and focus are the necessary ingredients for success.

ACKNOWLEDGEMENTS

My sincere gratitude to my supervisor, Prof Ashley Mutezo, who provided guidance and insightful feedback throughout the whole dissertation. Without her persistence, consistent words of encouragement, patience and endurance, and rigorous reviews, it would have been impossible to complete this dissertation. Grateful thanks also go to Prof Godfrey Marozva, for enduring long periods of absence from his family, over weekends, and his dedication to econometrics and statistical analysis skills that guided me during the data analysis phase.

Special thanks go to my husband, Celestine, who inspired me to persevere, until this milestone is achieved, and our children Ruvimbo, Tendai, Rutendo and their families, who also endured long periods without motherly love, while I was locked up in the study

ABSTRACT

The study investigated the impact of remittances on financial development in Africa using the dynamic generalised methods of moments (GMM) and other panel data analysis methods with data from 2003 to 2015. Using the same econometric estimation methods, the study also explored the influence of the complementarity between remittances and economic growth on financial development in Africa. Literature on the relationship between remittances and financial development is mixed, inconclusive and indecisive. The desire to contribute towards literature on the influence of remittances on financial development in the African context prompted this study. In Africa, personal remittances had an insignificant positive impact on financial development across all the econometric estimation approaches in all the four models, in line with some empirical studies on the subject matter. African countries are urged therefore to avoid wasting their time developing and implementing remittances, foreign aid and human capital development enhancement policies as a way of spearheading financial development. Using both broad money (as % of GDP) and domestic private credit ratio as measures of financial development, the interaction between remittances and economic growth was found to have a non-significant negative effect on financial development in Africa. The policy implication is that Africa needs to avoid over relying on economic growth as a channel through which financial development can happen.

Keywords: Remittances; Economic growth; Financial development; Africa

DIE ROL VAN PERSOONLIKE BETALINGS IN FINANSIËLESEKTOR-ONTWIKKELING: BEWYSE VIR AFRIKA

deur

Margaret Kumire

OPSOMMING

Die studie het die impak van betalings op finansiële ontwikkeling in Afrika ondersoek – deur middel van die dinamiese veralgemeende momentemetode (*GMM*) en ander metodes van paneeldata-ontleding, met data van 2003 tot 2015. Dieselfde ekonometriese beramingsmetodes is ook ingespan om die invloed van die komplementariteite tussen betalings en ekonomiese groei op finansiële ontwikkeling in Afrika te ondersoek. Die literatuur oor die verwantskap tussen betalings en finansiële ontwikkeling is gemeng, onoortuigend en vaag. Die begeerte om tot die literatuur oor die invloed van betalings op finansiële ontwikkeling in die Afrika-konteks by te dra, het tot hierdie studie aanleiding gegee. In Afrika het persoonlike betalings 'n onbeduidende positiewe impak op finansiële ontwikkeling in al die benaderings tot ekonometriese beraming in al vier modelle gehad, wat strook met sommige empiriese studies oor die onderwerp. Afrika-lande word dus gemaan om nie hul tyd te mors met die ontwikkeling en implementering van betalings en buitelandse hulp en beleide om mensekapitaalontwikkeling te verbeter as 'n manier om finansiële ontwikkeling te lei nie. Daar is bevind dat sowel breë geldvoorraad (as 'n persentasie van BBP) en die binnelandse private kredietverhouding as maatstawwe van finansiële ontwikkeling, die wisselwerking tussen betalings, en ekonomiese groei 'n nie-beduidende negatiewe uitwerking op finansiële ontwikkeling in Afrika het. Die beleidsimplikasie is dat Afrika moet waak teen oorafhanklikheid van ekonomiese groei as 'n kanaal waardeur finansiële ontwikkeling kan plaasvind.

Sleutelwoorde: betalings; ekonomiese groei; finansiële ontwikkeling; Afrika

INDIMA YEZIMALI EZIBHADALWA ABANTU EKUTHUTHUKISWENI KOMKHAKHA WEZEZIMALI: UBUFAKAZI NGOKWESIMO SASE-AFRIKA (*THE ROLE OF PERSONAL REMITTANCES IN FINANCIAL SECTOR DEVELOPMENT: EVIDENCE FOR AFRICA)*

Ibhalwe ngu

Margaret Kumire

NGAMAFUPHI

Ucwaningo beluphenya umthelela wezimali ezibhadalwayo mayelana nokuthuthukiswa komkhakha wezezimali e-Afrika ngokusebenzisa izindlela ezifanayo zezikhathi (GMM) kanye nezinye izindlela zokuhlaziywa idatha yephaneli ngokusebenzisa idatha yonyaka ka 2003 ukufikela ku 2015. Ngokusebenzisa izindlela ezifanayo zohlelo lokulinganisa isimo somnotho (*econometric estimation*), ucwaningo futhi luye lwahlola umthelela wousebenzisana okuphakathi kwezimali ezibhadalwayo kanye nokuhluma komnotho mayelana nokuthuthukiswa ngezimali e-Afrika. Umbhalo wobuciko mayelana nobudlelwano phakathi kwezimali ezibhadalwayo kanye nokuthuthukiswa kwezinhlaka zezimali uxutshwe ndawonye, awunaso isiphetho futhi awukwazi ukuthatha izinqumo. Isidingo sokufaka igalelo embhalweni wobuciko mayelana nomthelela wezimali ezibhadalwayo kwihlelo lokuthuthukiswa kwezimali ngaphansi kwesizinda sase-Afrika, ykho okuphembelele ukuthi kube nalolu cwaningo. E-Afrika, izimali ezibhadalwa abantu ziye zaba nomthelela omuhle kwintuthuko yezimali kuzo zonke izindlela zokulinganisa izinga lentuthuko yezomnotho kuwo wonke amamodeli amane, ngokuhambisana nezinye izifundo zocwaningo oluphathekayo lwalesi sifundo. Ngalokho-ke amazwe ase-Afrika ayanxenxwa ukuthi agweme ukumosha isikhathi sawo athuthukisana futhi asebenzisa uhlelo lokuthumela izimali futhi agweme ukuqinisa imigomo yoncedo oluvela emazweni angaphandle kanye nokuthuthukisa abantu ngokwamakhono omsebenzi, njengento yokuhlahla indlela yohlelo lokuthuthukiswa kwezimali. Ukusethenziswa kokubili imali ebanzi (njengephesenti le-GDP) kanye njengesilinganiso sesikweletu, phecelezi-*domestic private credit ratio* sisebenza njengesilinganiso sezinga lokutthuthuka ngokwezimali, ukusebenzisana phakathi kwezimali ezibhadalwayo kanye nokuhluma

komnotho kutholakele ukuthi kube nomthelela ongabalulekile omubi phezu kwezinga lentuthuko yezimali e-Afrika. Ngokomgomo lokhu kuchaza ukuthi i-Afrika idinga ukuthi igweme ukwencika kakhulu ukusebenzisa uhlelo lokuthuthukiswa komnotho njengomgudu lapho kungathuthukiswa komnotho.

Amagama asemqoka: ukubhadalwa kwezimali; ukuhluma komnotho; intuthuko yezomnotho; i-Afrika

ABBREVIATIONS/GLOSSARY OF TERMS

ARDL	:	Autoregressive distributive lag
DCFS	:	Domestic credit provided by financial sector (% of GDP)
DCRED	:	Domestic credit to the private sector by banks (% of GDP)
DPRDS	:	Outstanding domestic private debt securities (% of GDP)
DPBDS	:	Outstanding domestic public debt securities (% of GDP)
ECM	:	Error correction model
FDI	:	Foreign direct investment
GDP	:	Gross domestic product
GMM	:	Generalised methods of moments
GNI	:	Gross national income
IMF	:	International Monetary Fund
MCAP	:	Stock market capitalisation ratio
MENA	:	Middle East and North Africa
OLS	:	Ordinary least squares
SSA	:	Sub-Saharan Africa
VAR	:	Vector autoregressive
VECM	:	Vector error correction model

TABLE OF CONTENTS **PAGE**

LIST OF TABLES **PAGE**

LIST OF FIGURES **PAGE**

CHAPTER 1

INTRODUCTORY CHAPTER

1.1 BACKGROUND AND INTRODUCTION OF THE STUDY

According to Misati, Kamau and Nassir (2019), the remittance flow into Africa and other developing countries has been steadily rising over the last decade, forcing some researchers and academics to reassess its impact in comparison to other external financial flows. The same report observes that the renewed interest on the influence of remittances followed the 2007–2008 global financial crisis when the only reliable, steady and resilient form of external financial flow proved to be remittances inflows. The remittances inflow into Africa went up from 56.8 billion United States dollars (US$) in 2011 to US$66.9 billion in 2014, approximately 2% of gross domestic product (Misati et al., 2018:2) In contrast, Africa received US$58.3 billion in foreign direct investment (FDI) inflow and US$54.5 billion in foreign aid inflows in 2014 (Misati et al., 2019:2).

According to Migration and Remittances (2016), US$14 billion, US$40 billion and US$52 billion worth of remittances were received by Africa in 2001, 2010 and 2015 respectively. The same report shows that Africa recorded 5% economic growth in 2001 and an average economic growth rate of 5.5% during the period between 2010 and 2015. These statistics support the view by AfDB/OECD/UNDP (2017:57) that remittances form a strategic buffer stock that boost foreign currency reserves, investments, small business growth and expansion, and economic growth in Africa.

They also resonate with the theoretical view put forward by Githaiga and Kabiru (2014) who say that remittances promote economic growth as they are a source of capital for entrepreneurs who cannot afford collateral security required to access a bank loan to start a small business. The statistics mentioned in the preceding paragraph also support a theoretical argument by Giuliano and Ruiz-Arranz (2009), who note that remittances are used to fund education, promote entrepreneurship, reduce poverty, inequality and infant mortality rates, thereby enhancing economic growth and development. Tah (2019) also

argues that excess remittances after consumption are used for investment that spur long-term economic growth.

Remittance reduces liquidity constraints in the credit market, promotes diversification in economic activities, enhances domestic investment, human capital development and helps to narrow the balance of payments deficits, themselves necessary ingredients for sustainable growth of the economy (Uddin, 2016; Ukeje & Obiechina, 2013). This is in line with Barajas, Chami, Fullenkamp and Peter (2009) whose theoretical view is that total factor productivity that comes alongside remittances enhances economic growth in the labour-sending country. Anyanwu and Erhijakpor (2010), however note that remittances have a positive multiplier effect in the economy since they are normally spent on domestically manufactured products.

Moreover, theoretical literature which explains how remittances affect financial development is available. For example, Motelle (2011) argues that remittances push up the demand for using financial services at a stage when they are moving from one country to another and when they are converted into savings and investments. In some cases, remittances are quite a substantial amount, some of which might end up being saved and invested in financial markets (Aggarwal, Demirguc-Kunt & Peria, 2011). More recent empirical literature (Akram & Ishtiaq, 2016; Batool & Tah, 2019; Bayar & Sezgin, 2016; Inoue & Hamori, 2016; Issifu, 2018; Karikari, Mensah & Harvey, 2016; Mubeen, Nazam, Traigys, 2017) also note that remittances-led financial development is valid.

Recent empirical research however observes that remittances influence financial development indirectly through some channels (Issifu, 2018). Since economic growth has been found theoretically to have an influence on financial development, consistent with Yartey and Adjasi (2007), whose argument is that people's demand for financial services increases as they become wealthier in an economy that is growing, this study investigates if economic growth is an avenue through which remittances influence financial development.

There is available theoretical literature, which unequivocally explains the important role that financial development plays in ensuring economic growth. For example, Goldsmith (1969), McKinnon and Shaw (1973) and Townsend (1983) argue that the financial sector facilitates the growth of the economy by allocating capital towards projects which guarantee the highest return in an efficient manner, mobilising savings, lowering transaction costs, decreasing the information gathering costs and the provision of an effective risk management framework infrastructure. Other theorists who support the financial development inspired economic growth include King and Levine (1993), Osinubi (1998), Levine (1997a) and Edo (1995), among others.

Even though the individual impact of remittances and/or financial development on economic growth is theoretically supported, empirical research which investigates the effect of the complementarity between remittances and financial development on economic growth are quite scant. The few (Abida & Sghaier, 2014; Hamma. 2016; Ojapinwa & Bashorun, 2014; Ruiz-Arranz & Giuliano, 2005) which investigate the subject matter using the GMM approach, suffer from some methodological disadvantages. These include being narrowly focused in their description of financial development (they did not include all the three pillars of the financial sector, such as the banking sector, stock market and bond sector). They also fail to consider Matthew and Johnson's (2014) argument that the influence of macroeconomic variables on each other is not immediate. Focusing on the Caribbean and Latin American countries, Mundaca (2009) uses panel data analysis to investigate if the complementarity between remittances and financial development influences economic growth. The above-mentioned methodological weaknesses, including Mundaca's (2009) study, do not consider the dynamic nature of financial development data and also ignore the endogeneity issues prevalent in a model which describes the influence of remittances on financial development. This study was prompted by the desire to deal with these methodological limitations.

A theoretical view by Motelle (2011) provides evidence that remittances influence economic growth through financial development. The theoretical perspective is that the inflow of remittances increases the appetite for financial services by the recipients,

because they need bank accounts to keep the remittances, require savings and investment accounts to keep the extra money left after consumption, all of which feed into economic growth. These empirical studies (Abida & Sghaier, 2014; Hamma, 2016; Mundaca, 2009; Ojapinwa & Bashorun, 2014; Ruiz-Arranz & Giuliano, 2005) all find that remittances and financial development complemented one another in enhancing economic growth. The current study therefore hypothesises that economic growth in developing countries is enhanced if financial development and personal remittances complement each other.

There are seven sections which constitute the rest of the chapter. Section 1.2 is the problem statement, section 1.3 lists the objectives of the study, section 1.4 describes the significance of the study, whilst section 1.5 defines the important terms used in the study. Section 1.6 is a list of abbreviations. The structure of the whole study is diagrammatically presented and described in section 1.7. Limitations of the study are described in section 1.8. Section 1.9 is the chapter summary.

1.2 PROBLEM STATEMENT

Several empirical studies have so far focused on investigating the role played by remittances in the financial development in African countries. Apart from having methodological shortcomings, the problem statement is driven by inability to generalize existing results and the fact that no consensus exists on the effect of remittance on financial development.

Ojapinwa and Bashorun (2014), Lartey (2013), Tah (2019) and Okuda (2010) investigated the impact of remittances on financial development in sub-Saharan African (SSA) countries using the generalised methods of moments (GMM) approach. The authors note that remittances have a significant positive effect on financial development in SSA countries. Unlike other empirical studies on a similar subject matter, these empirical studies use the GMM approach which deals with the endogeneity problem found in the association between remittances and financial development, and consider the fact that financial development is affected by its own lag. According to Tsaurai (2017b),

endogeneity problem emanates from the fact apart from influencing the dependent variable, explanatory variables also affect each other, a problem which if not addressed can lead to unreliable results. The GMM approach is the most efficient economic method that makes sure that endogeneity problem in the model does not lead to inaccurate and unreliable findings (Fox, Negrete-Yankelevich and Sosa. 2015). The other weakness of these empirical studies is that they did not consider Matthew and Johnson's (2014) view that there is no immediate influence of one macroeconomic variable on another.

A study by Abida and Sghaier (2014) explore the influence of remittances on financial development using the GMM method in selected North African countries. The study shies away from using the lagged independent variable approach, a model which assumes that macroeconomic variables can only affect each other after a long time. Its focus on a limited number of North African countries (Morocco, Egypt, Algeria, and Tunisia) means that the results from such a study have limited generalisations on Africa as a continent.

Sanjeev, Catherine and Smita (2007), Karikari et al. (2016), Williams (2016), Nyamongo, Misati, Kipyegon and Ndirangu (2012), Kevin (2016), Issifu (2018), and Olayungbo and Quadri (2019) study whether remittances affect financial development in Africa and/or SSA countries using panel data analysis. These empirical studies all find that remittances promote financial development in African countries. Although their results are generalisable for Africa, their weakness is that they fail to deal with (1) the dynamic nature of financial development data, (2) the endogeneity problem, and (3) that there is no instant effect of macroeconomic variables on one another.

Using the autoregressive distributive lag (ARDL) method, Ajilore and Ikhode (2012), focusing on SSA countries, and Misati et al. (2019) on Kenya, investigate the validity of the remittance-led financial development hypothesis. They all observe a significant positive correlation from remittances towards financial development in the long run. Both these empirical studies suffer from methodological weaknesses in that they fail to address the endogeneity issues and the dynamic characteristics of the dependent variable (financial development). They also disregard the theoretical view that it takes a long

period before macroeconomic variables affect each other. Moreover, the findings from a study by Misati et al. (2019), which focuses only on Kenya, and that of Sibindi (2014) on Lesotho, cannot be generalised to the whole African continent.

None of these empirical studies on the impact of remittances on financial development hypothesis in Africa use a lagged independent variable methodology that considers the fact that the impact of macroeconomic factors on each other takes a long time. Their findings therefore cannot truly reflect the effect of remittances on financial development in Africa. For this reason, this study used a dynamic panel data analysis procedure (dynamic GMM) to address issues of endogeneity and the dynamic features of the dependent variable. The dynamic GMM was preferred ahead of the static GMM because of its ability to consider the fact that financial development is affected by its own lag, consistent with a study done by Tsaurai (2018a).

The other empirical research question is: Does the complementarity between financial development and economic growth improve financial development? According to Beyene (2014), remittances positive influence economic growth through funding entrepreneurial projects, funding education, reducing unemployment, narrowing poverty and income inequality gaps. At the same time, economic growth was observed to have a positive impact on financial development by Yartey and Adjasi (2007) whose study argued that economic growth increases gross domestic product per capita and general wealth levels among the people hence triggering higher demand of financial services. These sequences of events provide evidence that remittances can spur financial sector development through its economic growth enhancement influence. A study by Issifu (2018) noted that remittances affect financial development through some channels (political institutions, among others). Although the study did not specify the other channels, it is evident from literature (Yartey and Adjasi. 2007) that economic growth could be one of the channels through which remittances possibly can influence financial development.

Research has been conducted linking remittances, financial sector development and economic growth, while other researchers link economic growth to financial sector development. Sibindi (2014), and Ajilore and Ikhide (2012), concede that not much work has been done to incorporate financial development. Consistent with Issifu (2018), the impact of remittances on the development of the financial sector in Africa is still debatable despite clear statistical evidence of the upsurge of remittances inflow into Africa. The desire to seek more clarity on the role played by remittances on financial development in an African context is the key reason why the current study was undertaken.

1.3 OBJECTIVES OF THE STUDY

The study using Africa as a reference point, aimed to achieve the following objectives:

1.3.1 To investigate the effect of personal remittances on financial development;

1.3.2 To determine the influence of a complementarity between personal remittances and economic growth on financial development;

1.4 SIGNIFICANCE OF THE STUDY

The first objective of the current study was to explore the impact of remittances on financial development in Africa. Results from such a study enable African countries to develop and implement remittance inflow strategic plans that are meant better to foster the development of its financial markets. The results guide the African countries in evaluating whether it is worthwhile to put resources towards the crafting of a remittance policy, especially if it does not have a significant positive effect on financial development and economic growth.

The null hypothesis of the second objective is: Personal remittances affect financial development through economic growth in Africa. If the null hypothesis is not rejected, the implication of the study is that African countries will develop remittance inflow policies that are geared towards boosting economic growth in order to ensure that their financial markets are developed.

The null hypothesis related to the third objective is: Financial development and personal remittances complement one another to enhance economic growth in Africa. If the null hypothesis is accepted, the implication of such results is that African countries should ensure that policies aimed at both harnessing the inflow of remittances and also boosting financial development are firmly in place and implemented if they want to achieve economic growth. The fact that studies done by Ojapinwa and Bashorun (2014), and Abida and Sghaier (2014) find that the complementarity between financial development and personal remittances spurs growth of the economy is an indication that African policymakers cannot afford to ignore both an increase in remittance inflow and financial development if they intend to achieve economic growth.

1.5 IMPORTANT TERMS USED IN THE STUDY

The main terms that are used in this study are defined here.

1.5.1 Remittances

Misati et al. (2019) define remittances as private financial transfers sent by migrants to their friends and families back in their original countries. Bayar and Sezgin (2016) define remittances as the flow of money to relatively poorer regions from relatively rich regions to finance education, consumption, health, and entrepreneurial projects, all of which spur the growth of the economy and financial development and reduce inequality, poverty and unemployment. De Bruyn and Wets (2006) define remittances as cash or kind transfers, and charitable donations, made by individual migrants to their friends and families who stay in other countries.

According to Aziz, Sen, Sun and Wu (2015) and Masuduzzaman (2014), money sent by the migrants to their home country is the definition of remittances. Hamma (2016) loosely defines remittances as the financial flows to the labour exporting countries. Mubeen et al. (2016) note that remittances refer to the international migrants' transfer of funds to their family members in their home country. According to Githaiga and Kabiru (2014), remittances can either be personal transfers from migrants to their families back in their original country or compensation of employees in the form of something of value that is

received from households who migrated, to non-resident households who remained in the country of origin.

According to Solimano (2003), migrants send money back to their home nations for various reasons. Firstly, migrants send money back home to their families because of the love and affection for their relatives who stayed put in the country of origin. By remitting the money, the migrants intend to smoothen the consumption patterns of their relatives back home. Secondly, migrants feel obligated to remit money to their relatives back home, because they are the ones who sponsored the full cost of migration in the first place.

Thirdly, migrants send money back home, not for consumption purposes, but for their own self-motivated reasons such as investing in the stock market, land and property for their wealth accumulation purposes, especially if the return on investment is higher in the country of origin. Fourthly, migrants send money back home to their family as part of co-insurance and income diversification reasons. They remit money to their friends and families who stayed put in the home country if the economy of the country of origin is declining and at the same time expect to receive some financial assistance from the same family if the destination country's economy is in crisis.

The World Bank (2019) defines remittance as the total quantity of personal remittances received by the labour sending country within a given period. The current study used this definition of remittances, because it is a true representation of the total remittances the labour sending country receives within a given timeframe. Furthermore, it can easily be expressed in terms of its role played in the economy of the labour sending country.

Remittances refer to the ratio of remittances to GDP, and are determined by the amount of remittances received, in relation to GDP figures of the respective countries in the sample (Ajilore & Ikhide, 2012; Aggarwal et al, 2011). Data was collected from the World Development Indicators (World Bank) and World Economic Outlook (IMF), and comprises workers' remittances (transfers initiated by migrants who are resident in other nations), compensation of employees (wages, salaries, and other benefits earned by non-resident

workers on behalf of residents of other countries) and migrant transfers (arising from a change of individual residence from one nation to another).

According to Giuliano and Ruiz-Arranz (2009), the definition of remittances includes a risk element, as it includes inflows for locals working for foreign embassies. In other countries, remittances are not classified separately for other current transfers, hence the broad definition of remittances and the inherent concerns around it. In essence, remittances should facilitate financial development if they are received through the financial sector, and provide domestic credit to the private sector, thus increasing money supply (M2).

1.5.2 Financial development

Consistent with Tsaurai (2018a), financial development is the growth and deepening of the financial market within a given time period. The financial market was defined by Chipeta (2012) as an institution that facilitates the trading of assets of a financial nature such as the stocks, bonds and the money market. The definition of a financial market was also supported by Marx et al. (2009) whose financial management book argue that a financial market is any place where the trading of financial instruments such as bankers' acceptances, treasury bills, negotiable certificates of deposits, shares and bonds, among others takes place. Given data availability, the current study could have followed the broad definition of a financial market by Chipeta (2012) and Marx et al. (2009) which includes all the three categories of a financial market (money, stock and bond market). As a result, the current study only used the banking sector (money market) related measures of financial development due to data unavailability reasons.

1.6 STRUCTURE OF THE STUDY

Figure 1: (on the next page) shows how the dissertation is structured

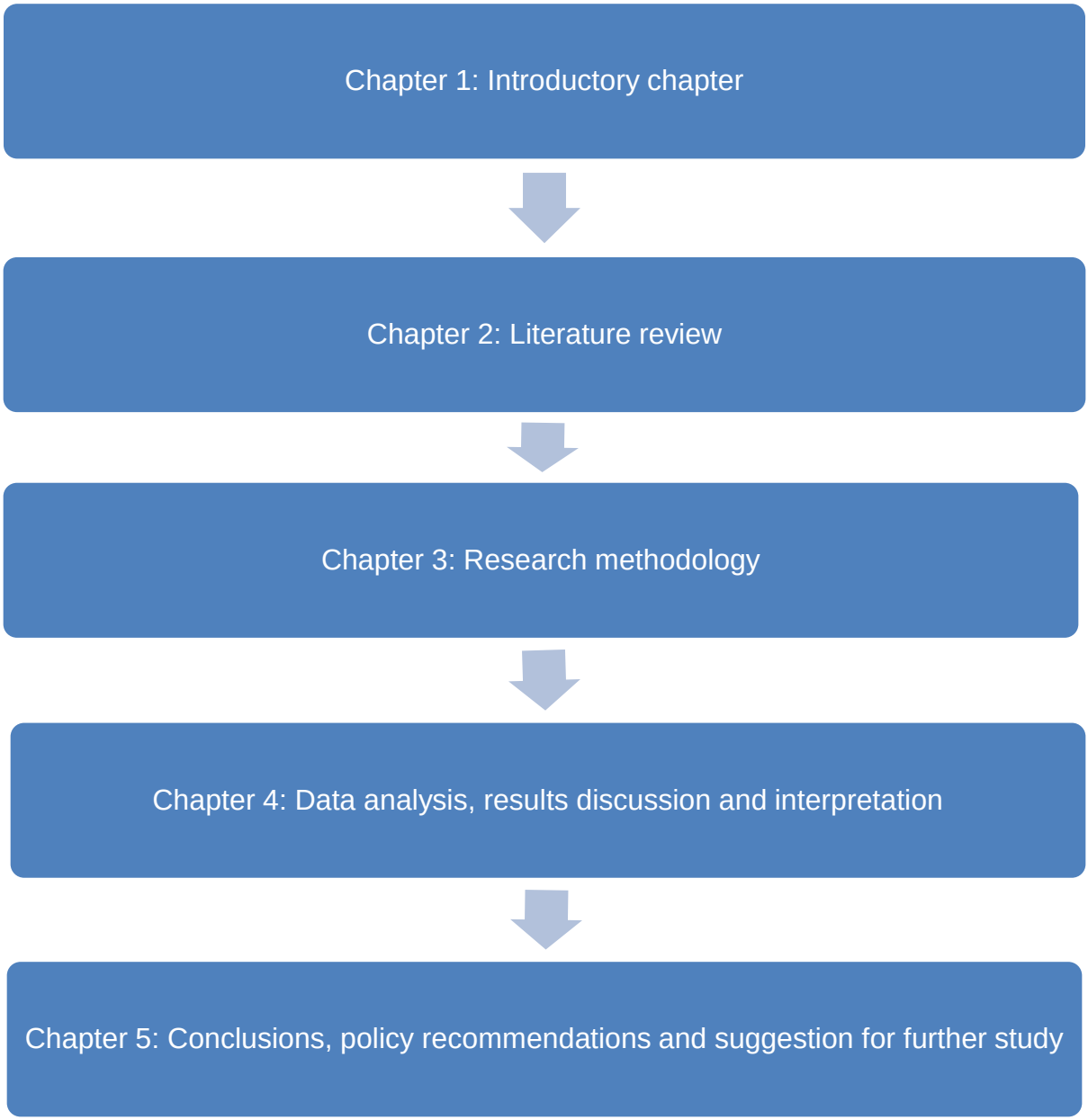


Figure 1: Structure of the dissertation (Source: Author, 2019)

The first chapter has covered the background of the study, the problem statement, objectives of the study, rationale of the study and the structure of the thesis.

The second, third, fourth and fifth chapters of this study are briefly discussed next.

Chapter 2: Literature review

The theories on the reasons why migrants remit funds back home to their families are discussed. The chapter also covers both theory and empirical literature on the influence of remittances on economic growth. Theoretical rationales explaining how financial development is affected by remittances, are also part of this chapter. Empirical literature which focuses on the impact of remittances on financial development is extensively discussed.

Chapter 3: Research methodology

The chapter discusses the methodological issues of the study. These include the variables used in the study, the proxies of those variables, the endogeneity issues affecting the model on the effect of remittances on financial development and the dynamic characteristic of financial development data (dependent variable). The chapter also indicates and explains the nature of the data used and how that data was collected. The general model and econometric model specifications are also shown and explained in this chapter, in line with the objectives of the study. How data was analysed and interpreted in this study is clearly discussed.

Chapter 4: Data analysis, results discussion and interpretation

Data is analysed, discussed and interpreted in line with not only the objectives of the study, but also corroborated with literature on the subject matter.

Chapter 5: Conclusions, policy recommendations and suggestions for further study

The chapter begins by outlining the findings of the study in line with the results of the study presented in Chapter 4. The chapter then summarises the conclusions of the study emanating from these findings. Policy implications are then summarised consistent with the findings of the study. Limitations of the study, suggestions for further study and contribution to literature are some of the headings which form part of this chapter.

1.7 CHAPTER SUMMARY

The chapter discussed the background of the study, explained the problem statement, highlighted the objectives and significance of the study, defined key terms and summarised the structure of the whole dissertation. In a nutshell, this chapter introduced the topic, why the topic is worth to be investigated, the research gaps in the current literature on the subject matter and the contribution the current study seeks to make in the field of the impact of personal remittances on financial development. The next chapter reviews the literature, both of empirical and theoretical nature on the impact of remittances on economic growth and financial development.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 CHAPTER INTRODUCTION

The major aim of this chapter is to provide literature on the influence of remittances on the development of the financial sector. The theoretical literature on the role of remittances on economic growth is also extensively discussed in this chapter. Other factors that influence financial development, apart from personal remittances, are investigated in the chapter. The remaining part of the chapter is structured as follows: section 2.2 discusses the theories of remittances. Section 2.3 focuses on the impact of remittances on economic growth, both from an empirical and theoretical angle. Section 2.4 discusses the effect of remittances on financial development from a theoretical literature perspective, whilst section 2.5 is the empirical literature on the influence of remittances on financial development. Section 2.6 discusses how the combination between financial development and remittances influence economic growth. Section 2.7 discusses the other variables that affect financial development, apart from remittances. Section 2.8 is the conceptual framework on the impact of how financial development is influenced by remittances. Section 2.9 is the conclusion of the chapter.

2.2 THEORIES OF REMITTANCES

Following Solimano's (2003), altruistic theory, implicit family contract (loan repayment) theory, self-interest theory and the co-insurance theory are the four theories of remittances which explain the reasons why migrants send money back to their original countries.

The altruistic theory argues that due to the affection and love for the family members who remained behind, a migrant feels obligated to remit money back home. The migrant's purpose of remitting money back home is mainly for smoothening the consumption patterns of the family. Under the altruistic theory, the quantity of remittances gradually declines with time.

Under the implicit family contract theory, the migrant feels obligated to remit money back home to the family, because the same family is the one that sponsored the migrant's cost of migration and the schooling expenses abroad (Brown, 1997). The migrant's financial situation normally determines the quantity of remittances at a given time and is not a stipulated amount as in most loan repayment contracts.

The self-interest theory argues that the migrant remit money back to the country of origin as the name indicates, for self-interest reasons. For example, the migrant remits money back home not for consumption by the family, but for acquiring investments such as property, land, money or stocks as part of the grand wealth accumulation strategy. What prompts such a self-interest decision is that the return on investment is higher in the country of origin in comparison to the destination country, and there are people available back home to manage these investments at a low cost.

Regarding the co-insurance theory, migration happens for income diversification reasons. The family sponsors a member to migrate to a destination country so that in an event of an economic decline in the home country, the migrant remit money back home as a way of way of supporting the family. The family and friends residing in the country of origin assists the migrant during bad economic times in the destination country. In this way, the family and the migrant co-insure each other through migration. The theory is not applicable if the home and destination countries are both economically in a bad shape.

2.3 IMPACT OF REMITTANCES ON ECONOMIC GROWTH

Two theoretical perspectives explain the relationship between remittances and economic growth as discussed next. Firstly, remittances supplement the household income, increase the level of household consumption and thus trigger the demand for more investments in production and economic growth in general (Durand, Kandel, Parrado & Massey, 1996; Githaiga & Kabiru, 2014). Secondly, remittances are an alternative source of capital for entrepreneurs who might not be able to have access to bank loans.

There are two ways according to Beine, Lodigiani and Vermeulen (2011), through which remittances affect the economy at a micro-level. The first one is that remittances smoothen consumption and leads to income diversification for the receiving households. Secondly, remittances reduce poverty levels at a household level through its positive influence on education attainment and human capital development in general. Consistent with Beyene (2014), the micro-level influence of remittances on economic growth is premised on the belief that remittances are used for consumption purposes by the remittances-receiving family. Giuliano and Ruiz-Arranz (2009) note that remittances positively contribute towards economic growth and development through funding education, reducing infant mortality rates, promoting entrepreneurship, narrowing the inequality gap and poverty reduction.

The economic impact of remittances at a macro level is threefold: (1) remittances trigger the accumulation of vital factors of production such as education and physical capital through its ability to ease liquidity constraints, (2) remittance creates laziness as the receiving households no longer have any incentives to look for jobs and work hard, and (3) remittance inflow leads to domestic currency appreciation which has an effect of de-industrialising the economy of the remittance receiving country. In summary, Tah (2019) notes that the macro-level view assumes that the long-term economic growth impact of remittances happens when there is excess money left after all the needs of the remittances-receiving family are met. The excess money can then be used for investment to the greater good of the economy in the long run.

Ukeje and Obiechina (2013:214), and Uddin (2016:98–100) argue that how the remittances influence exports, easing the domestic credit constraints, domestic investment, economic activities diversification, technological progress, human capital development and balance of payments determines the long-term effect of remittances on the growth of the economy. Consistent with this argument is a finding by Barajas et al. (2009) whose study notes that there are three avenues through which economic growth can be influenced by remittances, namely (1) it increases labour force participation, (2) boosts capital accumulation, and (3) enhances total factor productivity.

According to Mesnard (2001), remittances increase investment in small businesses, enhance self-employment and boost entrepreneurship capacities which in turn spur economic growth in the labour sending country. Cox Edwards and Ureta (2003) note that remittances inflow relaxes credit constraints on farm investment, small enterprises and education, thereby ensuring sustainable economic growth. In contrast, remittances retard economic growth in the long term due to the following reasons (Bang, Mitra & Wunnava. 2016). Firstly, the remittance recipients' motivation to work harder is washed away. Secondly, remittances are usually used for consumption instead of being invested. Thirdly, school attendance of children whose parents are in the diaspora is normally depressed.

According to Anyanwu and Erhijakpor (2010), two theoretical perspectives that explain the association between economic growth and remittances are the optimistic and pessimistic views. The former argues that remittances are a channel for positive economic growth and development, whilst the latter says that overly depending on remittances can have long term negative economic repercussions (Cattaneo, 2005). Following Anyanwu and Erhijakpor (2010), the household, community and national level views define the impact of remittances on the economy. For example, at the household level, income and consumption goes up, thereby leading to poverty reduction when remittances flow in.

The inflow of remittances enables communities to commence small-scale projects and enterprises and consequently boost self-employment. The increase in household consumption enhanced by remittances flow increases the demand for goods and products manufactured at community level, thus ensuring local employment creation and development takes place. At a national level, remittances generate foreign currency, itself a source of economic growth because it enables the remittance receiving country to purchase its foreign inputs which are necessary for the manufacturing sector. Remittances are usually spent on the consumption of locally produced products, thereby

having a multiplier effect in the economy of the labour sending country (Anyanwu & Erhijakpor, 2010; Ratha, 2003).

On the empirical front, several researchers who studied the influence of remittances on economic growth produced mixed results. Whilst the majority of empirical studies show results which support the remittances-led growth hypothesis, others find that the influence of remittances on economic growth is insignificant, whilst a few observe that the impact of remittances on economic growth is non-linear. Others reveal that remittances have a negative impact on economic growth. These empirical studies on remittances-led growth hypothesis are discussed in detail next.

That remittances inspire economic growth is supported by empirical studies done by Afaha (2013), Dilshad (2013), Adarkwa (2015), Shafqat, Ahmad and Bano (2014), Fayomi, Azuh and Ajayi (2015), Hasan, Akhter, Abbasi and Saha (2018), Zafar, Siddique, Ahmad and Khan (2016), Issahaku, Abor and Amidu (2018), Bellaqa and Tmava (2018), among others. Using household survey data and secondary data sources, a study by Afaha (2013) finds that remittances from Nigeria had a significant positive effect on economic growth and poverty alleviation in the SSA countries. Dilshad (2013) also explores the impact of remittances on the economy of Pakistan, using regression analysis with time series data spanning from 1991 to 2012. The results of the study corroborate the remittance-triggered economic growth in the case of Pakistan. Another similar study on Pakistan done by Shafqat et al. (2014), using ordinary least squares multiple regression with time series data (1991–2010) shows that remittances had a significant positive influence on the economy. Zafar et al. (2016) also observe that the economic impact of remittances on the economy of Pakistan was positive. Their study notes that a 1% increase in remittances inflow led to a corresponding 7% (approximate figure) increase in the economic growth of Pakistan. A study by Adarkwa (2015), also observes a positive relationship running from remittances towards economic growth in Nigeria and Senegal.

Fayomi et al. (2015) explore the influence of remittance (from Nigerians living in Ghana) on the economy of Nigeria using linear regression and non-parametric approaches. The study reveals that apart from having a significant positive influence on economic growth, remittances promoted savings, investment, charity and community-based development projects in Nigeria. A study by Hasan et al. (2018), observes that remittances had several advantages for the economy of Bangladesh. They include balance of payment stabilisation, boosting national savings, promoting the export sector, increasing foreign currency reserves and the velocity of money.

Using dynamic panel data analysis with panel data spanning from 1996 to 2013, Issahaku et al. (2018) investigate the role played by remittances on economic growth in developing countries. Their results supported the remittance-led growth hypothesis in lower-middle and low-income countries, a finding which was not applicable in the case of high-income and upper middle-income countries. Moreover, the interaction between remittances and institutions was found to be instrumental in fostering economic growth in developing countries. Atabaev, Atabaeva and Baigonushova (2014) study the effect of remittances on economic growth in the Kyrgyz Republic using the vector error correction method (VECM) with time series data (2005–2012). The economy of the Kyrgyz Republic was found to have been positively affected by remittances during the period under study. A study by Tsaurai (2018a), using the fixed effects approach, shows that remittances reduce poverty levels in selected emerging markets. Bellaqa and Tmava (2018) also reveal that remittances were not only used to support families, but invested mainly into the construction industry in Kosovo.

Table 2 summarises the empirical literature on the positive impact of remittances on economic growth.

Table 1: Empirical literature on the impact of remittances on economic growth – A

Author	Unit of analysis	Methodology	Findings
Nyeadi and Atiga (2014)	Ghana	Vector autoregression (VAR) approach (1980–2012)	A uni-directional correlation from remittances towards growth was detected in Ghana, though the impact was marginal. Remittances were also found to have had a positive effect on health and welfare in Ghana.
Feeny, Iamsiraroj and McGillivray (2014)	Small Island Developing States (SIDS)	Generalised methods of moments (GMM) (1971–2010)	A positive impact of remittances on economic growth was observed in Small Island Developing States (SIDS) countries in SSA countries and the Pacific. For SIDS countries in the Caribbean and Latin America, remittances were found to have no effect on the economy.
Shera and Meyer (2013)	Developing countries	Panel data analysis (1992–2012)	Economic growth in developing countries studied was found to have been positively affected by remittance inflow.
Oshota and Badejo (2015)	Nigeria	Error correction model (ECM) - (1981–2011)	In the long run, remittances had a significant positive effect on economic growth, whilst remittances had a deleterious effect on the economy in the short run in Nigeria.

Ahortor and Adenutsi (2009)	Developing countries from the Caribbean, Latin America and SSA	GMM (1996–2006)	The research noted that remittances' effect on the economy was positive across all developing countries studied in the long run.
Fayissa and Nsiah (2010)	Africa	Panel data estimation approach (1980–2004)	Remittances provided an alternative, cheaper source of finance and liquidity for the industry, thereby promoting economic growth in Africa as a whole.
Kumar (2018)	Kyrgyzstan and Macedonia	Multiple regression analysis	In both countries, remittances had a positive contribution to the economy in the long run.
Muhammad and Ahmed (2009)	Pakistan	Multiple regression analysis	The study revealed that although remittances were mainly used for consumption and importation of goods, its overall positive contribution towards economic growth was unquestionable in Pakistan.
Yaseen (2012)	Middle East and North African (MENA) countries	GMM (2000–2010)	The results of the study showed support for the remittances-inspired economic growth rationale.
Bayar (2015)	Transitional Economies of the European Union	Dumitrescu and Hurlin (2012) causality test (1996–2013)	Both remittances and foreign direct investment in the long run were individually found to have positively Granger caused economic growth.

Blouchoutzi and Nikas (2014)	Moldova and Albania	Time series data analysis	Remittances had a positive contribution to the economies of both Moldova and Albania.
Salahuddin and Gow (2015)	India, Philippines, Bangladesh, Pakistan	Pooled mean group regression technique (1977–2012)	In the long run, remittances had a significant positive effect on the growth of the economy of all the four countries studied. In the short run, the positive influence of remittances on economic growth in the four countries was found to be insignificant.
Uddin (2016)	Bangladesh	Time series data analysis	Remittances were found to be vital for economic growth to happen in Bangladesh. Macro channels such as addressing balance of payment problems, increasing foreign currency reserves, financial development, poverty alleviation and establishing macro-economic stability were found to be important factors which enhanced the ability of remittances to influence economic growth in Bangladesh. Micro channels which enhanced the ability of remittances to spur economic growth were found to include formation of physical and human capital, well-being of the

			households, improvement in the households' creditworthiness and the creation of small enterprises.
Cota (2012)	Mexico	Panel data analysis (2005–2008)	Using regional data for analysis, remittances were not only found to have promoted economic growth, but also as a tool for stabilising macroeconomic business cycles in Mexico.
Meyer and Shera (2017)	Bulgaria, Moldova, Bosnia Herzegovina, Albania, Macedonia, Romania	Panel data analysis (1999–2013)	The results were twofold: (1) remittances triggered economic growth, and (2) the positive contribution of remittances to the economy was more pronounced at higher levels of remittances-gross domestic product (GDP) ratios.
Azam and Khan (2011)	Azerbaijan and Armenia	Simple log linear regression model (1995–2010)	Both economic development and growth were found to have been positively affected by remittances inflow in both countries.
Tolcha and Rao (2016)	Ethiopia	ARDL (1981–2012)	Economic growth positively influenced by remittances only in the short run in Ethiopia. A negative impact of remittances on economic growth in Ethiopia was detected in the long run.

Ukeje and Obiechina (2013)	Nigeria	ECM (1970–2010)	In both the long and short run, remittances inflow into Nigeria had a significant positive contribution on the economy.

Source: Author's compilation

The view that remittances have a negative impact on economic growth is supported by Stojanov, Nemec and Zidek (2019), Adarkwa (2015), Akmoldoev and Budaichieva (2012), Hasan et al. (2018), among others. Using linear regression analysis, Stojanov et al. (2019) study the influence of remittances on economic growth in developing countries. The study reveals that remittances had a negative effect on economic growth in a case where remittances represent a greater share of GDP. Adarkwa (2015) study the impact of remittances on the economy in Nigeria, Cameroon, Senegal and Cape Verde using regression analysis with time series data (2000–2010). The effect of remittances on the economy in Cameroon and Cape Verde was found to be negative.

Using a linear correlation approach with time series data (2000–2010), Akmoldoev and Budaichieva (2012) study the effect of remittances on economic effectiveness in the Kyrgyz Republic. The study observes that the majority of the remittances were used for consumption purposes at the expense of investment, and for that reason remittances did not effectively address the economic fundamentals of the country. A study done by Hasan et al. (2018) observes that apart from a whole lot of benefits to the economy, remittances led to a brain drain which could have long-term negative economic repercussions on the economy of Bangladesh. Using the ordinary least squares (OLS) approach, Orozco (2005) observes that remittances impact the economy and poverty alleviation efforts in a negative way in selected emerging markets. Moreover, Awad and Sirag (2018), investigate the impact of remittances on Sudanese economic growth using an autoregressive distributive lag (ARDL) approach with time series data from 1977 to 2015. Their study notes that remittances had a negative contribution to the Sudanese economy through weakening rather than strengthening the exchange rate.

2.4 INFLUENCE OF REMITTANCES ON FINANCIAL DEVELOPMENT: THEORETICAL LITERATURE

Five theoretical views describe and explain the impact of remittances on financial development, namely (1) the remittance-led financial development view, (2) the no-link view, (3) the portfolio approach, (4) remittance-liquidity enhancement view, and (5) the popular finances perspective.

The remittance-led financial development view was explained by Motelle (2011) using three ways. Firstly, remittances increase the demand for the use of financial products when they are converted into savings and investments or at a stage when they are being transferred from one economy to another. The view is shared by Aggarwal et al. (2011) whose study argues that remittances in some instances are very substantial amounts, partly to be saved in bank accounts for future consumption and earn some interest, thus enhancing the growth of the financial sector. Karikari et al. (2016:2) also support this argument by noting that the resultant increased interaction between financial institutions and recipients of remittances help further to deepen the financial sector. Secondly, banking institutions may end up reducing fees as a way of trying to capture the remittances flow. Thirdly, remittances boost the recipients' credit market size as their eligibility for bank loans and other forms of credit increases. This view is also supported by Githaiga and Kabiru (2014), whose study argues that remittance-linked bank transactions enable both the households and the migrants to access other financial services such as loans and bank accounts. According to Githaiga and Kabiru (2014), remittances are channelled through the financial sector, thus increasing bank deposits, provide revenue for banks through transaction fees and enable households to have access to other financial products.

The no link view was supported by Chami, Fullenkamp and Jahjah (2003), and Acosta, Calderon, Fajnzylber and Lopez (2008) who argue that remittances have no influence on the financial sector, because they are mainly used for consumption and not invested. Migrants prefer to send their cash through the informal system in a cash-based economy and this means that the money never enters the formal financial system (Chami et al.,

2003). This works against the development of the financial sector in the remittances receiving economy. Furthermore, Acosta et al. (2008) also argue that the flow of remittances do not promote credit in a scenario where the financial sector simply prefers not to lend money or in a case in which the greater portion of the remittances received in the financial system is used to bankroll government activities.

The portfolio approach argues that remittances enhance diversity of savings in that once remittances are received, other financial products may be needed by the recipients (Orozco, 2005; Orozco & Fedewa, 2005). These financial products include the need to open a bank account for keeping money safely and easy transaction purposes, saving and investing. According to Orozco (2005), the migrants might need to invest their money back in their home countries in preparation for a decent living standard during their retirement stage.

The remittance-liquidity enhancement view argues that remittances create savings, which may be banked and used for lending to deficit units in an economy (Biller, 2007). The view originates from the permanent income hypothesis, which says that remittances contribute to more investment because the recipients avoid uneven consumption patterns. In other words, the recipients' consumption level remains constant as the flow of remittances changes because they want to keep their consumption at a level commensurate with their sustainable sources of income. In a scenario where remittance flow is unpredictable, a greater portion is invested to avoid uneven cash flows, reduce risk and ensure effective planning (Biller, 2007).

According to Sen (1999), remittances contribute more towards financial development, human capital development and capital formation in comparison to other forms of international capital flows, because they are not subjected to bureaucratic delays, corruption and processing delays. Moreover, regular remittances enable the recipients to access credit easily, as well as insurance and other financial products from financial institutions, thus facilitating the equitable redistribution of income (Karikari et al., 2016).

The popular finances view, which was propounded by Armendáriz de Aghion and Murdoch (2005), holds that local financial initiatives like savings cooperatives bridge the gap by providing credit from surplus funds from remittance flows. Remittances enable access to capital which would be difficult to get, given the asymmetric information problem which characterises both rural and informal markets. This is because financial institutions find it difficult to differentiate between bad and good borrowers (Armendáriz de Aghion & Murdoch, 2005).

2.5 IMPACT OF REMITTANCES ON FINANCIAL DEVELOPMENT: EMPIRICAL LITERATURE

Sami (2013) studied the impact of remittances and economic growth on the banking sector in Fiji, using Toda Yamamoto Granger non-causality test and vector error correction model (VECM), with time series annual data ranging from 1980–2010. Using the ratio of domestic credit to the private sector as a percentage of gross domestic product (GDP) as a measure of banking sector development, the study finds that remittances had a significant positive effect on both banking sector development and economic growth in Fiji. Using the VECM approach with time series annual data (1981–2013), Masuduzzaman (2014) explores the relationship between economic growth, workers' remittances and financial development in Bangladesh. The study reveals that remittances were instrumental in the growth of not only the financial sector, but the economy of Bangladesh.

Githaiga and Kabiru (2014) explore the role played by remittances on financial development in thirty-one developing countries, using the GMM approach with panel data (1980–2012). Their results are threefold. Firstly, remittances had a non-significant positive influence on bank deposits. Secondly, remittances were found to have a deleterious effect on domestic credit to the private sector. Thirdly, remittances enhance financial development only if the financial institutions can effectively and efficiently transform remittance-led deposits into credit.

Employing the dynamic panel empirical models to study the linkage between economic growth and remittances in SSA countries, Lartey (2013) notes that findings are threefold. Firstly, remittances provide a conducive macro-economic environment that fosters economic growth. Secondly, remittances influence the economy through the financial development channel. Thirdly, remittances can only have a significant positive effect on economic growth if financial development has reached a certain minimum threshold level. Dahal (2014) explores the role played by remittances in the growth of the Nepal economy and found the following results. Remittances had a positive effect on both financial and human capital development, remittances had a deleterious impact on both productivity and foreign trade, and that remittances led to an increase in secondary school enrolment rates, decreased child mortality rates and enhanced the life expectancy levels in Nepal.

Using the GMM approach with panel data (1980–2011), Abida and Sghaier (2014) study the inter-linkages between economic growth, financial development and remittances in four North African nations (Morocco, Egypt, Algeria, and Tunisia). Remittances had a significant positive contribution on the economy and remittances complemented financial development in enhancing the growth of the economy (Abida & Sghaier, 2014:160). Ojapinwa and Bashorun (2014), using GMM also investigate the relationship between remittances, economic growth and financial development in SSA nations. Their study notes that remittances positively and significantly impact financial development and that remittances enhance the financial development ability to have a positive effect on economic growth in SSA countries. Bettin and Zazzaro (2009) also note that (1) the influence of remittances on financial development was negative in developing countries characterised by low bank efficiency, and (2) the influence of remittances on the growth of the financial sector was positive in developing nations whose bank efficiency was high.

Beine et al. (2011) explore the linkage between financial openness and remittances in 66 developing countries, using the dynamic generalised ordered logit model with panel data (1980–2005). The study observes a strong positive relationship to financial openness from remittances in developing nations studied. Using panel data analysis (with data ranging from 1975–2004), Sanjeev et al. (2007) study the effect of remittances on

financial sector development in forty-four African nations. Their study notes that remittances promote the growth of the financial sector in the African countries investigated. A study by Traigys (2017) reveals that remittances had a positive effect on financial depth but had a negligible contribution to financial sector efficiency in Lithuania.

Tsaurai (2015) studies the relationship between economic growth, banking sector development and remittances in Israel, using the VECM approach with annual time series data spanning from 1975–2011. Using personal remittances (as % of GDP) as a measure of remittances, GDP per capita as a proxy of economic growth and domestic credit to private sector by banks (% of GDP) as a measure of banking sector development, the study reveals a non-significant causality relationship from remittances and economic growth towards the growth of the banking sector in the long run only. No causality between and among the variables studied was detected in the short run in Israel.

Mubeen et al. (2016) explore the role that remittances play in financial development in Pakistan using the multiple regression model. Remittances had a significant positive impact on financial development in Pakistan. Using SSA as a case study, Tah (2019) studies the linkage between financial access and remittances. The dynamic panel estimation approach (using data ranging from 2004–2015) produced results that show that remittances had a significant positive effect on financial access in the SSA group of countries. Cooray (2012) finds that remittances had a significant positive contribution to the financial sector size for countries whose government ownership of banks is low in non-OECD countries. The same study by Cooray (2012) notes that for countries with a high government ownership of banks, remittances had a significant positive influence on financial efficiency in non-OECD countries.

Ajilore and Ikhode (2012) study the impact of remittances on financial development in SSA countries, using the ARDL. Using credit to the private sector (as % of GDP) and liquid liabilities of the financial sector (% of GDP), the study notes that remittances had a significant positive effect on financial development in the long run only. Aggarwal et al. (2011) also study the influence of remittances on financial development using bank credit

(% of GDP) and bank deposits (% of GDP) as measures of financial development. The results of the study are similar to those observed in a study by Ajilore and Ikhode (2012).

Inoue and Hamori (2016) examine the impact of remittances on financial access in Asian and Oceania countries, using the panel data analysis approach. Their study shows that the positive contribution of remittances to financial access was significant in the Asian and Oceania countries studied. Karikari et al. (2016) study whether remittances affect financial development (bank deposits, money supply, credit to the private sector) in Africa using fixed effects, random effects and the VECM method with data ranging from 1990–2011. The study notes that remittances promoted financial development in Africa only in the short run.

Brown, Carmignani and Fayad (2013) explore both the micro-level and macro-level influence of remittances on the financial sector in developing countries. Macro-economic level analysis using cross country data notes that remittances had a negative effect on financial deepening in developing countries. Micro-economic level analysis using household survey data analysis shows that remittances slowed down the use of formal banking services, contrary to the majority of the available literature on the subject matter. Using the LM bootstrap and causality tests, Bayar and Sezgin (2016) study the contribution of remittances to financial development in Central and Eastern Europe, using data spanning from 1996–2015. The positive contribution of remittances to the financial sector could not be detected although the two variables were found to be co-integrated.

The remaining empirical literature on the influence of remittances on the financial sector appears in Table 3.

Table 2: A summary of the influence of remittances on financial development – Empirical Literature

Author	Country/Countries of study	Methodology	Findings
Williams (2016)	SSA	Panel data analysis	Remittances were found to have had a negligible positive contribution on private home loans.
Aggarwal et al. (2011)	Mexico	Panel data analysis	At municipal level, remittances had a significant positive impact on bank branches, deposit base and account holders.
Nyamongo et al. (2012)	38 African countries	Panel data analysis	Remittances had a complementarity effect on the financial sector.
Esteves and Khoudour-Casteras (2011)	European countries	Panel data analysis	The positive contribution of remittances on financial sector growth far exceeded that of other types of international capital flows, such as foreign direct investment (FDI), foreign aid and foreign portfolio investment.
Ajilore and Ikhide (2012)	Togo, Senegal, Nigeria, Lesotho, Cape-Verde	ARDL	A long run relationship between financial development and remittances was detected in all countries studied except in Nigeria.
Coulibaly (2015)	SSA countries	Panel data analysis	The study noted that remittances do not have any influence on the financial sector.

Das (2009)	Egypt, Syria, Pakistan, Bangladesh	Panel data analysis and time series data analysis	The study revealed that remittances were not either a substitute or a complement for financial development.
Chowdhury (2016)	33 uppermost beneficiary countries of remittances	Dynamic panel estimation technique	Remittances had a negligible contribution to the financial sector. The interaction between financial development and remittances failed to enhance economic growth.
Mallick (2012)	India	Time series data analysis	Remittances crowded out household investment.
Giuliano and Ruiz-Arranz (2009)	Developing countries	Panel data analysis	They found that remittances only enhanced economic growth in countries whose financial sectors were underdeveloped.
Sobiech (2015)	Developing countries	Panel data analysis	Financial development had a deleterious effect on the ability of remittances to influence economic growth.
Kumar (2013)	Philippines	ARDL	Remittances had a negative contribution in the financial sector.
Kakhkhharov (2014)	Former Soviet Union and CEE countries	Panel data analysis	Remittances enhanced financial development.
Shahzad, Adnan and Raza (2014)	South Asian countries	Dynamic panel regression analysis	Remittances had a positive contribution in the financial sector in South Asian nations.
Kevin (2016)	SSA countries	Panel regression analysis	Remittances contributed positively towards financial sector growth in SSA countries.

Rana and Tasneem (2016)	South Asian countries	Panel co-integration tests	Remittances positively affected the financial sector in the long run.
Aziz et al. (2015)	Developing countries	System GMM and fixed effects approaches	Using the system GMM, the availability of developed financial markets accelerated the rate at which remittances positively influenced economic growth. Moreover, system GMM also shows that financial liberalisation enhanced the capacity of remittances to foster economic growth.
Izabela (2015)	Developing countries	Panel data analysis	Weaker financial development led to a positive contribution of remittances to the economy whilst strong financial development had a deleterious effect on the influence of remittances on economic growth.
Hamma (2016)	Middle East and North African (MENA) countries	GMM	The complementarity relationship between remittances and financial sector development enhanced economic growth in MENA region countries. The same study also noted that developed financial system and institutional framework enabled remittances to have a positive impact on the economy.

Issifu (2018)	SSA countries	Fixed effects approach	Political institutions were found to have enhanced remittances' ability to influence domestic investment. On the other hand, the interaction between financial development and remittances had a negligible effect on domestic investment in the SSA countries.
Machasio (2018)	Developing countries	Fixed effects and GMM approaches	Remittances inflow into developing countries had a positive influence on financial inclusion and overall financial development in developing countries.
Mundaca (2009)	Caribbean and Latin American countries	Panel data analysis	Economic growth was enhanced by the complementarity between financial development and remittances.
Misati et al. (2019)	Kenya	ARDL	Remittances led to an increase in the number of bank accounts, number of mobile agents, value of mobile transactions, number of mobile transactions and credit to the private sector in Kenya.
Olayungbo and Quadri (2019)	SSA countries	Pooled mean group and ARDL estimations	No causality was detected between financial development and remittances in the SSA group of nations. The combination between financial development and remittances boosted the economy in the short and long run in SSA countries.

Yaseen (2012)	MENA (Algeria, Jordan, Morocco, Syria, Tunisia, Egypt, Libya, Oman, Lebanon) region countries	Fixed effects approach	Financial development and quality of institutions influenced the ability of remittances to contribute positively to the MENA region's economy.
Choong and Koay (2013)	Malaysia	Time series data analysis	Both financial development and remittances had a significant positive contribution on the Malaysian economy both in the long and short run.
Sibindi (2014)	Lesotho	VECM	The influence of remittances on the Lesotho financial sector was not detected.

Source: Author's compilation

2.6 REMITTANCES, FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

Ruiz-Arranz and Giuliano (2005) investigate how the interaction between financial development and remittances affect economies in developing countries, using the GMM that controls for endogeneity. The study was premised on the fact that remittances can be a substitute for a lack of financial development, hence contributing towards positive economic development. The study observes that remittances enhanced economic growth in developing countries which are generally characterised by low financial development, consistent with theoretical predictions. Giuliano and Ruiz-Arranz (2009) also note that because remittances help to alleviate liquidity challenges as they are an alternative method of financing investments, remittances enhance economic growth in economies which are normally characterised by low financial development. On the other hand, remittances enhance the financial sector ability to have a positive effect on the economy (Abida & Sghaier, 2014; Ojapinwa & Bashorun, 2014).

2.7 OTHER VARIABLES THAT AFFECT FINANCIAL DEVELOPMENT

Apart from remittances, other variables that affect the financial sector are shown and discussed in Table 4.

Table 3: A summary of the influence of other factors on financial development – Empirical literature

Variable	**Theory intuition**
Per capita income	The demand following hypothesis founded by Robinson (1952) notes that increased performance of the economy enhances people's living standards, which consequently triggers high demand for financial services. A study done by Wahid, Shahbaz and Azim (2011) observes that an increase in GDP had a stimulating influence on financial development in Bangladesh.
Reserve ratio requirement	An empirical study by Takyi and Obeng (2013) shows that reserve ratio requirements dampened the financial markets activities in Ghana. Giorgio (1999) finds results which show that private sector credit and reserve ratio were inversely related.
Economic growth	The increase in GDP per capita pushes up the demand for more financial products as the people becomes wealthier. The financial sector responds by introducing more financially related companies which introduces more products to match the increased demand for financial products (Robinson, 1952; Yartey & Adjasi, 2007).
Interest rates	A study done by Mbulawa (2015) shows that interest rates had a positive effect on the financial

	sector in the Southern African Development Community (SADC) region. The finding resonates with the monetarist view which argues that lower interest rates boost credit creation, thus deepening the financial sector. On the contrary, Cottarelli and Kourelis (1994) note that interest rates had a negative contribution to the financial sector in Belgium, Germany and South Africa, a finding which is also shared by Kuwornu and Victor (2011), and Liu and Shrestha (2008).
Government borrowing	Findings by Ayadi et al. (2013) and Bittencourt (2008) show that increasing levels of government domestic debt reduces credit to the private sector. In the SADC group of countries, Mbulawa (2015) also notes that government debt and financial development are inversely related. In contrast, Gerschenkron (1962) argues that government debt is a catalyst for developing the necessary institutional framework that boosts private credit. The argument was corroborated by Kumhof and Tanner (2005) whose study reveals that government debt is a safe investment asset in the portfolio risk of a bank, thus encouraging the banking sector to include riskier, but high-yielding private assets into their portfolios.
Trade openness	Rajan and Zingales (2003) note that openness to trade and foreign financial inflows are necessary ingredients for financial development. According to Seetanah, Padachi, Hosany and Seetanah (2010), openness to trade fosters transparency and efficiency in the financial sector which in turn

	enhances economic growth. A study by Andrianaivo and Yartey (2010) observes that openness to trade had a deleterious effect on banking sector development in SSA countries.
Foreign direct investment	According to Shahbaz and Rahman (2010), FDI inflows enhance financial development through improving their efficiency levels. Levine (1997b) also notes that FDI increases stock market liquidity if part of foreign investments is used to buy shares in the host country. On the contrary, Adam and Tweneboah (2008) argue that foreign capital inflow shocks might impede stock market growth and development. Foreign direct investment crowded out private investment in Poland, consistent with a study by Misun and Tomsik (2002).
Savings	Mbulawa (2015) notes that savings is a leakage from the normal flow of funds, thereby slowing down financial development in the case of SADC countries. A study by Dorrucci, Meyer-Cirkel and Santabarbara (2009) rejects the hypothesis that savings augment financial development in emerging markets.
Investment rate	Results from a study by Jiranyakul (2014) show that gross fixed capital formation enhanced the growth of the Thai financial sector. The positive role of domestic investment in financial development is underpinned by the Solow (1956) growth model.
Exchange rates	Steinberg (2011) notes that undervalued exchange rates decrease frictions in the financial markets, thereby promoting financial development. Kappler,

	Reisen, Schularick and Turkisch (2013) also argue that a significant upward movement in the exchange rate in developing countries is associated with a decrease in output and investment. Exchange rate changes affect the operations of a firm and its foreign profits, thereby consequently affecting stock prices of that firm (Olugbenga, 2012).
Human capital development	According to the human capital theory founded by Becker (1964), skills, creativity and knowledge enable people to make appropriate financial decisions. A study by Kodila-Tedika and Asongu (2015), and Ozkok (2015) produces results which show that experts and skilled workers stimulate the stability of the banking sector environment.
Culture	A study by Stulz and Williamson (2003), using cross country data analysis, notes that creditors' rights relied more on religious beliefs than on trade openness. Moreover, Tawney (1954) also argues that countries which are dominated by protestantism are better able to protect investors and uphold creditor rights.
Size of government	The finance-growth hypothesis according to Liang and Teng (2006) is of the view that productive consumption of goods and services by the government stimulates increased demand for financial products. Government size and financial development are found to be inversely related in Ghana (Adusei & Frimpong, 2014) in the long run.
Official aid and grants	Weisskoff (1972) argues that foreign aid reduces the saving abilities of those in poor countries, thus

	making foreign aid a substitute and not a complement to financial development. A study by Abuzeid (2009) produces results which show that foreign aid inflows inhibited investment into the SSA.
Supervision	According to Hirtle, Kovner and Plosser (2016), it is necessary as it not only protects, but ensures that financial markets are stable. Supervision was found to be very closely associated with better performance by banks (Abiad, Tressel & Detragiache. 2008).
Inflation	A study done by Sogut (2008) observes that inflation had a positive contribution towards the financial sector in low income countries. Huybens and Smith (1999), however, argue that inflation forces credit rationing by banks, thereby reducing financial market activities. The argument resonates with a finding by Bittencourt (2008) whose study notes that the financial markets of Brazil are negatively influenced by inflation.
Institutional quality	La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999), and North (1990) argue that government laws related to monitoring and enforcing business contracts and protecting investors are necessary for building strong financial markets. According to Huang (2010), a better institutional quality (accounting excellence, upholding property rights, better contract enforcement mechanisms) is a source of financial stability and development.
Social expenditure	Bailey (1971) argues that social expenditure substitutes for public expenditure leaving

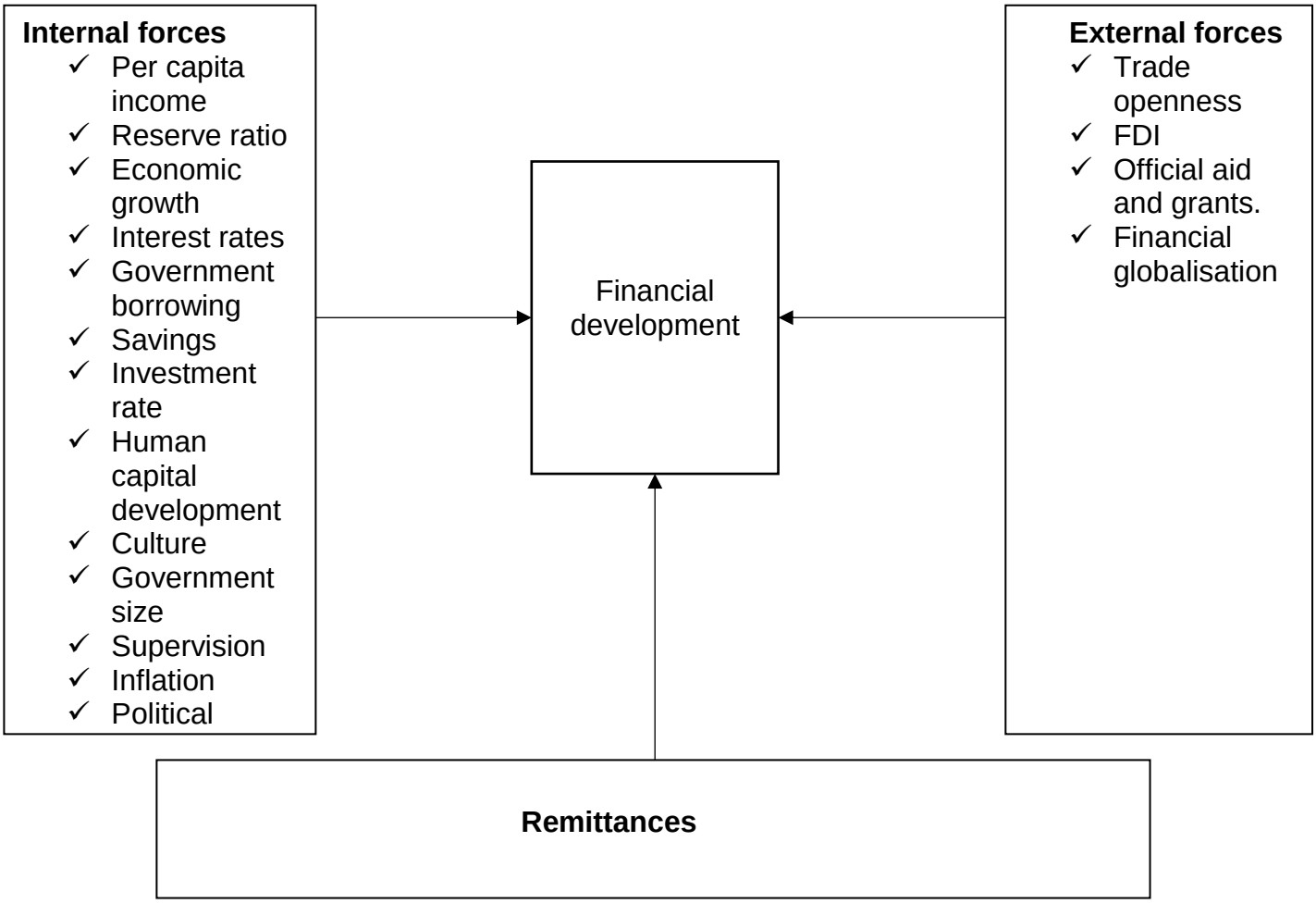
	households with more disposable income which can be saved and invested through the financial sector. The argument resonates with a finding by Wahid et al. (2011) that social expenditure stimulates the smooth functioning of the financial intermediaries in Bangladesh in the long run.
Financial liberalisation	A study done by Ang and McKibbin (2007) notes that financial liberalisation promotes the growth of the banking sector through its inherent ability to do away with repressive financial policies. McKinnon (1973) argues that the removal of suppressive financial policies through financial liberalisation results in better and more efficient resource allocation in financial markets. Levine and Zervos (1998b) also show that financial liberalisation increases the size of the stock markets, making them more liquid and integrated.
Industrial production	According to Asprem (1989), higher levels of productivity in the economy lead to higher incomes, savings and investment. Industrial production and financial development are found to have a complementary relationship in the case of Bangladesh (Ali, 2011) and in Thailand (Brahmasrene & Jiranyakul, 2007).
Financial globalisation	A study done by Ajilore and Ikhide (2012) notes that the relationship between financial globalisation and financial development was very weak. These findings contradict the development theory which says that globalisation increases the access of domestic firms to foreign capital, thereby enhancing domestic financial sector development.

Political forces	According to Shleifer and Vishny (1994), government is not able to allocate resources efficiently in the financial markets, because most state-linked financial institutions tend to become victims of political capturing. However, governments are likely to allocate more credit to the private sector, especially during election periods (Barth, Caprio & Levine, 2001).
Population density	A study done by Giuliano and Ruiz-Arranz (2009) notes that population size had a negative influence on financial development. On the other hand, Demirgüç-Kunt et al. (2011) argue that low population density result in people having to travel longer distances to their nearest bank branch, thereby lowering financial activities in that area.
Geographical endowments	According to Huang (2005), different geographical characteristics are part of the investment environment, thereby critical to financial development. Sachs (2003) observes that a tropical climate slows down agricultural production, leading to failure to qualify for credit.

Source: Author's compilation

2.8 THE CONCEPTUAL FRAMEWORK OF THE IMPACT OF REMITTANCES ON FINANCIAL DEVELOPMENT

Figure 2: summarises the variables that affect financial development (remittances included) from a theoretical point of view, as already discussed in previous sections.



Source: Adapted from Githaiga and Kabiru (2014:405)

2.9 CHAPTER SUMMARY

The major objective of the chapter was to review the literature on the impact of remittances on financial development, both from a theoretical and empirical angle. To ensure a comprehensive understanding of the remittances-finance nexus, the chapter also discussed the role that remittances play in promoting economic growth and development. The majority of the literature reviewed on the remittances-finance nexus shows that (1) remittances influence economic growth either positively or negatively, (2) remittances either positively or negatively affect financial sector growth and development, (3) the complementarity between financial development and remittances enhances economic growth, and (4) remittances substitute financial development in the economic growth process. Although there is undisputable evidence that economic growth positively

affects financial development, no study exists that the author is aware of that studied the role that the complementarity between remittances and economic growth plays in financial development.

Moreover, empirical studies that explored the impact of remittances on financial development mainly used banking sector development measures and ignored the stock market and bond market proxies. They also used outdated data on which current policymaking can no longer rely. Methodological issues such as the dynamic characteristics of the financial development data and endogeneity issues were also ignored by most of the empirical literature reviewed. The view put forward by Matthew and Johnson (2014), that most of the macroeconomic variables take a longer time to influence each other was also not considered by the existing empirical literature. These issues are adequately addressed in the current study. This chapter laid a foundation on which the contribution of the study and gaps found in the literature is based. The next chapter, apart from dealing with the methodological issues of this study, explains the research design and the econometric estimation techniques used in the study.

CHAPTER 3

THE METHODOLOGY OF THE STUDY

3.1 CHAPTER INTRODUCTION

This chapter sets out to justify the research methodology chosen for the current study in line with the research objectives presented earlier on in the introductory chapter. It addresses areas such as research design, dependent and independent variables, and how they are measured, population and sample size, and data collection. A critical analysis of econometric estimation techniques used by previous researchers about the influence of personal remittances on financial sector growth and development is also addressed, and justification of the econometric estimation method chosen for the current study, data analysis procedures, processes and checks for robustness.

A preview of the remaining part of the chapter is structured as follows: section 3.2 describes the variables and how they are measured in this study. Section 3.3 identifies the population and sample size, while section 3.4 presents and evaluates the econometric estimation approaches employed by previous researchers regarding the influence of remittances on the development of the financial sector of a country. Section 3.5 includes both the general model specification, and the econometric estimation specifications for the study. Section 3.6 explains the endogeneity problem and how it is part of the current study. Section 3.7 discusses the data analysis, while also explaining the choice of the econometric estimation method used for the study. Section 3.8 presents how the checks for robustness were done. Section 3.9 summarises the research methodology chapter.

3.2 DESCRIPTION OF VARIABLES AND HOW THEY WERE MEASURED

The dependent, independent and the explanatory variables are discussed, and the way they relate to each other is comprehensively explained in this section. In other words, the section explores how both explanatory and the independent variables influence the dependent variable.

3.2.1 Dependent variable

The study explores the influence of personal remittances on the financial sector development in an African context. Therefore, remittance is the independent variable, whilst the dependent variable is financial sector development. The current study, just like other previous research on similar subject matter (Abida & Sghaier, 2014; Aziz et al., 2015; Beine et al., 2011; Chowdhury, 2016; Githaiga & Kabiru, 2014; Hamma, 2016; Lartey, 2013; Machasio, 2018; Ojapinwa & Bashorun, 2014; Okuda, 2010; Shahzad et al., 2014; Tah, 2019), used the dynamic GMM econometric estimation approach, a methodology that asserts that financial development is affected by its own lag (Almalki & Batayneh, 2015).

Most of the previous research on the influence of remittances on the development of the financial sector used banking sector development measures as proxies of financial development. This study also used two banking sector development measures of financial development, namely broad money (% of GDP) and domestic credit to private sector by banks (% of GDP), consistent with prior similar empirical research. The selection of these measures of financial development was to a large extent guided by considerations of the availability of data.

3.2.2 Independent variable

As has already been said earlier on, remittances are the independent variable in the study. The three prominent views on the influence of remittances on financial development include:

(1) The positive impact of remittances on financial development;

(2) The negative influence of remittances on the development of the financial sector; and The preceding chapter explained in detail how remittances are linked to financial development.

To recap, Motelle (2011), Karikari et al. (2016), Aggarwal et al. (2011), Githaiga and Kabiru (2014), Chowdhury (2016), Kevin (2016), Kakhkharov (2014), Shahzad et al. (2014), Rana and Tasneem (2016), and Misati et al. (2019) are some of the researchers

whose studies supported the positive contribution of remittances to the development and growth of the financial sector view. Empirical research work done by Calderon et al. (2007), Chami et al. (2003), and Sibindi (2014) supports the no-link hypothesis.

On the other hand, the negative influence of remittances on the financial sector development view resonates with Mallick (2012) and Kumar (2013). The current study therefore expects remittances to either have no link, or a negative or positive influence on financial development, in line with available literature.

3.2.3 Explanatory variables

How each of the ten explanatory variables (economic growth, trade openness, foreign direct investment, investment, exchange rates, human capital development, government size, foreign aid, infrastructural development) used in this study, relates to financial development from a theoretical argument viewpoint is discussed in this sub-section.

Increased economic growth pushes up gross domestic product per capita and the general wealth levels of the populace. This increases the people's propensity to save, thus triggering a high demand for financial services related to security, savings and investment (Robinson, 1952; Wahid et al, 2011; Yartey & Adjasi, 2007). On the other hand, Rybcynski (1984) notes that, an economic growth decline lowers the quantity of money seeking profitable investment financial products, as the population becomes poorer. In line with the literature, there is an expectation that financial sector development is positively influenced by economic growth.

According to Svaleryd and Vlachos (2002), higher trade openness enables local firms to spread their operations internationally, hence requiring risk management financial products which are sophisticated, to be able to manage external shocks and foreign rivalry decisively. Seetanah et al. (2010) also argue that trade openness enhances efficiency, and transparency in the financial sector, both key ingredients for financial development. The view was corroborated by Huang and Temple (2005), and Rajan and Zingales (2003), whose studies observe that stock market development is enhanced

through the ability of open trade to lure both domestic and foreign investment into the financial sector. However, banking sector development was observed by Andrianaivo and Yartey (2010) to have been negatively influenced by trade openness in the case of the SSA group of nations. Trade openness can therefore affect financial development either positively or negatively.

According to Levine (1997b), foreign direct investment facilitates the inflow of a significant amount of capital into the economy of the host country, thus enhancing not only the growth of the banking sector, through which the capital flows, but also stock market liquidity, if a portion of foreign investment purchases shares in the host country. Shahbaz and Rahman (2010) also argue that the inflow of foreign direct investment promotes competition in the stock market, thus making it more efficient in the process. Following Kholdy and Sohrabian (2008), foreign investors force the government of the host country to implement reforms that promote financial development.

In contrast, a study done by Misun and Tomsik (2002) on Poland, observes that private investment was crowded out by FDI. FDI inflow shocks can also impede the development and growth of the stock market (Adam & Tweneboah, 2008). FDI can therefore affect financial development positively or negatively.

Savings stimulate investment activities or contribute funds towards lending and investment in the economy (Fry,1980; Lucas, 1988). Romer (1986) however argues that the availability of robust investment alternatives is the one aspect that makes it possible for savings to stimulate financial development. Mbulawa (2015) says that savings had a deleterious contribution to the growth of the financial system in SADC countries, because they represent a disruption of the usual flow of funds in the economy. The effect of savings on the development of the financial sector can therefore be bi-directional.

A study by Jiranyakul (2014) produces results which show that the Thai financial sector was enhanced by gross fixed capital formation. The finding resonates with Solow's (1956) growth model which says that financial development in any economy is underpinned by

domestic investment. Financial development is therefore expected to be positively influenced by investment.

Aliber's (1970) currency areas hypothesis argues that the strengthening of the domestic currency repels FDI, whilst a weaker local currency attracts FDI into the financial sector and the whole economy. Undervalued exchange rates reduce financial market frictions, according to Steinberg (2011). In line with Cherono (2012), local currency appreciation makes importing of the necessary capital infrastructural machinery more expensive, hence stifling private investment and growth. Exchange rates can therefore affect financial development either positively or negatively.

Educated people are averse to risk because they can easily access information. It is for this reason that educated people put more effort into saving and investing in financial markets in anticipation of the occurrence of a future rainy day (Becker, 1964; Kelly, 1980). This view is also supported by empirical research (Kodila-Tedika & Asongu, 2015; Ozkok, 2015). De Gregorio (1996) notes that higher levels of human capital development requires more savings to be channelled towards re-training activities, instead of being directed towards investment. A positive or negative effect of human capital development on the development of the financial sector is therefore expected in this study. Internet users per 100 people was used as a proxy of human capital development to capture technology induced human capital development's influence on financial development in Africa.

Larger government size demand more financial services, especially if the consumption of goods and services by the government increases in the economy (Liang & Teng, 2006). High government consumption which increases with government size, forces the government to borrow more funds from the domestic market. This crowds out local companies and stifles the financial sector, according to Naceur, Cherif and Kandil (2014). The influence of government size on financial development can therefore be bi-directional.

The need for saving and investment is not seen if people rely too much on foreign aid (Weisskoff, 1972). Abuzeid (2009) says that foreign aid has a negative contribution to financial development in SSA countries. The same study notes that foreign aid pushes up debt serving costs, thereby dampening savings and inhibiting investment in the economy. Just like any other form of international capital inflow, Balde (2011) argues that foreign aid increases physical capital accumulation, thereby promoting savings and investment in the economy. Either a negative or positive impact of foreign aid on financial development is a possible finding of the current study.

Following the eclectic paradigm hypothesis founded by Dunning (1973), better infrastructure in the host country attracts direct foreign investment, not only into the financial, but other economic sectors as well. Infrastructural development is anticipated to affect financial development positively. Fixed telephone subscriptions per 100 people was used as a proxy of infrastructural development in this study. This was deemed the best proxy to capture the technology induced infrastructural development's influence on financial development in Africa.

The section also describes how the variables used in the current study were measured (indicates and justifies the proxies of the main variables used in the study). The main variables whose proxies are described include remittances, financial development and control variables, consistent with the main thrust of the study.

Remittances: The current study focused on remittance inflows into the labour-sending country, and how they can influence financial development. It therefore makes sense to use a proxy of remittances that reflects the inflow of remittances. This study uses personal remittances received as a ratio of GDP to measure personal remittances. Advantages of the proxy are that (1) it is a true reflection of the amount of the remittances received by the labour-sending country over a given period of time, and (2) it expresses the quantity of the remittances received ratio in terms of the size of the whole economy. An investigation of the relevance of the remittance inspired economic growth nexus done by Ozkok (2015) uses the same proxy.

Banking sector development: Consistent with Tsaurai (2017a), and Levine and Zervos (1998a), four commonly used proxies for banking sector development include domestic credit to the private sector, claims on the private sector, domestic credit provided by the banking sector and broad money supply. Bank deposits to GDP indicate the depth in the financial system or sector as a proportion of the whole economy (Johannes et al, 2011; Ndlovu, 2013) and is a good measure of the size of financial intermediaries (Ndlovu, 2013; Nowbusting et al., 2010). Domestic credit to the private sector to GDP measures allocative efficiency in the financial sector (Rana & Tasneem, 2016).

The current study used domestic credit to the private sector (as % of GDP) as a measure of banking sector development for two reasons. Firstly, it best approaches banking sector development because of its close relationship with economic growth and investment, in line with Sghaier and Abida (2013). Secondly, the availability of data also played a major role in the choice of the banking sector development proxy. Giuliano and Ruiz-Arranz (2009) argued that broad money to GDP ratio best measures the monetary system's overall size in the economy. Broad money (as % of GDP) as a proxy of financial development was also used in the study not only because of its superiority in terms of measuring the overall economy's size of the monetary system but also due to the availability of data considerations.

Bond market development: The two bond sector development proxies which were identified by the World Bank (2018) include outstanding domestic private debt securities as a ratio of GDP, and outstanding domestic public debt securities as a ratio of GDP. The two are also measures of the size of the bond market. The study did not use any of the bond sector development measures, because there is no available data in the case of African countries.

Stock market development: The stock market turnover (%) or turnover ratio is an indicator of liquidity in the economy, whilst stock market traded ratio (stock market traded value as a ratio of GDP) shows liquidity of a specific stock market (Levine & Zervos,

1998a). Stock market size is measured by stock market capitalisation (as % of GDP), a proxy which, according to Soumare and Tchana (2015), compares the stock market size to that of the whole economy. It is for this reason that the stock market capitalisation ratio was regarded by Levine and Zervos (1998a) as a superior proxy for stock market size. No stock market development proxies were used due to absence of complete data.

Variables, their proxies and the impact each variable has on financial development is summarised in Table 5.

Table 4: Variables and their proxies

Variable	**Proxy**	**Impact of the variable on financial development**
Financial development (FIN)	Domestic credit to private sector by banks (% of GDP)	N/A
	Broad money (% of GDP)	N/A
Remittances (REMIT)	Personal remittances received (% of GDP)	+/-
Economic growth (GROWTH)	GDP per capita	+
Trade openness (OPEN)	Total of exports and imports (% of GDP)	+/-
Foreign direct investment (FDI)	Net FDI inflows (% of GDP)	+/-
Investment (INV)	Gross fixed capital formation (as a ratio of GDP)	+
Exchange rate (EXCH)	Exchange rate (Local currency/US$)	+/-
Human capital development (HCD)	Internet users per 100 people	+
Government size (GOV)	Government consumption expenditure (% of GDP)	+/-

Foreign aid (AID)	Net official development assistance received per capita	-
Infrastructural development (INFR)	Fixed telephone subscriptions (per 100 people)	+

Source: Author's compilation

The availability of data was the main factor which was considered when selecting the proxy of the remaining variables. Variables that affect financial development are controlled for to be able to get proper values of the independent partial correlation between financial development and remittances. Nine control variables were used in this study, in line with Alfaro, Kalemli-Sebnem and Volosovych (2008:358) who note that as many control variables as possible should be included in the model as an alternative way of dealing with the endogeneity problem.

3.3 POPULATION, SAMPLE SIZE, DATA AND ITS COLLECTION

The definition of a population according to Blumberg, Cooper and Schindler (2011), is a total collection of elements from which inferences are made. In this study, the population is 55 African countries as classified by the World Bank (2019). These include Nigeria, Egypt, Ethiopia, Democratic Republic of Congo, Kenya, Uganda, South Africa, Tanzania, Algeria, Ghana, Sudan, Morocco, Angola, Cameroon, Mozambique, Madagascar, Burkina Faso, Ivory Coast, Niger, Zambia, Mali, Malawi, Somalia, Senegal, Chad, Rwanda, Zimbabwe, Guinea, Burundi, Benin, Tunisia, Sierra Leone, South Sudan, Togo, Central African Republic, Libya, Congo, Liberia, Namibia, Mauritania, Eritrea, Gabon, Gambia, Botswana, Equatorial Guinea, Lesotho, Guinea-Bissau, Comoros, Cabo Verde, Mauritius, Swaziland, Djibouti, Principe, Seychelles and Sao Tome.

The sample was chosen using stratified judgmental sampling by first grouping all African countries into five regions and choosing four countries whose data was available for all the variables studied from each region. This was done to ensure that the sample used equally represents all the African regions. East African countries included in the sample include Burundi, Comoros, Kenya and Rwanda whilst North African nations such as

Algeria, Morocco, Sudan and Tunisia were also part of the sample. Burkina Faso, Ghana, Nigeria and Senegal are the west Western African nations included in the sample whereas Central African nations such as Central African Republic, Cameroon, Democratic Republic of Congo and Gabon were also selected as part of this study. Namibia, South Africa, Madagascar and Mozambique are the Southern African countries that formed part of the sample. In summary, twenty African countries formed the size of the sample in this study.

The study used secondary panel data ranging from 2003–2015. The total number of observations (number of countries multiplied by the number of years) is 260, enough for panel data analysis. International Financial Statistics, African Development Bank, Global Financial Indicators and World Development Indicators are the databases from which the data was collected. The advantages of collecting the data from these sources are that they are international reputable sources which are verifiable, consistent and easily accessible.

3.4 ESTIMATION METHODS USED BY PREVIOUS SIMILAR EMPIRICAL RESEARCH

Table 6 discusses the econometric estimation approaches that were used by previous researchers who investigated similar subject matter (the influence of remittances on the development and growth of the financial sector).

Table 5: Econometric estimation techniques used by previous researchers on the influence of remittances on the financial sector

Estimation methods	Researcher(s)	Methodological strengths	Methodological weaknesses
VECM	Sami (2013), Masuduzzaman (2014), Karikari et al. (2016), Sibindi (2014)	✓ Indicates the short and long run causality between variables being studied. ✓ Applicable for time series data.	✓ Can only be used for time series data analysis and not panel and cross-sectional data analysis. ✓ Control variables are excluded, and this negatively affects the quality of the results. ✓ Does not address the endogeneity problem. ✓ The possibility that the lag of the dependent variable has an influence on the dependent variable is totally ignored.
Toda Yamamoto Granger causality test	Sami (2013)	✓ Analyses causality between variables in the long and short run. ✓ Applicable when time series data is used.	✓ Ignores the dynamic nature of the dependent variable data. ✓ Only uses time series data. ✓ Endogeneity issues are ignored. ✓ Assumes a linear relationship between variables.
GMM	Githaiga and Kabiru (2014),	✓ Can be used in non-linear relationships.	✓ Certain conditions have to be met before using the

	Lartey (2013), Abida and Sghaier (2014), Ojapinwa and Bashorun (2014), Beine et al. (2011), Tah (2019), Chowdhury (2016), Okuda (2010), Shahzad et al. (2014), Hamma (2016), Machasio (2018), Aziz et al. (2015)	✓ Deal with the endogeneity issues ✓ The dynamic nature of the dependent variable data is captured. ✓ Threshold estimations can easily be done under the GMM (refer to Tsaurai. 2017a).	method, for example, the number of years (T) must be equal to or less than the number of countries (N). ✓ It totally ignores Matthew and Johnson's (2014) argument that the influence of one macroeconomic variable on another is not immediate.
Multiple regression time series model	Mubeen et al. (2016), Mallick (2012), Choong and Koay (2013)	✓ The results are quite easy to interpret. ✓ Applicable in linear relationships. ✓ Small data sets can produce good results. ✓ Uses time series data.	✓ Not applicable for panel and cross-sectional data. ✓ When there is specification bias, the results are not consistent and reliable. ✓ Unable to consider and address the endogeneity issues. ✓ The fact that the dependent variable is influenced by its own lag is not taken into consideration.
ARDL	Ajilore and Ikhode (2012), Kumar (2013), Misati et al. (2019),	✓ Shows the long- and short-run direction of causality between the variables under study.	✓ Not suitable if the relationship between the variables is a non-linear one.

	Olayungbo and Quadri (2019)	✓ Suitable for time series data.	✓ Does not incorporate the control variables into the model. ✓ Cross sectional and panel data cannot be used under this method. ✓ Endogeneity issues are not addressed. ✓ The dynamic features of the dependent variable are not taken into account.
Cross country data analysis	Brown et al. (2013)	✓ Uses cross sectional data. ✓ Applicable in cases where linear relationships define the variables being studied.	✓ Time series and panel data cannot be used. ✓ Dynamic characteristics of the dependent variable and the endogeneity problem are not taken care of. ✓ Control variables are not part of the model. ✓ Wrongly assumes that the impact of one macroeconomic variable on another is instant, contrary to Matthew and Johnson's (2014) argument.
Panel data analysis (fixed effects, random effects, pooled ordinary least squares)	Williams (2016), Aggarwal et al. (2011), Nyamongo et al. (2012), Esteves and Khoudour-Casteras (2011), Coulibaly (2015),	✓ Suitable for panel data. ✓ Usable even in circumstances where the relationship between variables is either linear or non-linear.	✓ Not capable of addressing the endogeneity problem. ✓ Does not address a scenario where the dependent variable is affected by its own lag.

	Das (2009), Giuliano and Ruiz-Arranz (2009), Sobiech (2015), Kakhkhharov (2014), Kevin (2016), Rana and Tasneem (2016), Izabela (2015), Issifu (2018), Mundaca (2009)	✓ Normally used for estimations in a lagged independent variable approach. ✓ Control variables are part of the model.	

Source: Author's compilation

Looking at the strengths and weaknesses of the econometric estimation techniques employed by earlier researchers for the influence of remittances on the development of the financial sector (see Table 6), it is beyond reasonable doubt that the dynamic GMM approach is the best panel data analysis approach. The ARDL and VECM methods are clearly the best time series data analysis approaches. It is also clear that no study on the effect of remittances on development of the financial sector, to the best of the researcher's knowledge, has so far used the lagged independent variable approach, despite its uniqueness and strengths mentioned earlier on.

3.5 MODEL SPECIFICATION

Section 3.2 discussed the variables (dependent, independent, control) used in the study. Financial development is the dependent variable, remittances is the independent variable, whilst the control variables include economic growth, trade openness, foreign direct investment, investment, exchange rates, human capital development, government size, foreign aid and infrastructural development. These variables are presented in the form of a general model specification (see equation 1).

$$FIN = f(REMIT, GROWTH, OPEN, FDI, INV, EXCH, HCD, GOV, AID, INFR) \quad [1]$$

Where FIN represents financial development (a dependent variable), independent variable is remittances (REMIT) whilst economic growth (GROWTH), trade openness (OPEN), foreign direct investment (FDI), investment (INV), exchange rate (EXCH), human capital development (HCD), government size (GOV), foreign aid (AID) and infrastructural development (INFR) are control variables.

Even though literature is awash with many other factors that affect financial development, apart from the ones mentioned in equation 1, the study selected only the variables included in equation 1 for two main reasons. Firstly, the variables were included in equation 1, because there is available literature that explains how these variables affect

financial development (refer to Section 3.2.3 and the chapter 2). Secondly, these are the variables whose data is available in internationally recognized sources, such as World Development Indicators, International Financial Statistics, African Development Bank, among others.

Firstly, the variables were chosen because their data is available in internationally recognised and reputable databases, such as Global Financial Indicators, International Monetary Fund, African Development Bank statistics, International Financial Statistics and Global Development Indicators.

For example, a study by Mubeen et al. (2016), when investigating the impact of remittances on financial development used control variables like FDI, inflation, exchange rate and agricultural growth. Control variables used by Githaiga and Kabiru (2014), in a study exploring the role played by remittances on financial development, included household expenditure, exchange rate, inflation, and economic growth. Karikari et al. (2016) include exports, FDI, inflation and economic growth as explanatory variables in a study which explored the influence of remittances on development of the financial sector in Africa.

Equation 1 is converted into equation 2 to present the influence of remittances and explanatory variables on financial development in an econometric manner.

$$FIN_{i,t} = \beta_0 + \beta_1 REMIT_{i,t} + \boldsymbol{\beta}_2 X_{i,t} + \mu + \varepsilon \quad [2]$$

Where subscripts t and i stand for time and country respectively. X is a matrix of control variables. β_1 and β_2 are coefficients of remittances and matrix of control variables respectively. This study included ten control variables, such as economic growth (GROWTH), foreign direct investment (FDI), investment (INV), human capital development (HCD), foreign aid (AID), trade openness (OPEN), exchange rates (EXCH), government size (GOV) and infrastructural development (INFR).

Consistent with Tsaurai (2018b), μ is a measure for time invariant and unobserved country specific effect. The intercept term is denoted by β_0. The error term is represented by Ɛ.

When the dynamic characteristic of financial development data ($FIN_{i,t-1}$) is taken into consideration, in line with Almalki and Batayneh (2015) whose study argues that prior banking sector policies, had a significant positive influence on banking sector development in Saudi Arabia, equation 2 is transformed into equation 3.

$$FIN_{i,t} = \beta_0 + \beta_1 FIN_{i,t-1} + \beta_2 REMIT_{i,t} + \beta_3 X_{i,t} + \mu + \varepsilon \quad [3]$$

The argument that financial sector development is positively affected by its own lag was supported by Olayungbo and Quadri (2019), in a study of the factors that determine banking sector development in SADC nations. A study by Tsaurai (2018c) on the validity of the FDI inspired financial sector development in emerging markets, also corroborates the argument.

The current study also investigated the influence of the complementarity between economic growth and personal remittances on financial development in African countries. From an econometric point of view, this objective is captured by equation 4.

$$FIN_{i,t} = \beta_0 + \beta_1 FIN_{i,t-1} + \beta_2 REMIT_{i,t} + \beta_3 (REMIT_{i,t}.GROWTH_{i,t}) + \beta_4 X_{i,t} + \mu + \varepsilon_{it} \quad [4]$$

If β_3 is positive and significant, it means that personal remittances influence financial development through the economic growth channel. Interpreted differently, it means economic growth complements personal remittances in enhancing financial development, which is consistent with Soumare and Tchana (2015). A negative β_3 shows financial

development can be substituted by personal remittances, or personal remittances negatively affect financial development through the economic growth mechanism.

The positive impact of remittances on financial development is supported by several authors in the literature (Aggarwal et al, 2011; Githaiga & Kabiru, 2014; Karikari et al, 2016; Motelle, 2011). On the other hand, the positive impact on economic growth on financial development is also well documented in literature by Robinson (1952), whose study states that higher economic growth improves the standard of living and wealth levels of the people, which then leads to more savings, investment and general uptake of different types of financial products. For this reason, this study expected the combination between economic growth and personal remittances to affect financial development positively. In other words, the study expected economic growth and remittances to complement each other in enhancing financial development.

Consistent with Marozva (2017:142–143), equation 5 and 6 were estimated using system GMM to estimate the contribution of personal remittances to the financial sector in Africa (first research objective).

$$\Delta PCRED_{i,t} = (1-\alpha)\,\Delta PCRED_{i,t-1} + \beta_2\,\Delta REMIT_{i,t} + \boldsymbol{\beta_3}\,\Delta X_{i,t} + \Delta\varepsilon_{i,t} \quad [5]$$

$$\Delta MONEY_{i,t} = (1-\alpha)\,\Delta MONEY_{i,t-1} + \beta_2\,\Delta REMIT_{i,t} + \boldsymbol{\beta_3}\,\Delta X_{i,t} + \Delta\varepsilon_{i,t} \quad [6]$$

System GMM econometric approaches were used to estimate equations 7 and 8 to address the second research objective. The latter explores the impact of the complementarity between personal remittances and economic growth on financial development in Africa (second research objective).

$$\Delta PCRED_{i,t} = (1-\alpha)\Delta PCRED_{i,t-1} + \beta_2\,\Delta REMIT_{i,t} + \beta_3\,\Delta(REMIT_{i,t}.GROWTH_{i,t}) + \boldsymbol{\beta_4}\,\Delta X_{i,t} + \Delta\varepsilon_{i,t} \quad [7]$$

$$\Delta MONEY_{i,t} = (1-\alpha)\,\Delta MONEY_{i,t-1} + \beta_2\,\Delta REMIT_{i,t} + \beta_3\,\Delta(REMIT_{i,t}.GROWTH_{i,t}) + \boldsymbol{\beta_4}\,\Delta X_{i,t} + \Delta\varepsilon_{i,t} \quad [8]$$

Where $\varepsilon_{i,t} = \mu_i + \varepsilon_t$

3.6 THE PROBLEM OF ENDOGENEITY

Presence of a non-zero covariance between the residuals and one or more predictor variables of the model is known as endogeneity (Fox et al., 2015). The predictor variables which are correlated with the error term are endogenous by their nature, and they cause co-efficient estimation bias of the regression model (Fox et al., 2015:347). The same study argues that endogeneity happens when explanatory variables affect each other, or when the independent variable is influenced by the dependent variable. When the endogeneity problem exists in the model, results which are obtained using ordinary least squares (OLS) are inconsistent and inaccurate. Consistent with Fox et al. (2015:151), the use of a GMM estimator solves the endogeneity problem.

However, despite evidence existing in literature which says that remittances influence financial development (see preceding chapter), the impact of financial development on remittances is also well documented (Izabela, 2015; Sobiech, 2015). There is an endogeneity problem that arises because the explanatory variables (government size, economic growth, trade openness, foreign direct investment, investment, exchange rates, human capital development, foreign aid, infrastructural development) used in the model have an influence on each other according to literature.

Borensztein et al. (1998) note that the use of a lagged independent variable approach reduces the negative impact of the endogeneity problem on the quality of the results. It is against this background that the current study also chose the lagged independent variable method for robustness checks. The system GMM approach was also chosen as one of the main econometric estimation approaches because of its ability to address the problem of endogeneity decisively that emanates from the endogenous regressor (lag of financial development).

3.7 ANALYSIS OF DATA

Pre-estimation diagnostics, diagnostic tests and the actual econometric estimation procedure are the three aspects that dominate this section.

Pre-estimation diagnostics is the first form of data analysis that is done before diagnostic tests, and main data analysis, and includes trend analysis, correlation analysis and descriptive statistics. Consistent with Rana and Tasneem (2016), pre-estimation diagnostics is done for the researcher to have *a priori* understanding of the nature and characteristics of the data. In other words, pre-estimation diagnostics is quite necessary to know how to prepare the data for the main analysis, depending on its characteristics. For example, if the data fails to follow a normal distribution, and/or is characterised by abnormal values, or a multi-collinearity problem, the data must be converted into natural logarithms before being analysed to improve the quality of the results (Aye & Edoja, 2017). Consistent with Soumare and Tchana (2015), apart from establishing the sign, and significance of the relationship between variables, correlation analysis helps to determine if there exists a multi-collinearity problem between variables. Whether the data contains abnormal values or not, is determined by either descriptive statistics or trend analysis (Oshota & Badejo, 2015).

Diagnostic tests include panel unit root tests, co-integration tests and the endogeneity tests. According to Tsaurai and Odhiambo (2013), unit root tests are done to ascertain whether the data being used is stable and not volatile. Their study also notes that data stationarity at first difference (integrated of order 1), is enough to pave the way for the next stage of data analysis, which is panel co-integration tests. The latter is done to establish the existence of a long-run relationship between the variables. According to Shafqat et al. (2014), main panel data analysis can only be done if the variables have got a long-run relationship, or if the panel co-integration tests prove that the variables are co-integrated.

The Fisher-Phillip Peron test (Choi, 2003), Im, Pesaran and Shin (2003), Levin, Lin and Chu (2002) and Fisher-Augmented Dick Fuller test (Madala & Wu, 1999) were the panel

unit root tests applied in the study. The tests have a unit root in the null hypothesis that must be rejected if the data is stable. The Kao (1999) panel co-integration test was used in the current study. According to the methodology, the null hypothesis which says that the variables are not co-integrated is rejected if p (probability) is less than 5%. The Hausman (1978) approach was used for endogeneity tests.

After pre-estimation diagnostic tests and diagnostic tests, main data analysis using the system GMM, generalised least squares (GLS), fixed effects, random effects and pooled ordinary least squares (OLS) was done. As has already been alluded to, the advantages of the system GMM estimation procedure are that it is applicable in situations where a non-linear relationship between variables exist, addresses the endogeneity problem which normally characterises the relationship between financial development and remittances and correctly assumes that financial development is affected by its own lag, following Almalki and Batayneh (2015).

For robustness tests and comparison purposes, GLS, fixed effects, pooled OLS and random effects econometric estimation methods were used. The econometric estimation approaches were preferred because they can be used in cases where the relationship between variables is non-linear, in situations where the lag of financial development affects financial development, can be used to analyse panel data, and it considers the influence of the control factors on the dependent variable.

3.8 CHAPTER SUMMARY

This chapter is a link between the literature and data analysis of the study. It began by describing the research paradigm and design, highlighting and explaining the methodological issues of the study and discussing the variables and how they are measured. The chapter also presented and justified the population, sample size, data and data collection. Econometric estimation methods used by previous similar research were also evaluated in this chapter. The chapter ended by presenting and explaining the general and econometric model specifications, data analysis techniques and how to

ensure the robustness of the results. The next chapter analyses the data, and presents, discusses and interprets the results.

CHAPTER 4

DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS

4.1 CHAPTER INTRODUCTION

The current chapter covers three main areas of the data analysis. The first is the pre-estimation diagnostics (mean trend analysis, descriptive statistics, and correlation analysis). The second is the diagnostic tests (panel stationarity tests, panel co-integration tests, endogeneity tests). The third is the main data analysis using econometric estimation techniques such as pooled OLS, random effects, system GMM, fixed effects and GLS. The main data analysis addressed the three main objectives of the current study. These are (1) investigating the influence of personal remittances on financial development, (2) exploring if economic growth is a channel through which personal remittances affect financial development or if the complementarity between personal remittances and economic growth affected financial development, and (3) trend analysis between variables during the period ranging from 2003–2015.

The remaining part of the chapter is organised as follows: Section 4.2 is the discussion of descriptive statistics, whilst section 4.3. focuses on correlation analysis. A discussion of panel stationary tests is done in section 4.4. Section 4.5 describes and interprets the panel co-integration test results. Section 4.6 discusses and interprets the results on the three main objectives of the current study. Section 4.7 concludes the current chapter.

4.2 DESCRIPTIVE STATISTICS

Table 7 presents a summary of key relevant descriptive statistics, namely, maximum, minimum, standard deviation, median, mean, Jarque-Bera, kurtosis and skewness. As already alluded to in the preceding chapter, an analysis of these key descriptive statistics is an important pre-estimation diagnostic exercise to diagnose and comprehend the nature of the data in use.

Table 7 shows descriptive statistics for all the variables used in this study. In particular, descriptive statistics such as mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera, probability and observations are presented.

Table 6: Descriptive statistics

	PCRED	MONEY	REMIT	GR	OPEN	FDI	INV	EXCH	HCD	GOV	AID	INFR
Mean	23.93	36.5	2.68	2013	64.78	3.64	21.4	395	10.3	15.4	51.2	3.0
Median	15.0	27.6	1.27	977.4	64.4	2.29	21.1	264.1	5.50	15.15	48.82	1.11
Maximum	78.3	117.4	13.0	10716	125.5	41.8	43.1	2934	57.1	31.6	159.1	12.5
Minimum	0.75	3.16	0.01	112.9	19.1	0.01	6.31	0.87	0.13	4.58	1.24	0.01
Standard deviation	19.8	24.2	3.03	2255	21.8	5.0	6.58	512.8	12.9	5.19	29.7	3.55
Skewness	1.35	1.50	1.25	1.70	0.31	4.47	0.52	2.09	1.92	0.30	0.63	1.23
Kurtosis	3.6	4.93	3.59	5.27	2.60	28.8	3.50	7.97	6.13	2.88	3.25	3.15
Jarque-Bera	82.1	138	71.8	175	5.9	8089	14.2	457.3	265	3.55	18.1	65.7
Probability	0.00	0.00	0.00	0.00	0.05	0.00	0.0	0.00	0.00	0.17	0.00	0.00
Observations	260	260	260	260	260	260	260	260	260	260	260	260

Source: Author's compilation from E-Views

The probability of the Jarque-Bera criterion is equal to zero across all the variables except under trade openness and governmental final consumption expenditure, a statistic that shows that data is not normally distributed consistently with Ozkok (2015). The standard deviation values (exceeding 100) show that abnormal values exist in economic growth and exchange rates (Aye & Edoja, 2017). The existence of abnormal values under the broad money, economic growth, trade openness, exchange rates and foreign aid variables is also supported by the range statistic, which is above 100. The data for all variables studied is skewed to the right as shown by positive skewness values across all the variables studied.

Only Kurtosis values for personal remittances, trade openness, investment, government final consumption expenditure, foreign aid and infrastructural development are close to three, a statistical value that indicates that the data for the remaining variables does not follow a normal distribution (Aye & Edoja, 2017).

4.3 CORRELATION ANALYSIS

The results for correlation analysis are presented in Table 8. The section explores the relationship (without showing the direction of causality) between and among the variables under study. The correlation analysis results also establish whether the relationship is significant or insignificant.

Table 7: Correlation analysis

	PCRED	MONEY	REMIT	GR	OPEN	FDI	INV	EXCH	HCD	GOV	AID	INFR
PCRED	1.00											
MONEY	0.82***	1.00										
REMIT	0.17***	0.25***	1.00									
GR	0.45***	0.42***	-0.2***	1.00								
OPEN	0.42***	0.38***	0.14**	0.39***	1.00							
FDI	0.01	-0.01	-0.05	-0.06	0.47***	1.00						
INV	0.25***	0.46***	0.07	0.37***	0.49***	0.32***	1.00					
EXCH	-0.41***	-0.42***	-0.04	-0.32***	-0.2***	-0.02	-0.2***	1.00				
HCD	0.64***	0.68***	0.19***	0.53***	0.27***	-0.04	0.39***	-0.4***	1.00			
GOV	0.49***	0.46***	0.002	0.20***	0.32***	0.12**	0.25***	-0.2**	0.20***	1.00		
AID	0.04	-0.11*	0.15**	-0.18***	0.26***	0.19***	-0.005	-0.02	-0.10	0.28*	1.00	
INFR	0.79***	0.78***	0.13**	0.58***	0.43***	-0.12*	0.35***	-0.4***	0.6***	0.3***	-0.2**	1.00

Note: ***/**/* denotes statistical significance at the 1%/5%/10% levels respectively.

Source: Author compilation using E-Views software package

A significant positive correlation was observed between the following variables: (1) domestic credit to the private sector by banks and broad money (0.82***), (2) domestic credit to the private sector by banks and personal remittances (0.17***), (3) economic growth and domestic credit to the private sector by banks (0.45***), (4) domestic credit to the private sector by banks and trade openness (0.42***), (5) domestic credit to the private sector by banks and investment (0.25***), (6) domestic credit to the private sector by banks and human capital development (0.64***), (7) domestic credit to the private sector by banks and government final consumption (0.49***) and (8) domestic credit to the private sector by banks and infrastructural development (0.79***). These results resonate with theoretical predictions on the subject matter. A non-significant positive correlation was also detected between domestic credit to the private sector by banks and FDI, and between domestic credit to the private sector by banks and foreign aid. A significant negative relationship between domestic credit to the private sector by banks and exchange rates was also observed (see Table 8).

Moreover, a significant positive correlation was noted between (1) broad money and personal remittances (0.25***), (2) broad money and economic growth (0.42***), (3) broad money and trade openness (0.38***), (4) broad money and investment (0.46***), (5) broad money and human capital development (0.68***), (6) broad money and government final consumption expenditure (0.46***), and (7) broad money and infrastructural development (0.78***). FDI and broad money were negatively, but non-significantly related, in contradiction with most of the literature on the relationship between financial development and FDI. Separately, both exchange rates and foreign aid were negatively, but significantly correlated with broad money, a finding which resonates with theoretical predictions on the subject matter.

Using either domestic credit to the private sector by banks or broad money as a proxy for financial development, Table 8 shows that infrastructural development, government final consumption, human capital development, investment, trade openness and economic growth were each positively, but significantly related with financial development. This is

in line with the theoretical literature underpinning the factors that determine financial development (refer to the preceding chapter).

Consistent with Stead (1996), there is only a multi-collinearity problem between (1) broad money and domestic credit to private sector by banks, as expected since they are quite practically related (banking sector development variables). Aye and Edoja (2017) argue that the multi-collinearity problem needs to be addressed before it leads to not only inaccurate, but spurious results. Following Aye and Edoja (2017), this study addressed the issues of the multi-collinearity problem, data not following a normal distribution and the issue of extreme values by transforming all the data sets into natural logarithms before the main data analysis was undertaken.

4.4 PANEL STATIONARITY TESTS

The hypothesis that all the variables are stationary was rejected at level (see Table 9). In other words, not all variables under study were stationary at level, thus triggering panel stationarity tests at first difference.

Table 8: Panel root tests – Individual intercept

Level				
	LLC	IPS	ADF	PP
PCRED	0.77	2.81	14.61	10.22
MONEY	-0.97	1.60	22.35	12.83
REMIT	-3.10***	-1.11	43.40**	49.22***
GR	-2.94***	0.2086	21.79	40.40**
OPEN	-1.38*	-0.23	29.21	31.41
FDI	-1.98**	-0.18	23.36	45.57**
INV	-1.75**	0.13	28.03	28.05
EXCH	6.11	4.96	10.43	12.65
HCD	6.92	9.11	2.31	2.08
GOV	1.21	2.02	14.40	17.39
AID	-1.06	-0.33	25.82	52.99***
INFR	-0.76	-0.04	29.03	32.71
First difference				
PCRED	-4.89***	-2.23**	42.31**	76.17***
MONEY	-3.84***	-2.51***	44.82**	67.59***
REMIT	-11.67***	-6.31***	84.40***	120.60***
GR	-0.80*	-1.68**	35.89*	63.79***
OPEN	-6.90***	-4.12***	63.83***	98.18***
FDI	-1.8932**	-2.97***	48.26***	143.67***
INV	-6.10***	-3.66***	55.91***	108.86***
EXCH	-3.1843**	-2.1820**	23.1203**	83.0913**
HCD	-0.1924**	-3.1293***	18.13**	103***
GOV	-3.84***	-2.37***	42.35**	93.96***
AID	-0.9123***	-2.25**	44.89**	123.22***
INFR	-2.83***	-1.70**	37.21*	78.14***

Note: IPS, LLC, PP and ADF represents for Im, Pesaran and Shin (2003); Levin, Lin and Chu (2002); PP Fisher Chi Square and ADF Fisher Chi Square tests respectively. *, ** and *** denote 10%, 5% and 1% levels of significance, respectively.

Source: Author's compilation

It is evident from Table 9 that at first difference, the hypothesis which says that all variables are stationary is not rejected, consistent with Shafqat et al. (2014). Put differently, data for all the variables under study is integrated of order 1, in line with Jiang and Liu (2014). The study used stationary variables in line with other prior empirical research done by Karikari et al (2016) and Githaiga and Kabiru (2014). Stationary data is regarded to as stable therefore suitable for use in data analysis, consistent with Tsaurai (2015). Such a finding paved the way for the author to investigate the existence of a long-

run relationship among the variables being studied, using Kao (1999) panel co-integration approach.

4.5 PANEL CO-INTEGRATION TESTS

Financial development as measured by broad money and domestic credit to the private sector by banks ratios is the dependent variable, whilst personal remittances, economic growth, trade openness, FDI, investment, exchange rate, human capital development, government final consumption expenditure, foreign aid and infrastructural development are the control variables.

Table 9: Results of Kao panel co-integration tests

Series	**ADF t-statistic**
PCRED C REMIT GR OPEN FDI INV EXCH HCD GOV AID INFR	-4.1647***
MONEY C REMIT GR OPEN FDI INV EXCH HCD GOV AID INFR	-4.3097***

Source: Author's compilation from E-Views

Using broad money and domestic credit to the private sector by banks as measures of financial development, the variables under study are co-integrated (see Table 10). In other words, there is a long-run relationship among the variables being studied, whichever measure of financial development was used. The Kao (1999) panel co-integration test failed to reject the null hypothesis which says the variables studied have a long-run relationship at a 1% significance level, thus allowing the main data analysis to be performed (see next section).

4.6 MAIN DATA ANALYSIS AND RESULTS DISCUSSION

This section is divided into four sections, namely (1) the impact of personal remittances on financial development (broad money ratio used), (2) the influence of personal remittances on financial development (domestic credit to the private sector ratio used), (3) investigating whether personal remittances affect financial development through economic growth (broad money ratio used as a measure of financial development), and

(4) exploring if economic growth is an avenue through which personal remittances influence financial development (domestic credit to the private sector ratio used).

4.6.1 Influence of personal remittances on financial development (broad money proxy used)

Table 10: Dynamic panel data estimations on the determinants of financial development measured by broad money - Model 1

	Pooled OLS	Fixed effects	Random effects	System GMM	GLS
MONEY lag	0.986***	0.660***	0.986***	0.854***	0.996***
REMIT	0.108	-0.010	0.108	0.091	0.010
GROWTH	-0.0001	-0.0004	-0.0001	-0.001	-0.0002
OPEN	0.014*	0.093*	0.014	0.051*	-0.003
FDI	0.049	0.061	0.049	0.272*	0.071*
INV	0.047*	0.004*	0.047	0.111*	0.070**
HCD	-0.012	0.079	-0.012	0.053	0.002
GOV	0.058	0.305	0.058	0.214	-0.040
AID	0.001	0.022	0.001	0.022	0.013
INFR	0.145*	0.200	0.145	0.237*	0.170*
Constant	-1.894	0.405	-1.894		-0.576
N	240	240	240	240	240
R-squared	0.983	0.78			
Observations	240	240	240	240	240
Groups	20	20	20	20	20
F-stats/Wald chi2	2 147	240	74 990	57.32	15 953
Prob>F/Prob>Wald chi2	0.00	0.00	0.00	0.00	0.00
Hausman (Chi2)			66.16	66.12	
Prob>chi2			0	0	
R-squared					
Within			0.7804	0.7454	
Between			0.9799	0.993	
Overall	0.9832	0.9636	0.9832		
Arellano-Bond AR(1)				-1.67	
Prob>z				0.95	
Arellano-Bond AR(2)				-0.025	
Prob>z				0.805	
Sargan test of overid				83.75	
Prob>chi2				0	
Hansen test of overid				15.37	
Prob>chi2				0.89	

Instruments				20	

Standard errors in parentheses. *p<0.05 ** p<0.01 ***p<0.001
Source: Author's compilation from E-Views

AR1 and AR2 results show no serial auto co-relation. Both are insignificant and fail to reject. They are also insignificant and weakened by instruments.

Using the broad money ratio to measure financial development, the lag of broad money was found to have a significant positive influence on financial development in Africa across all the econometric estimation techniques (pooled OLS, random effects, fixed effects, GLS, system GMM) used. The finding followed a study done by Almalki and Batayneh (2015), whose study observes that previous banking sector policies had a significant positive contribution on the banking sector development in Saudi Arabia.

Personal remittances had a non-significant positive effect on financial development in Africa under the random effects, pooled OLS, system GMM and GLS approaches, in support of the view by Githaiga and Kabiru (2014) whose study notes that remittances led bank transactions to allow the households to have easy access to financial services such as bank accounts and loans. The finding also resonates with the results from a study by Williams (2016). However, the fixed effects approach produced results which show that the effect of personal remittances on the development of the financial sector in Africa is negative, but non-significant, in line with Kumar's (2013) finding that remittances had a negative contribution towards financial sector development in the Philippines.

Across all the econometric estimation methods (GLS, fixed effects, pooled OLS, system GMM, random effects) used, economic growth was found to have had a non-significant negative influence on financial development in Africa. The finding contradicts most literature (Robinson, 1952; Wahid et al., 2011; Yartey & Adjasi, 2007) which argues that an increase in the performance of the economy increases the demand of financial services in the economy.

The study indicates that financial development in Africa was affected by trade openness in a significant positive way under the pooled OLS, fixed effects and system GMM methods, whilst random effects produced results which show an insignificant positive relationship running from trade openness towards financial development in Africa. Both

findings support an argument by Seetanah et al. (2010), which says that trade openness enhances financial sector efficiency, transparency and growth. Under the GLS econometric estimation procedure, trade openness had a negative, non-significant influence on financial development, in line with Andrianaivo and Yartey (2010), whose study notes that banking sector development in the SSA region was negatively affected by trade openness.

In support of the view by Shahbaz and Rahman (2010) that says FDI makes the financial sector of the host country more efficient, fixed effects, pooled OLS and random effects all find that FDI had an insignificant positive influence on financial sector development in Africa. On the other hand, the system GMM and GLS methods noted that the influence of FDI on financial development was not only positive, but significant as well in Africa, in line with Levine (1997b), whose study argues that FDI inflows enhances the liquidity levels of the stock market in cases where a portion of FDI inflows acquire shares in the host country.

A significant positive influence on investment on the development of the financial sector in Africa was observed under the pooled OLS, fixed effects, system GMM and the GLS econometric estimation techniques. Moreover, investment and financial development were noted to have a non-significant positive correlation running from the former to the latter in Africa under the random effects. The results are in line with Jiranyakul's findings (2014) in the case of the Thailand financial sector.

Fixed effects, system GMM and GLS approaches show a non-significant positive correlation running from human capital development to financial development in Africa, a finding which resonates with Ozkok (2015) whose study notes that one of the key factors that stimulate banking sector development is high skill levels among the employees. On the contrary, human capital development negatively, but non-significantly, influenced financial development under the random effects and pooled OLS methods, in contradiction with the available literature on the subject matter.

The GLS approach found that government final consumption expenditure had a non-significant negative effect on development of the financial sector in Africa, consistent with a finding by Adusei and Frimpong (2014), which says that financial development and government consumption were inversely related in the long run in Ghana. In contrast, an insignificant positive relationship running towards financial development from government final consumption expenditure was observed under system GMM, random effects, pooled OLS and the fixed effects approaches, results which generally support views shared by Liang and Teng (2006), which say that increased government consumption stimulate the demand of the financial products.

Foreign aid was observed to have a non-significant positive effect on financial development in Africa across all the five econometric estimation approaches used, in contrast to available literature (Abuzeid, 2009; Weisskoff, 1972) which argues that the inflow of foreign aid has a deleterious influence in the financial sector and the whole economy.

The influence of infrastructural development on financial development in Africa which was found to be positive and significant under system GMM, pooled OLS and the GLS resonates with Dunning (1973), whose study notes that high infrastructural development attracts foreign investment into the financial, and other economic sectors of the host country. Fixed and random effects show an insignificant positive relationship running from infrastructural development towards financial development in Africa was detected, further supporting Dunning's (1973) argument.

4.6.2 Impact of personal remittances on financial development (domestic credit to the private sector by banks proxy used)

Table 11: Dynamic panel data estimations on the determinants of financial development measured by domestic credit to private sector - Model 2

	Pooled OLS	Fixed effects	Random effects	System GMM	GLS
PCREDLag	0.964***	0.752***	0.964***	0.888**	0.974***
REMIT	0.082	0.136	0.082	-0.545	0.066
GROWTH	-0.0002	-0.0007	-0.0002	-0.0008	-0.0002*
OPEN	0.015	0.063	0.015	0.078	0.016
FDI	0.012	0.006	0.012	0.205	0.001
INV	0.017*	0.006*	0.017	0.094*	0.045**
HCD	0.012	0.074	0.012	0.074	0.011
GOV	0.065	0.128	0.065	0.226	-0.002
AID	-0.0001	-0.0001	-0.0001	0.001	-0.002
INFR	0.193	0.379*	0.193	0.701*	0.160**
_constant	-1.288	-0.531	-1.288		-1.513**
N	240	240	240	240	240
R-squared	0.984	0.793			
Observations	240	240	240	240	240
Groups	20	20	20	20	20
F-stats/Wald chi2	1 566.4	542	86 463	24.03	97 091
Prob>F/Prob>Wald chi2	0.00	0.00	0.00	0.00	0.00
Hausman (Chi2)		39.07	39.07		
Prob>chi2		0.00	0.00		
R-squared					
Within		0.7935	0.7454		
Between		0.9917	0.9832		
Overall					
Arellano-Bond AR(1)				-1.44	
Prob>z				0.15	
Arellano-Bond AR(2)				-1.61	
Prob>z				0.108	
Sargan test of overid				51.07	
Prob>chi2				0.186	
Hansen test of overid				9.68	
Prob>chi2				0.64	

Instruments				19	

Standard errors in parentheses. *p<0.05 ** p<0.01 ***p<0.001

The pooled OLS, GLS, random effects, system GMM and fixed effects indicate that the lag of financial development (proxied by domestic credit to private sector by banks ratio) had a significant positive influence on financial development (measured by domestic credit to private sector by banks ratio), a result which is consistent with a finding by Olayungbo and Quadri (2019).

Using domestic credit to the private sector by banks ratio as a measure of financial development, results indicate that personal remittances had an insignificant positive impact on development of the financial sector in Africa under the random effects, pooled OLS, fixed effects and GLS methods. The finding is in sync with Motelle (2011), who argues that remittances enhance savings and investments in the economy, hence pushing up the demand for financial products. In contrast, system GMM observed a non-significant negative relationship between financial development and personal remittances running from the former to the latter in Africa, in support of Kumar's (2013) findings.

Economic growth had a negative influence on financial development across all the five econometric estimation techniques used. The finding contradicts the available literature (Robinson, 1952; Wahid et al, 2011; Yartey & Adjasi, 2007).

All the five econometric estimation methods used saw trade openness having a non-significant positive contribution on financial development in Africa, in support of Rajan and Zingales (2003), whose study notes that trade openness is one of the ingredients required to enhance the development of the financial sector.

The impact of FDI on financial development was found to be positive, but insignificant across all the five econometric methods used for estimation, in support of Levine's (1997b) view that FDI improves the liquidity levels of the stock market, because some of the foreign investment inflow proceeds are invested in the stock markets of the host country.

System GMM, pooled OLS, fixed effects and GLS observed that the influence of investment on financial development is positive and significant in Africa, yet the random

effects approach shows that investment had a non-significant positive contribution on financial development on the same continent. The results resonate with Solow's (1956) explanation of the positive role that domestic investment plays in stimulating the growth of the financial sector.

Human capital development influenced financial development in a non-significant positive way across all the five econometric estimation approaches used, in support of a view by Becker (1964), which says that appropriate financial decision-making is enhanced by more knowledge and higher skills levels among the people.

Government final consumption expenditure had an insignificant positive impact on financial development in Africa under the system GMM, random effects, fixed effects and the pooled OLS, a finding which is in line with Liang and Teng (2006), whose argument is that productive consumption of goods and services by the government stimulates the demand for financial products in the economy. In contrast, the GLS approach shows an insignificant negative relationship running from government final consumption expenditure towards financial development in Africa, in support of Adusei and Frimpong's (2014) finding that the financial sector in Ghana in the long run was inversely related to government consumption.

Foreign aid had a non-significant negative influence on financial development in Africa under the pooled OLS, GLS, fixed and random effects, a finding which supports the available literature (Abuzeid, 2009; Weisskoff, 1972) which argues that foreign aid inflow repel investment into the economy and reduces people's appetite to save money. On the contrary, a non-significant positive relationship was detected running towards financial development from foreign aid under the system GMM, results which contradict the available literature on the subject matter.

The current study observed that infrastructural development affected financial development in Africa in a significant positive manner under pooled OLS, fixed effects, system GMM and GLS. On the other hand, random effects show that infrastructural

development influenced financial development in a non-significant positive manner. These findings support Dunning's (1973) argument that better infrastructural development levels attract foreign investment inflows into the financial sector and other areas of the economy.

4.6.3 Does complementarity between personal remittances and economic growth enhance financial development (broad money proxy used)?

Table 12: Dynamic panel data estimations on the determinants of financial development measured by broad money plus REGR – Model 3

	Pooled OLS	Fixed effects	Random effects	System GMM	GLS
MoneyLag	0.987***	0.663***	0.987***	0.722**	0.999***
REMIT	0.145	0.047	0.145	-0.358	0.089
GROWTH	-0.0001	-0.0004	-0.0001	-0.0006*	-0.0003*
REGR	-0.00004	-0.0001	-0.00004	-0.0002	-0.0001
OPEN	0.016	0.093*	0.016	0.085	0.001
FDI	0.047	0.060	0.047	0.162*	0.071*
INV	0.044*	-0.001**	0.044	-0.108*	0.064*
HCD	-0.005	0.082	-0.005	0.109	0.020
GOV	0.053*	0.303	0.053	0.302	-0.036
AID	0.001	0.023	0.001	0.028	0.013
INFR	0.159*	0.207*	0.159	0.020*	0.227**
_constant	-1.925	0.351	-1.925		-0.833
N	240	240	240	240	240
R-squared	0.983	0.781			
Observations	240	240	240	240	240
Groups	20	20	20	20	20
F-stats/Wald chi2	1 940	469.3	95 917	119.3	15 441
Prob>F/Prob>Wald chi2	0.00	0.00	0.00	0.00	0.00
Hausman (Chi2)		65.17	65.17		
Prob>chi2		0.00	0.00		
R-squared					
Within		0.7805	0.7462		
Between		0.98	0.9992		
Overall	0.9832	0.9636	0.9832		
Arellano-Bond AR(1)				-2.11	
Prob>z				0.035	
Arellano-Bond AR(2)				-0.31	
Prob>z				0.758	
Sargan test of overid				102.82	
Prob>chi2				0	

Hansen test of overid				10.46	
Prob>chi2				0.73	
Instruments				19	

Standard errors in parentheses *p<0.05 ** p<0.01 ***p<0.001

The major objective of this section is to investigate whether personal remittances affect financial development (using a broad money ratio proxy) through the economic growth channel. Consistent with Almalki and Batayneh's (2015) argument, the lag of financial development positively, but significantly had an influence on financial development across all the five econometric estimation methods.

GLS, random effects, pooled OLS and fixed effects results show that personal remittances had an insignificant positive influence on financial development in Africa, consistent with several empirical studies (Aggarwal et al., 2011; Chowdhury, 2016; Kakhkhharov, 2014; Nyamongo et al., 2012; Shahzad et al., 2014; Williams, 2016). Consistent with Mallick's (2012) finding that remittances had a crowding out effect on household investment, the current study noted that personal remittances had a non-significant negative contribution to financial development in Africa under the system GMM approach.

According to random effects, pooled OLS and fixed effects, an insignificant negative relationship running to financial development from economic growth in Africa was detected, whilst economic growth had a significant negative contribution to financial development in Africa. These results deviate from findings of previous studies done by Wahid et al. (2011), and Yartey and Adjasi (2007), whose studies argue that higher levels of economic growth trigger an increase in demand for more financial services. The possible explanation could be that high economic growth levels attract speculative investment, which leads to stock market volatility (Soumare & Tchana, 2015).

Across all the econometric estimation methods used, the interaction between personal remittances and economic growth had a non-significant negative contribution to financial development in Africa. Put differently, economic growth was observed to be a channel through which personal remittances negatively affect financial development in Africa, a finding which contradicts available literature, which demonstrates that personal remittances influence financial development, through its direct impact on economic growth.

In Africa, trade openness had a significant positive contribution to financial development under the fixed effects, yet the impact of trade openness on financial development was positive, but non-significant, under the pooled OLS, system GMM, random effects and the GLS, in support of theoretical predictions put forward by Rajan and Zingales (2003), and Seetanah et al. (2010).

According to fixed effects, pooled OLS and the random effects, FDI had a non-significant positive contribution to financial development in Africa, whereas a significant positive influence of FDI on financial development in Africa was also detected under the system GMM, and GLS, in support of arguments proffered by Levine (1997a), and Shahbaz and Rahman (2010).

A significant negative influence of investment on financial development in Africa was observed under the fixed effects and system GMM, a finding which contradicts available literature (Jiranyakul, 2014; Solow, 1956). On the other hand, pooled OLS and GLS noted that investment had a significant positive influence on financial development in Africa, yet random effects show a non-significant positive relationship running from investment towards financial development on the same continent. The results resonate with Jiranyakul's (2014) finding that the Thailand financial sector development was enhanced by investment.

In contrast to available literature (Becker, 1964; Kodila-Tedika & Asong. 2015; Ozkok, 2015), human capital development had an insignificant negative effect on financial development in Africa under the pooled OLS and the random effects methods. Under the fixed effects, system GMM and the GLS, a non-significant positive relationship running towards financial development from human capital development was noted, in support of a view by Ozkok (2015), which says highly skilled workers are instrumental in enhancing development of the financial sector.

Government has a final consumption expenditure with a significant positive influence on financial development in Africa. This was detected under the pooled OLS approach, yet fixed effects, system GMM and random effects found that financial development was positively, but non-significantly affected by government final consumption expenditure in an African context. The results support Liang and Teng's (2006) argument that the demand for financial products is enhanced by an increase in government consumption expenditure. On the other hand, GLS shows a negative, but insignificant impact of government final consumption expenditure on financial development in Africa, in line with Adusei and Frimpong (2014), whose study argues that financial development and government final consumption expenditure are inversely related.

A non-significant positive relationship running from foreign aid towards financial development was noted across all the econometric estimation approaches used, a finding which contradicts available literature (Abuzeid, 2009; Weisskoff, 1972). The literature argues that foreign aid has a deleterious effect on savings, investment and financial development.

Infrastructural development had a significant positive contribution to financial development in Africa under the pooled OLS, fixed effects, system GMM and the GLS, whereas the random effects show a non-significant positive correlation running from infrastructural development to financial development, results which are consistent with Dunning's (1973) theoretical underpinning.

4.6.4 Does complementarity between personal remittances and economic growth enhance financial development (domestic credit to private sector proxy used)?

Table 13: Dynamic panel data estimations on the determinants of financial development measured by private credit plus REGR - Model 4

	Pooled OLS	Fixed effects	Random effects	System GMM	GLS
PCREDLag	0.965***	0.757***	0.965***	0.774**	0.979***
REMIT	0.120	0.283	0.120	0.037	0.089
GROWTH	-0.0002	-0.001	-0.0002	-0.001*	-0.0002***
REGR	-0.00003	-0.0002	-0.00004	-0.001	-0.00003
OPEN	0.017	0.063	0.017	0.126	0.016
FDI	0.009	0.006	0.009	0.141	-0.010
INV	0.015	-0.005	0.015	-0.064*	0.058**
HCD	0.019	0.083	0.019	0.133	0.021
GOV	0.060	0.129	0.060	0.338	0.021
AID	-0.0003	0.001	-0.0003	-0.023	-0.001
INFR	0.206	0.407	0.206	0.947*	0.153*
_constant	-1.325	-0.667	-1.325		-1.408
N	240	240	240	240	240
R-squared	0.984	0.795			
Observations	240	240	240	240	240
Groups	20	20	20	20	20
F-stats/Wald chi2	1 427	447.4	105 948	17.52	101 520
Prob>F/Prob>Wald chi2	0.00	0.00	0.00	0.00	0.00
Hausman (Chi2)		40.02	40.02		
Prob>chi2		0.00	0.00		
R-squared					
Within		0.7946	0.7785		
Between		0.9931	0.9992		
Overall	0.9839	0.9784	0.9839		
Arellano-Bond AR(1)				-1.21	
Prob>z				0.228	
Arellano-Bond AR(2)				-2.02	
Prob>z				0.043	
Sargan test of overid				79.9	
Prob>chi2				0.013	

Hansen test of overid				11.5	
Prob>chi2				0.91	
Instruments				19	

Standard errors in parentheses. *p<0.05 ** p<0.01 ***p<0.001

Using domestic credit to private sector ratio as a financial development proxy, the lag of financial development was noted to have a significant positive contribution on financial development under the pooled OLS, fixed effects, random effects, system GMM and GLS. The finding resonates with earlier researchers on a similar subject matter (Almalki & Batayneh, 2015).

Consistent with Rana and Tasneem (2016), Machasio (2018), and Misati et al. (2019), personal remittances had a significant positive contribution to the development of the financial sector in Africa across all the econometric estimation methods used. Economic growth non-significantly positively affected financial development under random effects, fixed effects and pooled OLS, yet a non-significant negative relationship to financial development from economic growth was detected under the system GMM and the GLS. The findings contradict the available literature on finance-growth nexus.

The complementarity between personal remittances and economic growth had a non-significant negative contribution to financial development in Africa across all the econometric estimation approaches, in contrast to most theoretical predictions, which say that personal remittances improve economic growth and consequently spur financial sector development. Across all the five econometric estimation techniques, trade openness was found to have a non-significant positive contribution to financial development, in support of findings by Seetanah et al. (2010).

System GMM, fixed effects, pooled OLS and random effects indicates that FDI positively, but insignificantly influenced financial development in Africa, a finding that is in sync with Shahbaz and Rahman (2010) who note that FDI enhances the efficiency levels of the financial sector. However, an insignificant negative influence of FDI on financial development was observed under the GLS approach, in support of a finding by Adam and Tweneboah (2008) whose study observes that FDI inflow shocks impedes the growth of the financial sector.

An insignificant positive impact of investment on financial development in Africa was observed under the pooled OLS and random effects, whilst financial development was positively and significantly influenced by investment under the GLS methodology. The results support Jiranyakul's (2014) study, which says that the financial sector in Thailand was enhanced by higher investment levels. Fixed effects noted that investment had a non-significant negative impact on financial development in Africa, yet the system GMM produced results which show a significant negative correlation running from investment towards financial development in Africa, results which contradict available literature on investment-finance nexus.

The available literature which supports a positive impact of human capital development on financial development include Ozkok (2015), and Kodila-Tedika and Asongu (2015). The results of the study noted that the impact of human capital development on financial development in Africa is positive and significant across all the econometric estimation approaches, in line with the theoretical predictions which say that possessing high skills levels enhances financial and investment decision-making quality.

In an African context, government final consumption expenditure and financial development had a non-significant positive relationship flowing from the former to the latter, in agreement with Liang and Teng (2006), whose study argues that government consumption expenditure on productive activities spur not only the demand for financial products, but the overall growth of the financial sector.

The majority of the econometric methods used (pooled OLS, random effects, system GMM, GLS) shows that foreign aid had an insignificant negative influence on financial development in Africa, in line with theoretical arguments put forward by Abuzeid (2009) and Weisskoff (1972). On the contrary, the fixed effects note that the impact of foreign aid on financial development was positive, but non-significant, a finding that is at total variance with existing literature. Under the system GMM and the GLS, a significant positive influence of infrastructural development on financial development in Africa was detected, yet pooled OLS, random effects and fixed effects noted that infrastructural

development influenced financial development in a non-significant positive way in Africa. The results support Dunning's argument (1973) that infrastructural development not only enhances financial sector FDI inflows, but is also instrumental in enhancing growth of the whole economy. Across all the four models, both Sargan and Hansen tests show that the system GMM is robust and is not weakened by many instruments. The Hausman test results also indicate that the control variables used are exogenous. The R-squared test for random and fixed effects show that the models are normal because they explain between 73% and 80% of the results.

4.7 CHAPTER SUMMARY

The objectives of the study highlighted in the first chapter were addressed using five econometric estimation techniques, namely, pooled OLS, system GMM, GLS, fixed and random effects. Investigating the influence of personal remittances on financial development in Africa and exploring whether a combination of economic growth and personal remittances enhanced financial development in Africa were the two main aims of this study as already mentioned in the first chapter.

Main data analysis shows that variables which had a significant contribution to financial development in Africa under at least one method across all the four models include the lag of broad money supply, trade openness, FDI, investment, infrastructural development, domestic credit to the private sector by banks, economic growth and government final consumption expenditure. The interaction between personal remittances and economic growth, personal remittances, human capital development and foreign aid were the only explanatory variables which were found to be non-significant under all the five methods and across all the four models.

The lag of both broad money supply and domestic credit to the private sector by banks were found to be positive and significant across all the econometric estimation methods and in all the four models. Trade openness had a significant positive contribution to financial development in Africa in (1) model 1 under the fixed effects, pooled OLS and the system GMM, and (2) in model 3 under the fixed effects only. The significant positive

influence of FDI on financial development in Africa was confirmed in both models 1 and 2 under the system GMM and GLS.

In both models 3 and 4, economic growth had a significant deleterious impact on financial development in Africa under the system GMM and GLS, whilst the significant positive influence of government final consumption expenditure on financial development in Africa was observed in model 3 under the pooled OLS.

The impact of infrastructural development on financial development in Africa was noted to be positive, but significant across all the four models under both system GMM and GLS. The same finding is observed in (1) models 1 and 3 under the pooled OLS and (2) in models 2 and 3 under the fixed effects. Finally, models 1 and 2 show a significant positive influence of investment on financial development in Africa under pooled OLS, fixed effects, system GMM and GLS. A significant positive impact of investment on financial development in Africa was also detected in (1) model 3 and 4 under the GLS approach and (2) in model 3 under the pooled OLS methodology. The negative influence of investment on financial development in Africa was significant in model 3 under the fixed effects and system GMM, whilst similar results were observed in model 4 under only system GMM.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS AND SUGGESTION FOR FURTHER RESEARCH

5.1 CHAPTER INTRODUCTION

This final chapter summarises the findings of the research, presents conclusions derived from the study and highlights relevant policy implications for the advantage of African countries. The extent to which the results of the study resonate with available literature on the subject matter, is summarised whilst the degree to which the results of the study addressed the main aims of the study is shown in this chapter. The contribution of the study, research limitations and a discussion of possible areas for future research is also part of this chapter.

The remaining part of this chapter is organised as follows: a summary of the research findings is discussed in section 5.2, whilst section 5.3 presents the conclusions and policy implications from the study. Section 5.4 deals with the contribution of the study towards literature. Section 5.5 lists the limitations of the study. Possible areas for future research are discussed in section 5.6.

5.2 SUMMARY OF FINDINGS

Using the GMM approach, the lag of financial development was found to have had a significant positive influence on financial development in Africa across all four models. This means that current levels of financial development have a positive effect on the level of financial development in the future in Africa. The continent should therefore take this finding into consideration when designing and formulating financial development policies. In contrast to available literature on the subject matter, economic growth was observed to have had a significant negative effect on financial development in Africa under model 3 and 4. The results mean that the growth of African economies has a deleterious impact on financial development, a finding which may be due to speculative activities in the

financial markets. The continent therefore needs to avoid over relying on economic growth enhancing initiatives as a panacea for financial sector development without coming up with ways to discourage speculative investment behaviour.

Under model 1 and 3, FDI had a significant positive influence on financial development in Africa. The continent therefore needs to design and implement FDI inflow enhancing policies to stimulate financial sector development. For example, African governments can put in place tax holidays for foreign direct investments in the first five years or reduce tax payable by foreign direct investors. They can also reduce red tape in the system or processes involved in approving foreign direct investment projects. In the African context, a significant positive relationship from trade openness to financial development was observed in model 1. These findings follow the earlier empirical work which stated that trade openness enhances financial development through its ability to foster efficiency and transparency in the economy. Africa needs to implement policies that increases their level of trade openness if it intends to enhance financial development. For example, African governments can reduce import duty or export duty in order to encourage more players into international related business.

In models 1 and 2, investment had a significant positive effect on financial development in Africa. The results mean that polices meant to improve investment levels in Africa leads to financial development. The implementation of such policies needs to be encouraged among African member states. For example, African governments can lower investment related tax in order to attract savings, investment and long-term financial development. Contrary to the theoretical underpinning on the subject matter, investment was found to have had a significant deleterious contribution to financial development in Africa in model 3 and 4. This means that results on the influence of investment on financial development are mixed.

Across all the four models, financial development was positively and significantly influenced by infrastructural development in Africa. The results mean that policies aimed at enhancing infrastructural development lead to significant development of the financial

sector. The implementation of such infrastructural development policies and initiatives must be promoted in Africa to enhance the growth and development of the financial sector. For example, Africa can encourage member countries to enter into private public partnership to develop expertise and resources for infrastructural development.

5.3 CONCLUSIONS

The study had two main objectives. Firstly, to investigate the influence of remittances on financial development in Africa. Secondly, to explore the impact of a complementarity between remittances and economic growth on financial development in Africa.

The study revealed that the influence of remittances on financial development in Africa is mixed. It was found to be positive but insignificant in model 1 and 4, in line with earlier empirical researchers such as Williams (2016) and Chowdhury (2016). In model 2 and 3, the effect of remittances on financial development was observed to be negative and non-significant, results which resonate with prior empirical research work in a similar subject matter, namely Mallick (2012) and Kumar (2013).

The complementarity between remittances and economic growth had a non-significant negative effect on financial development in Africa. Although the results are not significant, the results mean that economic growth in Africa attracts remittances into speculative financial market activities which negatively influence financial sector development. The results contradict Issifu (2018), whose study argued that remittance positively affected financial development through channels such as political institutions, among others. Alternatively, economic growth discourages remittance flow and consequently financial development. This is most probably because the dependants who remained behind becomes better able to take care of their financial needs if the economy is doing well, an argument that resonates with available literature.

5.4 CONTRIBUTION OF THE STUDY

There is an immense contribution to literature that the current study makes. Previous research which explored the impact of personal remittances on financial development

produced mixed findings which can be grouped into four classes. These include (1) personal remittances make a positive contribution to financial development, (2) financial development is negatively affected by personal remittances, (3) there exists a feedback relationship between financial development and personal remittances, and (4) there is no correlation between the two variables. These findings are diverse, conflicting and divergent. Due to these contradictions in the literature, the current study therefore sought to contribute to literature by empirically testing the impact of personal remittances on financial development in the case of Africa. To the author's best knowledge, the current study is the first to focus on the impact of personal remittances on financial development in Africa as a whole.

Literature which argues that remittances enhance economic growth is no longer contestable. On the other hand, it is also argued that higher economic growth consequently creates more demand for financial products in the economy, thereby triggering the production of more financial products by the financial sector to satisfy the demand (Yartey & Adjasi, 2007; Robinson, 1952). Literature also noted that consistent economic growth in the labour sending country also reduces remittance inflow because migrants sees no need to send money back home. It is for this reason that this study expects the complementarity between personal remittances and economic growth to have either a positive or negative effect on the development of the financial sector in Africa. The author is unaware of any empirical research that studied the influence of the complementarity between personal remittances and economic growth on financial development. Hence, this study was the first to test such an objective empirically.

Moreover, previous research on the influence of remittances on the development of the financial sector in Africa is available. This study deviates from existing empirical research on the subject matter on Africa in the following ways. Firstly, it equally included four representative African countries in the sample from each African region, thereby staying clear from bias.

Secondly, it used the GMM approach and other econometric methods (pooled OLS, random effect, GLS, fixed effects) for robustness purposes. Thirdly, it used the most recent data available, thereby making the study more relevant for current decision-making purposes by African countries. Fourthly, it considered the fact that the influence of personal remittances on the development of the financial sector is non-linear (by investigating whether economic growth is an avenue through which financial development is enhanced by personal remittances). Lastly, it considered the argument by Almalki and Batayneh (2015) that financial development is affected by its own lag. These gaps were filled in in the current study.

5.5 LIMITATIONS OF THE STUDY

The full list of African countries according to the World Bank (2019) include Nigeria, the Democratic Republic of Congo, Egypt, Tanzania, Ethiopia, Uganda, South Africa, Sudan, Kenya, Algeria, Morocco, Angola, Ghana, Mozambique, Madagascar, Cameroon, Ivory Coast, Niger, Burkina Faso, Mali, Malawi, Zambia, Senegal, Chad, Somalia, Zimbabwe, Guinea, Rwanda, Benin, Tunisia, Burundi, Togo, South Sudan, Libya, Congo, Sierra Leone, the Central African Republic, Liberia, Eritrea, Mauritania, Gambia, Namibia, Gabon, Botswana, Guinea-Bissau, Lesotho, Mauritius, Equatorial Guinea, Djibouti, Swaziland, Cabo Verde, Comoros, Seychelles, and Sao Tome and Principe. Only African countries such as Madagascar, Mozambique, South Africa, Namibia, Rwanda, Kenya, Comoros, Burundi, Tunisia, Sudan, Morocco, Algeria, the Central African Republic, Cameroon, Ghana, Senegal, Gabon, the Democratic Republic of Congo, Nigeria and Burkina Faso were part of the sample due to non-availability of data. The data for other African countries excluded from the study could have been easily obtained if the author had enough finances to purchase it from private databases.

Given unrestricted access to data, the current study could have included some of the variables mentioned in the literature, hence improving the reliability of the model. The scope chosen and the number of variables in the study considered the time constraints, especially given that the author is employed full time and was expected to complete the studies within the given timeframe.

The study did not focus on all institutions that comprise the financial sector, but focused on the banking sector development only. Data employed in the study covers remittances received through formal banking channels only, and excludes remittances through informal channels, like 'hawala operators'. There is a possibility of errors and omissions, though much care was exercised to maintain accuracy.

5.6 POSSIBLE AREAS OF FUTURE RESEARCH

Some African countries included in the World Bank (2019) were excluded from the study, because data for those nations could not be found in public databases. To get results which are truly a representation of the relationship between personal remittances and financial development in Africa, further studies should make use of private databases to get and use the data for all African countries included in the World Bank (2019) list.

Given data availability, especially from private databases, future empirical studies should use more and different proxies of the variables used to improve the robustness of the results. There is a consensus that exists in the literature on the positive role played by remittances on financial development, but the unanswered question is what level of personal remittances result in significant financial development in Africa? Following Tsaurai's (2017b) study on threshold analysis, this study recommends further empirical studies exploring the level of personal remittances which triggers significant financial development in Africa.

According to Matthew and Johnson (2014), it takes a long time before macroeconomic variables significantly influence each other. The weakness of such a view is that it did not specify the exact time that it takes for the macroeconomic variables to have a significant effect on each other. Matthew and Johnson (2014) assume it takes one year for the macroeconomic variables to affect each other significantly, whilst Rana and Tasneem (2016) assume it takes one or two years for this to happen. The current study therefore suggests that future empirical research work on the impact of remittances on financial development should use the lagged independent variable approach.

BIBLIOGRAPHY

Abiad, A., Tressel, T. & Detragiache, E. 2008. *A new database of financial reforms.* Working paper no. 08/266. Washington, DC: International Monetary Fund.

Abida, Z. & Sghaier, I.M. 2014. Remittances, financial development and economic growth: The case of North African countries. *The Romanian Economic Journal*, 17(51):137–170.

Abuzeid, F. 2009. Foreign aid and the big push theory: Lessons from sub-Saharan Africa. *Stanford Journal of International Relations*, 11(1):16–23.

Acosta, P., Calderon, C., Fajnzylber, P. & Lopez, H. 2008. What is the impact of international remittances on poverty and inequality in Latin America? *World Development*, 36(1):89–114.

Adam, M. & Tweneboah, G. 2008. Foreign direct investment and stock market development: Ghana's evidence. *International Research Journal of Finance and Economics*, 26(2):1450–2887.

Adarkwa, M.A. 2015. Impact of remittances on economic growth: Evidence from selected West African countries (Cameroon, Cape Verde, Nigeria and Senegal). *AHMR*, 1(2):177–200.

Adusei, M. & Frimpong, J.M. 2014. Predictors of financial development in Ghana. *Journal of Applied Finance and Banking*, 4(2):59–71.

Afaha, J.S. 2013. Migration, remittance and development in origin countries: Evidence from Nigeria. *African Population Studies*, 27(1):53–69.

AfDB, OECD & UNDB (African Development Bank, Organisation for Economic Co-operation and Development & United Nations Development Business). 2017. *African Economic Outlook 2017: Entrepreneurship and industrialisation*.

Aggarwal, R., Demirguc-Kunt, A. & Peria, M.S.M. 2011. Do remittances promote financial development? *Journal of Development Economics*, 96(2):255–264.

Ahortor, C.R.K. & Adenutsi, D.E. 2009. The impact of remittances on economic growth in small-open developing economies. *Journal of Applied Sciences*, 9(18):3275–3286.

Ajilore, T. & Ikhide, S. 2012. A bounds testing analysis of migrants' remittances and financial development in selected sub-Sahara African countries. *Review of Finance & Banking*, 4(2):79–96.

Akmoldoev, K. & Budaichieva, A. 2012. The impact of remittances on Kyrgyzstan economy. In *International Conference on Eurasian Economies.* International Ataturk Alatoo University, Kyrgyzstanand International Ataturk-Alatoo University, Kyrgyzstan 6–12.

Alfaro, L., Kalemli-Sebnem, S. & Volosovych, V. 2008. Why doesn't capital flow from rich to poor countries? An empirical investigation. *The Review of Economics and Statistics*, 90(2):347–368.

Ali, M. 2011. Impact of micro and macroeconomic variables on emerging stock market return: A case on Dhaka Stock Exchange (DSE). *Interdisciplinary Journal of Research in Business*, 1(5):8–16.

Aliber, R.Z. 1970. A theory of direct foreign investment. In *The international corporation.* Cambridge: Cambridge University Press, 17–34.

Almalki, A.M. & Batayneh, K.I. 2015. The relationship between inflation and financial development in Saudi Arabia. *The Journal of Developing Areas*, 49(6):321–332.

Andrianaivo, M. & Yartey, C.A. 2010. Understanding the growth of African financial markets. *African Development Review*, 22(3):394–418.

Ang, J.B. & McKibbin, W.J. 2007. Financial liberalization, financial sector development and growth: Evidence from Malaysia. *Journal of Development Economics*, 84(1):215–233.

Anyanwu, J.C. & Erhijakpor, A.E.O. 2010. Do international remittances affect poverty in Africa? *African Development Review*, 22(1):51–91.

Arellano, M. & Bond, S. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2):277–297.

Armendáriz de Aghion, B. & Murdoch, J. 2005. *The economics of microfinance.* Cambridge, MA: The MIT Press.

Asprem, M. 1989. Stock prices, asset portfolios and macroeconomic variables in ten European countries. *Journal of Banking and Finance*, 13(4/5):589–612.

Atabaev, N., Atabaeva, G. & Baigonushova, D. 2014. Economic growth and remittances inflow: Empirical evidence from Kyrgyz Republic. *Eurasia Journal of Business and Economics*, 7(14):61–70.

Awad, A. & Sirag, A. 2018. The impact of remittances on Sudan's economic growth: Does the exchange rate matter? *International Journal of Social Economics*, 45(6):925–939.

Ayadi, R., Arbak, E., Naceur, S.B. & De Groen, W.P. 2015. Financial development, bank efficiency, and economic growth across the Mediterranean. In *Economic and social development of the Southern and Eastern Mediterranean countries.* Brussels: European Commission, 219–233.

Aye, G.C. & Edoja, P.E. 2017. Effect of economic growth on CO_2 emission in developing countries: Evidence from a dynamic panel threshold model. *Cogent Economics and Finance*, 5(1):1–22.

Azam, M. & Khan, A. 2011. Workers' remittances and economic growth: Evidence from Azerbaijan and Armenia. *Global Journal of Human Social Science*, 11(7):40–46.

Aziz, M.N., Sen, S., Sun, P. & Wu, L. 2015. *Migrant workers' remittances and economic growth: The role of financial development*. Munich Personal RePEc archive paper no. 66992. University of Nottingham (Malaysia Campus), University of Birmingham, Nankai University, Xiamen University.

Bailey, M. 1971. *National income and the price level.* New York City: McGraw-Hill.

Balde, Y. 2011. The impact of remittances and foreign aid on savings or investment in sub-Saharan Africa. *African Development Review*, 23(2):247–262.

Bang, J.T., Mitra, A. & Wunnava, P.V. 2016. Do remittances improve income inequality? An instrumental variable quantile analysis of the Kenyan case. *Economic Modelling*, 58, November: 394–402.

Barajas, A., Chami, R., Fullenkamp, C. & Peter, J.M. 2009. *Do workers' remittances promote economic growth?* Working paper no. 09/153. Washington: International Monetary Fund.

Barth, J., Caprio, G. & Levine, R. 2001. Banking systems around the globe: Do regulation and ownership affect performance and stability? In F. Mishkin (ed.). *Prudential supervision: What works and what doesn't.* Chicago, IL: National Bureau of Economic Research and University of Chicago Press, 1-63.

Bayar, Y. 2015. Impact of remittances on the economic growth in the transitional economies of the European Union. *Economic Insights: Trends and Challenges*, 4(3):1–10.

Bayar, Y. & Sezgin, H.F. 2016. Remittances and financial development in Central and Eastern European countries. Paper presented at the 13th International Conference of ASECU: Social and Economic Challenges in Europe 2016–2020, 19-20 May, Albania.

Becker, G.S. 1964. *Human capital: A theoretical and empirical analysis with special reference to education*. Chicago, IL: University of Chicago Press.

Beine, M., Lodigiani, E. & Vermeulen, R. 2011. *Remittances and financial openness.* Working paper no. 317/August 2011. Amsterdam: De Nederlandsche Bank.

Bellaqa, B. & Tmava, Q. 2018. Impact of remittances on economic development and management of remittances: Evidence from Kosovo. *International Journal of Economics, Commerce and Management*, 6(4):179–192.

Bettin, G. & Zazzaro, A. 2009. Remittances and financial development: Substitutes or complement in economic growth? *Bulletin of Economic Research*, 64(28):509–536.

Beyene, B.M. 2014. The effects of international remittances on poverty and inequality in Ethiopia. *Journal of Development Studies*, 50(10):1380–1396.

Biller, S 2007. UICIFD briefing on remittances Paper No.3 http://www.uiowa.edu/ifdebook/briefings/pdf/remittance.pdf (accessed 06-05-2019).

Bittencourt, M. 2008. *Inflation and financial development: Evidence from Brazil.* Working paper no. 67. Newland, Cape Town: Economic Research Southern Africa.

Blouchoutzi, A. & Nikas, C. 2014. Emigrants' remittances and economic growth in small transition economies: The cases of Moldova and Albania. *East-West Journal of Economics and Business*, 17(2):97–117.

Blumberg, B.F., Cooper, D. & Schindler, P.S. 2011. *Business research methods*. Boston, MA: McGraw-Hill.

Brahmasrene, T. & Jiranyakul, K. 2007. Cointegration and causality between stock index and macroeconomics variables in an emerging market. *Academy of Accounting and Financial Studies Journal*, 11(3):17–30.

Brown, R.P., Carmignani, F. & Fayad, G. 2013. Migrants' remittances and financial development: Macro and micro-level evidence of a perverse relationship. *The World Economy*, 36(5):636–660.

Brown, R.P.C. 1997. Estimating remittance functions for Pacific Island migrants. *World Development*, 25(4):613–626.

Cattaneo, C. 2005. *International migration and poverty: A cross country analysis.* Centro Studi Luca d'Agliano. Retrieved from www.dagliano.unimi.it/media/Cattaneo_Cristina [Accessed 14 May 2019].

Chami, R., Fullenkamp, C. & Jahjah, S. 2003. *Are immigrant remittances flows a source of capital for development?* Working paper no. WP/03/189. Washington: International Monetary Fund.

Chipeta, C. 2012. Financial liberalization and the capital structure of firms listed on the Johannesburg Stock Exchange. Unpublished doctoral thesis. Pretoria: University of Pretoria.

Choi, I. 2003. Unit root tests for panel data. *Journal of International Money and Finance*, 20(2):249–272.

Choong, C.K. & Koay, Y.Y. 2013. The nexus between worker remittances and economic growth in Malaysia. *Prosiding Perkem VIII, JILID 1*:507–515.

Chowdhury, M. 2016. Financial development, remittances and economic growth: Evidence using a dynamic panel estimation. *The Journal of Applied Economic Research*, 10(1):35–54.

Cooray, A. 2012. Migrant remittances, financial market development and the government ownership of banks: Evidence from a group of non-OECD economies. *Journal of International Financial Markets, Institutions and Money*, 22(4):936–957.

Cota, J.E.M. 2012. Are remittances a stabilizing factor in the Mexican economy? *EconoQuantum*, 9(1):83–99.

Cottarelli, C. & Kourelis, A. 1994. Financial structure, bank lending rates and the transmission mechanism of monetary policy. *IMF Staff Papers*, 41(4):587–623.

Coulibaly, D. 2015. Remittances and financial development in sub-Saharan African countries: A system approach. *Economic Modelling*, 45:249–258.

Cox Edwards, A. & Ureta, M. 2003. International migration, remittances and schooling: Evidence from El Salvador. *Journal of Development Economics*, 72(2):429–461.

Dahal, P. 2014. The impact of remittances on economic growth in Nepal: An analysis of a significant basis of development. *Asia Pacific Journal of Public Administration*, 36(4):261–282.

Das, A. 2009. *The effect of transfers on investment and economic growth: Do remittances and grants behave similarly*? Memo. Winnipeg, Canada: University of Manitoba.

Dastidar, S.G. 2017. Impact of remittances on economic growth in developing countries: The role of openness. *Global Economy Journal*, 95(2):229–241.

De Gregorio, J. 1996. Borrowing constraints, human capital accumulation and growth. *Journal of Monetary Economics*, 37(1):49–71.

Demirgüç-Kunt, A., Córdova, E.L., Peria, M.S.M. & Woodruff, C. 2011. Remittances and banking sector breadth and depth: Evidence from Mexico. *Journal of Development Economics*, 95(2):229–241.

Dilshad, W.B. 2013. Impact of workers' remittances on economic growth: An empirical study of Pakistan's economy. *International Journal of Business and Management*, 8(24):126–131.

Dorrucci, E., Meyer-Cirkel, A. & Santabarbara, D. 2009. *Domestic development in emerging economies: Evidence and implications.* Occasional paper series, no 102. Germany: European Central Bank.

Dunning, J.H. 1973. The determinants of international production. Oxford Economic Papers, Oxford University Press, 25 (3), 289-336.

Durand, J., Kandel, W., Parrado, E.A. & Massey, D.S. 1996. International migration and development in Mexican communities. *Demography*, 33(2):249–264.

Edo, S.E. 1995. An estimation of a model of long term securities investment in Nigeria. *Nigeria Economic and Financial Review*, 1(2):45–53.

Esteves, R. & Khoudour-Castéras, D. 2011. Remittances, capital flows and financial development during the mass migration period, 1870–1913. *European Review of Economic History*, 15(3):443–474.

Fayomi, O. Azuh, D. & Ajayi, L. 2015. The impacts of remittances on Nigeria's economic growth: A study of Nigerian diasporas in Ghana. *Journal of South African Business Research*, 2015, :1–12.

Feeny, S., Iamsiraroj, S. & McGillivray, M. 2014. Remittances and economic growth: Larger impacts in smaller countries? *The Journal of Development Studies*, 50(8):1055–1066.

Fox, G.A. Negrete-Yankelevich, S. And Sosa, V.J. (2015). Ecological Statistics: Contemporary Theory and Approach. Oxford University Press.

Fry, M.J. 1980. Saving, investment, growth and the cost of financial repression. *World Development*, 8(4):317–327.

Gerschenkron, A. 1962. *Economic backwardness in historical perspective: A book of essays*. Cambridge, MA: Belknap Press of Harvard University Press.

Giorgio, D.G. 1999. Financial development and reserve requirements. *Journal of Banking and Finance*, 23(7):1031–1041.

Githaiga, P.N. & Kabiru, C.G. 2014. Remittances as a determinant of financial development. *Journal of Business, Economics and Finance*, 3(4):398–424.

Giuliano, P. & Ruiz-Arranz, M. 2009. Remittances, financial development, and growth. *Journal of Development Economics*, 90(1):144–152.

Goldsmith, R.W. 1969. *Financial structure and development*. New Haven, CT: Yale University Press.

Hamma, I.E. 2016. *Linking remittances with financial development and institutions: A study from selected MENA countries*. Working paper no. 2016-38. Valbonne, France: GREDEG.

Hasan, S.B., Akhter, R., Abbasi, A.A.A. & Saha, S. 2018. Impact of remittance on economic growth in Bangladesh. *American Journal of Trade and Policy*, 5(2):15–20.

Hausman, J.A. 1978. Specification tests in econometrics. *Econometrica*, 46(6):1251–1271.

Hirtle, B.J., Kovner, A. & Plosser, M. 2016. *The impact of supervision on bank performance.* Staff report no. 768. New York, NY: Federal Reserve Bank of New York.

Huang, Y. 2005. *What determines financial development? Discussion Working Papers* No. 05/580. Bristol: Department of Economics, University of Bristol.

Huang, Y. 2010. Political institutions and financial development: An empirical study. *World Development*, 38(12):1667–1677.

Huang, Y. & Temple, J. 2005. *Does external trade promote financial development?* Discussion paper no. 5150. London, United Kingdom: Centre for Economic Policy Research.

Huybens, E. & Smith, B.D. 1999. Inflation, financial markets and long-run real activity, *Journal of Development Economics*, 81(1):163–192.

Im, K.S., Pesaran, M.H. & Shin, Y. 2003. Testing unit roots in heterogeneous panels. *Journal of Econometrics*, 115(1):53–74.

Inoue, T. & Hamori, S. 2016. Financial access and economic growth: Evidence from sub-Saharan Africa. *Emerging Markets Finance and Trade*, 52(3):743–753.

Issahaku, H., Abor, J.Y. & Amidu, M. 2018. The effects of remittances on economic growth: Re-examining the role of institutions. *The Journal of Developing Areas*, 52(4):29–46.

Issifu, I. 2018. *The impact of remittance on domestic investment: The role of financial and institutional development in five countries in sub-Saharan Africa. Forum of International Development Studies,* 48 (9), 1-20.

Jiang, H. & Liu, C. 2014. A panel vector error correction approach to forecasting demand in regional construction markets*. Construction Management and Economics*, 32(12):1205–1221.

Jiranyakul, K. 2014. Capital formation in Thailand: Its importance and determinants. *Journal of Monetary Economics*, 43(2):283–315.

Kakhkharov, J. 2014. *The impact of remittances on financial development: The case of transition economies of Central and Eastern Europe and the former Soviet Union.* Economics discussion paper no. 2014–09. Southport, Australia: Griffith Business School.

Kao, C. 1999. Spurious regression and residual-based tests for co-integration in panel data. *Journal of Econometrics*, 90(1):1–44.

Kappler, M., Reisen, H., Schularick, M. & Turkisch, E. 2013. The macroeconomic effects of large exchange rate appreciations. *Open Economies Review*, 24(3):471–494.

Karikari, N.K., Mensah, S. & Harvey, S. 2016. Do remittances promote financial development in Africa? *SpringerPlus*, 5, 1–21.

Kelly, D.J. 2006. Human Resource Development: For Enterprise and Human Development, Proceedings of the 14th World Congress of International Industrial Relations Association (IIRA), Social Actors, Work organization and New Technologies in the 21st Century, Lima, Peru.

Kevin, W. 2016. Remittances and financial development: Evidence from sub-Saharan Africa. *African Development Review*, 28(3):357–367.

Kholdy, S. & Sohrabian, A. 2008. Foreign direct investment, financial markets and political corruption. *Journal of Economic Studies*, 35(6):486–500.

King, R.G. & Levine, R. 1993. Financial intermediation and growth: Theory and evidence. In C. Mayer & X. Vives (eds.). *Capital markets and financial intermediation.* London: Centre for Economic Policy Research, 156–189.

Kodila-Tedika, O. & Asongu, S.A. 2015. The effect of intelligence on financial development: A cross-country comparison. *Intelligence*, 51, :1–9.

Kumar, R.R. 2013. Linking remittances with financial development and ICT: A study of the Philippines. *International Journal of Economics and Business Research*, 5(4):379–399.

Kumar, R.R. 2018. The effect of remittances on economic growth in Kyrgyzstan and Macedonia: Accounting for financial development. *International Migration*, 56(1):95–126.

Kumhof, M.M. & Tanner, M.E. 2005. *Government debt: A key role in financial intermediation*. Working paper no. 5-57. Washington: International Monetary Fund.

Kuwornu, J. & Victor, O.N. 2011. Analyzing the effect of macroeconomic variables on stock market returns: Evidence from Ghana. *Journal of Economics and International Finance*, 3(11):605–615.

La Porta, R.F., Lopez-de-Silanes, A., Shleifer, R.W. & Vishny, R.W. 1999. Legal determinants of external finance. *Journal of Finance*, 52(3):1131–1150.

Lartey, E.K.K. 2013. Remittances, investment and growth in sub-Saharan Africa. *The Journal of International Trade & Economic Development: An International and Comparative Review*, 22(7):1038–1058.

Levin, A., Lin, C.F. & Chu, C.S.J. 2002. Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics*, 108(1):1–24.

Levine, R. 1997a. Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35(2):688–726.

Levine, R. 1997b. Stock markets, economic development and capital control liberalization. *Perspectives*, 3(5):1–7.

Levine, R. & Zervos, S. 1998a. Capital control liberalization and stock market development. *World Development*, 26(7):1169–1183.

Levine, R. & Zervos, S. 1998b. Stock markets, banks and economic growth. *The American Economic Review*, 88(3):537–558.

Liang, Q. & Teng, J.Z. 2006. Financial development and economic growth: Evidence from China. *China Economic Review*, 17(4):395–411.

Liu, M.H. & Shrestha, K. 2008. Analysis of the long-term relationship between macroeconomic variables and the Chinese stock market using heteroskedasticity cointegration. *Managerial Finance*, 34(11):744–755.

Lucas, R. 1988. On the mechanics of economic development. *Journal of Monetary Economics*, 22(1):3–42.

Machasio, I. 2018. *Do remittance flows promote financial inclusion?* Joint Discussion Working Paper Series in Economics no. 26-2018, Marburg. Universities of Aachen, Gieben, Gottingen, Kassel, Marburg and Siegen.

Madala, G.S. & Wu, S. 1999. A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics*, Special issue: 631–652.

Mallick, H. 2012. Inflow of remittances and private investment in India. *The Singapore Economic Review*, 57(1):1–22.

Marozva, G. 2017. An empirical study of liquidity risk embedded in banks' asset liability mismatches. Unpublished doctoral thesis. Pretoria: University of South Africa.

Marx, J., Swardt, C., Smith, M.B. & Erasmus, P. 2009. *Financial management in southern Africa*. Third edition. Cape Town: Pearson Education South Africa.

Masuduzzaman, M. 2014. Workers' remittances inflow, financial development and economic growth: A study on Bangladesh. *International Journal of Economic and Finance*, 6(8):247–267.

Matthew, O.H. & Johnson, A. 2014. Impact of foreign direct investment on employment generation in Nigeria: A statistical investigation*. IOSR Journal of Business and Management*, 16(3):44–56.

Mbulawa, S. 2015. Determinants of economic growth in Southern Africa Development Community: The role of institutions. *Applied Economics and Finance*, 2(2):91–102.

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

Mesnard, A. 2001. Temporary migration and intergenerational mobility. *Economics Review*, 67(1):59–88.

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

Misati, R.N., Kamau, A. & Nassir, H. 2019. Do migrant remittances matter for financial development in Kenya? *Financial Innovation*, 5(31):1–25.

Misun, J. & Tomsik, V. 2002. Does foreign direct investment crowd in or crowd out domestic investment? *Eastern European Economics*, 40(2):38–56.

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

Mubeen, R., Nazam, M., Batool, A., Akram, S. & Ishtiaq, M. 2016. Impact of foreign remittances on financial development of Pakistan. *American Scientific Research Journal for Engineering, Technology and Sciences*, 26(4):54–65.

Muhammad, M. & Ahmed, J. 2009. Dynamic impact of remittances on economic growth: A case study of Pakistan. *Forman Journal of Economic Studies*, 5, 59–74.

Mundaca, G. 2009. Remittances, financial market development and economic growth: The case of Latin America and the Caribbean. *Review of Development Economics*, 13(2):288–303.

Naceur, S.B., Cherif, M. & Kandil, M. 2014. What drives the development of the MENA financial sector? *Borsa Istanbul Review*, 14(4):212–223.

North, D. 1990. Institutions and their consequences for economic performance. In *The limits of rationality.* Cambridge: Cambridge University Press, 383–401.

Nyamongo, E.M., Misati, R.N., Kipyegon, L. & Ndirangu, L. 2012. Remittances, financial development and economic growth in Africa. *Journal of Economics and Business*, 64(3):240–260.

Nyeadi, J.D. & Atiga, O. 2014. Remittances and economic growth: Empirical evidence from Ghana. *European Journal of Business and Management*, 6(25):142–149.

Ojapinwa, T.V. & Bashorun, O.T. 2014. Do workers' remittances promote financial development in sub-Saharan Africa countries? *International Journal of Financial Research*, 5(2):151–159.

Olayungbo, D.O. & Quadri, A. 2019. Remittances, financial development and economic growth in sub-Saharan African countries: Evidence from a PMG-ARDL approach. *Financial Innovation*, 5(9):1–25.

Olugbenga, A.A. 2012. Exchange rate volatility and stock market behaviour: The Nigerian experience. *European Journal of Business and Management*, 4(5):31–39.

Orozco, M. 2005. Markets and financial democracy: The case for remittances transfers. *Journal of Payment Systems Law*, 2:166–215.

Orozco, M. & Fedewa, R. 2005. *Leveraging efforts on remittances and financial intermediation.* Washington, DC: Inter-American Development Bank.

Oshota, S.O. & Badejo, A.A. 2015. Impact of remittances on economic growth in Nigeria: Further evidence. *Economics Bulletin*, 35(1):247–258.

Osinubi, T.S. 1998. Stock market development and long-run growth in Nigeria. Unpublished MSc dissertation. Oyo: University of Ibadan.

Ozkok, Z. 2015. Financial openness and financial development: An analysis using indices. *International Review of Applied Economics*, 29(5):620–649.

Rajan, R.G. & Zingales, L. 2003. The great reversals: The politics of financial development in the twentieth century. *Journal of Financial Economics*, 69(2):5–50.

Rana, R.H. & Tasneem, F. 2016. Does remittance inflow promote financial development in South Asia? *Asian Journal of Social Sciences and Humanities*, 5(2):86–100.

Ratha, D. 2003. Workers' remittances: An important and stable source of external development finance. In *Global development finance 2003: Striving for development and finance*. Washington, DC: The World Bank, 157-175.

Robinson, J. 1952. The generalization of the general theory: The rate of interest and other essays. London: Macmillan.

Romer, P. 1986. Increasing returns and long-run growth. *Journal of Political Economy*, 94(2):1002–1037.

Ruiz-Arranz, M. & Giuliano, P. 2005. *Remittances, financial development and growth*. Working paper no. 2005/234. Washington: International Monetary Fund.

Rybcynski, T.M. 1984. Industrial finance system in Europe, US and Japan. *Journal of Economic Behavior and Organization*, 5(3/4):275–286.

Sachs, J.D. 2003. *Institutions don't rule: Direct effects of geography on per capita income*. Working paper no. 9490. Place: National Bureau of Economic Research.

Salahuddin, M. & Gow, J. 2015. The relationship between economic growth and remittances in the presence of cross-sectional dependence. *The Journal of Developing Areas*, 49(1):207–221.

Sami, J. 2013. Remittances, banking sector development and economic growth in Fiji. *International Journal of Economics and Financial Issues*, 3(2):503–511.

Sanjeev, G., Catherine, P. & Smita, W. 2007. *Impact of remittances on poverty and financial development in sub-Saharan Africa*. Working paper no. 07/38. Washington: International Monetary Fund.

Seetanah, B., Padachi, K., Hosany, J. & Seetanah, B. 2010. *Determinants of financial development: The case of Mauritius*. Finance and Corporate Governance Conference 2011 Paper. doi: 10.2139/ssrn.1724404

Sen, A. 1999. *Development as freedom.* Oxford: Oxford University Press.

Sghaier, I.M. & Abida, Z. 2013. Foreign direct investment, financial development and economic growth: Empirical evidence from North African countries. *Journal of International and Global Economic Studies*, 6(1):1–13.

Shafqat, M.M., Ahmad, A. & Bano, S. 2014. Impact of worker remittances on economic growth of Pakistan: Analysis of Pakistan's economy. *Journal of Business Research Turk*, 6(2):6–14.

Shahbaz, M. & Rahman, M.M. 2010. Foreign capital inflows-growth nexus and the role of domestic financial sector: An ARDL co-integration approach for Pakistan. *Journal of Economic Research*, 15(3):207–231.

Shahzad, J.H., Adnan, S.A. & Raza, N. 2014. Impact of remittances on financial development in South Asia. *Review of Economic and Business Studies*, 7(2):11–29.

Shaw, E.S. 1973. *Financial deepening in economic development*. New York, NY: Oxford University Press.

Shera, A. & Meyer, D. 2013. Remittances and their impact on economic growth. *Social and Management Sciences*, 21(1):3–19.

Shleifer, A. & Vishny, R.W. 1994. Politicians and firms. *The Quarterly Journal of Economics*, 109(4):995–1025.

Sibindi, A.B. 2014. Remittances, financial development and economic growth: Empirical evidence from Lesotho. *Journal of Governance and Regulations*, 3(4):116–124.

Sobiech, I.P 2019. Remittances, finance and growth: Does financial development foster remittances and their impact on economic growth? *World Development, 113: 44-59.*

Sogut, E. 2008. The determinants of financial development and private sector credits: Evidence from panel data. Unpublished master's thesis. Ankara, Turkey: Middle East Technical University.

Solimano, A. 2003. Workers' remittances to the Andean region: Mechanisms, costs and development impact. Paper prepared for the Multilateral Investment Fund-IDB's Conference on Remittances and Development, May, Quito Ecuador.

Solow, R.M. 1956. A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1):65–94.

Soumare, I. & Tchana, F.T. 2015. Causality between FDI and financial market development: Evidence from emerging markets. *The World Bank Economic Review*, 29, Suppl. 1: 1–12.

Stead, R. 1996. *Foundation quantitative methods for business*. New Jersey: Prentice Hall.

Steinberg, J. 2011. *Real exchange rate undervaluation, financial development and growth*. Minnesota, MN: University of Minnesota & Federal Reserve Bank of Minneapolis.

Stojanov, R., Nemec, D. & Zidek, L. 2019. Evaluation of the long-term stability and impact of remittances and development aid on sustainable economic growth in developing growth. *Sustainability*, 11:1–18.

Stulz, R.M. & Williamson, R. 2003. Culture, openness, and finance. *Journal of Financial Economics*, 70(3):313–349.

Svaleryd, H. & Vlachos, J. 2002. Markets for risk and openness to trade: How are they related? *Journal of International Economics*, 57(2):369–395.

Tah, K.A. 2019. Remittances and financial access: Evidence from sub-Saharan Africa. *Cogent Economics and Finance*, 7(1):1–10.

Takyi, P.O. & Obeng, C.K. 2013. Determinants of financial development in Ghana. *International Journal of Development and Sustainability*, 2(4):2324–2336.

Tawney, R.H. 1954. *Religion and the rise of capitalism.* New York, NY: Harcourt, Brace & World.

The World Bank. 2018. *World Development Indicators*. Washington, DC.

The World Bank. 2019. *World Development Indicators*. Washington, DC.

Tolcha, T.D. & Rao, P.N. 2016. The impact of remittances on economic growth in Ethiopia. *Indian Journal of Commerce and Management Studies*, 7(2):1–15.

Townsend, M.R. 1983. Financial structure and economic activity. *American Economic Review*, 73(5):895–911.

Traigys, M. 2017. The impact of remittances on financial sector development in Lithuania. Unpublished bachelor's thesis. Vilnius: ISM University of Management and Economics.

Tsaurai, K. 2015. Personal remittances, banking sector development and economic growth in Israel: A trivariate causality test. *Corporate Ownership and Control*, 13(1):806–819.

Tsaurai, K. 2017a. Foreign direct investment-growth nexus in emerging markets: Does human capital development matter? *Acta Universitatis Danubius. Œconomica*, 13(6):174–189.

Tsaurai, K. 2017b. The impact of financial sector development on foreign direct investment in emerging markets. Unpublished doctoral thesis. Pretoria: University of South Africa.

Tsaurai, K. 2018a. An empirical study of the determinants of banking sector development in the SADC countries. *The Journal of Developing Areas*, 52(1):71–84.

Tsaurai, K. 2018b. Investigating the impact of foreign direct investment on poverty reduction efforts in Africa. *Revista Galega de Economia*, 27(2):139–154.

Tsaurai, K. 2018c. The impact of remittances on poverty alleviation in selected emerging markets. *Comparative Economic Research*, 21(2):51–68.

Tsaurai, K. & Odhiambo, N.M. 2013. Government expenditure and economic growth in Zimbabwe: An ARDL-bounds testing approach. *International Journal of Economic Policy in Emerging Economies*, 6(1):78–90.

Uddin, M.B. 2016. Can remittances impact economic development? Review from micro and macro perspectives. *IOSR Journal of Humanities and Social Science*, 21(3):97–102.

Ukeje, E.U. & Obiechina, M.E. 2013. Workers' remittances-economic growth nexus: Evidence from Nigeria, using an error correction methodology. *International Journal of Humanities and Social Science*, 3(7):212–227.

Wahid, M.N.A., Shahbaz, M. & Azim, P. 2011. Inflation and financial sector correlation: The case of Bangladesh. *International Journal of Economics and Financial Issues*, 14(2):145–152.

Weisskoff, T.E. 1972. The impact of foreign capital inflow on domestic savings in underdeveloped countries. *Journal of International Economics*, 2(1):25–38.

Williams, K. 2016. Remittances and financial development: Evidence from sub-Saharan Africa. *African Development Review*, 28(3):357–367.

Yartey, C.A. & Adjasi, C.K. 2007. *Stock market development in sub-Saharan Africa: Critical issues and challenges*. Working paper no. 07/209.23w23w. Washington: International Monetary Fund.

Yaseen, H.S. 2012. The positive and negative impact of remittances on economic growth in MENA countries. *The Journal of International Management Studies*, 7(1):7–14.

Zafar, S.Z., Siddique, M., Ahmad, H. & Khan, T.A. 2016. The economic implications of remittances on economic growth: The case study of Pakistan. *International Journal of Academic Research in Business and Social Sciences*, 6(7):215